# HUMAN, TECHNOLOGIES AND QUALITY OF EDUCATION

# CILVĒKS, TEHNOLOĢIJAS UN IZGLĪTĪBAS KVALITĀTE

## Proceedings of Scientific Papers
## Rakstu krājums

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# HUMAN, TECHNOLOGIES AND QUALITY OF EDUCATION

# 2021

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# Contents

# PREFACE

The international conference of the University of Latvia (UL) was organized for 79th time in 2021 to provide a platform where it is possible to discuss the latest discoveries in science, discuss new research ideas, share the results of various research projects and show the achievements of creative innovations. The program consisted of invited sessions, and technical workshops and discussions with eminent speakers covering a wide range of topics in science and social research.

This rich program provided all attendees with the opportunities to meet and interact with one another to exchange of thought and ideas. This volume contains the best articles from the LU 79th conference subsection "Humans, Technologies and the Quality of Education", which was a major theme for this section and as for previous conferences, there was the link between education, psychology, sports and arts, fields of sciences represented at the Faculty of Pedagogy, Psychology and Art. The ever-changing scope and rapid development of the society create new problems and questions, resulting in the real needs for sharing brilliant ideas and stimulating good awareness of this important research field, discuss the practical challenges encountered and the solutions adopted, and provide valuable ideas for future innovations.

In total, the work of the section "Humans, Technologies and Quality of Education" was organized into 10 subsections, namely – education and upbringing, educational technologies, educational management, sports, language teaching, arts and the level of interest in the subject matter of those sections was high and there were 213 suitable papers and creative innovations of faculty submitted for presentation at the conference. The volume of conference proceedings "Humans, Technologies and Quality of Education" contains 91 article which are dealing with topics about character education, psychological aspects of human, development of self-regulated learning skills, support for students with learning disabilities and readiness of teachers for inclusive education, different aspects of teacher education, for example sustainable development of teacher education, history of education in Latvia, preparation of English language teachers, aspects of voational education, parental responsibilities to ensure the education for all children, research results in sports education and well being of higher education student.

All the chapters included in this book were double-blind peer-reviewed to ensure that the materials included in this volume are high quality and are dealing with important research topics and that these materials can indeed be of interest to the community. We would like to express our gratitude and appreciation for all of the reviewers who helped us maintain the high quality of manuscripts included in the proceedings.

I am very grateful to all the authors who put their efforts into the preparation of their chapters and the members of the scientific committee who ensured the quality of the conference presentations and of the papers subsequently submitted to the proceedings.

We are also indebted to those who served as chairmen. Without their support, the conference could not have been the success that it was Special acknowledgment goes to the members of the organizing committee who all contributed greatly in making this conference of its kind a reality.

I hope that the book will contribute to the field and open up new lines of research, new ideas, and new concepts to be presented and discussed at upcoming conferences.

<div align="right">

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# A QUALITATIVE ANALYSIS OF AFFECT SIGNS IN TELECOMMUNICATION DIALOGUES

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**ABSTRACT**

There is growing evidence in the science of psychology that affective phenomena are not homogeneous and that their manifestations may vary across cultures and under the influence of contextual and demographic factors. Given that there is no clear universal expression of emotions and mood in human behavioral processes, it is necessary to continue to study the heterogeneity of the observed features in language and speech. This qualitative study analyzes the dialogues of 40 individuals in the field of telecommunications and, using a content analysis and phenomenological approach, describes lexical and non-lexical signs that could indicate features of affect. It can be observed that complete saturation has not been obtained within the framework of these data, which may indicate a wide variation of verbal and non-verbal affect features at both intra-individual and inter-individual levels and indicate different possible dialects of affect features. In addition, inter-rater reliability was determined and its results suggest that the determination of affective features may be subjective, contextual, in the absence of predefined reference criteria even in valence and activation dimensions of core affect.

***Keywords:*** *affect features, lexical features, non-lexical features, paralinguistics.*

## Introduction

Increasingly, in the field of research on affect features, there is evidence that these traits are not clearly universal and can be observed in a wide variety in the research of facial expressions, lexical units of language and sound units of speech and recognizing these features is better within one's group, culture, and specific contexts (Barrett et al., 2019; Gendron et al., 2014; Paulmann & Uskul, 2014). Analyzing only the acoustic signals, there are no clear signs that indicate signs of affect in human speech (Scherer & Bänziger, 2004). In addition, meta-analyzes point to a number of problems in this field of research, such as the vast majority of data being in English-speaking samples, based on the out of date theory of basic emotions, narrowing the search for traits to 6 or even less emotion categories

as well as data showing that there are no universal biological mechanisms in affect processes (Bąk, 2016; Clark-Polner et al., 2017). There are no consistent and constant acoustic signs associated with affective signs and there are not sufficiently reliable measurements to help measure them (Mauss & Robinson, 2009). In general, there are some universal features, for example, for some categories of emotions, but mostly there are culture-specific features that would allow to recognize the signs of affect in human speech and the categories of these traits, like emotions, can have rather fuzzed boundaries with large variation in coverage (Cowen & Keltner, 2017; Gendron et al., 2014; Paulmann & Uskul, 2014).

Research suggests that the features of emotional prosody – tone, rhythm, timbre, which is achieved through various modulations of the human voice, – allow another person to determine or recognize to a certain extent in different cultures both different categories of emotions (at least 12) and wider dimensions of affect – valence and activation (Cowen et al., 2019; Russell, 1994). Prosody has a different set of features in staged and ecologically true environments (Erickson et al., 2006; Jürgens et al., 2013) and the process of learning and expressing emotions is very closely linked to cultural factors (Matsumoto, 1989). Emotions are best recognized in one's own cultural environment (Pell et al., 2009) but also in the same national, ethnic, or regional group suggesting an in-group advantages (Elfenbein & Ambady, 2002).

The differences in the signs of affect in human speech are also related to significant features of the lexical properties of the language, for example, users of different languages in the same and different cultures may use different emotional labels (Mesquita & Walker, 2003) and languages may have different dictionaries of emotion and mood labels, words (Matsumoto & Assar, 1992). At the same time, it has been observed that speech sounds information may differ in different languages, such as intonation, rhythm with which different signs of affective state are expressed (Scherer et al., 2001). Researchers point out that, given the diversity of these signs of affect in a variety of factors, it is important to study all possible information channels and modalities, not limited to, for example, facial expressions or linguistic features (Elfenbein & Ambady, 2002; Katz & Assmann, 2019).

There are various theoretical attempts to describe the variation and heterogeneity of these observed affect features, and one of them is the Dialect Theory, which suggests that, like languages, there are different dialects, and non-verbal dialects are also seen in groups of individuals in terms of emotions, moods (Elfenbein, 2017; Tomkins & McCarter, 1964). This theory is partially supported by data showing that there are the above-mentioned advantages of in-groups in recognizing other people's signs of affect in speech parameters (Elfenbein, 2017; Elfenbein & Ambady, 2002). A rich

field of research suggests that emotions are expressed not only in a wide variety, but also using repertoires of different techniques, such as communicating various vocal cries, bursts, short non-word utterances, laughs, moans, sighs, beeps and many other ways (Laukka et al., 2016; Sauter et al., 2010; Simon-Thomas et al., 2009). Thus, it can be thought that these broad manifestations of affect signs function in society and cultures functionally as a "grammar of social interaction" (Eibl-Eibesfeldt, 2007) and researchers cannot ignore specific cultural, social and contextual factors that encourage individuals to use sometimes similar but mostly different body, voice, facial and other component repertoires (Barrett et al., 2011; Keltner et al., 2019), to provide direct and indirect information on affective states.

For example, interesting observations suggest that individuals with lower socioeconomic status are more focused on the social context, but less on contextual information, recognizing the affective states of other individuals (Kraus et al., 2010). If we look at the process of recognizing states of affect, then instead researchers observe that recognition as such cannot be an objective process (because there are no objective, nomothetic features), so the process of recognition should rather be seen as a psychological construction process in which the signal receiver (speech sounds, words, face), gives his or her own interpretation, using his or her experience and knowledge of culture, context and other variable factors (Doyle & Lindquist, 2017).

Taking into account the arguments listed above and the fact that so far no description of the observed affect features has been performed in Latvian, it is necessary to study these features with the help of a qualitative study, so to speak, observing the phenomenon from a phenomenological point of view. On the one hand, this study analyzed human speech and specific units of speech – lexical, non-lexical, as well as other audible units (prosody units), which may indicate that specific content was analyzed. Thus, it can be assumed that such a study examines how emotions are conceptualized in speech and how it can be perceived by the person listening, analyzing the speech (researcher or another listener). Such an approach could be classified as social constructivist analysis (Averill, 1985). As is well known, content analysis is a method of research that aims to draw reliable and valid conclusions from text or other content about the context in which these items are used (Krippendorff, 2004). Thus, it can be assumed that both content analysis and phenomenological approach have been used in this study, studying the experience of one person and conceptualizing possible signs of affect speech. The contribution of phenomenological research is an opportunity to obtain the widest possible description of features (O'Leary, 2017). In the process of qualitative research, historical, social and situational factors that influence the researcher's views

and work cannot and should not be avoided, thus gaining the opportunity to describe the phenomenon from as different perspectives as possible (Denzin & Lincoln, 2018). Phenomenological reflection, also called "intentional analysis," allows to conclude that "human experience is practical, embodied, affective, social, linguistic, and temporal" (Wertz, 2011).

The main question of this qualitative research is: what signs of affect (emotions, moods) can be perceived in telecommunication dialogues? In addition, the question was raised about the inter-rater reliability of various annotators for one of the features of affect – valence and activation.

## Methodology

### Participants

In this study, telecommunication dialogues between 44 customers and 3 operators (1 man, 2 women) were analyzed. Recorded conversations have been analyzed, so demographics are unknown and cannot be ascertained. Purposive sampling was used (Welman & Kruger, 1999) to identify the primary participants: telecommunications customers. Sample were based on the purpose of the research (Babbie, 1995; Greig & Taylor, 1999; Schwandt, 1997), looking for those who "have had experiences relating to the phenomenon to be researched" (Kruger, 1988). At least 10  articipants or research subjects as sufficient to reach saturation (Boyd, 2001; Creswell, 1998) for a phenomenological study. All annotations were performed by one evaluator, only a few were evaluated by five evaluators to determine inter-rater reliability.

### Data collection and analysis

Within the framework of a qualitative study, a detailed annotation of 40 dialogues (actual telephone conversations in call centers) was completed, creating 10 synchronous layers or levels. Annotations were created by Annotation Pro software (Klessa & Wydział Neofilologii (Uniwersytet im. Adama Mickiewicza ; Poznań), 2016). In these layers for each speaker were described and annotated linguistic, paralinguistic units that could have an affective meaning. Layers were created in several iterative listening sessions. After each hearing, it was decided whether to create a new layer that contains categorically different features. Gradually, the number of layers increased to 10, of which two layers (one for the client, one for the operator) was created to obtain accurate speech transcriptions, preserving the mistakes made by the speakers. Linguistic units were annotated in next two layers (one for the client, one for the operator) using a circular affect model (Barrett & Russell, 1999). Next two layers for emotion words (one for the client, one for the operator) using a Latvian thesaurus, and two layers

for paralinguistic units (speech changes, vocal bursts, laughter, breathing changes, etc.). Finally, two layers were created (one for the customer, one for the operator) in which specific linguistic units were identified that could directly, semantically indicate signs of affect. Rich descriptions of phenomena and their settings (Bentz & Shapiro, 1998; Kensit, 2000) were made. The dialogues were listened to several times and in each layer of the annotation it was written what emotions could be heard in the speech, what non-verbal features could be heard in the speech and how each segment should be assessed using circular affect dimensions – valence and activation. In addition, it was noted which words or semantic units could directly and unambiguously indicate the affective state (for example, if the client said he was desperate). There were no pre-defined categories or criteria in this process. The conceptualization of the features of the affect was done according to author's experience, feelings, with the assumption that "it could be" which corresponds more closely to the phenomenological approach. Deep subjectivity cannot be avoided by describing the observed phenomenon in this way. Such annotation of speech segment emotion labeling, affect dimension labeling and synchronous paralinguistic features could allow to find multimodal feature profiles. Besides were made observational notes, theoretical notes, methodological notes, analytical memos (Bailey, 2007). In iterative process of annotation memoing were done (Miles & Huberman, 1994) – field notes recording what the researcher hears, sees, experiences and thinks in the course of collecting and reflecting on the process. To answer the additional question of the study, inter-rater reliability determination was performed for one annotation layer – valence and activation dimensions. To determine reliability, several dialogues were annotated by 5 annotators. The annotators were told about the annotation process, but no examples of annotation were shown (blind approach). The annotators listened to specific dialogues and performed valence and activation assessments for each segment using the Annotation Pro environment, which were used in the analysis. The results are described in more detail in the subsection.

## Results

A total of 378,28 minutes of dialogue ($M = 9,46$ $SD = 3,38$) were annotated and analyzed, describing 17,638 segments. Looking at what is described in all layers, there are linguistic, paralinguistic (voice parameters), as well as other audible signs that could indicate the affective states of the clients – emotions and mood. For example, customer dissatisfaction may be manifested by a variety of verbal, nonverbal traits (see Table 1), and traits vary not only between individuals but also within a single individual's observed repertoire.

**Emotions**

Particular emotions were annotated from all segments using different emotion labels. The names of the emotions or the words denoting them were fixed based on the annotator's experience, feelings, current understanding, without pre-defined criteria. Several emotions were repeatedly marked many times, such as "dissatisfaction" "anxiety" "hope" "surprise" "guilt" "despair" "doubt" but most rarely such as "disappointment" "regret" "slight confusion" "unpleasant surprise". This may be due to the assessor's inability to find the exact word of the emotion. It can be observed that there are mostly emotions characterizing negative situations, which could be related to the content of specific conversations. In most conversations, customers are dissatisfied with some aspect of the service and want a solution.

Some emotions were described in a number of words, suggesting confusing situations when it is not really clear which is decisive or whether the emotions are blended, such as "helpless anger". Some emotions were accompanied by different adjectives that indicate their different intensity, such as "deeply unhappy," "a little anxious," "a little confused," "formally kind."

Some emotions were also presented differently, conflicting in terms of valence, such as "sad but constructive" "sad but determined" "unpleasant surprise".

With the exception of repetitive emotions and those that could be synonymous in meaning, there are 125 emotion labels that denoted different segments in telecommunication dialogues. Most of them are related to negative affect states. The following sections will look at lexical and non-lexical signs that may be related to the observed emotions.

**Lexical features**

485 lexical items (phoneme, word or phrase) were identified in all conversation segments, which could indicate the affective state or its changes. In all 40 dialogues, only 2 clients use direct, unambiguous words that indicate their affective state, such as: "I'm afraid," "I doubt." The other lexical items used do not semantically have a direct meaning that would indicate the client's affective state. Several words, phrases such as "problem" "mismatch" "difficulty" "crazy" "somehow stupid" "idiots" "beyond nowhere" could have negative meanings, but they can also imply for the affect of the individual. There are also words and phrases that are semantically positive words, such as "all the best" "you helped me a lot" "great" "funny" but with the help of intonation, prosody, their meaning is probably communicated as negative. It is often said in dialogues that the client cannot do something or does not know how to do it, it can indicate his affective state. Many lexical items have different meanings, depending on the

context of the conversation. For example, "it" can be used repeatedly, in one place with a more negative meaning, in another with a more positive meaning. The same word can be repeated in one phrase, such as "so, so, so". Similarly, the words "either" "and" "vo" "or" "it" "this" "no" "no" "if" "yes" and their quantity, combination and syntactic techniques may be of affective importance (Tab. 1).

**Table 1.** Observed various affective features in linguistic or lexical, paralinguistic (and mixed) items related to customer's dissatisfactions or complaints (in Latvian)

| Features | | |
|---|---|---|
| oiai.. ar nopūtu | nē nu | Tfuu-u-u-ūū |
| pfff.... (ar nopūtu) | nu jā | hum, hum mmm |
| elpas ieviilkšana un aizturēšana | nūūo | elpas ievilkšana ar āā |
| skaļa elpas ievilkšana caur degunu | tāām, tamm | mņu, mņe |
| klakšķis ar m | ja | Mmmhu.. |
| mņņēē | njā | hu, hu, huuu |
| ēēūūū | un un un un un | Mhmēū |
| Eee, ar zemu, lēnu frekvenci, kā rūcot rīklē | ee | mēles klakšķis ar ieelpu |
| ummm | vai vai | Elpas ievilkšana ar tsss (ar nozīmi, ka ir sāpīgi, bet neko darīt) |
| Mmmmm (rūcoši, neizpratnē) | vienkārši (seko darbības vārds) | hmm |
| Nopūta ar sākuma burtu B | tā tā tā | nnn.. nnn.. |
| mhm | jāā-a | gaisa ievilkšana caur nāsīm, nošņaukāšanās |
| aammm | vārda pirmais burts tiek ilgi vilkts (piemēram, "nnn-neiebraucu..") | Mmm-e-m. |
| Āāhh.. ar nopūtu | jā, nē nu | skaļi ievelk elpu un aiztur |
| bum, bum, bum | tātad-e (ē) | gaisa ievilkšana caur degunu |
| āāā | nu tad! | nopūta ar balsīgu izskaņu (ehme) |
| oua! | vot | mēles klakšķis |
| ēūufff (nopūta) | vot tā man | nepacietīga elpas ievilkšana ar nelielu klakšķi |
| mhm, mhm (dubultais) | tā tā tā man | oi ar nopūtu un šņākoņu beigās |

The analysis of lexical units suggests that each individual has expressions, phrases that, after repeated use, give the impression that they carry an affective meaning. Some units are for multiple people, such as "well, well," "no, no, no," but not for most.

## Non-lexical features

More than 70 different non-lexical features were observed in the annotations, which could indicate the current affective state or its fluctuations in the speaker's speech. Non-lexical signs include: breathing (inhalation, exhalation, sighs, duration, length, severity, rapidity and accompanying sounds such as snoring, moaning, muttering), articulation (blurred, stressed, syllable, stretched, fainting), speech volume (quieter, louder, sudden changes in volume), intonation (low, high, sudden changes, ascending, descending, urgent, falling, revival, sarcastic, poisonous), rhythm (steady, jerky, with sudden changes), laughter (nervous, short, with exhalations, inhalations, formal, played, natural), coughing, pausing, changes in speech rate, swallowing saliva, tongue clapping, perseverances. It can be subjectively observed in the speeches that these features can be related to different affective states, both negative and positive, and their use may differ not only between different individuals, but also in the repertoire of one individual. For example, a change in the volume of one speaker's speech in one passage of the dialogue is associated with joy because a solution has been found to his problem, but in another passage with dissatisfaction that the operator does not know the required answer. For another client, inhaling air through the nose may indicate irritation, numbness, while nasal breathing by another speaker may indicate difficulty breathing. Only the tongue clicks used by the speaker serve as a confirmation and on average may indicate a positive affect, the tapping of another speaker's tongue may indicate overt dissatisfaction.

In general, it can be observed that speakers use different repertoires of features and their use strongly depends on the dynamics of conversation, contextual factors, as well as the methods of other modalities used, which suggests that each speaker has his own specific dialect of affective expressions.

## Annotator memos

In the process of annotation it becomes clear that the evaluation of the same lexical, non-lexical units using the circular affect model and emotion words is not the same. The assessment of the core affect is broader, more ambiguous based on personal feeling, while emotions are attributed based on the pragmatic aspects of speech. In addition, possible words of emotion were named based on subjective experience rather than pre-determined

criteria. During the conceptualization, there was no evidence that such an approach would lead to a wider set of features. This probably suggests that the two rating systems are not parallel, but possibly involve differently affective processes. Observations suggest that the current mood of the annotator itself can certainly influence the ratings that can be deduced from several iterations by listening to the same passage. Repeated listening also makes it possible to observe that when you hear the same passage of speech for the first time and for the third time, it is understood slightly differently. This may be due to all the knowledge of the context of the conversation, which is not available for the first time. During the conversations, it is heard that both speakers use and rely on some specific contextual information (more often previous conversations), but this is not known and applicable in this study.

### Inter-rater reliability

Considering that the annotation process was performed by one person, inter-rater reliability determination was performed. The results suggest that there is a relatively higher consistency in customer speech ratings than in operator speech ratings (see Table 2 and 3), which could be related to speech duration (customers speak more, longer on average). In addition, it could be assumed that the determination of valence and activation is subjective in the absence of any initial reference criteria or predefined characteristics. With all this, however, it must be said that inter-rater realiability is in line with what has been studied in other languages. In general, the reliability indicators (see tables 2 and 3 in Appendix) correspond to the findings of the meta-analyzes, which show that the reliability indicators for annotating emotions via phone do not exceed 0.47 in total (Siegert et al., 2014).

**Table 2.** Intraclass correlations (ICC) of 5 annotator's core affect features in customer's speech

| Customer's speech | Single measures | CI 95% | | Average measures | CI 95% | |
|---|---|---|---|---|---|---|
| *Consistency* | | | | | | |
| Valence | .26*** | .14 | .40 | .64*** | .46 | .77 |
| Arousal | .24*** | .13 | .38 | .61*** | .42 | .75 |
| *Absolute agreement* | | | | | | |
| Valence | .25*** | .14 | .39 | .63*** | .44 | .76 |
| Arousal | .18*** | .07 | .31 | .52*** | .28 | .69 |

*** $p < .001$

**Table 3.**  Intraclass correlations (ICC) of 5 annotator's core affect features in operator's speech

| Operator's speech | Single measures | CI 95% | | Average measures | CI 95% | |
|---|---|---|---|---|---|---|
| *Consistency* | | | | | | |
| Valence | .15** | .02 | .32 | .46** | .11 | .70 |
| Arousal | .19** | .06 | .37 | .54** | .23 | .74 |
| *Absolute agreement* | | | | | | |
| Valence | .12** | .02 | .27 | .40** | .08 | .65 |
| Arousal | .13** | .03 | .28 | .42** | .12 | .66 |

$** p < .01 *** p < .001$

Another aspect that suggests inter-rater relatively low scores is that evaluators each use their own experience, their current context, and a range of other socio-demographic factors that determine what the other person's speech valence and activation may seem at that time. This is in line with the fact that there are no universal, well-known preconditions for determining affective signs, such as other people's emotions.

It is important to note that inter-rater reliability was performed for only one of all layers – core affect valence and activation dimensions. Perhaps the results would be different when comparing the ratings of other strata between different people.

## Discussion

The first qualitative analysis of the telecommunications dialogue data in Latvian allows to conclude that the observed affective features vary widely and suggest a large heterogeneity of the repertoires of affective features. Unified system of features has not been observed, at least in particular telephone conversations. The multimodal features may differ in age, gender groups, as well as vary depending on certain contextual circumstances of the conversation. In this study, the assumptions about the features of affect are based only on the subjective ideas of one annotator, which on the one hand provides an opportunity to study phenomenologically, on the other hand allows to look at a set of elements from a content analysis perspective. Inter-rater reliability analysis leads to the conclusion that there are more consistent assessments of customer speech segments (in opposite of the operator's speech assessment) that could be related to the duration of content units. At the same time, however, it should be emphasized that inter-rater reliability is performed on only one of the annotation layers – the valence and activation dimensions of the affect. The low consistency

of ratings may also indicate that each evaluator listens to different valence and activation parameters based on their unique experience.

Thus it could be inferred that emotions could be situational conceptualizations (Barsalou, 2003) which are adapted to the specific environment, situation and prepares the individual to react to sensory information in a way that corresponds to his experience (Barrett, 2006).

It is also known that there are different vocabularies of emotion words between languages, which may indicate lexical units specific to culture, language and other aspects that are used (Diller, 2011). The linguistic diversity of emotion words has given rise to the theory of Social Constructionism, which posits that emotions are not biologically but socially conditioned. This is especially important because in this study, the previous context or future intentions are often unknown and understood from the conversation. In this qualitative analysis could be concluded that there are signs in colloquial language of telecommunication's dialogues that may be related to how an individual experiences an particular situation affectively, but these signs may also have other functional meanings (e. g. communicative). It does not follow from the specific data that in dialogues are universal or similar affective features in lexical, non-lexical features. Thus it is especially important to continue to explore for idiosyncratic features and possible affective dialects in Latvian colloquial language.

There are several limitations to this study. All of the annotations were made by one person, so the observations are closely related to that person's experience, knowledge, subjective interpretations and situational factors. This is an important limitation of the study, because if there is a large, heterogeneous variation of affect features and the affect is conceptualized in a specific context based on a number of experience and situational factors, then one-person observations cannot achieve the required trait variation. Besides during the conversation, only audible signs can be observed, but no human facial expressions, body movements are visible, which would provide additional signs and observations. Although the sample is large enough for qualitative analysis, observing the heterogeneity of the broad features, it can be concluded that the observations of this type of features would require a larger content sample and more annotators, which would allow to reach a certain saturation point.

## Conclusions

Qualitative analysis allows concluding that a wide range of lexical and non-lexical or paralinguistic features can be observed in telecommunication dialogues in Latvian, which may suggest thinking about the affective states of speakers or their dynamics. The same lexical and non-lexical items

can carry positive, negative or neutral meanings. It can be concluded that there are individual profiles of affective features or affective dialects that may indicate certain idiographic traits, but there are also trait profiles that may be characteristic of certain demographic, cultural, contextual or other aspects. Low levels of inter-rater reliability suggest that features of affect are conceptualized situationally, contextually, and based on personal experience.

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# PREDICTION OF DEPRESSION BY COGNITIVE FUNCTION ABOVE CORE AFFECT

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## ABSTRACT

The association between depression and cognitive function has been observed in a large number of studies, but there are no clear and robust mechanisms for this association. The aim of this study was to investigate how cognitive functions (working memory inhibition, executive functions cognitive control and psychomotor speed) in one model predict depression above current core affect in a sample of healthy individuals. The study involved 275 adults aged between 20 and 59 years (male 32.7%) and used the depression scale from DASS-42 questionnaire, the Swedish Core affect scale, and the cognitive function task battery. The results of hierarchical regression analysis suggest that the depression is more significantly explained after controlling core affect by the working memory storage, inhibition, and executive function cognitive control processes, when performing several tasks with different valence words. This suggests that even in healthy individuals, there may be a significant association between depressive symptoms and cognitive function after controlling current core affect state which may fluctuate and not be reflected in the retrospective assessment.

**Keywords:** *core affect, depression, executive functions, working memory.*

## Introduction

Depression is one of the most common types of mental disorders (WHO, 2021); however, research into the disorder is problematic (Fried, 2015). Though significant deficits follow in depression episode are observed in at least 55 cognitive variables, for example in processing speed, visual selective attention, working memory, verbal learning and executive functions domains (Semkovska et al., 2019), there is not clear whether such deficits exist before disorder onset and what are the mechanisms of such connections (Ji et al., 2020; Scult et al., 2017; Zuckerman et al., 2018). The most common studies have shown that depressive symptoms are usually significantly associated with executive functions and working memory deficits in range $d = -0.22$ to $-0.54$ (Rock et al., 2014) and even in healthy

controls $d = -0.15$ (Knight et al., 2020). However, systematic reviews and meta-analyses suggest that these observations are heterogeneous and not consistent in all cases (Eysenck & Fajkowska, 2018; Nikolin et al., 2021).

There are studies that induce mood changes (Chepenik et al., 2007) and investigate their relationship to cognitive performance, or the impact of various demographic variables on this relationship (Bora et al., 2013), but no studies have been found to measure retrospectively assessed symptoms of depression and their relation to cognitive processes, while controlling the current mood. Depressive disorders mostly are conceptualized as mood disorders and are assessed (Schraedley et al., 2002) usually asking respondents to rate their experience in last 2 weeks. However, the performance of cognitive tasks can also be influenced by the current mental state. The current mood is an assessment of the affective state experienced and, thus, reflects a significant portion of the entire affective repertoire and may contain significant portions of affective features, including signs of disorder. Thus is vital to control in relationships between depression and cognitive functions the current affect state. Core affect is seen as a broader, more general form of affect (Ekkekakis & Petruzzello, 2002) and characterize the current mood (Västfjäll et al., 2002). Therefore, to determine which cognitive functions best predict depression it is necessary to first control the current affect in the regression model.

Such research is lacking and the role of cognitive function in depression controlling ongoing affect is not clear. In addition, studies suggest that fluctuations in daily positive and negative affect states are significant in depressive disorders (Schoevers et al., 2020), suggesting that a retrospective assessment of mood may include only some of the important information.

In previous studies, depressive disorders have been associated with low valence and low activation of the core affect (Clark & Watson, 1991; Conway et al., 2017). The core affect is conceptualized as a neurophysiological state that is closely related to the current mood (Frijda, 1994), which can be expressed through two dimensions—valence and activation (Russell, 2003). Valence and activation are typically characterized by two dimensions and can be felt simultaneously because they are statistically independent, i. e., activation is not simply a degree of valence intensity (Cummins, 2014). In two-dimensional models, core affects are organized in a circular or circumplex structure (Russell, 2003). In this structure, the two main affect dimensions or axes reflect the degrees of pleasantness–unpleasantness and arousal or activation.

In addition, it can be observed that almost all studies use the same depression measuring instruments, which are known to measure quite different depressive syndromes or symptom profiles and their overlap is very weak (Fried, 2015, 2019). The most common systematic reviews and

meta-analyzes analyzing the relationship between depression and cognitive function use the Hamilton Rating Scale for Depression, the Montgomery-Åsberg Depression Rating Scale, the Beck Depression Inventory-II, the Hamilton Depression Scale-17 (HAMD-17), which have quite different items, which measures different symptoms and their relationship to cognitive function is also quite suboptimal (Fried, 2017; Zuckerman et al., 2018).

One explanatory model of depression is the tripartite model of anxiety and depression, consisting of physiological hyperarousal, high negative affect, and low positive affect, which can conditionally distinguish between trajectories of depression and anxiety disorders.

In this study, measurements were based on a Depression Anxiety Stress Scales (DASS-42) (Lovibond & Lovibond, 1995) instrument based on a tripartite anxiety and depression model (Clark & Watson, 1991), and this scale was designed to better differentiate between the two disorders. According to the authors' description, the depression scale was based on the thoughts of clinical experts and research on other measures of depression. The authors of the DASS scale suggested that the structure of the seven symptoms in their instrument is well represented in other instruments of depression.

For measuring the cognitive functions, in this study we used several well-known neuropsychological cognitive tasks. It is known that psychomotor function is negatively correlated with depression (Huang, 2010; Liberg et al., 2013), as well verbal short- and long-term memory abilities and performance may be negatively associated with depressive disorders (Halvorsen et al., 2011). Executive functions, cognitive control in cognitive neuroscience is associated with control, executive, inhibitory dysfunction (DeLaRosa et al., 2020) which have been linked also to depression (Erickson et al., 2005). Recent theories offer the classical working memory model to be seen as an input-gate system (Gajewski et al., 2018; Kessler & Oberauer, 2015) that continues to retain current information and provides its temporary stability. Thus working memory inhibition, updating and storage functions are related with depression disorders (Zhang et al., 2018).

The aim of study to explore how depression after controlling the dimensions of core affect is related to cognitive functions.

## Method

### Participants

The study involved 275 adults aged between 20 and 59 years ($M = 37.47$, $SD = 11.13$; male 32.7%) and whose average number of tears spent in education was $M = 14.62$, $SD = 3.66$. The participants in the study were recruited through a professional selection company, which sent

out invitations to complete the demographic questionnaire electronically using age sampling criteria. Participants consisted of individuals from the convenience sample, and possible membership in the clinical group, occupation was not controlled. Participants were informed about the main goal of the study—the study of mood signs, cognitive skills. Participants were informed that participation in the study was voluntary and that they could terminate their participation at any time. Participants were invited to complete several tasks and questionnaires on the computer in person at certain times. Initially, participants completed core affect survey, then cognitive tests, finally a depression, anxiety, stress survey.

## Instruments

1. The Latvian version of the Depression Anxiety Stress Scales (DASS-42) (Lovibond & Lovibond, 1995; Vanags & Raščevska, 2017) was used to assess the symptoms of depression. The Depression Anxiety Stress Scale was developed based on a tripartite model that allows the assessment of anxiety, depression, and stress symptoms (Clark & Watson, 1991). In this model, the negative affect dimension can be seen as a basic component linking the dimensions of stress, anxiety, and depression. The original scale consists of 42 items arranged in three scales for measuring the symptoms of depression, anxiety, and stress. Only depression scale items were used in this study. The depression scale consists of 14 items that form seven subscale indicators of symptoms: dysphoria (feelings of sadness), hopelessness (difficulties in thinking about the future), devaluation of life (loss of meaning of life and feelings of the worthlessness of life), lack of interest (difficulties in become involved or losing interest in hobbies), anhedonia (difficulties in experiencing positive feelings and enjoyment), self-deprecation (feelings of self-worthlessness), and inertia (slowness and lacking in initiative).

For each symptom, two statements correspond and the average mean of them is calculated. For example, one of the anhedonia subscale items is "I couldn't seem to get any enjoyment out of the things I did" and one of the devaluations of life items is "I felt that life wasn't worthwhile". Each subjective assessment of a symptom and how often an individual observes them is rated on a scale of 0–3. The depression scale summary and seven symptom subscale indicators were used for data analysis. The factorial and validity criteria of the Latvian version of the survey have been tested before and corresponded well to the adopted psychometric standards (Vanags & Raščevska, 2017).

2. An adapted version of the Swedish core affect scale (SCAS) (Västfjäll et al., 2002) was used to measure the core affect, consisting of 12 items and four scales: valence, activation, pleasant activation/unpleasant

deactivation, and unpleasant activation/pleasant deactivation. For example, Item 2 is a scale with "Drowsiness" at one end and "Alertness" at the other. The core affect is conceptualized as a neurophysiological state that is closely related to the current mood, which can be expressed through two dimensions—valence and activation. Valence and activation are typically characterized by two dimensions and can be felt simultaneously because they are statistically independent, i. e., activation is not simply a degree of valence intensity. In two-dimensional models, core affects are organized in a circular or circumplex structure. In this structure, the two main affect dimensions or axes reflect the degrees of pleasantness–unpleasantness and arousal or activation.Only valence and activation subscales were used in this study due to their better psychometric properties. Each item was assessed on a scale from 0 to 8. The respondent chose how his or her current feelings fit into the particular dimension. The overall psychometric criteria are described in the original study (Västfjäll et al., 2002) and are appropriate.

3. For the purposes of this study, a battery of computerised cognitive tasks based on known test paradigms was developed. Based on the results of systematic analyzes (f. e. (Semkovska et al., 2019), it was intended to create such cognitive tasks that would include the same content elements – verbal stimuli, and would be related to executive functions, working memory functions and verbal short-term and long-term memory functions. Although depressive disorders are related to many cognitive processes, executive functions, verbal memory and working memory are the most common. In this study, these functions were chosen to more likely to study the relationships controlling the core affect. The reliability and validity of the tasks were tested in pilot studies and the reliability of the repeated measurements (for the finger tapping test) as well as the convergent validity met the generally accepted psychometric criteria. Results of convergent validity is discussed in results section.

a) Finger tapping test (Reitan, 1696), which is one of the most common tests to assess motor, psychomotor function. In this study, task indicators are conceptualized as psychomotor speed. This task was chosen to control motor movements, motor speed, which is a variable present in computerized tasks where hands must be actively used.

b) Visual verbal learning and recognition test (Strauss et al., 2006) which is used to measure verbal short- and long-term memory abilities. The task displays 15 pre-selected different words on the computer screen, of which 5 are negative (eg killer), 5 positive (eg rest) and 5 neutral (eg table) words. After the words are displayed, they are displayed again, in a mixed order, with the other or false 15 words (negative, neutral and positive). The participant must press

the key each time the previously memorized words appear. The results of this part of the task are conceptualized as verbal short-term memory abilities. After 30 minutes, however, these words, mixed with other foreign affective words, are displayed again and the respondent must recognize them. The results of this part of the task are conceptualized as the results of verbal long-term memory.

c) Executive functions, cognitive control was measured by Go/No Go task, which has been used in cognitive neuroscience to explore control, executive, inhibitory dysfunction (DeLaRosa et al., 2020). There were 12 stimulus words in this task: 4 negative, 4 neutral and 4 positive words, which were randomly displayed on the screen for 0.7 seconds and the participant had to quickly assess whether the displayed word was negative, neutral or positive following the instructions. Each word was repeated 6 times, so the participant had to evaluate a total of 72 words, with or without pressing a key. The results of this task are conceptualized as cognitive control, inhibition of executive functions, supervision functions.

d) N-back task was created to evaluate the simultaneous storage and processing of working memory as well as inhibition, decision making, updating functions (Kreutzer et al., 2018). In this study task, participants were shown mixed words in a mixed order, including 5 negative, 5 neutral, and 5 positive target words, as well as the same number of false affective words. Accordingly, participants had to remember the word they remembered one, two or three words back at certain times and press the appropriate key on the computer keyboard. The results of this task are conceptualized as a function of working memory storage, updating and inhibition. Separate indicators of Working memory Storage for negative, neutral, positive words, as well as Working memory Inhibition for false affective words were calculated for this test.

The reliability indicators of depression and core affect variables in this study are presented at the beginning of the results section.

## Data analysis

JASP 0.14.1 (JASP Team, 2020), G*Power (Faul et al., 2009) were used for data analysis calculating for all variables: the means, standard deviations, internal consistency, Spearman correlation coefficients. The accordance of all variables to the normal distribution was determined using excess and asymmetry criteria and the Shapiro–Wilk test. The predefined level of statistical significance was $p < .05$. To transform non-normal dependent variable – depression sum score – Box Cox transformation was made (Box & Cox, 1964).

We performed a power analysis, determining that the smallest effect of interest for the regression model is $d = .15$, based on previous studies (Rock et al., 2014). Given that the regression model includes 26 independent variables and $\alpha$ error probability $= .05$, the minimum sample size should be at least $n = 225$, which is larger in this study.

## Results

The internal consistency for the depression scale was $\alpha = .94$, and, for the SCAS scales, valence $\alpha = .89$ and activation $\alpha = .83$ (see Table 1 for descriptive statistics of all study variables). The test-retest reliability test was performed only for the Finger tapping test in a sample N $= 42$ and the results indicate strong correlation between repeated measurements (right hand $r = .87$ and left hand $r = .90$). As can be seen in the Table 1, the internal consistency indices for cognitive tasks range from $\alpha = .58$ to .80, indicating that the task items correspond mostly from satisfactory to good reliability. Internal consistency indicators were calculated only for the target stimulus scales, as the false answers rates have too little variation to reliably calculate the levels of reliability. To answer the research question, a correlation analysis of all variables was performed (see Table 3 in the Appendix for a full correlation matrix) to determine the degree of independence of the variables and their compliance with the requirements of the regression equation. Looking at the interrelationships of the variables, it can be concluded that core affect valence and activation are positively correlated positively ($r_s = .56$), but it is known from previous studies (Västfjäll et al., 2002) that although these dimensions are related, they are conceptualized as two different constructs of core affect.

The inter-correlations indicate that the psychomotor speed indicators for the right and left hand are closely correlated ($r_s = .76$ $p < .001$), thus their total calculated variable was used in further calculations. Although the index of positive words of executive functions, cognitive control correlates quite closely with the index of negative words ($r_s = .59$ $p < .001$), not exceeding the conventional threshold of $r_s = .60$, their separate indicators were used in further calculations. In turn, the working memory storage indicators for negative, neutral and positive words correlate closely with each other, above $r_s = .70$, thus in their further calculations their total indicator – working memory storage variable was used. Similarly, indicators of working memory false negative, neutral and positive words form a relationship of more than0.70, so they were combined into one indicator – working memory affective false words, which can be conceptualized as a working memory inhibition indicator.

**Table 1.** Descriptive statistics for the study variables

| Variable | Min | Max | M | SD | Mdn | S-W test | α |
|---|---|---|---|---|---|---|---|
| Depression symptom sum score | 0.00 | 27.00 | 8.88 | 6.85 | 7.00 | .92*** | .94 |
| Valence | 1.00 | 9.00 | 6.07 | 1.67 | 6.33 | .97*** | .89 |
| Activation | 1.67 | 9.00 | 5.39 | 1.71 | 5.33 | .98*** | .83 |
| Psychomotor speed, right hand | 21.00 | 81.67 | 56.40 | 9.90 | 57.33 | .99** | |
| Psychomotor speed, left hand | 18.67 | 87.00 | 51.48 | 9.58 | 52.00 | .99 | |
| Shotterm memory, negative words | 0.00 | 5.00 | 4.23 | 1.03 | 5.00 | .75*** | .64 |
| Shortterm memory, neutral words | 1.00 | 5.00 | 4.40 | 0.82 | 5.00 | .73*** | .61 |
| Shortterm memory, positive words | 0.00 | 5.00 | 3.85 | 1.12 | 4.00 | .85*** | .70 |
| Shortterm memory, false words | 0.00 | 10.00 | 1.25 | 1.63 | 1.00 | .75*** | |
| Longterm memory, negative words | 0.00 | 5.00 | 3.41 | 1.40 | 4.00 | .88*** | .62 |
| Longterm memory, neutral words | 0.00 | 5.00 | 3.86 | 1.07 | 4.00 | .86*** | .59 |
| Longterm memory, positive words | 0.00 | 5.00 | 3.64 | 1.16 | 4.00 | .89*** | .60 |
| Longterm memory, false words | 0.00 | 12.00 | 1.99 | 2.15 | 1.50 | .81*** | |
| Executive functions, Cognitive control, Negative words | 0.00 | 16.00 | 12.48 | 3.06 | 13.00 | .88*** | .61 |
| Executive functions, Cognitive control, Neutral words | 0.00 | 16.00 | 6.46 | 3.05 | 7.00 | .99** | .58 |
| Executive functions, Cognitive control, Positive words | 2.00 | 16.00 | 9.64 | 3.43 | 10.00 | .97*** | .61 |
| Working memory, Storage, Negative words | 0.00 | 6.00 | 3.13 | 1.80 | 3.00 | .91*** | .72 |
| Working memory, Storage, Neutral words | 0.00 | 4.00 | 2.14 | 1.11 | 2.00 | .90*** | .60 |
| Working memory, Storage, Positive words | 0.00 | 6.00 | 3.15 | 2.07 | 4.00 | .89*** | .80 |
| Working memory, Inhibition, False negative words | 0.00 | 6.00 | 2.75 | 1.77 | 2.00 | .91*** | |
| Working memory, Inhibition, False neutral words | 0.00 | 4.00 | 1.81 | 1.09 | 2.00 | .90*** | |
| Working memory, Inhibition, False positive words | 0.00 | 6.00 | 2.71 | 2.07 | 2.00 | .88*** | |
| Age | 20.00 | 59.00 | 37.47 | 11.13 | 37.00 | .95*** | |
| Education | 8.00 | 29.00 | 14.62 | 3.66 | 14.00 | .91*** | |

$* p < .05, ** p < .01, *** p < .001.$
Note: Test-retest reliability was calculated for psychomotor speed indicators.

From the point of view of convergent validity, short-term and long-term memory scores are weakly and moderately ($r_s$ = .13; .46) correlated with long-term memory scores, cognitive control positive and negative word scores ($r_s$ = .23; .27), and weakly with working memory storage scores ($r_s$ = .12; .16) and negatively with working memory false words ($r_s$ = −.12 −.14). Interestingly, the cognitive control negative word index correlates with the working memory storage index ($r_s$ = .20; .26), but the cognitive control positive words correlate only with the working memory storage negative word index ($r_s$ = .15). In general, these correlations indicate that test scores form a logical relationship with each other and can serve as a partial basis for the validity of these tasks.

As shown in Table 3, the depression index is negatively correlated with the core affect valences ($r_s$ = 0.47) and activation ($r_s$ = −.32). The depression index consists of a negative relationship with the short-term memory neutral words index ($r_s$ = −.12), a positive relationship with the working memory neutral words index ($r_s$ = .24) and a negative relationship with the working memory false neutral words index ($r_s$ = −.23).

To analyze the explained variation with core affect dimensions, cognitive functions, hierarchical regression analysis was performed with the depression sum score as dependent variable. In the first and the second step of analysis, core affect valence and activation were inserted in regression equation to control for other next cognitive functions variables. Cognitive functions variables were entered in stepwise order because there is a lack of clear assumptions about the sequence of cognitive functions and rather their parallel interactions can be accepted.

The hierarchical multiple regression revealed that at step one core affect valence contributed significantly to the regression model, $F (1, 274)$ = 34.51,67, $p$ < .001 and accounted for 22% of the variation in depression. In step two were added Core affect Activation, which did not make a statistically significant contribution, but the explained variance increased to 24%. Each of next steps made significant changes in $R^2_{adj}$ respectively in step three to 27% Core Affect and Working memory Inhibition for affective false words, in step four to 29% Core Affect, Working memory Storage, Working memory Inhibition for affective false words. In last, fifth step core affect, Working memory Storage, Working memory Inhibition for false affective words, and Executive functions cognitive control for positive words significantly explained the depression sum score $F (5,270)$ = 11.89, $p$ < .001, and the total variation was $R^2_{adj}$ = .31 (see Table 2). In each of the steps, core affect activation was not statistically significant variable.

**Table 2.** Hierarchical regression for core affect, cognitive functions predicting depression

|   |   | $B$ | CI 95% | SE | $\beta$ | $R^2_{adj}$ | F | t |
|---|---|---|---|---|---|---|---|---|
| 1 | (Constant) | 21.12 | 16.92; 25.32 | 2.12 | | .22 | 34.51*** | 9.96*** |
|   | Core affect, Valence | -2.00 | -2.68; -1.33 | 0.34 | -.48 | | | -5.88*** |
| 2 | (Constant) | 22.94 | 18.34; 27.55 | 2.33 | | .24 | 19.27*** | 9.87*** |
|   | Core affect, Valence | -1.68 | -2.44; -0.92 | 0.38 | -.40 | | | -4.40*** |
|   | Core affect, Activation | -0.71 | -1.47; 0.06 | 0.39 | -.17 | | | -1.83 |
| 3 | (Constant) | 19.26 | 13.86; 24.66 | 2.73 | | .27 | 15.39*** | 7.06*** |
|   | Core affect, Valence | -1.60 | -2.34; -0.85 | 0.38 | -.38 | | | -4.25*** |
|   | Core affect, Activation | -0.61 | -1.37; 0.14 | 0.38 | -.14 | | | -1.61 |
|   | WM, Inhibition, Affective false words | 0.35 | 0.07; 0.63 | 0.14 | .20 | | | 2.45* |
| 4 | (Constant) | 20.36 | 14.94; 25.76 | 2.74 | | .29 | 13.03*** | 7.44*** |
|   | Core affect, Valence | -1.55 | -2.29; -0.82 | 0.37 | -.37 | | | -4.19*** |
|   | Core affect, Activation | -0.48 | -1.23; 0.27 | 0.38 | -.11 | | | -1.26 |
|   | WM, Storage | 0.39 | 0.11; 0.67 | 0.14 | .22 | | | 2.75** |
|   | WM, Inhibition, Affective false words | -0.29 | -0.55; -0.02 | 0.13 | -.17 | | | -2.13* |
| 5 | (Constant) | 23.12 | 17.29; 28.95 | 2.94 | | .31 | 11.89*** | 7.86*** |
|   | Core affect, Valence | -1.33 | -2.07; -0.58 | 0.38 | -.32 | | | -3.53*** |
|   | Core affect, Activation | -0.54 | -1.28; 0.21 | 0.37 | -.13 | | | -1.43 |
|   | WM, Storage | 0.42 | 0.15; 0.69 | 0.14 | .24 | | | 3.03** |
|   | WM, Inhibition, Affective false words | -0.33 | -0.59; -0.67 | 0.13 | -.20 | | | -2.48* |
|   | EF, Cognitive control, Positive words | -0.39 | -0.73; -0.06 | 0.17 | -.18 | | | -2.31* |

*$p < .05$, ** $p < .01$, *** $p < .001$.
Note: $\beta$—regression coefficient (unstandardized); CI 95%—confidence interval; WM – working memory; EF – executive functions.

A significant part of the variation is explained in first step of hierarchical regression by the Core affect valence factor ($\beta = -.48$) and in step two with Activation ($\beta = -.17$) explained 24%. But Activation is not statistically significant most likely because one is closely correlated with Valence. Other cognitive functions – Working memory Storage ($\beta = .24$), WM, Inhibition for affective false words ($\beta = -.20$) and Executive functions

Cognitive control for positive words ($\beta = -.18$) explained additional 9% of variation. Neither age, education, nor Short-term memory, Long-term memory and Executive functions Cognitive control for neutral and negative words, and Psychomotor speed made a statistically significant contribution to the regression model.

The Durbin–Watson test, which helps to determine whether the residuals of an equation are independent, led to the conclusion that there were statistically significant positive autocorrelations between residuals of 1,47. This indicates the probability of errors in the explained variation and the inter-correlations of the residuals (Montgomery et al., 2012). The collinearity conditions correspond to the accepted ones with VIF (variance inflation factor) 1.02–1.21 and tolerance 0.82–0.97.

The following covariates were included in the model but removed in the stepwise regression: Short term memory for Negative, Positive, Neutral words, False words; Long term memory for Negative, Positive, Neutral words, False words; Executive functions Cognitive control for neutral, negative words; Psychomotor speed; Age; Education.

## Discussion

To find out how depressive symptoms in healthy sample are related to cognitive functions controlling the core affect, we performed hierarchical regression model analysis. Regression analysis allowed us to observe that depression symptoms are best explained mostly by the core affect valence factor or current mood state and after controlling both of core affect dimensions (24% variance) the depression is explained by working memory inhibition for affective words, working memory storage factor, and executive functions cognitive control for positive words (31% of total model variance). Neither age, education, nor short-term, long-term memory factors made a significant contribution.

Interestingly that we observed although the number of errors in remembering false affective words is elevated at hightened levels of depressive symptoms, the working memory storage index is also positive, which may suggest that working memory capacity may not be impaired in the presence of elevated symptoms of mood disorders. However, from the cognitive functions the most significant proportion is explained by the factors of working memory. Previous studies also show data, suggesting that both normative healthy individuals and individuals with depressive disorders show deficiencies in various work memory and executive functions, despite the valence of stimulus words, and these relationships are not robust (Zhang et al., 2018) and findings on cognitive biases in depression and anxiety are not consistent (Eysenck & Fajkowska, 2018).

Thus, we can observe in this sample, that after controlling valence of current state of mood in moment of doing cognitive tasks, the most related and thus probably impaired functions due to highttened depression are working memories inhibition function for affective verbal intrusions, and executive functions cognitive control for positive verbal information, however, working memory capacity may be relatively intact. This suggests that we can observe an input-gate mechanism that may remain ineffective with increased depressive symptoms and more frequent errors, deviations from optimal performance (Gajewski et al., 2018; Kessler & Oberauer, 2015). Overall, this is the first study to examine the relationship between depression and cognitive function by controlling the current mood state or core affect dimensions. As is known, individuals with depressive disorders have significant fluctuations in current mood, affect levels (Schoevers et al., 2020), and thus retrospective assessment of symptoms may not include all relevant information. The results suggest that a significant level of depressive symptoms is explained by current mood levels and only then could cognitive impairment be considered. The results obtained in this study may suggest that the effect sizes obtained in previous studies, when measuring the association of cognitive function with depression, may be much smaller if the current mood is controlled. An additional novelty in this study is that depression was measured with a tripartite model instrument DASS-42 that better differentiates depressive symptoms from anxiety and distress symptoms (Lovibond & Lovibond, 1995).

The disadvantage of this study is the overall relatively small sample, as well as the sample of normatively healthy individuals, which does not allow to conclude about the true relationships of cognitive function with depressive symptoms. In addition, only age, level of education, but none of the other dozens of factors that affect cognitive function, such as previous night's sleep, quality, computer experience, current illness, medications, and food, were monitored in this study.

## Conclusions

The results of the study lead to the conclusion that the symptoms of depression in normatively healthy individuals after controlling current affective state (core affect) are significantly predicted by deficits of working memory inhibition and executive functions cognitive control factors. This point to significant interrelationships and the important role of inhibition, cognitive control, working memory storage functions in these mutual relations between current affective state, possible affective disturbances. These relationships need to be investigated in the future at the level of individual symptoms as well as in samples of clinical disorders.

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APPENDIX. Table 3. Full correlation table for study variables

| Variable | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. Depression | — | | | | | | | | | | | | | | | | | | | | | | |
| 2. Core Affect, Valence | -.47*** | — | | | | | | | | | | | | | | | | | | | | | |
| 3. Core affect. Activation | -.32*** | 0.59*** | — | | | | | | | | | | | | | | | | | | | | |
| 4. Psychomotor speed. Right hand | -.07 | -.00 | -.08 | — | | | | | | | | | | | | | | | | | | | |
| 5. Psychomotor speed. Left hand | -.09 | -.07 | -.11 | .76*** | — | | | | | | | | | | | | | | | | | | |
| 6. SM. Negative words | -.01 | .03 | -.07 | .07 | -.02 | — | | | | | | | | | | | | | | | | | |
| 7. SM. Neutral words | -.12* | -.00 | -.07 | .06 | .06 | .30*** | — | | | | | | | | | | | | | | | | |
| 8. SM. Positive words | .03 | -.07 | -.07 | .05 | .02 | .28*** | .39*** | — | | | | | | | | | | | | | | | |
| 9. SM. False words | -.06 | .01 | -.01 | -.11 | -.08 | -.05 | -.06 | -.01 | — | | | | | | | | | | | | | | |
| 10. LM. negative words | -.08 | .03 | .04 | .08 | .04 | .41*** | .13* | .20*** | .06 | — | | | | | | | | | | | | | |
| 11. LM. neutral words | -.05 | .01 | -.02 | .14* | .08 | .22*** | .40*** | .27*** | .11 | .40*** | — | | | | | | | | | | | | |
| 12. LM. positive words | -.06 | .04 | .05 | -.01 | .03 | .17** | .22*** | .46*** | .13* | .30*** | .33*** | — | | | | | | | | | | | |

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13. LM. False words | -.05 | -.02 | .09 | -.19** | -.16** | -.08 | -.11 | .03 | .45*** | .10 | .02 | .10 | — | | | | | | | | | | | |
| 14. EF. Cognitive control. Negative words | -.07 | -.01 | -.12* | .34*** | .24*** | .10 | .27*** | .23*** | -.06 | .17** | .23*** | .19** | -.20*** | — | | | | | | | | | | |
| 15. EF. Cognitive control. Neutral words | -.04 | .03 | -.00 | .18** | .08 | .06 | .03 | .09 | -.01 | .15* | .10 | .16** | -.01 | .36*** | — | | | | | | | | | |
| 16. EF. Cognitive control. Positive words | -.11 | .04 | -.07 | .27*** | .21*** | .09 | .14* | .14* | -.08 | .13* | .17** | .12* | -.18* | .59*** | .14* | — | | | | | | | | |
| 17. WM. Storage. Negative words | .09 | -.04 | -.11 | .27*** | .24*** | .14* | .16** | .07 | -.18** | .04 | .01 | -.10 | -.23*** | .26*** | .08 | .15** | — | | | | | | | |
| 18. WM. Storage. Neutral words | .24*** | -.10 | -.14* | .27*** | .21*** | .13* | .14* | .12* | -.16** | .01 | -.01 | -.02 | -.23*** | .20** | .05 | .11 | .75*** | — | | | | | | |
| 19. WM. Storage. Positive words | .10 | -.04 | -.11 | .28*** | .21*** | .09 | .16** | .10 | -.17** | .03 | .00 | -.04 | -.18* | .20*** | .05 | .09 | .80*** | .74*** | — | | | | | |
| 20. WM. False negative words | -.10 | .04 | .09 | -.28*** | -.24*** | -.14* | -.15* | -.07 | .16** | -.04 | .00 | .10 | .22** | -.25*** | -.08 | -.13* | -.18*** | -.04 | -.09 | — | | | | |
| 21. WM. False neutral words | -.23*** | .09 | .11 | -.25*** | -.19** | -.13* | -.13* | -.11 | .17** | -.01 | .02 | .02 | .23*** | -.19** | -.03 | -.11 | -.12** | -.19** | -.12 | .74*** | — | | | |
| 22. WM. False positive words | -.12 | .05 | .10 | -.27*** | -.20** | -.11 | -.18** | -.12* | .16** | -.04 | .00 | .04 | .16** | -.19** | -.02 | -.09 | -.03 | -.05 | -.10 | .80*** | .73*** | — | | |
| 23. Age | -.08 | .07 | .25*** | -.22*** | -.16** | -.19** | -.14* | -.17** | 0.00 | -.16** | -.06 | -.10 | .16** | -.28*** | -.15* | .32*** | -.25*** | -.27*** | -.22** | .25*** | .24*** | .21*** | — | |
| 24. Education | -.09 | .07 | -.00 | .13* | .07 | .08 | .05 | -.02 | 0.02 | 0.06 | 0.00 | 0.02 | -.13* | 0.11 | -.02 | 0.12 | 0.09 | 0.06 | 0.07 | -.09 | -.08 | -.05 | 0.21*** | -0.09 |

* *p* < .05. ** *p* < .01. *** *p* < .00

# CHANGES IN TEACHERS AND STUDENTS' PERCEIVED SCHOOL CLIMATE THROUGH THE IMPLEMENTATION OF THE SOCIAL EMOTIONAL LEARNING PROGRAM: A LONGITUDINAL STUDY

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## ABSTRACT

The aim of the study is to investigate changes in teachers' perceived school climate in the first and second years of implementing the social emotional learning (SEL) program in schools, as well as to investigate differences in 3rd- to 6th-grade students' perceived school climate. In the two years of this study, 64 teachers participated in the SEL program alongside a control group. In the first year, teachers received training on the implementation of school-level SEL and received ready-made lesson plans for the direct practice of social and emotional skills in the classroom. In the second year, the SEL teachers were divided into two subgroups, where 32 teachers received additional supervision during the implementation. In the first year, 138 students from 3rd to 6th grade participated in the SEL program alongside a control group. In the second year of SEL implementation, 223 3rd to 6th grade students participated in the program where teachers received regular supervision, and 244 students continued the SEL implementation process without changes. Georgia School Climate Survey Suite personnel, elementary and middle/high school forms were used to measure teachers' and students' perceived school climate. The results show that in both the first and second years, overall perceived school climate results were higher for both SEL teacher groups compared to the control teacher group. After the first year, students in grades 5 to 6 showed better mental health results. In the second year, only those 5th to 6th grade students whose teachers received regular supervision showed better mental health results. Starting from the second SEL year, both SEL 3rd- to 4th-grade student groups showed higher perceived school climate compared to the control group. The results did not change during the second year, which indicates that the Latvian SEL primarily improves mental health results for 5th- to 6th-grade students and overall perceived school climate for 3rd to 4th-grade students starting from the second SEL year. Ongoing support for teachers also stimulates better outcomes in mental health.

***Keywords:*** *gender, school climate, social emotional learning, students, teachers.*

## Introduction

There is a general understanding that the development of 21st-century skills should be addressed and supported in the educational process, as this will help the individual to function successfully in school, society and work environments (Jones et al., 2019). The ability to be aware of oneself and one's emotions, to regulate emotions, and to solve problems falls under the umbrella term "social emotional competence," which helps people to be successful in all areas of life (Durlak et al., 2011; Greenberg et al., 2017). The development of social emotional competence takes place in different environments and in different situations throughout life, and this process is called social emotional learning, or SEL (Collaborative for Academic, Social, and Emotional Learning [CASEL], 2003). The word "learning" is deliberately included in the term to emphasize that these skills and attitudes are formed as a process that takes place in many settings, including schools. Students spend a significant part of their day at school, and therefore school has a special role in helping develop this competence (Weissberg et al., 2015). Research shows that not all children have sufficient social emotional competence and positive behavioral skills when they start school (Gilliam & Shahar, 2006).

The leading SEL model is offered by CASEL, which defines it as a process in which various skills, knowledge and attitudes are acquired and applied to form a healthy identity, deal with one's emotions, achieve significant goals, be empathetic to others, and be able to build and maintain supportive relationships with others. This learning process is part of one's education, which promotes academic equity, helps to establish trusting relationships between school, family, students and society, and provides meaningful learning content and instructions as well as evaluations of the learning process. SEL also helps to address inequalities and build a school and surrounding environment in which everyone can thrive (CASEL, 2020).

The way in which social emotional competence is most often promoted is through the implementation of SEL programs in schools. These programs promote the development of cognitive, affective and behavioral competencies (Durlak et al., 2011). Most outcomes of an SEL program are positively affected by four aspects (Schonert-Reichl, 2011; Mahoney et al., 2020).

First, the program should directly ensure the development of students' social emotional competence by defining specific skills to be developed and practiced in the classroom in a sequential, age-appropriate manner, where students take an active part in learning (Durlak et al., 2011). Direct skill development is typically related to the five core skill model offered by CASEL (Weissberg et al., 2015).

Second, programs should ensure the development of teachers' social emotional skills and provide ongoing learning opportunities on how to provide a positive learning context, how to use teaching instructions to develop the most positive student behaviors and attitudes and relationships, and how to implement SEL in the best possible way (O'Conner et al., 2017; Mahoney et al., 2020). Regular supportive supervision that is directly related to the SEL teaching experience helps teachers implement the program with fidelity and effectively address SEL issues in the classroom (Denham et al., 2012).

The third important aspect is a wide implementation of the program, from the classroom and school level to the involvement of parents and society (Weissberg et al., 2015). The fourth aspect is to evaluate the outcomes of the program regularly.

Research shows that in cases where SEL programs are well-implemented in schools, positive outcomes can be achieved shortly thereafter, and the risk of problem development can be reduced at the pre-school, primary and secondary school levels; positive outcomes such as better mental health can also be observed in the long term (Weissberg et al., 2015). The positive benefits of SEL programs are better academic performance, better interpersonal relationships, and reduced emotional regulation problems (Weaver & Wilding, 2013). After the implementation of SEL, the general climate in the classroom also improves (Durlak et al., 2011).

## School climate

Current research shows that the school climate and SEL are inseparable processes that affect each other (Osher & Berg, 2017). A supportive and safe school climate promotes the development of a student's social emotional skills and vice versa – more socially emotionally competent students and teachers promote a more favorable school climate (Barbarasch & Elias, 2009).

The school climate is an indicator of the quality of school life based on the daily school experiences of students, parents and teachers (Thapa et al., 2013). It reflects common social norms, values and goals, the quality of relationships, teaching and learning experiences, prosocial behavior, and the organizational school environment (National School Climate Council, 2007). A more positive school climate is associated with lower non-attendance and exclusion from school and greater attachment to school, as well as greater motivation and involvement in the learning process on the part of students, and thus academic achievements are also higher (Reyes et al., 2012). It is also associated with an emotional and physical sense of security at school, positive personal development, and healthy relationships with peers and teachers (Thapa et al., 2013). In Latvia, better perceived security

and connectedness to teachers and peers are associated with better mental health outcomes for students (La Salle et al., 2021).

### Latvian SEL program

The Latvian SEL program, called "Social-emotional learning. Lesson plans for grades 1–12" (Martinsone et al., 2021), is a universal and preventive school-wide program from 1st to 12th grade. It consists of five topics, set according to five SEL skill groups – understanding yourself, managing yourself, understanding others, building relationships, and making responsible decisions. There are two age-appropriate 40-minute lessons for each topic, giving a total of 10 practical SEL lessons per academic year. The SEL program has a plan for each lesson and thus follows a unified structure.

The SEL program has two main goals: 1) to directly develop social emotional skills and 2) to promote a holistic approach to lesson management, setting an important goal for students by providing positive, growth-oriented feedback during lessons, reflecting on what knowledge and skills have been acquired, and ensuring students' self-assessment of what they have learned.

This study suggests that although it is clear that the school climate and SEL are interlinked, there needs to be an investigation to obtain a more detailed understanding of the relationship, given that the school climate is a multidimensional construct (Osher & Berg, 2017).

The support provided to teachers affects the strategies they use in the classroom and the fidelity of SEL implementation (O'Conner et al., 2017). We argue that more support for teachers should create a more positive classroom climate, which has been suggested by other researchers (Schonert-Reichl, 2017) but has not been investigated directly.

This study hypothesizes that in the first and second years of its implementation, teachers and students who participate in the SEL program will show a higher perceived school climate compared to the control group. In the second year, teachers and students who received regular SEL supervision will score higher in the school climate survey than those who did not, and no change will be observed in the control group.

## Method

### *Participants*

During the two years of the SEL program's implementation, 90 teachers participated in the research. In the first year, there were a total of 64 SEL schoolteachers and 26 control schoolteachers. In the second year, the 64 SEL teachers were divided into two subgroups: 32 received regular supervision (SuperSEL group), and 32 continued the implementation

of SEL without change (SEL basic group). The 26 teachers in the control group remained unchanged. In addition, in the first year, there were 271 participating students from grades 3 to 6, 138 of whom were in the SEL group and 133 in the control group. In the second year, 641 students participated, of whom 223 were students from the SuperSEL group, 244 were students from the SEL basic group, and 174 were control group students.

### Procedure

In the first year (school year 2017/2018), data were collected as part of a cross-cultural initiative to adapt the Georgia School Climate Survey Suite (GSCS Suite; La Salle et al., 2016) to the Latvian context. SEL training was given in seven Latvian schools. A two-hour on-site workshop explained what the SEL program is and how to implement it. Teachers acquired in-depth knowledge on SEL during 16 hours of training on self-directed learning and social emotional learning, provided by the School2030 project. During this first year, schools were divided into two groups: schools that started implementing the SEL program and control schools, which validated the school climate survey but did not implement the SEL program. In the second year (school year 2018/2019), the total sample of 64 SEL teachers was randomly divided into two subsamples. 32 teachers received regular on-site supervision (SuperSEL group) led by the first author of this study once every six weeks. In total, four supervisions were provided for each SuperSEL school. During each 2-hour supervision, questions on how best to exercise social emotional competence both in the classroom and outside, how to form more positive relationships, and how to overcome obstacles regarding the implementation of the program were discussed. The remaining 32 teachers continued to implement SEL without changes (SEL basic group). The control group schools remained the same during both years. Data were collected from December 2017 to June 2019.

### Measures

The GSCS Suite's forms for school personnel, elementary students (3rd- and 4th-grade), and middle/high school students (5th- and 6th-grade) were used (La Salle, McIntosh & Eliason, 2016, adapted in Latvian by B. Martinsone). Both sets of student forms include demographic questions regarding grade and gender. The elementary form has 11 statements on overall perceived school climate, and the middle/high school form has 36 statements about different aspects of the school climate (school connectedness, character, physical environment, adult social support, peer social support, cultural acceptance, order and discipline, and safety), with eight additional questions on mental health. The school personnel forms measured different aspects of the school climate (school connectedness, structure for

learning, school safety, physical environment, peer/adult relations, and parental involvement).

### Data analysis

In the first year of the SEL program's implementation, in order to determine the differences in perceived school climate between the SEL teacher and control teacher groups and SEL students and the control student group, a non-parametrical statistical method, the *Mann–Whitney U test*, was used. In the second year, when differences were determined between three groups of teachers and students, a non-parametrical method, the *Kruskal–Wallis H test*, was used with a post-hoc *Mann–Whitney U test* with Bonferroni correction. In non-parametrical statistics, the one possibility to control for changes in time is to calculate a subtraction between the latter measurement and the first measurement, and those subtraction results are then used to compare the groups. This method was used in this research to control for changes in time. Statistical analyses were conducted using SPSS version 22.

## Results

To test the hypothesis that there are statistically significant differences between teacher groups in perceived school climate measurements controlling for time between the end of the first year of SEL implementation (measurement no. 2) and the end of the second year of SEL implementation (measurement no. 3), the differences between the second and first measurements and between the third and first measurements were calculated, and these difference measures were compared between teacher groups (see Table 1).

The hypothesis that teachers who implemented the SEL program would show a higher perceived school climate was confirmed. At the end of the first year, there are statistically significant differences between SEL teacher group subtraction results (Md$n$ = 1) and control group subtraction results (Md$n$ = 0) in the overall perceived school climate U(N$_{SEM}$54,N$_{control}$23) = 449.5, z = –1.94, p = 0.053. There are also statistically significant differences between the SEL and control groups' subtraction results on the school climate subscale *physical environment* U = 521.5, z = –2.84, p = 0.004, with the SEL group showing higher results (Md$n$ = 0) than the control teacher group (Md$n$ = 0).

The hypothesis that teachers who received regular supervision in the second year of the SEL program would score higher in the school climate survey than those who implemented the SEL program without regular supervision was partly confirmed.

**Table 1.** Differences in perceived school climate descriptive and concluding statistics between 2$^{nd}$ and 1st measurements for SEL total teacher and control teacher group and differences between 3$^{rd}$ and 1$^{st}$ measurements for two SEL teacher subgroups (SuperSEL, SEL basic training) and control teacher groups.

| School climate | n | Total SEL | n | Control | n | SuperSEL | n | SEL basic | H/U |
|---|---|---|---|---|---|---|---|---|---|
| School climate$_{sum}$ 2-1 | 54 | 2.7(7.32) | 23 | 0 (0.56) | | | | | $^U$449.5* |
| School climate$_{sum}$ 3-1 | | | 23 | -3 (4.54) | 30 | 3.1 (6.92) | 24 | 3.6 (4.83) | $^H$20.516*** |
| Staff connectedness 2-1 | 60 | 0.4 (2.42) | 23 | 0 (0.66) | | | | | $^U$622.5 |
| Staff connectednes 3-1 | | | 23 | -1 (1.85) | 31 | 1 (2.3) | 30 | -0.1(1.38) | $^H$13.820** |
| Structure for learning 2-1 | 62 | 0.5 (2.29) | 26 | 0 (0.77) | | | | | $^U$702 |
| Structure for learning 3-1 | | | 26 | -1.2 (2) | 32 | 0.6 (1.62) | 30 | 0.7(1.82) | $^H$4.975 |
| School safety 2-1 | 60 | -0.2 (1.85) | 26 | -0.4 (0.75) | | | | | $^U$656.5 |
| School safety 3-1 | | | 26 | 0.4 (1.35) | 31 | 0.7 (1.62) | 29 | 0.2 (1.42) | $^H$0.444 |
| Physical environment 2-1 | 63 | 0.5 (1.1) | 26 | -0.2 (0.9) | | | | | $^U$521.5** |
| Physical environment 3-1 | | | 26 | 0 (1.37) | 32 | -0.3 (2.14) | 31 | 0 (1.13) | $^H$0.271 |
| Peer/adult relations 2-1 | 60 | 1.2 (2.64) | 26 | 0.34 (0.68) | | | | | $^U$592.5 |
| Peer/adult relations 3-1 | | | 26 | -0.5 (2.99) | 31 | 1.3(1.67) | 29 | 1.3(2.15) | $^H$9.136* |
| Parental involvement 2-1 | 64 | 0.3 (1.46) | 26 | 0.7 (0.39) | | | | | $^U$ 74.5 |
| Parental involvement 3-1 | | | 26 | -1 (1.41) | 32 | 0.2 (2) | 32 | 0.1(1.23) | $^H$10.13** |

The column groups above M (SD) cover: School climate, n, Total SEL, n, Control, n, SuperSEL, n, SEL basic; the final column is H/U.

* $p < 0.05$; **$p < 0.01$, $p < 0.001$***

The results show no significant difference between both SEL groups, and both SEL groups show higher perceived school climate results compared to the control group. There are statistically significant differences in overall perceived school climate subtraction results between the three groups $H(2) = 20.516, p = 0.000$. The post-hoc Mann–Whitney U test indicated differences between the SuperSEL (Md$n$ = 1.5) and control group (Md$n$ = –3) subtraction results $U(N_{supersem}30, N_{control}23) = 151.00, z = –3.49, p = 0.000$ and between the SEL basic (Md$n$ = 3) and control group (Md$n$ = –3) subtraction results $U(N_{sembasic}24, N_{control}23) = 70.5, z = –4.38, p = 0.000$.

There are statistically significant differences between the groups for the school climate subscale *staff connectedness* $H(2) = 13.820, p = 0.001$. The post-hoc test indicated significant differences between the SuperSEL (Md$n$ = 0) and control group (Md$n$ = -1) subtraction results $U(N_{supersem}31, N_{control}23) = 164.5, z = –3.49, p = 0.001$ and between the SEL basic (Md$n$ = 0.5) and control group (Md$n$ = –1) subtraction results $U (N_{sembasic}30, N_{control}23) = 180, z = –3.02, p = 0.003$.

There are also statistically significant differences between groups in the school climate subscale *peer/adult relations* $H(2) = 9.14, p = 0.01$, however the post-hoc analysis did not show statistically significant differences between any of the three groups' results. Lastly, there are differences between the groups in the *parental involvement* subtraction results $H(2) = 10.13, p = 0.006$. The post-hoc test indicated statistically significant differences between the SuperSEL (Md$n$ = 0) and control group (Md$n$ = -1) subtraction results $U(N_{supersem}32, N_{control}26) = 255, z = –2.56, p = 0.01$ and between the SEL basic (Md$n$ = 0) and control group (Md$n$ = –1) subtraction results $U (N_{sembasic}32, N_{control}26) = 227, z = –3.04, p = 0.002$.

To determine differences in perceived school climate between the SEL and control groups for 3rd- to 6th-grade students after the first year of SEL and controlling for time, the difference between the end of the first year of the SEL program (measurement no. 2) and before starting the SEL program (measurement no. 1) was calculated, and this difference was compared between the two groups (see Table 2).

The hypothesis that 3rd- to 6th-grade SEL program students will show higher perceived school climate at the end of the first year was partially confirmed. There is no significant difference between the groups in the 3rd- to 4th-grade student results, however there are significant differences in 5th- to 6th-grade student results. There are statistically significant differences in the school climate subscale *mental health* between the results of 5th- to 6th-grade students in the SEL and control groups $U(N_{sem}94, N_{control}88) = 3299, z = –2.38, p = 0.01$, with SEL students (Md$n$ = –1) indicating a lower number of mental health absence days than control group students (Md$n$ = 1).

**Table 2.** Differences in school climate between SEL and control groups of 3rd- to 6th-grade students at the end of the first year of the SEL program's implementation

| School climate | SEL | | | Control | | | U |
|---|---|---|---|---|---|---|---|
| | n | M | SD | n | M | SD | |
| 3rd – 4th grade *school climate*sum 2-1 | 39 | 8.5 | 8.45 | 40 | 10.9 | 5.96 | 600 |
| 5th – 6th grade *school climate*sum 2-1 | 79 | 1.1 | 14.9 | 72 | -3.8 | 27 | 2430 |
| 5th – 6th grade *school connectedness 2-1* | 98 | -0.3 | 2.57 | 89 | -0.7 | 4.58 | 4231 |
| 5th – 6th grade *character 2-1* | 98 | -0.9 | 3.83 | 90 | -1.4 | 4.66 | 4156 |
| 5th – 6th grade *physical Environment 2-1* | 97 | -0.8 | 2.41 | 89 | -1.1 | 3.26 | 4221 |
| 5th – 6th grade *adult support 2-1* | 96 | -0.4 | 2.98 | 90 | -0.9 | 4.23 | 3856 |
| 5th – 6th grade *peer support 2-1* | 97 | 0 | 2.26 | 91 | -0.6 | 2.94 | 3798 |
| 5th – 6th grade *cultural acceptance 2-1* | 95 | -0.2 | 2.89 | 89 | -0.2 | 4.46 | 4020 |
| 5th – 6th grade *order and discipline 2-1* | 94 | -0.3 | 3.22 | 85 | -0.4 | 4 | 3966 |
| 5th – 6th grade *safety 2-1* | 95 | 1.3 | 3.89 | 88 | 0.8 | 4.54 | 3685 |
| 5th – 6th grade *mental health 2-1* | 94 | -1.6 | 6.53 | 88 | 2.85 | 12.9 | 3299** |

**$p < 0.01$

To determine the differences between the three groups of 3rd- to 6th-grade students starting their second year of SEL, a Kruskal–Wallis H test with post-hoc Mann–Whitney U test was used (see Table 3).

The hypothesis that the SuperSEL student group would show higher perceived school climate results than the SEL basic student group in the second year and that no change would be observed in the control group was partially confirmed. At the beginning of the second SEL year, there are differences within the results of 3rd- and 4th-grade students $H(2) = 15.62$, $p = 0.001$, as the post-hoc analysis shows statistically significant differences between the SuperSEL (Md$n = 36$) and control group results (Md$n = 33$) $U(N_{SuperSEL}114, N_{control}82) = 3414, z = -3.23, p = 0.01$ and between the SEL basic group (Md$n = 36$) and control group (Md$n = 33$) results $U(N_{SELbasic}127, N_{control}82) = 3603, z = -3.77, p = 0.001$. Both groups of 3rd- to 4th-grade SEL students show equally high perceived school climate results, and there is no statistically significant difference between these results.

**Table 3.** Differences in school climate between 3rd- to 6th-grade students in SuperSEL, SEL basic and control groups starting the second year of the SEL program

| School climate | SuperSEL | | | SEL basic | | | Control | | | H |
|---|---|---|---|---|---|---|---|---|---|---|
| | n | M | SD | n | M | SD | n | M | SD | |
| 3rd – 4th grade *school climate*sum 1 | 114 | 34.9 | 4.02 | 127 | 35.2 | 3.62 | 82 | 33.4 | 3.39 | 15.62*** |
| 5th – 6th grade *school climate*sum 1 | 98 | 158.7 | 14.86 | 110 | 157.8 | 14.8 | 90 | 153.8 | 17.9 | 3.742 |
| 5th – 6th grade *school connectedness 1* | 109 | 14.9 | 2.46 | 116 | 14.7 | 2.9 | 90 | 14.3 | 2.57 | 2.736 |
| 5th – 6th grade *character 1* | 106 | 20.6 | 2.65 | 117 | 20.2 | 2.46 | 92 | 20 | 2.95 | 2.930 |
| 5th – 6th grade *physical environment 1* | 106 | 12.4 | 2.35 | 116 | 12.77 | 2.29 | 92 | 12.5 | 2.59 | 1.763 |
| 5th – 6th grade *adult support 1* | 109 | 13 | 2.53 | 112 | 13.8 | 2.13 | 89 | 13.1 | 2.75 | 5.738* |
| 5th – 6th grade *peer support 1* | 109 | 10.1 | 1.59 | 117 | 9.8 | 1.69 | 92 | 9.8 | 1.6 | 4.915 |
| 5th – 6th grade *cultural acceptance 1* | 108 | 13.9 | 3.12 | 115 | 14.2 | 2.58 | 92 | 13.9 | 2.96 | 0.374 |
| 5th – 6th grade *order and discipline 1* | 106 | 14.6 | 2.78 | 116 | 15 | 2,64 | 92 | 14.2 | 3.31 | 2.512 |
| 5th – 6th grade *safety 1* | 107 | 8 | 2.26 | 117 | 8.7 | 2.6 | 92 | 8.7 | 2.53 | 5.491 |
| 5th – 6th grade *mental health 1* | 107 | 12.9 | 5.67 | 116 | 15.8 | 8.35 | 91 | 14.7 | 9.59 | 8.084** |

* $p < 0.05$; **$p < 0.01$; ***$p < 0.001$

As for the 5th- to 6th-grade student group, there were statistically significant differences between the three groups in the school climate subscale *adult support* H(2) = 5.738, $p = 0.05$, however post-hoc analysis did not show significant differences between any of the groups. There were statistically significant differences between the three groups in the school climate subscale *mental health* H(2) = 8.084, $p = 0.01$. The post-hoc analysis shows statistically significant differences between the SuperSEL group

(Md$n$ = 11) and the control group (Md$n$ = 13) results U(N$_{supersem}$107, N$_{control}$88) = 887, $z$ = –2.35, $p$ = 0.01 and between the SuperSEL group (Md$n$ = 11) and the SEM basic group (Md$n$ = 13) results U(N$_{superSEM}$107, N$_{SEMbasic}$116) = 4972, $p$ = 0.01. There were no differences between the SEL basic group and the control group results.

**Table 4.** Differences in school climate between SuperSEL, SEL basic and control groups of 3rd-6th-grade students at the end of the second SEL year

| School climate $n$ | SuperSEL | | | SEL basic | | | Control | | | H |
|---|---|---|---|---|---|---|---|---|---|---|
| | $M$ | $SD$ | $n$ | $M$ | $SD$ | $n$ | $M$ | $SD$ | | |
| 3rd – 4th grade *School climate*$_{sum}$ *2-1* | 114 | 0.8 | 5 | 127 | 0.2 | 4.45 | 76 | 0.3 | 4.87 | 0.309 |
| 5th – 6th grade *school climate*$_{sum}$ *2-1* | 88 | 2 | 18.05 | 99 | 2.1 | 20.8 | 78 | 0.3 | 18.78 | 0.32 |
| 5th – 6th grade *school connectedness 2-1* | 101 | 0.5 | 3.12 | 108 | -0.2 | 3.77 | 80 | 0.1 | 3.14 | 2.540 |
| 5th – 6th grade *character 2-1* | 98 | 0.4 | 3.4 | 109 | 0.1 | 3.1 | 81 | -1.2 | 3.32 | 3.006 |
| 5th – 6th grade *physical environment 2-1* | 99 | -0.5 | 2.35 | 107 | -0.3 | 3.22 | 81 | -0.4 | 2.87 | 0.627 |
| 5th – 6th grade *adult support 2-1* | 101 | 0.3 | 2.99 | 108 | -0.3 | 3.31 | 81 | -0.6 | 3.58 | 3.654 |
| 5th – 6th grade *peer support 2-1* | 101 | -0.4 | 1.99 | 109 | -0.6 | 2.6 | 81 | 0 | 1.92 | 1.987 |
| 5th – 6th grade *cultural acceptance 2-1* | 97 | 1.1 | 3.67 | 107 | 0 | 3.85 | 81 | 0 | 3.82 | 4.887 |
| 5th – 6th grade *order and discipline 2-1* | 98 | 0.4 | 3.02 | 108 | -0.2 | 3.54 | 81 | 0.6 | 3.59 | 3.737 |
| 5th – 6th grade *safety 2-1* | 99 | 0.3 | 3.64 | 109 | -0.1 | 4.28 | 81 | -0.3 | 3.85 | 1.326 |
| 5th – 6th grade *mental health 2-1* | 99 | -0.3 | 8.09 | 106 | -2.4 | 10.38 | 88 | -1.4 | 12.3 | 0.531 |

$p$ > 0.05

To determine differences in perceived school climate from $3^{rd}$- to $6^{th}$-grade student groups after the second SEL year and controlling for time, the difference between the end of the second SEL year (measurement no. 2) and the beginning of the second SEL year (measurement no. 1) was calculated, and this measurement was compared across the three groups (see Table 4). In the second SEL year, the student groups were different from the first year, and therefore the measurement names were kept the same as in the first year, indicating a new set of students and new measurements.

At the end of the second SEL year, there were no differences between the three groups regarding perceived school climate.

## Discussion

We hypothesized that SEL teachers would show a higher perceived school climate compared to the control group and that, in the second year of the SEL program, those teachers who received regular supervision would show higher results compared to the SEL basic training teacher group and control group. This hypothesis was partially confirmed, as it was shown that, in the first year of the SEL program's implementation, SEL teachers gave higher ratings for overall perceived school climate compared to the control group. However, in the second year, both SEL teacher groups had significantly higher perceived school climate results compared to the control group, and there is no significant difference between the SEL teacher groups. Thus, regardless of the additional regular supervision, both program interventions were effective. Both SEL groups show higher staff connectedness compared to the control group, which suggests that both the SuperSEL and SEL basic groups developed close relationships with colleagues during the SEL program and that teachers felt a strong commitment toward the school, which is in line with previous research findings showing that one aspect of SEL is better relationships with others (Weaver & Wilding, 2013). There were also differences in the *parental involvement* category, where the control group's results decreased in the second year while the results remained the same for both SEL groups, which could indicate that without a conscious goal to involve parents in school life, parental involvement decreases with time (Mahoney et al., 2020). These results also demonstrate that even though the SEL program is directly aimed at children, teachers benefit from it as well, which is in line with previous research findings (Jennings & Greenberg, 2009).

The hypothesis that students would differ in perceived school climate in the first and second years of the SEL program was partially confirmed. In the first year, students in $3^{rd}$ and $4^{th}$ grades did not show any difference

in perceived school climate; however, students in the 5$^{th}$ and 6$^{th}$ grades did show a lower level of mental health problems, which is in line with other research findings (Durlak et al., 2011). At the start of the second year, 3$^{rd}$- and 4$^{th}$-grade students in both SEL groups showed higher perceived school climate results compared to the control group, and this difference remained the same during the whole second year, suggesting lasting changes in perceived school climate for these students. It seems that more lasting changes are first demonstrated by younger students.

Starting from the second year of the SEL program, only the 5$^{th}$- to 6$^{th}$-grade SuperSEL student group showed a substantial change in perceived school climate in the *mental health* subscale. These results are supported by findings that state that regular support is needed to provide the best possible outcomes for students (Mahoney et al., 2020). This research also shows that the first change in perceived school climate for secondary school students is better mental health. We speculate that additional changes would be observed in other aspects of the school climate with the continuation of the program. Research shows that noticeable outcomes can first be observed three to five years after a successful SEL program implementation (Elias et al., 1997; Zins & Elias, 2007).

These findings indicate that schools can be a place where students develop better social emotional competence, greater attachment to school, and better relationships with peers and adults. Thus, they will be more motivated to learn, have better academic results, have better mental health, and, in the long term, will be more successful in all areas of life (Durlak et al., 2011).

**Limitations**

The support from the SEL program's developers and school administrations was limited, and school administrations were involved in a formal way. There was only one program developer who could invest their resources in regular supervision, and there were no resources to readjust SEL materials based on schoolteachers' feedback. The lack of support for teachers during the implementation process could interfere with the program's fidelity and other aspects of a sound implementation process (Zins & Elias, 2007).

For the further success of the SEL program and better student and teacher outcomes, more support in the implementation process should be provided. Future research should measure the implementation process in a more direct way, such as by asking teachers to evaluate the support provided in supervision sessions and then take this into account in the interpretation phase.

## Conclusions

These teacher and student results suggest that the Latvian SEL program is effective and aligned with a large body of research that shows that SEL programs are associated with a better-perceived school climate (Osher & Berg, 2017). It can be concluded that teachers who implemented the program gained increased satisfaction with the overall perceived school climate in both SEL years. In the second year, there is significantly higher perceived staff connectedness in both SEL groups, indicating better relationships among teachers, as well as a greater attachment to the school. For students, it can be concluded that the first observable outcomes can be seen for older students in the form of better mental health. However, in order to maintain the necessary change in mental health outcomes, regular support for teachers must be provided. It seems that the primary beneficiaries of such a program are primary school students where better perceived school climate is observed at the start of the second year of the SEL program, and this better perceived school climate remained the same during the whole year.

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# THE RELATION BETWEEN MEDIA EXPOSURE, RISK BEHAVIOUR AND ANXIETY IN ADOLESCENTS DURING THE COVID-19 PANDEMIC

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## ABSTRACT

This report is focused on a theoretical and empirical analysis of an on-line questionnaire implemented with 246 adolescent participants from Croatia in 2020 during the COVID-19 pandemic. The aim of the study was to analyse the relation between the COVID-19 pandemic related fear and risk behaviour, anxiety and depression in adolescents, including the importance of sociodemographic traits, family/school/peer relationships and media use as risk-protective factors. The research was implemented during the March and April 2020 lockdown in Croatia with participants aged from 18-35 years old. The questionnaire consisted of 5 major parts: socio-demographic measures; media use and interests; Mean world syndrome; risk behaviour; and 2 standardized scales on anxiety and depression with a high validity of the Cronbach's alpha coefficients ranging from $\alpha = .81$ to $\alpha = .94$. Correlation analysis demonstrated significant positive relations between COVID-19 media exposure, risk behaviour and anxiety or depression. Our regression analysis established positive moderate predictive relations between risk behaviour, anxiety and depression ($p < .01$). No significant effects for risk behaviour in relation to the participants' sociodemographic traits were found.

***Keywords:*** *adolescents, anxiety, COVID-19, depression, media, risk behaviour.*

## Introduction

The ongoing COVID-19 pandemic had important personal and social effects on the population. The fast spread and panic induced by the virus resulted in massive anxiety all over the world, and focused information-seeking attention on media during the period of social isolation. Studies have emphasized the impact on the psychological well-being of most vulnerable groups, including children and the youth, as well as a number of families, professional workers and the general public exposed to an increased risk of developing post-traumatic stress disorder, anxiety,

depression or various risky behaviours (Saladino et al., 2020). Adolescence in particular, is usually associated with high-risk activities, and while some risk-taking behaviours are considered to be normative in youth, research has indicated an association between risky behaviours and mental problems with poorer health and emotional outcomes in adulthood (Moffitt et al., 2002; Sourander et al., 2007; Soleimani et al., 2017). Responsible and safe actions during pandemics usually include two broad categories of behaviours- avoidant actions such as staying at home, social distancing or avoiding public transportation, and preventive behaviours like washing hands or using sanitizers. Based on current evidence from past pandemics, the level of both avoidant and preventive behaviours is related to personal factors. Being female, older, having small children at home and higher educational degrees, increases the level of safe practices (Betancourt et al., 2016; Paek & Hove, 2017; Wellman et al. 2018; all cited in Mohammadi et al., 2020).

Both inadequate or excessive levels of perceived risk are problematic, as low levels of contributed risk significantly decrease the likelihood of following necessary safety protocols, while high levels of contributed risk increase the proportion of mental health problems including anxiety, stress and depression (Asmundson et al., 2010; Blakey & Abramowitz, 2017). Evidence suggests that risk-taking behaviour is influenced by emotional states, thus relating social anxiety to both risk-avoidant and risk-seeking decision making. Highly stressful situations can influence the decisions individuals make (Loewenstein et al., 2001), as evidence suggests that risk-taking behaviour is influenced by negative affective states such as fear, disgust, or anger (Lerner & Keltner, 2000; 2001; as cited in Reynolds et al. 2013). The relationship is, however, complex, as stress can recruit cognitive resources for emotion regulation and divert away from the inhibitory processes necessary to avoid risky behaviour, resulting in more risk taking (Baumeister et al., 2007). Alternatively, engagement in risky behaviour can serve as a form of negative reinforcement, thus reducing distress associated with the social anxiety (Baker et al., 2004). For instance, Busse et al. (2021) reported being female, younger age, being bored, not having a trusted person and depressive symptoms were factors associated with a change in health-related behaviour. They identified five substance use behavioural profiles, which remained fairly unchanged during the pandemic: 61% of students consumed alcohol, 45.8% binge drank, 19.4% smoked and 10.8% used cannabis. While smoking and cannabis use remained unchanged during the COVID-19 pandemic, 24.4% reported a decrease in binge drinking, while 5.4% reported an increase. 30.6% reported an increase and 19.3% reported a decrease in vigorous physical activity (Busse et al., 2021).

Another stress inducing element is related to the theory behind the perception of fear and anxiety cultivation by the media, explaining how the more people "consume" the world of the mass media, the more they accept that social reality as credible, consequently experiencing more feelings of fear and anxiety, overemphasizing criminality or the chances of becoming a victim, even walking alone at night (Gerbner et al., 1978; Gerbner, 1998). Modern cultures tend to regularly confront the public with mass media global disaster or crime images and stories, in return fuelling overestimation and misrepresentation of surrounding dangers. However, if horrible incidents are overrepresented, the public might assume the world is an unforgivable place (Altheide, 1997, as cited in Klinkenberg, 2015:1), thus enhancing their sense or fear of victimization (Gerbner, 1978; as cited in Klinkenberg, 2015:1). This phenomenon is called the *Mean world syndrome*. When discussing the importance of media and the *Mean world syndrome* in relation to anxiety and stress, studies have established mixed findings. The *Longitudinal Aging Study Amsterdam* (LASA) with 1.536 participants found that reading newspapers, as well as Internet use decreases anxiety and fear, whereas television viewing increases them (Klinkenberg, 2015). Mass media use had a negative influence on feeling unsafe, so media users and those listening to the radio or watching sports were less likely to feel afraid in their neighbourhood at night, while those who watched the news and music clips on the television were more likely to be afraid (Klinkenberg, 2015).

The aim of the present study is to analyse the correlation between the COVID-19 pandemic related fear and risk behaviour, anxiety and depression in adolescents, including the importance of sociodemographic traits and media use as risk-protective factors. Our main hypothesis is that there is a statistically significant correlation between COVID-19 media exposure with anxiety, depression, fear and risky behaviour. Our second hypothesis is that sociodemographic traits have a significant role in risk behaviour in adolescents.

## Method

### Measures and data collection

The research was implemented via an online survey during the March and April 2020 lockdown in Croatia with students from the University in Osijek. The questionnaire consisted of 5 major parts.

a) The first part had questions on sociodemographic traits (sex, age, academic success, father's level of education, mother's level of education, family income status).

b) The second part had a non-standardized 15 item scale with questions specifically related to COVID-19 media exposure (i. e. television, radio,

newspapers, web portals, social networks…), with five points (1-never, 2-once or twice in a month, 3-once a week, 4-several times a week, 5-daily). The 15 items were computed and transformed into a new composite variable named "COVID-19 media exposure" with consequent reliability analysis showing a good Cronbach's alpha coefficient ($\alpha = .76$).

c) The third part consisted of 24 non-standardized items on a 5-point Likert scale (1 – never, 2 – rarely, 3 – sometimes, 4 – often, 5 – always) with *Mean world syndrome* questions about the participant's fears (i. e. *I'm afraid someone will attack me on the street at night; I'm afraid someone will kidnap me or my child; I'm afraid to talk to strangers…*) that was computed and transformed into a new composite variable named "Mean world syndrome" with a satisfactory Cronbach's alpha coefficient ($\alpha = .85$).

d) The fourth part consisted of a non-standardized 24 item scale with questions about participant's risk behaviour since the beginning of the COVID-19 pandemic (i. e. *I drink alcohol more often than before the pandemic; I steal more than in the pre-pandemic period; I use physical violence to solve problems more often than before the pandemic…*). The 24-item scale was computed into a new composite variable named "Risk behaviour" with a satisfactory Cronbach's alpha coefficient ($\alpha = .80$).

e) The fifth part consisted of standardized scales on anxiety (Anxiety Sensitivity Index, ASI, Reiss et al., 1986) and depression (Depression Anxiety Stress Scales, DASS; Lovibond & Lovibond, 1995). The implemented scales demonstrated high reliability and validity, with Cronbach's alpha coefficients ranging from $\alpha = .81$ to $\alpha = .94$. The ASI is a self-reported measure on fear of different anxiety symptoms (Reiss et al., 1986). It consists of 16 items on anxiety symptoms, with answers on a 5-point scale (from "very little" – 0, to "very much" – 4). The total score is the sum of scores on individual items and varies between 0 and 64. The DASS is a set of three self-reported scales designed to measure the emotional states of depression, anxiety and stress. The 4-point rating scale varies from 0 – "*Did not apply to me at all*" to 3 – "*Applied to me very much or most of the time*". Each of the three subscales achieved satisfactory Cronbach's alpha coefficients (depression $\alpha = .88$, anxiety $\alpha = .84$, and stress $\alpha = .89$).

The data was processed using SPSS (v20.0.0) with descriptive and inferential statistical procedures: correlation and a 3-model hierarchical regression analysis. The first model consisted of sociodemographic traits, the second encompassed stress, anxiety and depression, while the third model consisted of COVID-19 media exposure and the Mean world syndrome.

### Participants

A total of 246 students participated in the online survey, 213 females (87%) and 33 males (13%). The sample age mean was 21.98. They had a 4.1 GPA with 28% ($n$ = 69) achieving an A (excellent), 52.8% ($n$ = 130) achieving a B (very good), 17.5% ($n$ = 43) achieving a C (good) and 0.2% ($n$ = 2) that failed class (F). Participants reported that 64% ($n$ = 156) of their fathers completed elementary school or high school, while 36% ($n$ = 88) had college or university education. Some 61% ($n$ = 148) of mothers finished elementary or high school, 39% (n = 96) had college or university education. A total of 38 (15.4%) participants reported a monthly family income up to 660 € (up to 5000 Croatian kuna (kn), 103 (41.9%) between 661€ and 1320€ (5001–10000kn), 67 (27.2%) had a monthly income between 1321€ and 1980€ (10001–15000kn), and 38 (15.4%) reported an income of 1981€ and more (over 15001kn).

### Results

The means and standard deviations of the DASS subscales achieved in our study are $M$ = 6.53 ($SD$ = 5.04) on stress, $M$ = 3.34 ($SD$ = 4.03) on anxiety, and $M$ = 5.18 ($SD$ = 4.71) on depression. The means and standard deviations of the ASI achieved in our study are $M$ = 24.51 ($SD$ = 12.46). These results are derived from this study and do not correspond to the population levels in the Republic of Croatia.

When analysing COVID-19 media exposure, websites were the most popular sources ($M$ = 3.87; $SD$ = 1.22), followed by information received from family members, friends, acquaintances or colleagues ($M$ = 3.39; $SD$ = 1.49), via television ($M$ = 2.97; $SD$ = 1.73) and Facebook ($M$ = 2.47; $SD$ = 1.69).

Our results (Table 1) show a very weak positive correlation between the COVID-19 media exposure and the Anxiety Sensitivity Index ($p$ < .01), and a weak positive correlation between the COVID-19 media exposure and the Mean world syndrome ($p$ < .05). There is a very weak positive correlation between ASI and risk behaviour ($p$ < .05), and a moderate to strong positive correlation between DASS subscales of depression / anxiety/stress, and the Mean world syndrome with ASI ($p$ < .001). There is a weak to strong positive correlation between ASI, risk behaviour and the Mean world syndrome with all three DASS subscales ($p$ < .001). The participants also reported a positive weak correlation between risk behaviour and the Mean world syndrome ($p$ < .05).

Our regression analysis results demonstrate moderate positive relations between risk behaviour, anxiety and depression (p < .01) (Table 2). No significant predictive effects were established for sociodemographic traits or COVID-19 media exposure.

**Table 1.** Correlation matrix on risk behaviour, stress, anxiety, mean world syndrome and media exposure ($n = 245$)

| Variable | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| 1. COVID-19 media exposure | — | .17** | .09 | .08 | -.00 | -.08 | .15* |
| 2. ASI | | — | .57*** | .64*** | .46*** | .16* | .69*** |
| 3. DASS Stress | | | — | .74*** | .73*** | .22*** | .52*** |
| 4. DASS Anxiety | | | | — | .64*** | .31*** | .55*** |
| 5. DASS Depression | | | | | — | .32*** | .40*** |
| 6. Risk behaviour | | | | | | — | .15* |
| 7. Mean world syndrome | | | | | | | — |

Note: $p < .05$*; $p < .01$**; $p < .001$***

**Table 2.** Regression analysis on risk behaviour ($n = 245$)

| Risk behaviour | Model 1 (soc.-demo. characteristics) | | | | Model 2 (stress, anxiety and depression) | | | | Model 3 (media exposure) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | B | SE (B) | β | Sig. | B | SE (B) | β | Sig. | B | SE (B) | β | Sig. |
| Sex | -.66 | .88 | -.05 | .45 | -.46 | .82 | -.04 | .58 | -.51 | .83 | -.04 | .54 |
| Age | .02 | .12 | .01 | .89 | .08 | .11 | .05 | .45 | .07 | .11 | .04 | .54 |
| Academic Success | .28 | .41 | .04 | .50 | .20 | .39 | .03 | .60 | .19 | .39 | .03 | .63 |
| Fathers' education | .06 | .37 | .01 | .87 | -.06 | .35 | -.01 | .88 | -.06 | .35 | -.01 | .86 |
| Mothers' education | .18 | .38 | .04 | .65 | .21 | .36 | .05 | .55 | .23 | .36 | .05 | .53 |
| Family income | .44 | .29 | .11 | .13 | .37 | .27 | .09 | .17 | .38 | .27 | .09 | .17 |
| DASS stress | | | | | -.18 | .09 | -.19 | .07 | -.18 | .09 | -.19 | .07 |
| DASS anxiety | | | | | .34 | .11 | **.30\*\*** | .003 | .33 | .12 | **.29\*\*** | .005 |
| DASS depression | | | | | .29 | .09 | **.29\*\*** | .001 | .28 | .09 | **.29\*\*** | .002 |
| ASI | | | | | -.02 | .03 | -.06 | .43 | -.03 | .04 | -.08 | .39 |
| COVID-19 media exposure | | | | | | | | | -.04 | .04 | -.07 | .25 |
| Mean world syndrome | | | | | | | | | .02 | .03 | .06 | .48 |

| Risk behaviour | Model 1 (soc.-demo. characteristics) | | | | Model 2 (stress, anxiety and depression) | | | | Model 3 (media exposure) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | B | SE (B) | β | Sig. | B | SE (B) | β | Sig. | B | SE (B) | β | Sig. |
| $R^2$ | .02 | | | | .16 | | | | .16 | | | |
| $R$ Square Change | .02 | | | | .13 | | | | .01 | | | |
| Adjusted $R^2$ | -.002 | | | | .12 | | | | .12 | | | |
| df | 236 | | | | 232 | | | | 230 | | | |
| F | 0.91 | | | | 4.28 | | | | 3.71 | | | |
| $F$ for change in $R^2$ | 0.91 | | | | 9.15 | | | | 0.89 | | | |

Note: $p < .05^*$; $p < .01^{**}$; $p < .001^{***}$

## Discussion

Our main hypothesis was that there is a statistically significant correlation between COVID-19 media exposure with anxiety, depression, fear and risky behaviour. Our results demonstrate positive significant correlations between risk behaviour, anxiety, stress, depression, Mean world syndrome and COVID-19 media exposure. Still, our regression model established a significant predictive value of anxiety and depression when risk behavior was explained ($p < .01$). Our correlation analysis on depression, anxiety and risk behaviour is consistent with a number of studies reporting a similar positive relationship (Birmaher et al., 1996; Armstrong & Costello, 2002; Agardh et al., 2012; Peltzer & Pengpid, 2015), as experiencing depressive symptoms often impairs decision making. This is a bilateral relation, because most risk-behaviours tend to be associated with an increased likelihood for the development of depression, and are correlated with the severity of depressive symptomatology, as well as alcohol abuse, smoking, media use, lack of physical activity, risky sexual behaviour, school absenteeism, and sleeping problems (Heger et al., 2014; Bannink et al., 2015). For example, a study by Soleimani et al. (2017) reported that the participants' frequency of suicidal thoughts positively predicted anxiety and depression, while age and self-confidence negatively predicted anxiety and depression. Moreover, having friends that smoked and the strength of suicidal thoughts were established as positive predictors of risky behaviours, with males being at higher risk than females. Handley et al. (2019) reported that neuroticism and tobacco use also made a significant independent contribution to future

depressive symptoms, while interpersonal support was a protective factor, reducing the odds of next-wave depression by 64%.

Our second hypothesis posed that sociodemographic traits have a significant role in risk behaviour, anxiety and depression in adolescents. Our study did not establish significant effects of the participants' sociodemographic traits for risk behaviour. Research by Fu et al. (2020) reported significant differences in anxiety levels based on the participants' sex, age and monthly income. Similarly, in a study examining COVID-19-related anxiety conducted in Croatia by Korajlija and Jokić-Begić (2020), women were significantly more anxious than men, demonstrated through study findings on higher psychological distress in women by Qiu et al. (2020), as well. Stress levels were also related to age, which was not established in our study (Qiu et al., 2020).

We found that COVID-19 media exposure correlate positively with anxiety and the *Mean world syndrome*. For example, studies in China and the USA reported 79.3% of participants felt anxious and scared during the pandemic, while 90% of US citizens said their life had changed as a result of the COVID-19 outbreak (as cited in Liu & Liu, 2020). Our results can be explained in light of the *Media dependency theory*, that during difficult times people tend to rely heavily on guidance from media and other sources, as means of reducing uncertainty and uncontrollable feelings in a crisis (Lowrey, 2004; Mukkamala & Beck, 2018; Martínez-Rojas et al., 2018; all cited in Liu & Liu, 2020). A number of studies on the critical public events consequences such as the 9/11 attack (2001), the Boston Marathon (2013) explosion or the outbreak of Ebola (2004) showed that negative media portrayal induced higher levels of posttraumatic stress disorder (Ahern et al., 2004; Bourne et al., 2013; Thompson et al., 2019; Bernstein et al., 2007; Holman & Silver, 2011; Silver et al., 2013; Hadjistavropoulos et al., 1998; Thompson et al., 2017; Lachlan et al., 2009; Garfin et al., 2015; all cited in Liu & Liu, 2020). Taha et al. (2013) found uncertainty and uncontrollable feelings were positively related to stress and anxiety, as people actively engaged in information-seeking trying to reduce their anxious feelings (Taha et al., 2013). Still, media exposure and vicarious traumatization through information available on the COVID-19 was far beyond the demand for information, so the relation between media exposure and anxiety needs to be revisited. In similar media studies, the frequency or amount of time using social networking sites was associated with mental health problems in children and adolescents, such as higher psychological distress, poor self-rated mental health, depression and suicidal ideation (Dobrean & Păsărelu, 2016). Studies also focused on pathological uses of online social networking sites, and Facebook in particular, relating them to deficits in emotion regulation and susceptibility to drug and alcohol addictions,

somatic symptoms, anxiety, insomnia, social dysfunction and depression (Sampasa-Kanyinga & Hamilton, 2015; Hormes et al., 2014).

The present study has some limitations. As this is a cross-sectional study, we cannot determine the direction of association between media use and exposure, the Mean world syndrome, risk behaviours and depressive or anxiety symptoms. Therefore, the specific nature of the relation between various media contents and adolescent fears, anxiety, depression or risk behaviour still remains elusive.

## Conclusions

The findings of this study have important social, educational, clinical and practical implications regarding media use and exposure for youth dealing with stress, anxiety, depression, the Mean world syndrome and risk behaviours. Our results on the relation of media use and exposure in children and adolescents should be further investigated in order to enhance their positive development and personal, psychological or emotional traits. However, more research is needed to further examine how risk behaviours, media use and emotional problems cluster among adolescents with the goal of identifying potential shared determinants. Furthermore, this paper emphasizes the role of screening for depressive symptoms evident in adolescents, as such practices could be a useful indicator of a myriad of risk behaviours. Finally, the findings of this study suggest that preventive interventions for risk behaviours and depressive symptoms have to target all vulnerable groups, as well as the family and educational context, because no specific effects were established in relation to sociodemographic characteristics.

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# VALIDITY AND RELIABILITY OF THE ACCEPTANCE AND ACTION QUESTIONNAIRE-II: LATVIAN VERSION

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**ABSTRACT**

The objective of this study was to assess the psychometric properties of the Latvian version of the Acceptance and Action Questionnaire-II (AAQ-II), measuring psychological flexibility described as the ability to act according to chosen values while consciously being in contact with subjectively unpleasant present moment experiences. The scale provides a single score across 7 items. The original AAQ-II was translated to Latvian and then back to English. The Satisfaction with Life Scale, Flourishing Scale and Meaning in Life Questionnaire was applied for testing the convergent validity of the AAQ-II. Participants of the study were 191 people, ranged in age from 19 to 68 (159 women, mean age *M* = 30.62, *SD* = 9.50). Reliability analysis, exploratory and confirmatory factor analysis (EFA and CFA) of the scale were performed. EFA indicated a one-factor structure. Results showed that the Latvian version of AAQ-II has good psychometric properties and convergent validity. Testing of the original model by CFA resulted in acceptable fit indices.

***Keywords:*** *Acceptance and Action Questionnaire II (AAQ-II), experiential avoidance, psychological flexibility.*

## Introduction

Interest in psychological flexibility (PF) has been growing in the last decade, given the increasing evidence linking mental health status and well-being to the way how people relate to their psychological experiences. PF is defined as "the ability to fully contact the present moment and the thoughts and feelings it contains without needless defense, and, depending upon what the situation affords, persisting in or changing behavior in the pursuit of values and goals" (Hayes et al., 2006, p. 6). The opposite to psychological flexibility is psychological inflexibility. Psychological inflexibility is characterized by a behavioral pattern of excessive control of a person's thoughts, feelings, and emotions, with a tendency to avoid unpleasant internal experiences at the expense of more effective or valued actions (Levin et al.,

2014). Renshaw (2018) posits, that psychological wellbeing is supported and maintained by psychologically flexible behavior, whereas the development of mental health difficulties is facilitated by psychologically inflexible behavior. When certain types or levels of private experiences are avoided – whether they are our inner thoughts or feelings or external situations, we can talk about psychological rigidity or inflexibility that is a central component in the development and maintaining of psychopathology, which limits emotional well-being and diminishes the quality of life.

The concept of psychological flexibility has received the most attention within the model of human functioning on which the Acceptance and Commitment Therapy is based (ACT, Hayes et al., 1999). The third-wave cognitive behavioral therapy approach, ACT promotes PF that entails the person's ability to contact the present moment more fully, including the problematic private experiences which involve persisting in or changing behavior in pursuit of personal values and goals instead of engaging in experiential avoidance (EA) (Hayes et al., 2006). The ACT model states that the following six interdependent processes contribute to PF: (a) acceptance, (b) cognitive defusion, (c) contact with the present moment or mindfulness, (d) self-as-context, (e) values, and (f) committed action (see Hayes et al., 2012, for details).

EA refers to a process by which humans work to avoid, alter, or suppress difficult private experiences and can thus be understood as an example of psychological inflexibility. Research shows that EA is associated with anxiety, depression, and stress symptom severity, eating disorders, and a ariety of chronic physical health conditions, such as chronic pain, as well as worse social functioning, lower mindfulness, and self-compassion (Levin et al., 2014; Shorey et al., 2017; Spinhoven et al., 2014; Edwards & Vowles, 2020; Fledderus et al., 2012; Monestès et al., 2018; Pennatoe et al., 2013; Zhang et al., 2014; Bardeen & Fergus, 2016). It has been demonstrated that experiential avoidance explains the poorer quality of life among non-clinical samples (Kashdan et al., 2006). These findings suggest that psychological inflexibly may be a transdiagnostic process that is associated with higher risks of many forms of psychopathology.

The most widely used instrument to measure psychological inflexibility as represented by its overarching process of experiential avoidance is the Acceptance and Action Questionnaire (AAQ; Hayes et al., 2004) originally developed as 9 item scale and later modified to a 7-item self-reported measure (Bond et al., 2011). Although AAQ is generically referenced to as a measure of experiential avoidance, it is a more general measure of several processes affecting the PF such as fusion with thoughts, avoidance of feelings, inability to act in the presence of difficult private events (Hayes et al., 2006).

AAQ-II has been criticized regarding whether it measures psychological inflexibility and whether it discriminates between psychological inflexibility as a process, such as an attitude towards one's feelings and thoughts, and the supposed outcomes, such as the emotional problems (Rochefort et al., 2018; Tyndall et al., 2019; Chawla & Ostafin, 2007; Wolgast, 2014). As a result, many other instruments assessing PF or variants of it have been or are under development, including Open Engaged State Questionnaire (Benoy et al., 2019), Comprehensive Assessment of Acceptance and Commitment Therapy (Francis et al., 2016), Personalized Psychological Flexibility Index (PPFI; Kashdan et al., 2020) and Multidimensional Experiential Avoidance Questionnaire (Gámez et al., 2011). However, AAQ-II still remains the most widely used measure of PF and it has been demonstrated that the AAQ-II explains additional variance above established measures of symptomatology (e. g., Gloster et al., 2011) and scores on AAQ-II seem to be stable across time, despite fluctuations in current emotional disorder (e. g., Spinhoven et al., 2014, 2016). Since PF can be contextually controlled and while a person can function well in most situations, he or she can show inflexibility in one specific situation, various variations of the AAQ have been developed to address disorder-specific content such as tinnitus (Westin et al., 2008), chronic pain (Vowles et al., 2008), psychosis (Shawyer et al., 2007), smoking dependence (Gifford et al., 2004), weight-related problems (Lillis & Hayes, 2008) and others.

The AAQ-II has been translated to and validated in several languages (Chang et al., 2017; Karekla & Michaelides, 2017; Pennato et al., 2013; Zhang et al., 2014; Costa et al., 2014; Cheng et al., 2017; Eisenbeck & Szabó-Bartha, 2018; Østergaard et al., 2020), supporting the validity and unifactorial model of the instrument. The present study focuses on analyzing the psychometric properties of the Latvian version of the AAQ-II, testing its validity, reliability, and factor structure, thus adapting a new measure of psychological well-being into the Latvian language.

## Method

### Participants

A total of 191 adults (83% female, aged from 19 to 68 years, $M = 30.62$, $SD = 9.50$) participated in the study. The snowball convenience sample involved psychology students (52%) and their friends or relatives, 63% were employed, 56% were either married or in a relationship.

### Measures

The Acceptance and Action Questionnaire II (AAQ-II, Bond et al., 2011) includes seven items rated on a Likert scale (1 = never true; 7 = always

true), with higher totals, as scored in our study, indicated less psychological flexibility. The AAQ-II has been found to have good internal consistency with alpha coefficients ranging from .78 to .88, and satisfactory test-retest reliability at 3 ( .81) and 12-months ( .79) (Bond et al., 2011).

The Flourishing Scale (FS; Diener et al., 2010) is a 7-point Likert scale with 8 items (from strong disagreement to strong agreement) that measures participant's beliefs about such areas of their life as positive relationships, meaning, and purpose in life, as well as a sense of competence. Scores can range from 8 to 56 (demonstrating strong agreement on all scales). The adaptation of the scale in Latvian by Sadauska and Koļesovs (2021) was used. In the current study, the Cronbach's alpha of the FS was .88.

The Satisfaction with Life Scale (SWLS; Diener et al., 1985) with five items assess the cognitive evaluation of life as desirable on a 7-point Likert scale with responses varying from strong disagreement to strong agreement. The adaptation of the scale in Latvian by Upmane (2012) was used. In the current study, the Cronbach's alpha of the SWLS was .87.

Meaning in Life Questionnaire (MLQ; Steger, Frazier, Oishi, & Kaler, 2006) is the ten-item scale measuring the presence and search for meaning and purpose in life. Only the 5-item presence subscale (MLQ-P) was used. Items are rated 7-point Likert scale with responses varying from strong disagreement to strong agreement. The adaptation in Latvian demonstrated good internal consistency of the subscale (Kolesovs, 2019). In the current study, the Cronbach's alpha of the MLQ-P was .91.

Self-reported health status was assessed by a single item measurement of participant's self-assessment of physical health in comparison with other people of the same age on a 5-point scale from very poor to very good.

Self-reported economic well-being was assessed by a single item measurement of participant's self-assessment of their family's economic well-being on a 5-point scale from "missing even the most basic things" to "can afford anything I want".

## Procedure

The AAQ-II translation procedure consisted of two steps. Firstly, the English version of the questionnaire was simultaneously translated into Latvian by independent translators. Secondly, the resulting Latvian version was back-translated and compared to the original English version.

All participants were informed of the aim of the study, personal anonymity, and the confidentiality of the survey. Data collection occurred in the winter of 2019.

Analyses of the data obtained were performed using the lavaan R package Version i386 3.5.2 and IBM SPSS Statistics Version 22.0.

## Results

The data were analyzed in three steps: the exploratory factor analyses (EFA), the confirmatory factor analyses (CFA), and convergent validity analyses which included the testing relationship of the AAQ-II with well-being measures.

### Exploratory factor analysis

The exploratory factor analysis (EFA) was performed applying principal component analyses extraction with Varimax rotation. Before performing EFA, the suitability of data for factor analysis was assessed. The Kaiser Meyer-Olkin value was .88, demonstrating a good level of sampling adequacy. Bartlett's Test of Sphericity reached statistical significance, confirming that data were factorable, $\chi^2$ (21) = 754.35, $p < .001$. The principal components analysis revealed the presence of one factor with an eigenvalue above 1 (4.34), accounting for 63% of the variance. The factor loading ranged from .83 to .77. Therefore, only one factor characterized the AAQ-II (Table 1).

**Table 1.** Exploratory Factor Analysis of AAQ-II

| | Factor structure | |
|---|---|---|
| **AAQ-II item** | **Loading** | **h²** |
| A1 My painful experiences and memories make it difficult for me to live a life that I would value. | .77 | .59 |
| A2 I'm afraid of my feelings. | .83 | .68 |
| A3 I worry about not being able to control my worries and feelings. | .82 | .67 |
| A4 My painful memories prevent me from having a fulfilling life. | .83 | .69 |
| A5 Emotions cause problems in my life. | .78 | .61 |
| A6 It seems like most people are handling their lives better than I am. | .77 | .59 |
| A7 Worries get in the way of my success. | .78 | .60 |
| Factor and scale characteristics | Value | |
| Kaiser Meyer-Olkin | .88 | |
| Bartlett's Test of Sphericity, $\chi^2$ (21) | 754,35, $p < .001$ | |
| Eigenvalue | 4.43 | |
| Explained Variance | 63% | |
| Cronbach's Alpha | .90 | |
| *M* (*SD*) | 22.82 (10.49) | |

## Confirmatory factor analysis

A seven-item, one-factor model, as identified by EFA was investigated. The initial model showed low level of fit to data $\chi^2(14) = 54.551$, $p < .001$. The original model's CFI $= .92$ and TLI $= .88$ indicated acceptable fit, but the RMSEA of .12 failed to reach the recommended values between .05 and .08, indicating a not well-fitted model. Given the high RMSEA value, the model was statistically modified by correlating errors between Item 1 and Item 4 (see Fig.1).
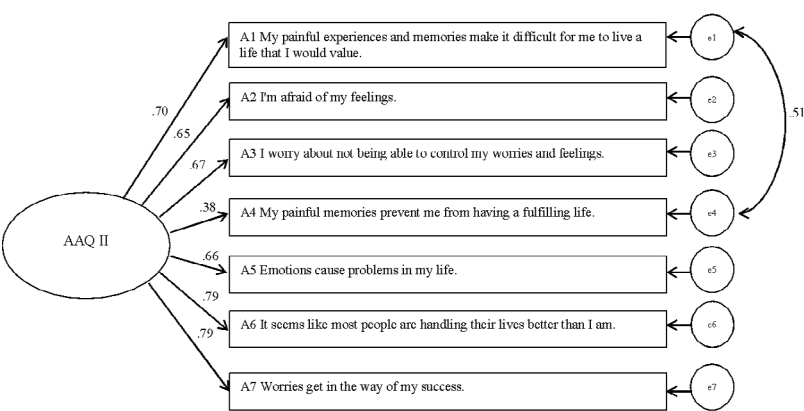


**Figure 1.** One factor confirmatory model of AAQ-II

This correction has been used in a number of previous studies (Gloster et al., 2011; Karekla & Michaelides, 2017; Eisenbeck & Szabó-Bartha, 2018) and appears in the AAQ-II baseline model created for European culture (Monestès et al., 2018). These error terms can be explained by the overlapping content between the items mentioned. The modification resulted in a better fit, with CFI $= .99$, TLI $= .98$, and RMSEA $= .06$, indicating satisfactory fit. These analyses confirm the unidimensional factor structure of the FS. Fit statistics for both models are reported in Table 2.

**Table 2.** Goodness of fit statistics for the tests of factorial validity of the AAQ-II

|  | $\chi^2$ | df | CFI | TLI | SRMR | RMSEA (90% CI) |
|---|---|---|---|---|---|---|
| Model 1 | 54.551 | 14 | .939 | .908 | .050 | .123 |
| Model 2 | 23.158 | 13 | .985 | .975 | .031 | .064 |

Model 1 – original model; model 2 – Errors of Items 1 and 4's covary.

**Testing convergent validity**

To investigate the convergent validity of the AAQ-II, we correlated SWLS, FS and MLQ-P, single-item health status and economic well-being questions with AAQ-II (see Table 3). There were strong, negative correlations between the AAQ-II, FS and life satisfaction, as well as the presence of meaning and purpose in life. AAQ-II was also negatively, significantly associated with health, and economic well-being. These results are consistent with published reports on AAQ-II (e. g., Eisenbeck & Szabó-Bartha, 2018; Karekla & Panayioutou, 2011; Kashdan et al., 2006, 2020).

**Table 3.** Pearson correlations between the AAQ-II, FS, SWLS, MLQ-P, health and economic well-being

| Measures | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| 1. Acceptance and Action Questionnaire (AAQ-II) | - | | | | |
| 2. Satisfaction with Life Scale (SWLS) | -.55** | - | | | |
| 3. Florishing Scale (FS) | -.68** | .70** | - | | |
| 4. Meaning in Life Questionnaire – Presence of meaning scale (MLQ-P) | -.68** | .56** | .71** | - | |
| 5. Health | -.31** | .37** | .39** | .19* | - |
| 6. Economic well-being | -.24** | .40** | .28** | .22** | .29** |

*$p < .05$. **$p < .01$

**Discussion**

The overall purpose of this study was to evaluate the psychometric properties of the AAQ-II Latvian version. The results suggest that the AAQ-II displays sufficient psychometric properties to be further used by clinicians and researchers with Latvian participants.

The CFA suggested a one-factor solution similar to findings from other psychometric studies of the AAQ-II (e. g., Bond et al., 2011; Lundgren & Parling, 2017; Østergaard et al., 2020, Edwards & Vowles, 2020), after accounting for correlated measurement errors explainable by method effects in items 1 and 4. Items 1 and 4 both refer to, "my painful memories". The modified model fit the data well and supported the one-factor solution also found in administering the AAQ-II in additional languages other than English (e. g., Eisenbeck & Szabó-Bartha, 2018; Lundgren & Parling, 2017; Ruiz et al., 2016).

Psychological flexibility is a promising psychological process to assess and target for improving mental health and psychological well-being. Recent publications on psychological flexibility acknowledge the difficulties

and confusion in measuring the construct of PF (e. g., Doorley et al., 2020). Even though AAQ-II is referred to as measuring PF, it really measures its opposite, i. e., experiential avoidance or psychological inflexibility, inferring the existence of PF by the mere absence of EA. Meanwhile, the construct of psychological flexibility as defined in the context of Acceptance and Commitment Therapy, includes more dimensions than just experiential avoidance. Currently, several promising measures are developed to capture the PF (e. g., PPFI, Kashdan et al., 2020; MPFI, Rolffs et al., 2019; CompACT, Francis et al., 2016).

This study acknowledges several limitations. First, our sample was limited to a convenience sample of predominantly students (52%), with the mean age of 30,62 and the majority of them female (83%). Therefore, broader samples, representative of the adult population could be studied in the future. The psychometric properties of AAQ-II should be examined further in a clinical sample. Furthermore, test-retest reliability of the Latvian version should be evaluated.

Overall, the present version of the AAQ-II is reliable and suitable for researchers and practitioners planning to study new aspects of well-being in a Latvian cultural context. The AAQ-II can also be used by clinicians for assessing the outcomes of interventions directed at lowering experiential avoidance.

## Conclusions

This study evaluated the psychometric properties of AAQ-II Latvian version. Factor analysis suggested a unidimensional model of PF, which was consistent with the results in other linguistic samples. The findings support the reliability and validity of the instrument.

The overall results add further support to the process of psychological flexibility as a precursor to well-being, flourishing, and presence of meaning in life. Further studies are needed to confirm the findings in diverse clinical and non-clinical samples.

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# POLITICAL TRUST IN PREDICTING READINESS TO COMPLY WITH GOVERNMENTAL RESTRICTIONS DURING COVID-19 PANDEMIC

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**ABSTRACT**

In the present paper, we try to answer the question of what makes a citizen to comply to health behaviour guidelines by comparing trust in government and past behaviour as predictors of COVID-19 pandemic restrictions. Through an online study of 316 respondents, we found that the judgment of government (indirectly, in terms of positive evaluation of government actions during COVID-19) does play an important role in the ratings of the extent to which one will follow restrictions during the pandemic in the future. This variable seems to be a central one in terms of uniting different variables, which predict the restriction following behaviour: an evaluation of the government's competence, benevolence, integrity, general trust in government during the COVID-19, the perceived risk of government actions concerning oneself and one's family, as well as with respect to the evaluation of future economic prospects.

*Keywords: COVID-19 pandemic, political trust, risk-mitigating behaviour.*

## Introduction

In terms of following health behaviour guidelines, what makes a person a good citizen during the COVID-19 pandemic? Is it past behaviour (or habit)? Or, is it trust in the government and its policies? In the present paper, we try to answer this question by comparing trust in government and past behaviour as predictors of following behavioural restrictions during COVID-19 pandemic. One might follow one's usual route of actions, a habit may have established during an early stage of the COVID-19 pandemic, or a person may continue to follow a habitual pattern of action. As Ouellette and Wood (1998) put it, "well-practised behaviours in constant contexts recur because the processing that initiates and controls their performance becomes automatic" (p. 54). Studies during the COVID-19 pandemic have also demonstrated a set of variables, like perceived risk during the pandemic, subjective evaluation of economic well-being, and

demographic variables (see below for a brief review). The present study was designed to determine the extent political trust in government and positive evaluation of government action during the COVID-19 pandemic together with one's previous behaviour plays in explaining the predicted future restriction following behaviour of individuals during the COVID-19 pandemic.

For the needs of the present study, we define political trust as "a summary judgment that the [political] system is responsive, and will do what is right even in the absence of constant scrutiny" (Miller & Listhaug, 1990, p. 358). Several empirical studies have demonstrated that political trust predicts citizens' desirable behaviours, e. g., paying taxes (Alm & Torgler, 2006), or engaging in collective restraint in case of social dilemmas (Tyler & Degoey, 1995). Political trust also relates to one's willingness to support civil liberties (Davis & Silver, 2004). On the negative side, it has been shown that a lack of political trust promotes populist voting behaviour (Hetherington, 1999). The aim of the present study is to find the extent to which political trust may facilitate epidemiologically sound behaviour during the COVID-19 crisis, particularly the readiness to engage in COVID-19 restrictive behaviours.

In line with Rudolph (Rudolph, 2017; Rudolph & Popp, 2009), we assumed that political trust might act as both a simplifier of the decision process and as a provider of confidence for judgments under conditions of risk, and the policy in question may (or may not) be perceived as leading to desirable outcomes. During the COVID-19 pandemic, people that trust government would be more willing to engage in behaviour that may mitigate the pandemic, like following behavioural restrictions. This was the first prediction for our study.

Following the previous studies on trust in an institution, we choose four basic dimensions of trust: the perceived benevolence, competence, integrity (e. g., Grimmelikhuijsen & Meijer, 2014, Porat et al., 2020), and the associated risk (Herian et al., 2014). We expected that during the COVID-19 pandemic, the readiness to comply to restrictions would be positively correlated to the evaluation of governmental actions; specifically, these actions have to be perceived as being benevolent, competent, and to be following the principles of integrity (Porat et al., 2020). We also know that the generalized character of political trust in case of trust in one institution (government in case of our study) or the public administration in general, extends to the related policies (Christensen & Lægreid, 2005). Thus, we expected that trust in the public administration system would be positively correlated to the readiness to behave in accordance with COVID-19 restrictions.

In addition, based on previous findings we predicted that the perceived risk of government policy relating to oneself and one's family will be negatively correlated to behavioural restrictions promoted by the respective policy (Herian et al., 2014).

Besides those predictions, we had a set of others as well. It has been demonstrated that the world economy has been influenced by the spread of the pandemic and the related restrictive measures (Hossain et al., 2020). In addition, Zazher and Rudolph (2020) have demonstrated that subjective well-being (including measures of economic well-being) relates to efficient modes of coping behaviour during the pandemic. Thus, we expected that there would be a positive correlation between the predicted following COVID-19 restrictions and the subjective evaluation of the current economic situation. It has been demonstrated that optimism is related to predicted following COVID-19 restrictions (Jovančević & Milićević, 2020), consequently we expected that there would be a positive correlation between the predicted following COVID-19 restrictions and the economic situation that one expected in the future. In addition, we predicted that susceptibility to COVID-19 would correlate positively to one's readiness to follow COVID-19 restrictions since there have been similar findings during the COVID-19 pandemic (Nowak et al., 2020). Another variable found to predict predisposition to follow restrictions is gender. Galasso et. al (2020), in a cross-cultural study of eight countries, found that females are generally more prone to following patterns of risk-mitigating behaviour. Thus, the same pattern also formed a prediction for our study. As studies have demonstrated, age also predicts engagement in protective behaviour against COVID-19 – it declines with age (Fisher et al., 2020, Pasion et al., 2020), hence, we predicted that age would correlate negatively with following the restrictions.

## Method

### Participants

A total of 316 respondents (75.5% females, mean age = 36.55, $SD$ = 11.64) participated in the survey. We used the *QuestionPro* platform to collect data in an online survey. Question Pro is one of the leading data collection platforms for scientific surveys. The participants were recruited via *Facebook.com*, since our goal was to to test a set of correlational hypotheses not a representative sample (an almost impossible goal in case of collecting data on social networks), our goal was to obtain data of a sufficient variability. This goal is achievable by using a convenience sampling technique on social networks (Roberts, 2014). The data collection took place in May 2020, during the end of the first wave of the COVID-19 epidemic.

**Measures**

The study was conducted in Latvia, and the current government of Latvia was the target for the ratings. The measures were made on rating scales of different length (from 5 to 11 points), however, since the study is correlational in its essence, we sticked to the response scales which have had desmostrated a good variability in previous studies (Dimdins et al., 2019, Gaina et al., 2020). Also, for the sake of rising reliability of the measures, for some variables we used multiple items (like "The government is skilful in its job responsibilities" and "The government is competent (they have the skills and knowledge needed for the job)" for measuring government's competence. For the sake of readability all the questions are presented in Table 1. A more detailed explanation of the measures is given in the next sections.

*Following* COVID-19 *restrictions.* We operationalized predicted following government's restrictions by asking respondents to rate their agreement with the question "To what extent will you comply with the government's restrictions in the coming month?" on a seven-point scale, anchored at "not at all" (1) and "completely" (7). We had a single-item measure for past risk-mitigating behaviour: "How would you rate the extent to which you have complied with the government's restrictions so far during the COVID-19 pandemic?" with the same rating scale as for predicted behaviour.

*Ratings of the government.* For all the questions, a seven-point scale was used. It extended from "not at all" (1) to "completely" (7). A single question was asked to measure trust in government: "To what extent do you generally trust or distrust the government at this time during the COVID-19 pandemic?" Two questions measured the benevolence of government: "The government cares about the well-being of the people of Latvia" and "The government is ready to work selflessly for the benefit of Latvian voters" (Cronbach's alpha = .87). Two questions measured the competence of the government during the COVID-19 pandemic: "The government is skilful in its job responsibilities" and "The government is competent (they have the skills and knowledge needed for the job)" (Cronbach's alpha = .95). Two questions measured the integrity of the government: "The government is honest" and "The government is consistent in its words and deeds" (Cronbach's alpha = .87). We also measured the extent to which the respondents agreed with the statement that "Government action puts you and your family at risk, facilitates a sense of instability".

Three items measured the evaluation of the government's actions during the COVID-19 pandemic (informing society, introducing restrictions, and helping, which had to be assessed on a seven-point scale from "the government's action is entirely inappropriate to the situation" (1) to "the government's action is entirely appropriate to the situation" (7) (Cronbach's alpha = .84).

**Table 1.** Questionnaire items

| Dependent variable | Independent variables (questionnaire items) | Independent variables (indices) |
|---|---|---|
| To what extent will you comply with the government's restrictions in the coming month? | How would you rate the extent to which you have complied with the government's restrictions so far during the COVID-19 pandemic? | |
| | To what extent do you generally trust or distrust the government at this time during the COVID-19 pandemic? | |
| | The government cares about the well-being of the people of Latvia<br>The government is ready to work selflessly for the benefit of Latvian voters | Benevolence of the government |
| | The government is skilful in its job responsibilities<br>The government is competent (they have the skills and knowledge needed for the job) | Competence of the government during the COVID-19 pandemic |
| | The government is honest<br>The government is consistent in its words and deeds | Integrity of the government |
| | During the COVID-19 pandemic the government's actions were appropriate with respect to:<br>informing society, introducing restrictions, and helping | Evaluation of the government's actions during the COVID-19 pandemic |
| | To what extent do you trust or do not trust the public administration system of the Republic of Latvia as a whole? | |
| | Thinking about yourself now, how likely are you to get COVID-19 yourself? | |
| | How would you assess the current economic situation in Latvia? | |
| | How would you forecast the economic situation in Latvia in a year? | |
| | Have you had a positive COVID-19 test (a medically confirmed diagnosis of this disease)? | |

A related yet more general question was asked about one's trust in Latvian public administration system: "To what extent do you trust or do not trust the public administration system of the Republic of Latvia as a whole?" The answers were given on a five-point scale ranging from 1 – "do not trust" to 5 "completely trust".

*Subjective experience.* A single question measured the perceived risk of infection: "Thinking about yourself now, how likely are you to get COVID-19 yourself?" with a rating scale from 1 "definitely will not get" to 10 "definitely will get". The evaluation of the current and the predicted economic situation was measured by two questions: "How would you assess the current economic situation in Latvia?" and "How would you forecast the economic situation in Latvia in a year?" with ratings on a scale from -5 to 5, where "-5" means "very bad" and "5" means "very good". We also asked a single question about an experience with COVID-19 patients: "Have any of your relatives or friends tested positive for COVID-19 (a medically confirmed diagnosis of the disease)?" as well as "Have you had apositive COVID-19 test (a medically confirmed diagnosis of this disease)?". (Since none of the respondents gave a positive answer to the last question, we excluded this variable from the remaining analysis.)

## Results

Means, standard deviations and intercorrelations of the study variables are presented in Table 1. The majority of the predicted correlations except for four were confirmed. Three of those, which were not confirmed, were not statistically significant (familiarity with a COVID-19 positive person, risk of getting COVID-19, and predicted economic development), while another was correlated in the opposite direction to that predicted – there was a positive correlation of age to the predicted extent of following COVID-19 restrictions.

We regressed all the variables, which correlated to the predicted readiness to engage in mitigating behaviour in the future on this variable to determine the relative degree of the extent, to which each variable explains the predicted following of the restrictions.

We used a forward stepwise OLS linear regression. The computation of the model ended in two steps. There were two positive predictions: those who were already following restrictions were more ready to follow this pattern of behaviour in the future as well, and those evaluating government actions during the COVID-19 epidemic more positively were ready to follow COVID-19 to a greater extent in the future as well. The regression model explained fifty-nine percent of the variance in the dependent variable can be explained by the explanatory variables. This amount is generally considered to be a good fit of the model (Allison, 1999).

**Table 2.** Descriptive statistics and Pearson correlation matrix of study variables ($N = 316$)

| | Variable | M | SD | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. | Future behaviour | 5.54 | 1.23 | – | | | | | | | | | | | | | | |
| 2. | Past behaviour | 5.83 | 1.10 | .71** | – | | | | | | | | | | | | | |
| 3. | Benevolence | 4.25 | 1.73 | .35** | .13 | – | | | | | | | | | | | | |
| 4. | Competence | 4.52 | 1.63 | .34* | .14* | .83** | – | | | | | | | | | | | |
| 5. | Integrity | 3.98 | 1.72 | .35** | .16* | .85** | .85** | – | | | | | | | | | | |
| 6. | Governement actions C19 | 5.21 | 1.33 | .46** | .25** | .70** | .68** | .65** | – | | | | | | | | | |
| 7. | Trust in administrative system | 4.19 | 1.58 | .32** | .18** | .65** | .67** | .70** | .60** | – | | | | | | | | |
| 8. | Trust in governement C19 | 4.89 | 1.80 | .45** | .24** | .80** | .74** | .76** | .80** | .71** | – | | | | | | | |
| 9. | Knows covid positive person | | | -.10 | -.13 | -.09 | -.14* | -.14* | -.06 | -.14* | -.10 | – | | | | | | |
| 10. | Perceieved C19 risk | 5.47 | 1.74 | .12 | .11 | .03 | -.01 | .03 | .11 | .07 | .10 | .06 | – | | | | | |
| 11. | Current economy | 5.46 | 2.25 | .22** | .08 | .49** | .49** | .50** | .45** | .59** | .59** | -.06 | .10 | – | | | | |
| 12. | Predicted economy | 5.56 | 2.37 | .09 | .00 | .41** | .48** | .44** | .40** | .46** | .45** | -.12 | -.07 | .52** | – | | | |
| 13. | Predicted personal economy | 7.04 | 2.40 | .19** | .08 | .44** | .42** | .50** | .37** | .39** | .46** | -.15* | .03 | .44** | .41** | – | | |
| 14. | gender (F = 1, M = 2) | | | -.09 | -.12 | -.00 | -.07 | -.01 | -.10 | .05 | -.01 | -.05 | .05 | .17* | .13 | .07 | – | |
| 15. | age | 36.55 | 11.64 | .19** | .22** | -.03 | .04 | .09 | -.00 | .12 | .13 | -.08 | -.05 | .130 | .15* | .11 | .10 | – |

*$p < .05$, **$p < .01$

**Table 3.** Summary of regression (forward stepwise) analysis

| Model | Predictor | | | beta | t |
|---|---|---|---|---|---|
| 1[1] | (Intercept) | 0.95 | 0.31 | | 3.01** |
| | Past bevaviour | 0.79 | 0.05 | .72 | 14.90*** |
| 2[2] | (Intercept) | 0.07 | 0.32 | | -.21 |
| | Past behaviour | 0.71 | 0.05 | .64 | 13.91*** |
| | Governement actions C19 | 0.26 | 0.04 | .28 | 6.12*** |

Dependent variable: agreement to the question "To what extent will you comply with the government's restrictions in the coming month?"
***$p < .001$ **$p < .01$
[1] $R^2 = .52$, $F = (1, 207) = 221.91$, $p < .001$
[2] $R^2 = .59$, $F = (1, 206) = 149.28$, $p < .001$

## Discussion

The results confirmed a majority of predicted correlations. However, there were four that were not confirmed. The predicted extent of following COVID-19 restrictions did not correlate to (1) familiarity with a COVID-19 positive person, (2) the perceived susceptibility to COVID-19, (3) the economic situation that one expected in the future, as well as (4) no gender differences were found. A variable that correlated in the opposite direction of the prediction was age – it correlated positively to the predicted extent of following government's restrictions. This contradicts the pattern found in other studies (e. g., Fisher et al., 2020; Pasion et al., 2020), showing that engagement in protective behaviours declines with age. It seems that our data generally followed inverted-U pattern across respondents. Age (as described in Duell et al., 2017) in this respect would be that by getting older, one gets more rational since an older person is exposed to a greater extent of COVID-19 risk and therefore expects to act in accordance with this level of risk. Because there were very few older respondents, we got only one half of the generally found U pattern in our data. There were no gender differences in willingness to follow risk-mitigating behaviour either. This contradicts the results from other countries, e. g. Galasso et al. (2020) from eight countries, where females scored higher in following patterns of behavioural restrictions. Our study seems to be in line with the few studies where gender differences are less expressed, like the study of Rodriguez-Besteiro et al. (2021) who found very similar behavioural patterns for females and males during COVID-19 pandemic in the sample of Spanish students.

The pattern of regression shows that the judgment of government (in our findings indirectly, in terms of positive evaluation of government actions during COVID-19) does indeed play an important role in the ratings

of the extent to which one will follow restrictions in the future. This variable seems to be a central one in terms of uniting different variables, which predict following of restrictions: an evaluation of the government's competence, benevolence, integrity, general trust in government during the COVID-19, the perceived risk of government actions concerning oneself and one's family, as well as with respect to the evaluation of future economic prospects. These findings illustrate the importance of a concept closely related to political trust – evaluation of government's actions during the pandemic in ensuring public compliance with COVID-19 restrictions (and public healthcare crises in general). Although our regression model did not isolate trust in government as a separate significant predictor of the readiness to comply with governmental restrictions, the correlation analysis shows that in terms of magnitude of explained variance both trust in government and evaluation of governments actions during the pandemic are similarly related to the readiness to comply. Our findings also demonstrate how past compliance (possibly not related to experienced political trust) is an important predictor of future following governmental restrictions. In case governmental institutions, or any other organizations, are willing to take a long-term approach to increase COVID-19 mitigating practices among citizens, they should take into account building and taking care of trust in public authorities, which, in the case of pandemics or similar crises, may include transparent decision making in combination with clear and consistent communication.

One limitation of the present study is that we did not survey covid-positive persons, by that limiting our findings to covin-negative population. Also, the present paper does not answer the question regarding the source of initial causes for compliant behaviour. There might be several sources, like habit or the following of a social norm. Finding reasons and causes for past compliance behaviour could form another line of research for future studies, and longitudinal studies might be helpful in this respect.

## Conclusions

The main conclusion of the present study is that various aspects of evaluation of the government and its actions in the context of the COVID-19 pandemic (like the perceived benevolence, integrity, and competence of the government, the evaluation of specific governmental actions during the pandemic, and the overall trust in the government) are highly interrelated and may be seen as different expressions of political trust. Hence political trust in government plays a substantial role in predicting readiness to comply with governmental restrictions during the COVID-19 pandemic, adding predictive power to the previous behaviour in following restrictions in the past.

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# NON-COGNITIVE PREDICTORS OF SUBJECTIVE JOB PERFORMANCE IN A SAMPLE OF MANAGERS, CLIENT SUPPORT AND ADMINISTRATIVE SUPPORT SPECIALISTS

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## ABSTRACT

The present study was designed to distinguish non-cognitive predictors of job performance for various job groups in order to develop a method for identification of the suitability of an employee for positions and career development in organizational settings. This study included personality traits, vocational interests, grit, growth mindset, resistance to change, goal orientation and self-efficacy as potential predictors of job performance from several individual characteristics related to training, learning and job performance found in the literature. The study sample included customer service specialists, support specialists and managers from five different companies in Latvia. The results show that grit, social, conventional, and enterprising interests are significant predictors of subjective job performance. Personality traits, self-efficacy, growth mindset, resistance to change and goal orientation did not predict job performance in this sample. The relationship between subjective job performance and personality traits for conscientiousness and neuroticism is weak. The results are partly in line with other studies. Possible explanations of results and future directions are offered.

***Keywords:*** *individual characteristics, job performance, personality, vocational interests.*

## Introduction

According to individual-environmental fit theories (Edwards, 2008; Kristof-Brown & Guay, 2011; Su et al., 2015), the congruence between characteristics of employees and characteristics of working environment (e. g. compatibility of personality traits, abilities, and values with job requirements and organizational culture) is essential in the field of career counselling, personnel management and industrial and organizational psychology. Although research on individual differences has been ongoing for

over 100 years (Sackett et al., 2017), vocational interests are also valid predictor of job performance (Nye et al., 2012, 2017) above and beyond cognitive abilities and personality, in addition to cognitive abilities and personality traits that are stable individual characteristics for predicting job performance (Salgado, Anderson, et al., 2003; Salgado, Moscoso, et al., 2003; Salgado, 2017; Schmidt et al., 2016; Schmidt & Hunter, 1998). As workplaces change rapidly, the needs of future employees also may change – such skills as flexibility and learning are among the 21st century employability skills (De Fruyt et al., 2015), therefore additional predictors of job performance may be explored. The present study included personality traits, vocational interests, grit, growth mindset, resistance to change, goal orientation and self-efficacy as potential predictors of job performance from a number of individual characteristics discussed in the literature related to training, learning and job performance.

## Non-cognitive predictors of training, learning and job performance

*Personality* as a stable individual characteristic of employees has been researched in work settings (Rojon et al., 2015; Sackett & Walmsley, 2014; Salgado, 1997, 2017; Schmidt et al., 2016; Schmidt & Hunter, 1998). Costa (1996) states that personality can be explained by five core factors – extraversion, agreeableness, openness to experience, conscientiousness, and neuroticism. Two widely studied personality traits in relation to job performance are conscientiousness (Barrick et al., 2001; Costa, 1996; Salgado, 1997) and neuroticism (as opposite to Emotional Stability, John et al., 2008). In recent years (Johnson et al., 2011; Lee et al., 2019), the HEXACO model of personality has been investigated in addition to Five Factor model or Big Five. Those studies conclude that humbleness-humility demonstrates an incremental validity over other individual characteristics in relation to counterproductive job performance (Lee et al., 2019) and is a unique predictor of job performance (Johnson et al., 2011). The impression management strategies used by employees may distort the results of personality profile in high-stakes situations, therefore the forced-choice format of personality assessments has been proposed (Salgado & Táuriz, 2014; Salgado & Lado, 2018). Although the faking may not always be prevented (Huber et al., 2021), forced-choice questionnaires are better predictors of job performance if compared to normative or ipsative measures (Salgado & Táuriz, 2014), therefore this study assesses personality in multidimensional forced-choice format as well.

Based on previous findings, it was expected that:

H1: Conscientiousness would positively correlate to overall job performance.

H2:　Neuroticism would negatively correlate to overall job performance.

H3:　Extraversion would positively correlate to overall job performance.

*Vocational interests.* Vocational interests are trait-like characteristics of motivational and behavioral preferences towards specific environments and activities (Rounds & Su, 2014). Research on the stability of vocational interests suggests that vocational interests show some stability and changes over time (Hoff et al., 2020; Morris, 2016; Nye et al., 2020; Schultz et al., 2017), similarly to personality traits that show some malleability during lifetime. Holland (1959, 1996) described six types of vocational personalities (RIASEC model) representing realistic, investigative, artistic, social, enterprising and conventional personalities and environments. Although previously referred to as personality types, more recently the RIASEC model has been used as a conceptual framework for interests, not personality (Stoll et al., 2021; Su, 2020). Recent research has demonstrated that vocational interests are important in work performance (Nye et al., 2012) since interests may influence motivation and goal-attainment through direction, vigor and persistence (Su, 2020). Meta-analytical results of 60 studies conducted until 2010 (Nye et al., 2012) report moderate relationships between job performance and interests in the employee samples. Interest congruence (matching the interest profile with the occupation profile) has higher correlation with job performance than simple interest scores. Meta-analytical results of 92 studies until 2016 (Nye et al., 2017) report baseline correlation with job performance of .16 and interest congruence .32 with job performance. Weaker relationship between interest scores and interest congruence relationship with job performance are reported in meta-analysis of Van Iddekinge (Van Iddekinge, Roth, et al., 2011). This evidence suggests that vocational interests may have the incremental validity for predicting job performance over personality and cognitive abilities (Su, 2020; Van Iddekinge, Putka, et al., 2011). Researchers have noted that personality traits and vocational interests correlate (Barrick et al., 2003; Mount et al., 2005). Additionally, the HEXACO model of personality explains more variance related to vocational interests than the Five Factor model of personality (McKay & Tokar, 2012). Based on previous findings we formulated a research question for this study:

Q1.　Are vocational interests a predictor of overall job performance? To what extent vocational interests add predictive power to personality traits in predicting job performance?

*Grit* is defined as passion and perseverance toward accomplishing long term goals (Duckworth et al., 2007) and has been studied in educational settings as one of the non-cognitive traits that helps explain success in education above cognitive abilities and conscientiousness. Although some mixed

results have been received in research on educational success (Ivcevic & Brackett, 2014) and the validity of the construct of grit have been questioned over conscientiousness (Crede et al., 2016; Ion et al., 2017), the results of the study in a military sector for a high-stress course achievement suggest some usefulness of grittier individuals for predicting success in high-stakes training settings (Farina et al., 2019). Recent review of grit literature (Southwick et al., 2019) suggest that grit may have predictive power in work and organizational settings. In line with previous research, the second research question was proposed as follows:

Q2.   Does grit predict job performance above conscientiousness? To what extent grit adds predictive power to personality traits in predicting job performance?

*Growth versus fixed mindset.* Implicit theories of malleability of individual attributes such as personality, or intelligence have been researched in educational settings in the context of challenge seeking and performance (Dweck & Yeager, 2019). A fixed mindset (belief that human attributes cannot be changed) is negatively related to academic achievement through personal attributions, performance-avoidance goals and effort beliefs. Although most exclusively researched in educational settings, there is some evidence that implicit beliefs of employees impact their behavior in work settings. In a sample of sales employees (Zingoni & Corey, 2017) those with more incremental beliefs (growth mindset) had higher job performance ($r = .40$) and implicit beliefs on personal attributes predicted job performance ($\beta = .45$, $p < .001$). In a sample of managers (Heslin & VandeWalle, 2008), assumptions of personnel impacted their performance evaluation. Regarding relationship with personality traits, growth theory of work is positively related to extroversion, agreeableness, conscientiousness and openness, while destiny (fixed) theory of work is negatively related to agreeableness, conscientiousness, emotional stability and openness (Burnette & Pollack, 2013). There has also been some criticism of mindset theory (Burgoyne et al., 2020) regarding weak associations with claimed motivational premises. Due to insufficient evidence for growth mindset and relations to job performance, the third research question was proposed:

Q3.   Does growth mindset predict overall job performance?

*Resistance to change* as a dispositional attribute may have implications for work productivity (Bruckman, 2008) along with other organizational outcomes such as turnover, decreased loyalty or higher absenteeism. Across various cultures, resistance to change consists of four factors – emotional reaction, short-term focus, cognitive rigidity and routine seeking behaviors (Oreg et al., 2008). To our knowledge, no study so far has directly addressed the question of resistance to change and job performance, thus we proposed the fourth research question:

Q4.    Is resistance to change negatively related to overall job performance?

*Goal orientation* refers to goal preferences by individuals in situations related to achievement, it has been proposed to be a dispositional attribute (Theis & Bipp, 2020) consisting of three dimensions (Vandewalle, 1997) – a) learning goal orientation is choosing work related activities to learn new skills, b) avoiding goal orientation is choosing to avoid work related activities that includes situations where someone might look incompetent, and c) proving-performance goal orientation is choosing work related activities in which individual can demonstrate his/her competence. Dispositional learning goal orientation was positively related to all of the work performance dimensions – learning, task and contextual performance – in an employee sample (Theis & Bipp, 2020) and to the task performance in a student sample (Yeo et al., 2009). Together with vocational interests, mastery (learning) goal orientation mediates relationship between investigative and enterprising interests and voluntary continuing professional education in a sample of healthcare professionals (Johnson & Beehr, 2014). In line with those research findings, we proposed the fifth research question:

Q5.    Is goal orientation related to overall job performance?

*Self-efficacy* has been studied jointly with personality and general mental ability in a meta-analytical review of individual differences in predicting task and job performance (Judge et al., 2007). Self-efficacy moderately correlates with work performance as one of the core self-evaluations, although cognitive abilities and personality predict job performance better than self-efficacy. In a review of work-related performance (Stajkovic & Luthans, 1998), self-efficacy was moderately (.38) related to work performance, thus we proposed the sixth research question:

Q6.    Does self-efficacy predict overall job performance above other personality traits?

Non-ability traits, such as social interests, help seeking, peer learning, agreeableness, extraversion, and job performance have been studied in job settings with student samples (Kanfer et al., 2010), where non-ability complexes predicted job performance better than abilities alone. We proposed the final research question, based on the previous research in individual attributes and their relations to job performance:

Q7.    Which of the non-cognitive attributes predict job performance in a sample of managers, client support and administrative support specialists?

## Method

### Participants and procedure

During 2019 and 2020, employees working in five different organizations in Latvia were asked to participate in the study. The final sample consisted of 332 employees of support specialists ($n = 52$), sales and client support specialists ($n = 163$), and supervisors and managers ($n = 117$). 88% of participants were women, 75% had a university degree or degrees; age ranged from 18 to 68 years old ($M = 39.98$, $SD = 10.83$) and the average years of tenure was 7.13 ($Me = 4.00$ years). Employees were invited to participate in internet-based survey through the Human Resource departments of the organizations. The personality and interest profiles of employees were provided individually if requested, to motivate completing the survey.

### Measures

*Personality traits.* Based on Latvian Personality Inventory (LPA v-3; Perepjolkina & Reņģe, 2013) a multi-dimensional forced-choice personality inventory was designed for this study. The questionnaire consisted of 18 blocks of 4-choice-statements representing different personality factors (humility, extraversion, conscientiousness, agreeableness, openness and neuroticism). In each of the blocks respondents marked one statement that describes him/her the most and one statement that describes him/her the least. A sample item is provided in Table 1, a respondent chooses one of the four items in a block that describe him/her the most and one of the four items that describes him/her the least. A pilot study of this questionnaire in a sample of students ($n = 178$) revealed acceptable convergent validity ( .62 to .73 for conscientiousness, openness, extraversion, and neuroticism) in traits respective to Big Five questionnaire, except for agreeableness ( .48).

**Table 1.** A sample of personality forced-choice item block 1 with respective personality factors

| Block 1 | Respective personality factor |
|---|---|
| I am very accurate person | Conscientiousness |
| I cannot lie | Humbleness – Humility |
| I do not take the initiative to meet other people | Extraversion |
| I sometimes tend to be sarcastic and vitriolic | Agreeableness |

*Vocational interests.* Latvian Questionnaire of Vocational Interests (LQVI; Berga & Austers, 2021) based on Holland's (1996) RIASEC model measured six scales of vocational interests (realistic (R), investigative (I), artistic (A), social (S), enterprising (E) and conventional (C)). Two control questions were included to eliminate those who responded carelessly (e. g., please, select the option 'disagree'). Internal reliability of LQVI interest scales are as follows (Berga & Austers, 2021): realistic $\alpha = .77$, investigative $\alpha = .81$, artistic $\alpha = .83$, social $\alpha = .79$, enterprising $\alpha = .84$, and conventional $\alpha = .77$ (for full LQVI development and items refer to Berga & Austers, 2021).

*Grit* was measured with the Short Grit scale (Grit-S; Duckworth & Quinn, 2009) that was adapted in Latvian for this study. The scale consisted of eight questions measuring the perseverance of effort and the consistency of interests.

*Growth mindset.* 'Kind of Person' Implicit Theory Scale (Dweck, 1999; Dweck et al., 1995) that was adapted in Latvian for this study was used to measure growth mindset. The scale consisted of eight statements measuring growth or fixed mindset.

*Resistance to change.* Resistance to change scale (Oreg, 2003) consisting of 17 statements was used to measure four subscales of dispositional resistance to change: routine seeking, emotional reaction, short-term thinking and cognitive rigidity. The scale was adapted in Latvian for this study.

*Goal orientation.* Goal orientation questionnaire (GO; VandeWalle, 1997) consisting of 12 statements measured three goal orientations: learning goal orientation, proving-performance goal orientation and avoiding-performance goal orientation.

*Self-efficacy.* General self-efficacy scale (GSE; Schwarzer & Jerusalem, 1995) consisting of 10 statements was modified and adapted in Latvian for this study. To ensure the similarity of various Likert scales, the answers were provided in 5-point Likert scale instead of 4-point Likert scale as in original.

*Job performance* was measured by 3 statements of subjective job performance questions ("Overall, how do you rate your job performance during the last 6 months?" and "How do you think your supervisor… " and "How do you think your peers…" depending on the perspective a respondent had to take). The question was answered on a scale from 1 – unsatisfactory to 10 – excellent. Averaged result of subjective, subjective-supervisor and subjective-peer rating was calculated as overall subjective job performance measure.

## Results

Table 2 summarizes the descriptive statistics of individual variables measured and correlations with subjective job performance.

**Table 2.** Descriptive statistics and Spearman's rank-order correlation for study variables ($n = 332$)

| Variable | Dimensions | *M* | *SD* | Job Performance |
|---|---|---|---|---|
| Job performance | | 7.83 | 1.04 | – |
| Vocational Interests | Realistic | 32.26 | 6.82 | .00 |
| | Investigative | 29.22 | 6.16 | -.01 |
| | Artistic | 27.68 | 7.52 | -.00 |
| | Social | 34.66 | 5.79 | .01 |
| | Enterprising | 33.65 | 7.21 | .17** |
| | Conventional | 38.35 | 5.45 | .14** |
| Personality traits | Conscientiousness | 14.47 | 4.12 | .17** |
| | Humility | 15.28 | 2.92 | .00 |
| | Extraversion | 14.26 | 3.96 | .06 |
| | Agreeableness | 13.51 | 3.34 | .02 |
| | Openness | 13.05 | 2.92 | -.11 |
| | Neuroticism | 11.76 | 3.85 | -.12* |
| Grit | | 3.55 | .47 | .30** |
| Self-efficacy | | 3.60 | .57 | .14* |
| Goal orientation (GO) | Learning GO | 3.78 | .71 | .06 |
| | Performance GO | 3.40 | .88 | .03 |
| | Avoiding GO | 2.73 | .87 | -.08 |
| Resistance to change | Routing seeking | 2.51 | .78 | -.03 |
| | Emotional reaction | 3.32 | .86 | -.03 |
| | Cognitive rigidity | 3.48 | .72 | .08 |
| | Short-term focus | 2.69 | .77 | .00 |
| Growth mindset | | 3.36 | .79 | .07 |
| Demographic variables | Tenure in organization | 11.21 | 9.52 | .05 |
| | Tenure in occupation | 7.48 | 8.59 | .02 |
| | Age | 40.33 | 10.87 | .03 |
| | Gender | 1.10[a] | .31 | -.10 |

*Note.* [a] – male coded as 1, female as 2
*p* < .05; **p* < .01

The first hypothesis was confirmed: conscientiousness was positively, but weakly, related to job performance ($r_s = .17$, $p < .01$). The second hypothesis was also confirmed: neuroticism (as opposite to emotional stability) was negatively, but weakly, related to overall job performance ($r_s = -.12$, $p < .05$). The third hypothesis was rejected: extraversion was not related to job performance.

With respect to research questions number 3, 4 and 5 there were no statistically significant correlations, neither growth mindset, neither goal orientations, nor resistance to change were related to job performance in a sample of managers, client support and administrative support specialists.

To answer the research questions number 1, 2, 6 and 7 – whether vocational interests, grit, self-efficacy, and other non-cognitive variables predict job performance, stepwise regression analysis with all these variables as predictors was performed on job performance as a criterion variable. Due to some missing data that respondents did not want to disclose, the final sample consisted of 301 participants for regression analysis. Results of regression analysis suggest that grit is predictive of job performance ($\beta = .25$, $p < .01$), and adding vocational interests – conventional, enterprising, and social – in a model explains 13% of variance in subjective job performance (Model 4 in Table 3). Regarding the first research question with respect to vocational interests as predictors of job performance in a sample of managers, client support and administrative support specialists, conventional interests (in Model 5, $\beta = .20$, $p < .01$), enterprising interests (in Model 5, $\beta = .25$, $p < .01$) and social interests, albeit negatively (in Model 5, $\beta = -.17$, $p < .05$), were statistically significant predictors of job performance, together with grit and gender they explained 14% of variation in job performance. Regarding the second research question about grit as a predictor of job performance – grit alone can explain 6% of variation in job performance (Model 1, $\beta = .25$, $p < .01$, $R^2 = .06$). Regarding research question number six – self-efficacy was not a statistically significant predictor of job performance as it was excluded from the regression model.

And overall, regarding final research question – which of the non-cognitive attributes predict job performance in a sample of managers, client support and administrative support specialists – five statistically significant predictors were found in regression analysis (Model 5) – grit, conventional interests, enterprising interests, social interests, and gender ($r = .38$, $p < .01$; $R^2 = .14$) explaining 14% of variance in subjective job performance measure.

**Table 3.** Stepwise linear regression model for predicting subjective job performance ($n = 301$)

|  | *Predictor* | *b* | *beta* | Fit | Difference |
|---|---|---|---|---|---|
| Model 1 | (constant) | 5.89** | | | |
| | Grit | .55** | .25** | | |
| | | | | $R^2 = .06**$ | |
| Model 2 | (constant) | 4.91** | | | |
| | Grit | .46** | .21** | | |
| | Conventional interests | .03** | .18** | | |
| | | | | $R^2 = .09**$ | $\Delta R^2 = .03**$ |
| Model 3 | (constant) | 4.24** | | | |
| | Grit | .41** | .18** | | |
| | Conventional interests | .04** | .19** | | |
| | Enterprising interests | .02** | .15** | | |
| | | | | $R^2 = .11**$ | $\Delta R^2 = .02**$ |
| Model 4 | (constant) | 4.64** | | | |
| | Grit | .39** | .17** | | |
| | Conventional interests | .04** | .22** | | |
| | Enterprising interests | .03** | .23** | | |
| | Social interests | -.03* | -.15* | | |
| | | | | $R^2 = .13**$ | $\Delta R^2 = .02*$ |
| Model 5 | (constant) | 5.50** | | | |
| | Grit | .35** | .16** | | |
| | Conventional interests | .04** | .20** | | |
| | Enterprising interests | .04** | .25** | | |
| | Social interests | -.03* | -.17* | | |
| | Gender | -.44* | -.13* | | |
| | | | | $R^2 = .14**$ | $\Delta R^2 = .02*$ |

*Note.* *p < .05; **p < .01. *b*-unstandardized regression weights, *beta*-standardized regression weights

## Discussion

The purpose of this study was to test which non-cognitive individual attributes are predictive of subjective job performance in a sample of managers, client support and administrative support specialists working in various organizations. Although general mental abilities have been widely accepted as most predictive of work-related performance (Bertua et al., 2005; Gonzalez-Mulé et al., 2014; Salgado, Moscoso, et al., 2003; Schmidt & Hunter, 1998) such individual characteristics as personality traits, vocational interests and other self-concepts has been researched in work settings as well (Judge et al., 2007; Nye et al., 2012; Sackett et al., 2017).

Two of three study hypotheses were confirmed – conscientiousness and neuroticism from personality traits are related to job performance in line with the previous research. Although it is worth noting the correlations were weak in comparison to the meta-analytical studies where averaged correlation was .27 (Barrick et al., 2001). The relations of these traits may be lower as the multidimensional format of forced choices may not capture the variability of personality traits as good as Likert-type measures due to the specific measurement of personality traits. Third hypothesis – that extraversion will be positively related to job performance – was rejected. The results are somewhat surprising due to the advantages of extraversion in the contemporary world of work (Wilmot et al., 2019) and the sample of employees that include close relations with others (managing and consulting, supporting others). One possible explanation for this is the forced-choice multidimensional measure of personality that sometimes forces one to mark statements as the most important characteristic even if the statement is not fully characteristic of an individual, which contrasts with Likert-type scales that are used in the majority of cases. Other explanation of this finding may be due to various professions included in the sample – managers should be more assertive due to task demands in working with others, and some administrative support specialists, for example, an office administrator in relation to job performance should be more oriented to details as compared to being social and assertive. Third, the gathering of data was conducted during the time of restricted social contacts due to COVID-19 pandemic, so the advantages of extraversion may not fully manifest itself in telework settings.

The present study sheds light on how vocational interests can be used in predicting job performance. This study demonstrates that vocational interests should be included as one of the variables in the research of job performance although previously it has been neglected variable in personnel selection and training (e. g., Schmidt & Hunter, 1998; Nye et al., 2012). Conventional, enterprising, and social interests were predictive of

job performance in this sample – vocational interests as an individual characteristic help to explain why some of the employees are more successful in their jobs than others. In line with recent meta-analytical conclusions (Nye et al., 2012, 2017), vocational interests should be added to individual characteristics that may distinguish higher achievers. Although unexpectedly, social interests predicted subjective job performance negatively in this sample, and this is somewhat surprising, given that Holland's theory of vocational personalities state that those with more expressed social interests should be more productive in an environment that is related to helping or training others. One possible explanation for this may be that those who are more prone to helping behaviors may sometimes be counterproductive by choosing to spend more time helping others rather than engaging in their individual work tasks.

Regarding research questions of other individual characteristics – grit, growth mindset, resistance to change, goal orientation and self-efficacy – as potential predictors of job performance, only grit positively predicted subjective job performance. As some researchers note (Crede et al., 2016), grit may not be distinctive from the personality conscientiousness trait. If this is the case, the dominance of grit in the prediction of job performance may not be that surprising – perseverance for long-term goals and accomplishing those goals may be the most relevant characteristic of job performance in a contemporary job environment.

This study has some practical implications in relation to vocational interest measures in work settings. As a previously neglected characteristic of individual attributes that shape educational choice (Su, 2020), the research of vocational interests should be more explored in work settings. If vocational interests are valid predictors of job performance in the sample of a present study, that implies the use of vocational interests in other applied settings such as personnel placement or even in job transitions. Future research should explore the congruence between vocational interests and the work environment as the congruence of interests are stronger related to job performance (Nye et al., 2017) to better understand the interest-performance relations in work settings.

Some limitations of study must be mentioned as well. Firstly, regarding the sample of employees – the participation was voluntary, the sample consisted mostly of women, therefore the sample was not representative of the employee population. Secondly, all the measures of performance were self-reported, that is subjective, and may not reflect the performance as observed by supervisors or may not be objective measures of work performance. Thirdly, only an overall job performance measure was included in the study, although work performance may be studied as a multidimensional construct that includes task performance, contextual performance,

and counterproductive performance. Future studies should explore whether different work-related constructs are differently related to various dimensions of work performance.

## Conclusions

- This study confirms that some personality traits and vocational interests are related to job performance, specifically, conscientiousness, neuroticism from personality traits and conventional and enterprising interests from vocational interests.
- Grit as perseverance to long-term goals was the most valid predictor of job performance in a sample of managers, client support and administrative support specialists.
- Future research should explore interest-performance, personality-performance, and grit-performance relations in more detail under conditions of various forms of work performance.

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# SUCCESS AND FAILURE EFFECT ON SELF-EFFICACY AND PERFORMANCE: AN EXPERIMENTAL STUDY

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**ABSTRACT**

There is much correlational research singing praises for the validity and importance of self-efficacy. As well most people believe that optimistic view of one's capabilities would lead to higher performance. Some experimental research has cast doubt over the pervasive assumption that higher self-efficacy leads to higher performance. Specifically Control theory as opposed to the widespread Social Cognitive theory, argues that lower self-efficacy should result in higher performance. In this study we aimed to better understand the link between self-efficacy and performance, through both within and between individual comparison and to test whether a change in self-efficacy would lead to change in performance. To do this we carried out a single blind randomized between group experiment, where self-efficacy was manipulated with false feedback. The results showed that indeed self-efficacy shows a positive correlation with performance. Nevertheless, after the false feedback the positive and negative feedback groups did not differ in their performance on the second trial. In addition, the initial self-efficacy was significantly higher than any of the later self-efficacy measurements and higher than the actual performance on both occasions, but all the other self-efficacy measurements where not different from the actual performance scores. From the results it seems that self-efficacy is more of an ability to predict one's performance rather than a belief in one's capabilities. Since the randomization allowed to assume that both group's capabilities are the same, a decrease in self-efficacy did not affect performance. It could be that the overall positive correlation of self-efficacy and performance found in most correlational research is due to the confounding of actual capabilities. Actual capabilities being the cause of higher self-efficacy and higher performance. At least this seems to be true for simple fine motor tasks.

**Keywords:** *expectations, false feedback, performance, self-efficacy, success/failure.*

## Introduction

Humans as opposed to most other living creatures have the ability to think about future (Roberts, 2002) and to take these thoughts into account when deciding on the best course of action (Baumeister et al., 2016). In

general, when thinking about the future people are inclined to value optimistic thinking and prescribe optimistic thinking to others believing that it will increase performance (Armor et al., 2008; Tenney et al., 2015). Nevertheless, in the scientific literature there is no strict consensus on whether changes in psychological qualities increase future performance (Doron & Gaudreau, 2014; Miller & Weinberg, 1991; Vancouver & Kendall, 2006; Vancouver et al., 2002; Vancouver et al., 2001; Woodman et al., 2010). This nonconclusive state of affairs is evident in different areas of human performance. For example, in sports after more than thirty years on the effects of psychological momentum the main conclusion has been that it as an artifact of performance not a cause (Avugos & Bari-Eli, 2015), there have been even studies that show that increased self-efficacy can lead to detrimental behaviors, in workplace performance (Whyte & Saks, 2007) in analytical tasks (Vancouver et al., 2002), group decision making (Whyte, 1998) and others.

One of the most researched aspects of psychological phenomena and its relationship to performance has been self-efficacy (Avugos & Bari-Eli, 2015). Self-efficacy has been developed within the Social Cognitive theory (SCT; Bandrua, 1977), mainly suggesting that increasing one's self-efficacy (almost indefinitely) will have beneficial effects on performance. On the other side of the discussion are those who explain the effects of self-efficacy and performance through Control theory (Powers, 1978). From the later perspective higher self-efficacy would predict lower performance.

Bandura (1997) has written that: "People often fail to perform optimally even though they know full well what to do and possess the requisite skills to do it" (p. 37). He argues that self-efficacy is the missing link between actual skills and performance and that self-efficacy is an underlying factor of performance in any domain. Bandura (1977) introduced the concept of self-efficacy and defined it as an expectation of one's capabilities to carry out the behaviors needed for achieving an outcome. In theory self-efficacy affects the persons decision to engage in a behavior, how much effort they will exert and how long they will persist in a certain course of action. Importantly Bandura (1977) argues that: "The stronger the perceived self-efficacy, the more active the efforts." (p. 194).

A different approach to the effects of self-efficacy on performance can be found in the cybernetic or control system approach (Powers, 1978). From the perspective of Control theory (CT; Powers, 1978) higher self-efficacy would lead to less effort, since if one is so capable there is no need to exert extra effort to achieve one's goals (Vancouver et al., 2001). Another distinction is that within CT the perceived current performance or state and its cognitive perception influence the persons behavior. Accordingly, failure would signal to the person that the discrepancy between reality

and the desired state has increased. This would create mental tension and hence more motivation to reduce it. Even Bandura (1977) himself noted that individuals set forth standards to which they compare their performance. Bandura (1977) theorized that, when the performance exceeds the standards put forth, the person feels a self-induced reward. These rewards in turn maintain the persons efforts to continue to meet those standards. In the case of failure, the person feels unsatisfied, which in turn motivates corrective changes in behavior. Thus, for Bandura (1977) failure and success leads to increase in performance, but for CT (Powers, 1978) failure leads to an increase, but success to a decrease in performance.

The general line of empirical research on self-efficacy shows that the tendency to hold optimistic or higher efficacy beliefs leads to better performance (e. g. Bandura, 1997; Stajkovic & Luthans, 1998). Meta-analysis reveals that self-efficacy is more strongly related to performance than cognitive anxiety (Moritz et al., 2000; Woodman & Hardy, 2003). Other research shows that increasing efficacy expectations has greater effect on performance than those of goal setting, feedback, or behavior modifications (Stajkovic & Luthans, 1998). In athletic domains self-efficacy predicts positive effects on performance in such sports as diving, gymnastics, baseball, weightlifting, and wrestling (Feltz, 1982; Feltz & Mugno, 1983; Fitzsimmons et al., 1991; George, 1994; Kane et al., 1996; McAuley, 1985). Furthermore, in a meta-analytic examination of 45 passive and experimental studies, Moritz et al. (2000) found self-efficacy to have a moderately positive relationship with performance ($r = .38$). Therefore, most research continues to show that self-efficacy is an important predictor of performance (Feltz & Magyar, 2006).

In the face of the vast amount of research on self-efficacies positive effect on performance there are still some who argue that the relationship actually should be reversed in line with CT (Vancouver & Kendall, 2006; Vancouver et al., 2002). Majority of supporting evidence to the positive link of self-efficacy and performance comes from correlational research. Therefore, the counter argument goes that higher self-efficacy predicts higher performance, because the actual ability which could be the cause both for self-efficacy and the performance is not controlled for. It should be obvious then that people with higher ability should have as well higher self-efficacy, hence the positive correlation found in most research (Vancouver et al., 2001). Regarding that one of the most prominent sources of self-efficacy proposed in the original theory by Bandura (1997) is past performance, the previous argument seems even more plausible. Vancouver et al. (2017) argue that the person has inherent capacities which have brought about both past and present performance. If self-efficacy is derived from these performances, then it includes a large part of this capacity inherent to the person.

There is some research that has tried to deal with the issue of directionality by trying to control for past performance. For example, Beattie et al. (2011) in their study about golf putting performance found that past performance explained almost half of the variation of self-efficacy, but self-efficacy had a negative effect on performance, the relationship was week and explained less than 5% of the variation in performance. Fitzsimmons et al. (1991) designed an experiment were experienced weightlifters were given false information about the weight they will have to lift. When thinking that the weight to be lifted was lighter than it was the participants were able to lift significantly heavier weights and in subsequent attempts the experienced weightlifters showed marked improvement. Nevertheless, the relationship with the improvement in the subsequent performance was almost perfectly predicted by past performance. The predictive value of self-efficacy on the other hand was much smaller and stopped showing any relation to the performance after several attempts. The authors conclude that with experienced athletes the past experience is almost the sole predictor of future performance and that self-efficacy has almost no added value. Further argument is made that self-efficacy might add value to those beginning athletes but serves little purpose to experienced ones (Feltz & Mugno, 1983; McAuley, 1985). Other researchers have found similar effects of self-efficacy losing its predictive value once past performance is controlled (e. g. Mitchell et al., 1994; Feltz, 1982).

Another way of testing self-efficacy effects on performance has been through the effects of performance feedback, with the idea that it affects one's self-efficacy and thus should affect performance as well. Self-regulation theories and the idea of psychological momentum all posit that success breeds success, through increased psychological characteristics (e. g. self-efficacy) that enhance one's performance (Bandura, 1991; Latham & Locke, 1991; Iso-Hola & Dodson, 2014). Nevertheless, there are reasons to believe that the opposite is true, that a success leads to failure and failure leads to success. Gould et al. (1987), find that in the sport of pistol shooting higher confidence is related to lower shooting performance, Hardy et al. (2004) find the same pattern in golf, Vancouver et al. (2001) showed the same with analytical task, but going a step further by looking at the mechanism through which this decrease in performance occurs. They found that those who had higher self-efficacy where more likely to spend less time on deciding how to solve the problem, which in turn resulted in lower performance. The same pattern occurred in a follow up study, where the self-efficacy beliefs were artificially increased leading to a decreased performance (Vancouver et al., 2002), and in an academic context the students higher on self-efficacy spent less time preparing for examinations and subsequently getting a lower grade (Vancouver & Kendall, 2006).

The explanation for these types of results might be that high self-efficacy lead to overconfidence and therefore increase risk taking (Campbell et al., 2004) and/or complacency (Jones et al., 1993) and/or to lees focus and attention to the task (Mizruchi, 1991) all of which could thereafter decrease performance (Woodman et al., 2010). On the other hand, failure can increase motivation to prove one's abilities, and therefor try harder the next time and increase the probability of success (Mizruchi, 1991).

The present study aimed to further the understanding of the relationship between self-efficacy and performance, through experimentally manipulating self-efficacy beliefs. Both SCT (Bandura, 1977) and CT (Powers, 1978) predict that higher self-efficacy should be positively correlated with performance and taking into account that past performance is the main source of self-efficacy (Bandura, 1977) and that past performance should be dependent on actual capabilities (Vancouver et al., 2001) our first hypothesis is as follows:

H1:    Self-efficacy will have a positive correlation with performance.

Nevertheless, CT (Powers, 1978) arguments that when two people have equal ability higher self-efficacy would lead to less effort if one were to engage in the particular task. It has been shown that overconfidence can lead to inattention, less effort and lower concentration (e. g. Vancouver & Kendall, 2006; Campbell et al., 2004; Jones et al., 1993; Mizruchi, 1991). As well research on success/failure effects on performance have shown that success does not increase one's likelihood of future success (e. g. Avugos & Bar-eli, 2015), and that failure could actually lead to increased performance (e. g. Gould et al., 1987; Hardy et al., 2004; Vancouver et al., 2001). Therefore, the second hypothesis we propose is as follows:

H2:    Negative feedback will cause a higher performance than a positive feedback on the subsequent performance.

## Method

### Participants

The participants were students who volunteered to participate on unpaid basis in the study. The final study sample comprised 80 participants, with almost equal gender proportions (41 males and 39 females), age range from 19 to 49 ($M = 25.60$; $SD = 7.76$). Participants were randomly assigned (using a random number list generator) to one of the two experimental groups ($n = 40$, false positive feedback; $n = 40$, false negative feedback).

### Measurements and procedure

A single blind experimental research design was used. To measure participants performance a wooden puck shooting board game was used.

The game board is oval shaped 30cm in length and 10 cm wide. At one long end a rubber band is set for the purpose of shooting the puck to the other end of the board. At the far end of the board, 13.5 cm from the rubber band, are depicted three lines (further called the point area), each stretches across the oval and is 2 cm wide. The aim of the game is by pulling and releasing the rubber band to shoot a little wooden puck (2 cm in diameter) across the board so that the puck stops on to the point area. Participants in the beginning were instructed by the researcher about the purpose of the study (which was said to be about understanding how people acquire new skills) and the rules of the game. After the instructions the first self-efficacy measurement was made. The question was as follows – "if you now would shoot the puck 100 times, how many times you would manage to get the puck on to the point area?". The question was meant to measure participants efficacy expectations. After this question the participants were given the chance to practice shooting the puck for no more than two minutes. After the practice time was over the participants were asked for the second time the self-efficacy question. Then they were given 20 shots and said that the score will be counted. After this first performance measurement the participants received either positive or negative false feedback to which they were randomly assigned using a random number list generator. The negative feedback was "your score was lower than that of 50% of the previous participants" the positive feedback was identical except for one word that was changed – "your score was higher than that of 50% of the previous participants". The participants only received relative feedback and were not informed of their actual scores in absolute numbers. After that the participants gave their third self-efficacy measurement, after this the second trial of 20 shots, and finally the last, fourth self-efficacy measurement. All in all, there were 4 self-efficacy measurements and two performance measurements.

## Results

Descriptive statistics of self-efficacy and performance measurements can be seen in Table 1. Manipulation check showed that the manipulation was successful. To test that indeed the groups will differ in their self-efficacy after the false feedback, Mann -Whitney test was used. Since third and fourth self-efficacy measurements were the only ones after the false feedback, these were the variables on which the two groups were compared. For the third self-efficacy measurement there were statistically significant differences, negative feedback group ($Mdn = 35.00$) having lower self-efficacy than positive feedback group ($Mdn = 42.50$), $U = 593.50$, $z = -2.01$, $p = .045$. For the fourth self-efficacy measurement the negative feedback

group ($Mdn = 37.50$) and positive feedback group ($Mdn = 42.50$) did not differ, $U = 639.00, z = -1.56$, *ns*.

**Table 1.** Descriptive statistics for participants self-efficacy and performance and the results of Mann–Whitney group comparison tests

|  | Negative feedback group ($n = 40$) | | Positive feedback group ($n = 40$) | | Overall ($N = 80$) | | |
|---|---|---|---|---|---|---|---|
|  | *M* | *SD* | *M* | *SD* | *M* | *SD* | *U* |
| Self-efficacy Nr. 1 | 54.35 | 18.14 | 53.08 | 18.49 | 53.7 | 18.21 | 0.75 |
| Self-efficacy Nr. 2 | 41.98 | 18.64 | 45.33 | 17.26 | 43.65 | 17.93 | 0.40 |
| Performance Nr. 1 | 42.38 | 15.89 | 42.88 | 14.45 | 42.62 | 17.90 | 0.25 |
| Self-efficacy Nr. 3 | 35.5 | 16.88 | 44.45 | 16.21 | 40.48 | 16.92 | 2.00* |
| Performance Nr. 2 | 44.88 | 15.59 | 40.88 | 14.63 | 42.88 | 15.15 | 1.11 |
| Self-efficacy Nr. 4 | 37.7 | 16.25 | 43.83 | 15.62 | 40.76 | 16.14 | 1.56 |

*\* p < .05*

To test the first hypothesis, that higher self-efficacy will have a positive correlation with performance Kendal Tau correlation was used (see Table 2). We can see that the only two variables that did not correlate are the first self-efficacy measurement and the first trial. All the other self-efficacy and performance measurements show significant positive correlations. Overall, the higher the self-efficacy on one measurement they will be higher on another measurement. The same for performance. The results indicating that higher self-efficacy right before the trials predicts higher performance within it (e. g. self-efficacy nr. 2 un trial nr. 1) are consistent with the first hypothesis.

**Table 2.** Kendal Tau correlations matrix for self-efficacy and performance ($N = 80$)

|  | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| Self-efficacy Nr. 1 | - |  |  |  |  |
| Self-efficacy Nr. 2 | .47** | - |  |  |  |
| Performance Nr. 1 | .10 | .27** | - |  |  |
| Self-efficacy Nr. 3 | .38** | .71** | .36** | - |  |
| Performance Nr. 2 | .23** | .23** | .37** | .23** | - |
| Self-efficacy Nr. 4 | .48** | .54** | .24** | .61** | .37** |

*\*\*p < .01*

In addition to correlations, we wanted to see whether the self-efficacy is overly optimistic. To do this we calculated Wilcoxon Signed rank test comparing both performance measurements against all the prior self-efficacy measurements in pairs. There was only one significant result. First efficacy measurement was significantly higher ($Mdn = 55.00$) than both performance nr.1 ($Mdn = 40.00$) and performance nr.2 ($Mdn = 40.00$), $z = -4.07$, $p < .001$ and $z = -4.26$, $p < .001$, respectively.

To test the second and last hypothesis, that negative feedback group will show higher performance, as well Mann -Whitney test was used. The performance of negative feedback group ($Mdn = 45.00$) and positive feedback group ($Mdn = 37.50$) did not differ, $U = 685.00$, $z = -1.11$, *ns*.

## Discussion

In this research we tested two hypotheses. Our data supported the first hypothesis, that higher self-efficacy will predict higher performance. From the correlation analysis we were able to see that all the self-efficacy measurements prior to the performance measurements showed significant positive correlations, only the first self-efficacy measurement did not correlate with the first performance measurement. The positive correlation between self-efficacy and performance is in line with multitude of previous empirical research (e. g. Bandura, 1997; Stajkovic & Luthans, 1998). From a theoretical point of view this result is coherent with both PC (Powers, 1978) and SCT (Bandura, 1977). The fact that the self-efficacy even before participants had a chance to try the game did not correlate with the first performance but did correlate with the second performance measurement is somewhat confusing and hard to explain. One explanation of the overall results could be as Vancouver et al. (2001) have hypothesized that even with unfamiliar tasks people have some insight into their capabilities, and thus they are able to predict to some degree how well they are going to fare. Of course, it could as well be that higher self-confidence leads to higher performance. Nevertheless, it seems more likely that individuals in this study did not possess equal skills at the beginning, therefore the correlation seems more in line to the former argument rather than the later.

As well we could see that the initial self-efficacy was the highest, it could even be described as unrealistically high since on the group level it exceeded the actual performance by 10 percent. All the other self-efficacy measurements once the participants had a chance to try out the game were significantly lower than the first one and could be described as realistic since they did not differ significantly from the actual performance. These results are in line with previous research that show that self-efficacy decreases when the feedback becomes nearer (e. g. Cinks & Šaitere, 2018;

Shepperd et al., 1996). It could as well be that when the participants had a chance to acquaint themselves with the task their prediction precision increased. As well the fact that the participants knew that they would get feedback right away and that a researcher is watching their performance could increase their accountability pressure and increase their motivation to be accurate in their predictions (Lerner & Tetlock, 1999).

Finally, the second hypothesis was not supported by the current study. After the false feedback the performance of both groups did not differ. Nevertheless, we want to argue that this result is somewhat in more support to CT (Powers, 1978) than to SCT (Bandura, 1977). Since the self-efficacy right before the second trial were significantly different for both groups, with negative feedback group showing lower self-efficacy, both groups still did not differ in their performance. Thus, showing that a decrease in self-efficacy did not matter to the performance. Nevertheless, there could still be some other confounding aspects to the manipulation.

Regarding the limitations, a study by Seta and Hassan (1980) showed that the chance of exceeding expectations could be an important aspect of predicting the performance following success or failure. Thus it could be that in the current study after negative feedback people saw that they could prove themselves to the researcher on the second trial and therefore tried harder, but the positive feedback group had already proven themselves and there was less chance of exceeding the initial performance and thus tried less. It could be that this impression management process had interacted with self-efficacy beliefs and confounded the effects.

Some researchers have shown that more enduring traits such as self-esteem influence one's expectations (Sheppard et al., 1996), thus it could be that reaction towards the feedback and the subsequent performance were different for individuals with different self-esteem levels. However, for the present study we assume that this explanation was eliminated by the random assignment used to distribute the participants in experimental conditions.

Another point is that the false feedback manipulation worked, but nevertheless, the change in self-efficacy was short lived, because only right after the false feedback self-efficacy differed between the groups. Once the participants had another go at the game, the self-efficacy level again did not differ. Bandura (1977) in his theory of self-efficacy has argued that mastery experiences are more important than persuasive information. It could as well be that the decrease was due to negative emotions following the negative feedback. People tend to consider their affective state when trying to predict their performance (Clore et al., 1994). Since the third self-efficacy measurement was done right after the false feedback, the positive or negative affective state could have swayed the self-efficacy levels.

The fourth measurement was made after the second trial, and the emotional state could have already passed. Finally, this could be as well due to accountability pressures diminishing, since the participants knew that there would be only two trials. Thus, on the fourth measurement participants were free to put forth forecasts that would not be tested (Carrol et al., 2006; Learner & Tetlock, 1999).

Further, the task for measuring performance was a simple fine motor task which does not require much effort. Bandura (1977) has argued that self-efficacy mediates the capability performance link via engagement, perseverance, and effort. The task used in the current study did not require much of any of these traits. Therefore, it could be as well the case that the increase or decrease in self-efficacy does not matter for such a simple motor task hence the absence of an effect on performance. This tough should lay further credence for the assumption that self-efficacy as mainly measured in research is the ability to correctly predict one's performance and not a cause to increased performance (Vancouver et al., 2001).

As a final limitation it should be mentioned that the current study used a single blind experiment, where the researcher administering the experimental procedure was aware of the participants group assignment (positive or negative feedback). This could have biased the way the instruction, performance measurement and feedback were done.

For future research it would be important to eliminate the effects or false feedback on the persons chances of exceeding expectations in the future performance. One way to do this would be to use a similar $2 \times 2$ factorial design as in Seta and Hassan (1980) study, manipulating both feedback and the audience. Further, it would be beneficial in line with self-completion theory (Brunstein, 2000) to manipulate the meaningfulness of the task, to see whether that brings about a change within the false feedback performance dynamics. Finally, the tasks used to measure performance should be varied to see in which domains, if any, the relationship of self-efficacy and performance changes.

## Conclusions

From the current research it seems more likely that self-efficacy judgements are more about the ability to predict one's performance rather than a belief in one's abilities, nevertheless the current design cannot fully disentangle this relationship. Overall people are overly optimistic when considering task performance with which one is unfamiliar, but that when the task is known and there are at least some accountability pressures the predictions become accurate. Both persuasive information and mastery experiences are important in influencing one's efficacy perceptions, but it seems

that mastery experiences have a higher impact. At least in a simple motor task with no real-life consequences self-efficacy does not seem to increase or decrease performance in a causal matter.

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# ABILITY TO DEAL WITH IT: SELF-MANAGEMENT AND PROBLEM-SOLVING SKILLS, MOTIVATION AND ROUTINES HELPED HIGH-SCHOOL STUDENTS DURING THE COVID-19 PANDEMIC

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**ABSTRACT**

As the COVID-19 pandemic unfolded, more than 1.5 billion students worldwide started learning remotely, and they faced a range of challenges: a lack of immediate support from teachers, problems with technology, psychological well-being and difficulties in independently coping with their duties. The aim of this study was to understand what helped students cope with distance learning and what hindered and made it difficult for students, as well to examine students' self-assessed problem-solving and self-management skills. Qualitative and quantitative methods were used in the study with 358 students aged $M$ = 16.65 years. Participants answered two open-ended questions and filled the Problem-Solving Questionnaire and the Metacognitive Awareness Scale. Content analysis of students' answers shows that most frequently students' goal-orientation, determination to succeed, diligence and specific routines helped them deal with the distance learning. On the contrary, lack of motivation (among other psychological difficulties), distractions, lack of routines, and felt pressure to manage all school tasks were most frequently the aspects that hindered students from coping with the distance learning. Results show significant correlation between most scales of self-assessed problem solving and self-management skills. Students with higher result in total score of self-reported problem-solving skills felt less stress about the distance learning and the pandemic in general.

*Keywords: adolescence, COVID-19, distance learning, high-school, problem-solving skills, self-management skills.*

## Introduction

The COVID-19 pandemic and the distance learning during the pandemic have brought many challenges both at the level of organizations (schools) and at the level of individual students. Students had to adapt to a relatively more individual and self-managed learning process, with less immediate support and guidance from teachers during the process, which

inevitably required the application and development of various skills, such as planning and organizing their time and responsibilities, and coping with difficulties using problem solving. Studies published to date highlight various difficulties faced by students during a pandemic, such as mental and physical health, difficulties with friends, family and socialization, difficulties with learning and routines (Scott et al., 2020; Rogers, Ha & Ockey, 2021). One of the main issues and risks that stem from this situation is that distance learning can further increase inequalities in the quality of knowledge acquired between students of different backgrounds or level of skills, including increasing the risk of dropping out of school, and contributing to a decline in learning performance (Azevedo et al., 2020; Kaffenberger, 2021). Therefore, it is important to assess what skills and routines are necessary for students to effectively cope with distance learning.

The distance learning during COVID-19 pandemic has been an unprecedented situation in the modern times (with such wide options of using technology in education), thus making this a unique experience for students. In order to cope with distance learning (and non-standard situations in general) students had to apply and further develop a range of skills, including self-management, planning skills and problem-solving skills. It is unclear to what extent they possessed the necessary skills at the beginning of the pandemic. While it is important to do quantitative assessment monitoring students' skills and achievement during this time, it is equally important to assess and document the students' experience based on their own unique viewpoint. Therefore, the aim of this study was to understand what helped students cope with distance learning and what hindered and made it difficult for students (based on their own views), as well to examine students' self-assessed problem-solving and self-management skills based on a questionnaire assessment.

Self-regulation skills (and self-management skills in general) are involved in self-regulated learning. Self-regulation consists of three major components of metacognition: 1) forethought – planning; 2) performance – monitoring; 3) self-reflection – evaluation (Zimmerman, 2008). Students use metacognitive skills in learning to proactively think, perform and self-reflect (Carter et al., 2020). It is crucial for students to have self-management skills to effectively learn remotely, and the circumstances during the pandemic demanded that students applied their self-management skills to the extent that they possessed them.

In the current study, problem solving is defined as a set of complex, goal-directed cognitive, affective, and behavioral operations for adapting to internal and external demands, to achieve desired goals (see Heppner & Krauskopf, 1987; Nezu, 2004); Problem solving is operationalized here as consisting of three components: 1) Problem Solving Ability-Confidence is

a belief in one's problem-solving abilities and having positive experience in solving problems; 2) Problem-solving actions (originally called "Approach–Avoidance Style" by Heppner, 1982) is one's tendency of performing such actions and strategies that represent successful problem solving; 3) Personal Control is the belief in one's emotional and behavioral control while solving problems (Heppner, 1982). To conclude, having specific skills and strategies to solve problems and having the confidence about one's ability is important to successfully deal with different types of problems.

Pre-pandemic research has shown a link between academic performance and problem-solving skills assessed with several types of measurements (Greiff, Kretzschmar, Müller, Spinath & Martin, 2014; Greiff, Wüstenberg, Molnár, Fischer, Funke, & Csapó, 2013). Self-regulation is also related to course performance and academic performance (Pintrich et al., 1993; Zimmerman & Martinez-Pons, 1988; Abd-El-Fattah, 2010; Veenman et al., 2014). It is currently crucial to find out what kind of skills are particularly important to maintain academic achievement and motivation during such a new situation with distance learning to further develop tools for strengthening these skills.

## Method

Data from a total of 358 students studying in grades 9–12 with an average age of $M = 16.65$ years were analyzed, 218 (60.9%) of the respondents, were girls and 140 (39.1%) were boys; 69 respondents study in the 9th grade, 106 respondents study in the 10th grade, 100 respondents study in the 11th grade, and 83 respondents study in the 12th grade (during school year 2020/2021).

Participants answered questions about their experiences and feelings during distance learning (for example, felt stress about COVID-19 pandemic and about distance learning), they completed the Problem-Solving Questionnaire (Heppner, 1982) with 32 items in three scales. During the previous research with Latvian adapted version, the scales of the questionnaire showed good internal consistency: Problem solving ability-confidence scale ($\alpha = 0.77$), Problem solving actions ($\alpha = 0.66$), and Personal-control scale ($\alpha = 0.68$) (Sudraba & Strīķe, 2020). Students completed the Metacognitive Awareness scale with 9 items for assessing self-management skills of planning, monitoring and evaluating that showed high internal consistency for the total score ($\alpha = 0.92$) (Vanags & Pestovs, 2019).

Participants were asked two open-ended questions regarding of 1) what had helped them cope during distance learning and 2) what had hindered them to deal with distance learning? They also answered demographic questions.

The data were collected in cooperation with schools during online classes where students of each class gathered at one specific time. The data were collected using an online platform in February 2021, and participation was voluntary and anonymous.

## Results

First, the main results based on the qualitative analysis are presented, followed by the results derived from the obtained quantitative data. The goal of the researcher was to gather and compile unique experience from students' own viewpoint described in their own words. Therefore, summative content analysis was performed to analyze the answers to open-ended questions of students by systematically identifying and classifying themes that appear in the text (Shannon & Hsieh, 2005). The researcher read all the answers of students and based on the content developed categories (themes) that appear in the answers. The categories were also counted based on the frequency in the students' answers.

The categories were further analyzed based on their type: whether the category represents an individual level aspect (for example, internal motivation to succeed or psychological difficulties) or external level (wider) aspects (e. g., difficulty to study because of the background noise and sharing a room with other family members). The aim was to form conclusions regarding the type of the category and possibility to act on it. For example, it is not possible to individually change regulations or restrictions during the pandemic, but it is possible to train certain skills of students to organize their time and learning better. The further purpose of this analysis was to develop conclusions and hypotheses regarding how the disruptive factors could be reduced and how the contributory factors could be stimulated to help students to adapt to distance learning and other unprecedented situations that may come in the future.

Table 1 summarizes students' responses about what has helped them cope with distance learning during the COVID-19 pandemic. The answers are grouped into categories and counted to see how often each category appeared in the students' answers.

As we can see in Table 1, such individual aspects as determination to succeed (students mentioned motivation and willingness to keep their "status" and grades) and diligence (students mentioned ability to force themselves to do tasks on time), as well as planning skills and routines (e. g., writing down all the tasks, planning in what order to do tasks etc.) were mentioned most frequently as helpful in dealing with the distance learning.

**Table 1.** Analysis of aspects that helped students during the distance learning

| Category | Type of the category | Frequency |
|---|---|---|
| Goal-orientation and motivation to succeed (includes responsibility and insistence) | Individual level: personality and motivation | 148 |
| Self-discipline and sense of duty (includes diligence and forcing oneself to do tasks) | Individual level: personality and attitude | 121 |
| Planning and organization skills (includes specific routines and actions that are described in the students' answers) | Individual level: skills | 68 |
| Optimism (includes the ability to keep calm and not stress about everything) | Individual level: personality | 29 |
| Hobbies and physical activities (e. g., music, sports) | External or individual level (depending on whether the activities were organized or individually initiated) | 22 |
| Individualism and independence (e. g., likes being alone and studying independently) | Individual level: personality | 20 |
| Good technology skills | Individual level: skills | 18 |
| Fast thinking and flexibility (includes creativity and ability to get everything done "last minute") | Individual level: abilities | 17 |
| Communication (includes asking for advice when necessary) | Individual level: personality | 14 |
| Passive attitude/avoidance (includes accepting low grades, indifference) | Individual level: personality and motivation | 7 |

Similarly, the disruptive factors were analyzed from students' answers. As can be seen in the Table 2, when we look at the individual level aspects, most frequently students' responses show a lack of motivation and other psychological difficulties, as well as difficulties in learning and understanding the subject alone that indicates a lack of self-management skills, self-regulated learning skills and problem-solving skills. If we look at external level aspects, we see that factors related to lack of school-like regime and routines, lack of appropriate learning environment, including distractions at home (sharing a room and background noise, etc.) are most often mentioned as interfering factors. It can be concluded that before the pandemic the routines and physical school environment (for example, getting ready in the morning, walking to school, and sitting in one's place in the physical classroom) had helped students to focus on their studies.

**Table 2.** Analysis of aspects that hindered students dealing with the distance learning

| Category | Type of the category | Frequency |
|---|---|---|
| Lack of motivation and depression (includes "laziness" anxiety and problems with concentration) | Individual level: psychological well-being | 158 |
| Environment and lack of regime (includes distractions at home and lack of daily routines) | External level: family and physical environment | 91 |
| Sense of a large amount of schoolwork (includes felt pressure to do it all) | External level: school and organizational level | 77 |
| Difficulty to learn individually (includes difficulty to plan time and grasp new knowledge without immediate support) | Individual level: skills (self-directed learning and problem-solving skills) | 51 |
| Teachers' inconsistency (includes planning inconsistencies at school level) | External level: school and organizational level | 42 |
| Sense of lack of support (includes lack of immediate feedback, advice, control and guidance) | Individual and external level: self-regulated learning skills and teachers' actions | 31 |
| Lack of socialization (includes lack of formal and informal communication) | External level: can be altered via organized online activities Individual level: personality and communication | 29 |
| Decrease of physical well-being (includes problems from the long screen time, sitting and general lack of physical activities) | Individual level: skills, practices and routines | 27 |
| Problems with technologies (includes internet or computer problems or lack of them) | External level: equipment | 21 |
| Stress related to COVID-19 (includes stress about finances, health, global situation and restrictions) | External level | 11 |

Further an analysis of quantitative data that were gathered during the study is reported, starting with psychometrics of two questionnaires. The Metacognitive awareness scale shows good total internal consistency ($\alpha = 0.86$) in the current sample, compared to $\alpha = 0.92$ in the original study (Vanags & Pestovs, 2019); with also good internal consistency for the subscales: Planning ($\alpha = 0.83$), Monitoring ($\alpha = 0.70$) and Evaluation ($\alpha = 0.76$). The Problem-solving inventory also shows good internal consistency for total scale ($\alpha = 0.86$), and for the subscales: Problem solving ability-confidence ($\alpha = 0.84$), Solving-actions ($\alpha = 0.75$),

and Personal-control ($\alpha$ = 0.72). In previous Latvian research the internal consistency of the three scales was accordingly: $\alpha$ = 0.77, $\alpha$ = 0.66, and $\alpha$ = 0.68, but the mean age of participants was higher ($M$ = 23.9, $SD$ = 5.7) (Sudraba & Strīķe, 2020).

Table 3 shows that most subscales of both surveys show statistically significant mutual correlations. Correlation analysis also shows that the lower the student's self-assessed problem-solving skills, the more the student has indicated they had felt stress about the COVID-19 pandemic in general ($r$ = –0.15, p = 0.004), as well as the stress about distance learning ($r$ = –0.22, p = 0.000). Such correlations were not found with self-management skills.

**Table 3.** Correlations between problem-solving and metacognitive awareness

| | Problem solving ability – confidence | Problem solving actions | Personal control | Total Problem-solving scale |
|---|---|---|---|---|
| Planning | 0.36** | 0.44** | 0.23** | 0.44** |
| Monitoring | 0.18** | 0.42** | 0.13* | 0.31** |
| Evaluation | 0.18** | 0.44** | 0.08 | 0.30** |
| Total Meta-cognition scale | 0.30** | 0.53** | 0.17** | 0.43** |

\* $p$ < 0.05; \*\*$p$ < 0.01

## Discussion

During this study factors that have helped and hindered students during the COVID-19 related distance learning were assessed, that leads to understanding how students can be helped in case of similar unexpected situations in the future and how their skills can be developed to deal with new situations in general. The questions were formed to gather students' unique viewpoints about what had helped and what had disturbed them during the distance learning process. As it was presented in the results section, a wide range of helpful and disruptive aspects appeared in the students' answers. Internal or individual level aspects were mentioned most frequently (such as ones concerning psychological well-being, feeling motivated or not motivated, and having or not having certain learning and organizational skills). On the contrary, external level factors, for example stress about the COVID-19 pandemic and restrictions, as well as hardship with technologies were mentioned less often.

As can be seen in the qualitative analysis, special attention should be paid to the psychological health of students and the signs of depression,

anxiety and difficulty concentrating. Psychological well-being is important for students to maintain their motivation to study and deal with learning online. The amount of published research on students during COVID-19 is limited at the time of preparing this article; their methodologies, samples and focus varies. The results of the current study are generally in line with previous research on well-being of youth published during COVID-19 pandemic (Scott et al., 2020).

Students' self-management skills are still in their development process at high-school, and external guidance, control and support from teachers is crucial at this stage. Therefore, during the distance learning it is important to find alternatives to "the teacher being right beside in the classroom". Previous research has shown that even more mature samples compared to the current sample (undergraduate level students) report lack of time management skills, guidance and self-management during online classes (Fidalgo, Thormann, Kulyk, et al. 2020).

The results indicate that planning, organizational skills, specific routines and regime help students cope with distance learning. Activities that imitate the school and classroom environment could be implemented during the distance learning, for example, it could be a virtual "bell as the class starts" a virtual "arrival at school in the morning" (for example, checking-in in the morning via online) or another similar activity. But such activities have to be planned at the class or school level. Students, on the other hand, can individually focus on activities that imitate "getting ready for school in the morning" or "walking to school" for example, by taking a quick walk in the morning. Data in general show that more physical activities and being outdoors could also help students. Parents together with students must think about how to prevent distractions in the home environment and set up a place for learning, and support implementation of the helpful routines.

Socialization is also an important domain during adolescence, and it was impacted during the pandemic, showing also in the results of the current research. In their answers students have indicated that they lack socializing both regarding informal topics ("hanging out with friends") and formal topics ("talk about whether we fully understand what the teacher just taught us"), thus indicating that socializing is an important part of acquiring knowledge and the learning process. Research with undergraduate students suggest similar patterns regarding difficulties with communication and discussions during the distance learning (Amir et al., 2020). Lack of feeling socialized can be reduced to some extent by schoolwork done in pairs or in small groups (online or otherwise, based on the restrictions during the pandemic).

Considering that most subscales of both self-assessment type surveys (problem-solving and self-management) show statistically significant

mutual correlations, it can be concluded that students who are more confident and experienced in successfully solving their problems also report higher self-management skills during learning (performing actions of planning, monitoring and evaluation). Results also indicate that the lower the student's self-assessed problem-solving skills, the more the student has indicated they had felt stress about the COVID-19 pandemic in general, as well as the stress about distance learning. It means that students with higher self-reported problem-solving skills indicated they felt less stress about distance learning.

## Limitations and future research

When analyzing these results, one must keep in mind the research focus and methods used in the particular study. This study focused specifically on the distance learning, not coping with the pandemic in general. It can be assumed that the results and students' answers could differ if the question asked to students focused on dealing with the pandemic in general. Also, the analysis is limited to the current sample of 358 students from Latvia with mean age of 16 years, therefore it cannot be generalized to broader age groups or to the whole population. Self-assessment surveys were used in the study, and conclusions must be interpreted accordingly. Participation in the study was organized during online classes of students, but it cannot be ruled out that students with a lower level of motivation did not attend the class and did not fill out the whole survey. It must be noted that the current research was implemented during the so called "second wave" of the pandemic in February 2021, and the students' answers represent their unique point of view at this time.

One of the purposes of doing a qualitative analysis is to form conclusions and propose ideas and hypothesis for further research to validate these conclusions. Based on the content analysis of students' answers the author proposes that: 1) Students' ability to deal with the distance learning can be increased by reducing the discovered negative aspects and by cultivating the positive aspects, as much as possible. 2) There are aspects that are a priori more vulnerable to change both in the list of positive aspects (for example, we can teach students a set of particular organizing and planning skills and strategies, but it is harder to change personality factors) and in the list of the negative aspects (for example, we can teach students to prepare their physical space for learning without disruptions, but it would be harder to change the school system and the amount that students have to learn during a certain period of time). 3) The main focus in the field of psychology regarding further scientific research or educational development programs should be on the aspects that can be worked on and

changed systematically and at the individual level of students (for example, including development of planning skills in the lessons). These hypotheses and conclusions should be tested in further studies and by creating and programs or materials for development of students' skills.

## Conclusions

During this research, the aspects that helped and hindered students cope with distance learning were assessed. Based on the results presented in the article, it can be concluded that students have had difficulties in coping with the distance learning during the COVID-19 pandemic. Both helping and disturbing aspects are related to external (school and organizational) factors and individual factors, such as students' own motivation and skills. Analysis of students' answers about what has helped them during the distance learning shows that most frequently students' goal-orientation, determination to succeed, diligence and specific routines or skills have helped them to deal with the distance learning. On the contrary, lack of motivation (among other psychological difficulties), distractions and lack of routines, as well as the feeling of pressure to deal with all the schoolwork, were most frequently mentioned aspects that hindered students from coping with the distance learning. Students who assessed themselves higher on the scale of problem-solving skills indicated less felt stress about the pandemic and specifically about the distance learning process.

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# PARENTS' SELF-REPORTED STRESS AND COPING DURING THE COVID-19 PANDEMIC-RELATED FIRST EMERGENCY SITUATION IN LATVIA

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## ABSTRACT

The COVID-19 pandemic is a new and challenging experience for families with children. It has changed the routine of everyday life dramatically. The aim of this mixed methods study was to explore the sources of parental stress and applied coping strategies during the first emergency situation related to the COVID-19 pandemic, as well as compare the answers in different demographic groups of parents.

Respondents were 2 559 parents, most of them were female, with a mean age of 39 years. Among the series of open-ended questions in a survey, the two of them were analysed in this research, respectively "What causes you the most stress or worry?" and "What activities do you do or keep in mind to maintain your mental health and quality of life?" Thematic analysis of written responses of parents led to development of 16 qualitative categories of stressors and 14 categories of coping strategies. The most common stressors of the parents were physical and social distancing, remote learning and work-related stress. The most common coping was physical activity, time for oneself and spending time with the family.

Within demographic groups the two-parent families were more likely to report an increase of home duties, multitasking, parents' personal issues, fear of becoming infected with the virus and also no stress. Parents aged under 39 years were more likely to mention stressors such as physical and social distancing and change in daily routine, and they were more likely to cope with stress by spending time with the family. Older parents (over 39 years) were more likely to mention stressors such as uncertainty, COVID-related information, no stress at all or other, and were more likely to use such coping strategies as spending time for oneself, communication with others and gardening.

The results of the study suggest that families were exposed to multi-stressors during the COVID-19 pandemic related first emergency situation in Latvia in May-June 2020. Parents of children used a variety of coping strategies and most of them were active.

*Keywords: coping strategies for parents, COVID-19 pandemic, family stress, parental stress.*

## Introduction

On 11th of March 2020, a global pandemic of COVID-19 was declared, leading to the emergency situation in Latvia, starting on the 13th of March 2020 (WHO, 2020). This was the first pandemic emergency for many families, as their daily routines were completely disrupted. Worldwide, the pandemic has created high and lasting levels of psychosocial stress for both individuals and families. This has been triggered by the need to physically and socially distance oneself to avoid the spreading of the disease (Liu & Doan, 2020).

In terms of family stress, researchers have emphasized that the stress experienced by each individual fit into the context of a larger system, thus creating family stress that can affect the overall wellbeing of parents and their children (Pearlin et al., 1981). Family stress can also be described as an imbalance in the family system (e. g., Boss, 2001; Minuchin, 1985), resulting from family uncertainty about individual boundaries and responsibilities, as well as from external factors (Boss, 2002). The global pandemic, associated with an external pressure, could gradually undermine family dynamics and challenge a normal family functioning (Daks et al., 2020). The direct and indirect effects of pandemic-related stress may be amplified given the prevalence of stress among family members as well as in society as a whole (Liu & Doan, 2020; Torales et al., 2020). During the COVID-19 pandemic, individuals experience relatively high level of stress (Rogowska et al., 2020; Zhang & Ma, 2020) and emotional distress of individuals before the pandemic was found as a significant risk factor for emotional and psychosocial distress during a pandemic (Shanahan et al., 2020). Stress and increased anxiety is a challenge for both healthy people and those with pre-existing mental health problems (Mowbray, 2020; Torales et al., 2020). Individuals who have lowered self-esteem and elevated levels of depressive symptoms are more vulnerable in the face of stressors. These individuals may experience impaired relationships with others, including negative interactions with family, which may exacerbate the risk of family members to experience additional stress (Lincoln et al., 2005). For this reason, it is important to be aware of stressors early on, so that to know how to improve individuals' mental health and provide support (Kang et al., 2020).

A qualitative study on stressors during the COVID-19 pandemic identified that the most common stressors were related to restrictions, caring for others and loneliness (Whitehead & Torossian, 2020). Also, researchers have found that perceived stress was a significant predictor of parents' negative feelings. Parental stress does not affect children's stress directly, whereas externally stress-related behaviour, such as overactive parenting, increases children's stress (Achterberg et al., 2021).

In the time of pandemics, it is important to look at how families can cope with the stressors and sustain their resilience (Daks et al., 2020). Coping strategies are individual and vary across families and have different effects on functioning of family system (Lyu et al., 2019). There are several ways in which families can cope with stress including reframing the stressor (Folkman & Moskowitz, 2000) and increasing family strength, maintaining optimistic thoughts, and not disclosing negative information (Lyu et al., 2019). In a recent study, the most frequently mentioned coping strategies were sustaining family relationships and friendships, as well as digital communication with others and devoting time to hobbies (Whitehead & Torossian, 2020). Coping strategies and social support were found to help overcome the individual's feelings of isolation and loneliness during the pandemic. If family relationships are healthy and supportive, this is an important protective factor against stress (Mariani et al., 2020). One study shows that coping strategies during a pandemic are more problem-focused (i. e., follow expert advice, avoid contact with risk groups, wash their hands and try to behave appropriately) than emotion-focused (Gerhold, 2020). Based on the results of previous research and the necessity to gain an in-depth understanding of family stress in the new world situation, this study was designed to find out what stressors parents mention and how they cope with them, in order to recognize resources and necessity of support in future.

In this study, we posed a following research questions:
1. What are parental stressors and coping strategies in the first pandemic-related emergency situation?
2. Are there differences in sources of stress and coping between different demographic groups of parents?

## Method

### Participants and procedure

This study was a part of the international research initiative on the COVID-19-related stress in families with children, involving Latvia, Japan, USA and Mexico. The study was conducted with approval of the Ethics Committee of Tokyo Hosei University.

In this study, the participants were recruited via a broad informative campaign involving educational and social departments of municipalities, professional networks and social media (Facebook). Data collection was performed via an online survey during the first COVID-19-related emergency situation in Latvia in May-June 2020.

In total, 2 559 respondents in age from 20 to 72 years, with a mean age of 39 years ($SD = 9.61$) took part in the survey. The majority of respondents

were women ($N$ = 2 367, 95.5%). Most respondents were employed, including full-time ($N$ = 1 726, 67.4 %) and part time ($N$ = 334, 13.1%) job. Most of the respondents ($N$ = 1 726, 67.4%) also had a partner in full-time employment. Almost all of the participants lived with their children ($N$ = 2 407, 94.0%).

## Measure

The study survey was specially designed for this research. The survey consisted of a series of open-ended questions, two of which were analysed in this study – "What causes you the most stress or worry?" and "What activities do you do or keep in mind to maintain your mental health and quality of life?" Information on gender, age, marital status and occupation was obtained using multiple-choice questions. The informed consent of the respondents was received before the survey was administered.

## Data analysis

### *Thematic analysis*

Initially, a thematic analysis was carried out to categorise the written answers to each of the two open-ended questions "What causes you the most stress or worry?" and "What activities do you do or keep in mind to maintain your mental health and quality of life?". Two researchers independently coded content units into themes and then combined the similar themes into the categories, after which the discrepancies were discussed, and a consensus reached.

In order to include the qualitative data in the quantitative analysis, the answers of each respondent were coded accordingly to the categories developed (0 or 1). Respectively, if a respondent's answer corresponded to a particular category, then a value of 1 was assigned. Those categories that were not mentioned in that answer were assigned a value of 0. This procedure was performed for all respondents' answers to both questions.

### *Statistical analysis*

Descriptive statistical analysis of the data was carried out for all variables in the study. Mean, standard deviation, median, minimum and maximum values, absolute and relative frequencies for qualitative variables were calculated.

We calculated absolute and relative frequencies of answers about stressors and coping strategies in two socio-demographic groups (with regard to parental age, both parent/single parent family). The differences in stressors and coping in the groups of parents were calculated using a Chi-square test considering $p < 0.05$ as statistically significant. This statistical analysis was performed using SPSS (Version 26) software.

## Results

To answer the first research question, the written responses of respondents were analysed qualitatively. Thematic analysis of answers led to development of 16 categories of stressors, respectively, physical and social distancing, work stress, financial stress, increase of home duties, distance learning, necessity to help children with school tasks, COVID-19-related information (sufficient or insufficient), children's behavioural and emotional issues (e. g., social withdrawal, conflicts with siblings), changes in daily routine, parents' personal issues (e. g., health problems), multitasking, uncertainty, fear of becoming ill (to be infected with the virus), family issues (e. g., partnership problems), no stress and other (recognition of stress without specification). A part of these results has been published by Martinsone and Stokenberga (in press). About one third (35.9%) of the participants mentioned only one stressor ($N = 918$), but the median was two sources of stress. As shown in Table 1, the most frequently mentioned stressors of parents were physical and social distancing ($N = 879$, 34.3%), distance learning ($N = 761$, 29.7 %) and work-related stress ($N = 704$, 27.5%).

Thematic analysis of responses to the question on coping strategies led to the following 14 categories: maintaining a daily routine, dividing of duties, physical activity, cognitive reappraisal, compliance with the COVID-19 restrictions, psychological techniques (e. g., mindfulness), time for oneself, spending time with the family, communication with others, gardening, treatment (e. g., medication), caring for others, change of place of living (e. g., moving to a country house), not using any of coping strategies. In this time period (May–June 2020), the parents most frequently reduced their stress by engaging in physical activity ($N = 1661$, 64.9%), taking time for themselves ($N = 643$, 25.1%) and spending time with family ($N = 543$, 21.2%).

In answer to the second research question, the results of the Chi-square test (see Table 2) show that there are statistically significant differences between frequencies of several stressors in different socio-demographic groups of parents ($p < 0.05$). We observed significant differences in fear of becoming ill, parent's personal issues, increase of home duties and multitasking which were more frequently mentioned in two-parent families. Additionally, both-parent families more frequently reported no stress in comparison to one parent families. The age of the respondent, when considered in two groups split with median ($M = 39.0$), shows statistically significant differences in such stressors as physical and social distancing, change in daily routine, uncertainty, COVID-19 related-information, no stress and other stressors. Parents under 39 were more likely to mention stressors such as physical and social distancing and change in daily routine

whereas parents over 39 more frequently mentioned uncertainty, COVID-related information, other stressors and no stress at all.

The results of Chi-square test (see Table 2) show that there are statistically significant differences between the selected socio-demographic groups in several coping strategies. In families where the parent raises the child alone or with a partner, there are statistically significant differences in gardening as a coping strategy, which means that two-parent families use this strategy more often. Parents under 39 years were more likely to cope with stress by spending time with their family, but parents over 39 were more likely to use coping strategies such as time for oneself, communication with others and gardening.

**Table 1.**  Categories of Responses of Parental Stress and Coping During the First Emergency Situation Related to COVID-19 Pandemic in Latvia (May–June, 2020)

| Stressors | N (%)* | Coping strategies | N (%)* |
|---|---|---|---|
| Physical and social distancing | 879 (34.3) | Physical activity | 1 661 (64.9) |
| Distance learning | 761 (29.7) | Time for oneself | 643 (25.1) |
| Work stress | 704 (27.5) | Spending time with family | 543 (21.2) |
| Fear of becoming ill | 460 (18.0) | Maintaining a daily routine | 442 (17.3) |
| Necessity to help the child with school tasks | 376 (14.7) | Cognitive reappraisal | 339 (13.2) |
| Financial stress | 394 (15.4) | Gardening | 251 (9.8) |
| Changes in daily routine | 358 (14.0) | Communication with others | 194 (7.6) |
| Uncertainty | 317 (12.4) | Psychological techniques | 178 (7.0) |
| Parents' personal issues | 298 (11.6) | Not using any techniques | 177 (6.9) |
| Children's behaviour and feelings | 224 (8.8) | Compliance with the COVID-19 restrictions | 131 (5.1) |
| Increase of home duties | 200 (7.8) | Caring for others | 65 (2.5) |
| Multitasking | 390 (15.2) | Treatment | 53 (2.1) |
| Other | 187 (7.3) | Change a place of living | 44 (1.7) |
| No stress | 166 (6.5) | Dividing of duties | 12 (0.5) |
| COVID-19-related information | 93 (3.6) | | |
| Family relationships | 92 (3.6) | | |

*Note. Participants could mention several stressors; therefore, relative frequencies exceed 100%.

**Table 2.** Chi-square Test Results for Stressors and Coping in Groups of Parent's Age and Family Status

| Variables | Single parent family (n = 516) f (%) | Two parent family (n = 2043) f (%) | $\chi^2$ | Age < 39 (n = 1371), f (%) | Age ≥ 39 (n = 1173), f (%) | $\chi^2$ |
|---|---|---|---|---|---|---|
| *Stressors* | | | | | | |
| Physical and social distancing | 175 (33,9) | 704 (34,5) | 0.054 | 503 (36.7) | 372 (31.7) | 6.934 ** |
| Distance learning | 161 (31.2) | 600 (29.4) | 0.662 | 397 (29.0) | 363 (30,9) | 1.194 |
| Work stress | 137 (26.6) | 567 (27.8) | 0.299 | 371 (27.1) | 329 (28.0) | 0.309 |
| Fear of becoming ill | 67 (13.0) | 393 (19.2) | 10.921** | 250 (18.2) | 209 (17.8) | 0.074 |
| Necessity to help with school tasks | 67 (13.0) | 309 (15.1) | 1.506 | 197 (14.4) | 176 (15.0) | 0.204 |
| Financial stress | 82 (15,9) | 312 (15,3) | 0.121 | 226 (16.5) | 167 (14.2) | 2.444 |
| Changes in daily routine | 91 (17,7) | 351 (17,2) | 0.067 | 230 (16.8) | 128 (10.9) | 17.976** |
| Uncertainty | 59 (11.4) | 258 (12.6) | 0.541 | 143 (10.4) | 171 (14.6) | 10.05* |
| Parents' personal issues | 47 (9.1) | 251 (12.3) | 4.042* | 170 (12.4) | 126 (10.7) | 1.690 |
| Children's behaviour and feelings | 46 (8.9) | 178 (8.7) | 0.021 | 126 (9.2) | 98 (8.4) | 0.550 |
| Increase of home duties | 19 (3.7) | 181 (8.9) | 15.327** | 109 (8.0) | 90 (7.7) | 0.068 |
| Multitasking | 58 (11.2) | 332 (16.3) | 8.006* | 219 (16.0) | 168 (14.3) | 1.337 |
| Other | 48 (9.3) | 139 (6.8) | 3.750 | 85 (6.2) | 100 (8.5) | 5.128* |
| No stress | 45 (8.7) | 121 (5,9) | 5.304* | 74 (5.4) | 91 (7.8) | 5.783* |
| COVID-19-related information | 18 (3,5) | 75 (3,7) | 0.039 | 40 (2.9) | 52 (4.4) | 4.165* |

| Variables | Single parent family (n = 516) f (%) | Two parent family (n = 2043) f (%) | $\chi^2$ | Age < 39 (n = 1371), f (%) | Age ≥ 39 (n = 1173), f (%) | $\chi^2$ |
|---|---|---|---|---|---|---|
| Family relationships | 15 (2.9) | 77 (3.8) | 0.883 | 55 (4.0) | 37 (3.2) | 1.333 |
| *Coping strategies* | | | | | | |
| Physical activity | 325 (63.0) | 1335 (65.3) | 1.007 | 900 (65.6) | 753 (64.2) | 0.585 |
| Time for oneself | 118 (22.9) | 525 (25.7) | 1.753 | 304 (22.2) | 338 (28.8) | 14.778** |
| Spending time with family | 102 (19.8) | 441 (21.6) | 0.815 | 337 (24.6) | 204 (17.4) | 19,514** |
| Maintaining a daily routine | 91 (17.7) | 351 (17.2) | 0.067 | 220 (16.1) | 218 (18.6) | 2.801 |
| Cognitive reappraisal | 59 (11.4) | 280 (13.7) | 1.849 | 180 (13.1) | 154 (13.1) | 0.000 |
| Gardening | 37 (7.2) | 213 (10.4) | 4.952* | 101 (7.4) | 147 (12.5) | 19.168** |
| Communication with others | 43 (8.3) | 151 (7.4) | 0.522 | 85 (6.2) | 109 (9.3) | 8.583** |
| Psychological techniques | 43 (8.3) | 135 (6.6) | 1.879 | 84 (6.1) | 94 (8.0) | 3.503 |
| Not using any coping | 44 (8.5) | 133 (6.5) | 2.603 | 83 (6.1) | 94 (8.0) | 3.750 |
| Compliance with the COVID-19 restrictions | 31 (6.0) | 100 (4.9) | 1.041 | 73 (5.3) | 55 (4.7) | 0.534 |
| Caring for others | 9 (1.7) | 56 (2.7) | 1.657 | 31 (2.3) | 33 (2.8) | 0.781 |
| Treatment | 14 (2.7) | 39 (1.9) | 1.314 | 26 (1.9) | 27 (2.3) | 0.509 |
| Change place of living | 4 (0.8) | 40 (2.0) | 3.429 | 30 (2.2) | 14 (1.2) | 3.686 |
| Dividing of duties | 2 (0.4) | 10 (0.5) | 0.092 | 4 (0.3) | 7 (0.6) | 1.366 |

$*p < 0.05, **p < 0.01$

## Discussion

The aim of the study was to find out how the COVID-19 pandemic restrictions were perceived and experienced by parents living in Latvia, respectively, which are their sources of stress, how they are able to cope with them, and also differences between socio-demographic groups of parents. The parents' reported stressors and coping can be categorized into 16 qualitative categories of stressors and 14 categories of coping strategies. This finding is in accordance with conclusions of a recent qualitative research which found 20 categories of stressors and 21 categories of coping strategies in the COVID-19 pandemic (Whitehead & Torossian, 2020). It confirms that parents report multiple stressors and several ways to cope with them.

The most common parental stressors were physical and social distancing, distance learning and work-related stress. The parents reported that they have lost the opportunity to meet their extended families, together with their children to attend playgrounds and receive different support services. Additionally, they faced such challenges as closed kindergartens and schools. Since the education system initially was not prepared for remote learning, then parents often were forced to become teachers of their children. This created completely new conditions in the daily life of families. Parents emphasised that they must help their children both technically (to connect online lessons or submit homeworks) and educationally (e. g., explaining a subject matter). At the same time, parents experienced their job-related issues, such as working from home, increase of workload, threats to lose their jobs. The work-related stress was the third most often represented category within answers of the parents. Parents mentioned the impact of multiple stressors:

> *"We must work anyway, but we cannot leave our children alone, we have to think of options who will look after them if the kindergarten and school are closed. We try to adjust our time in the shops so that we have less contact with others – this happens early morning or late in the evening. The child didn't want to study remotely, so we had to think of ways to sustain his interest."*

All these external factors of the pandemic can lead to imbalance in a family system disrupting normal family functioning, proved by previous research and recent findings (Boss, 2002; Daks et al., 2020: Minuchin, 1985). It is therefore very important to be aware of parental stress increasing such negative outcomes as anxiety, depression, hostility and interpersonal sensitivity (Achterberg et al., 2021), that could have consequences for their children.

The most common coping strategies in the sample were physical activity, time for oneself and spending time with family. The parents reported

that outside training and exercises, walking, cycling and other activities were helpful to overcome stress associated with the emergency situation. Among effective coping strategies was the time parents devoted for themselves, for example, hobbies like photography or knitting, reading or listening a music, and physical self-care. The third coping strategy was spending time with their family – playing games or cooking. Some parents even mentioned using all three coping methods:

> *"I go out for a walk every day and read fiction before going to bed. Also, I meditate and use moments of mindfulness. My family and I make sure we have fun together – we play games, go out – we have an advantage because we live in the forest."*

These results are very similar to the findings of Whitehead & Torossian (2020) in a qualitative study in the USA that the most common coping was associated with family and friends, digital communication with others and hobbies. Coping strategies during the COVID-19 pandemic have been found to be more problem-focused (Gerhold, 2020), which is also evident in this sample, with parents using strategies such as maintaining a daily routine, following the COVID-19 restrictions, and dividing of duties among family members. If parents use such cognitive strategies as stressor reappraisal or finding a meaning, this may lead to the more positive perception of the event (Folkman & Moskowitz, 2000). Improving communication between family members is very important in stressful situations (Russo & Fallon, 2014), which was seen as the third most common coping strategy in the research sample. Thus, it can be concluded that the results obtained in this study on the use of coping strategies are similar to other studies related to the coping with stress of the COVID-19 pandemic.

In answer to the second research question, we examined whether there is a difference in stressors and coping within two age groups of parents and between single and two-parent families. It was found that several sources of stress were prevalent in two-parent families. A fear of becoming ill or infect someone with the virus, parent's personal issues, increase of home duties and multitasking were more frequently mentioned than in single parent families. Despite the aforementioned stressors, the two-parent families more often reported no stress. Probably it could be explained by having more resources to overcome the pandemic-related situation. When comparing the two age groups of parents (under and over the age of 39 years, the significant differences were found in both parental stress and coping. Parents under 39 were more likely to mention stressors such as physical and social distancing and change in daily routine, whereas parents over 39 more frequently mentioned uncertainty, insufficient or overwhelming COVID-related information as well as other general stressors, and no stress

at all. Some other research also found that older individuals perceived the risk of the pandemic more calmly than younger people (e. g., Gerhold, 2020; Flesia et al., 2020; Mazza, 2020).

The strength of this study was use of mixed methods design. The qualitative data provided an opportunity to understand better the challenges families were faced this time of the pandemics. Since the size of the sample was relatively large, a broader awareness of the sources of stress and coping strategies was obtained.

One of the limitations of the study was the predominance of women in the sample. The uneven gender distribution could also be a gap, as it does not provide an understanding of how this time is experienced by fathers in families who are also an important part of the family system. This could be future steps for the research. It would be useful to continue research in this area to find out whether the used coping strategies are effective in the long term. The data for this study were collected at the time when families had been living with the pandemic for less than three months, but now the pandemic has been ongoing for more than a year. It also should be taken into account that during the first wave of the pandemics there was a relatively favourable epidemiological situation in Latvia. Future studies could compare sources of stress and coping strategies in the long term to understand whether the impact of the pandemic changes over time and in diverse epidemiological conditions.

## Conclusions

The study quantitatively-qualitatively investigated the sources of stress and coping techniques of parents during the first emergency situation of the COVID-19 pandemic in Latvia (May-June 2020). First, the most common sources of parental stress were physical and social distancing, distance learning and work-related stress. Second, physical activity, time for oneself, and spending time with the family were the most reported strategies to cope with parental stress due to the first wave of the pandemic. Third, there are differences in the stressors and coping within different socio-demographic groups of parents. Of special interest is finding that younger parents could be considered as a vulnerable group, since they exposed a higher level of stress with regard to physical and social distancing as well as dramatical changes in daily routine. This study shows that younger parents are more stressed during this pandemic, so special care should be taken to support them during this time. As physical activity was the most helpful for parents to cope with stress, it would be necessary to provide parents with opportunities to exercise, which could also be time for themselves as it is the second most common coping strategy.

## Acknowledgements

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# BETWEEN "ACTS-AND-FACTS HISTORY" AND "EDUTAINMENT" IN THE HISTORY OF EDUCATION STUDY COURSES: THE CASE OF UNIVERSITY OF LATVIA

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## ABSTRACT

At present, the history of education is experiencing a paradox: research in the history of education is flourishing, but the history of education as a study subject is losing its relevance in university curricula. The present research aims at examining the potential of education history in student-centred and research-based study process while addressing the experience in teaching education history in master's study programmes at the University of Latvia from 1920 to 2020. The article comprises three sections: the first section offers an overview of the evolvement of the history of education as a study subject in Europe and Latvia; the second section, based on the experience of teaching the history of education and research in history didactics, reveals three possible approaches to the study course in the history of education; the third section foregrounds the integration of digitized historical sources in the delivery of student-centred and research-based education history courses. The research demonstrates that each of the three approaches ("acts-and-facts history," "problem-oriented history of education," and "edutainment") has student-centred potential in shaping historical thinking. The student-centred study process in a modern university is closely related to research-based studies, which in the study course of education history means independent research of history aligned with students' individual interests in the field of education.

*Keywords:* *curriculum, history didactics, history of education, student-centred study process, research-based studies, university.*

## Introduction

The history of education today is experiencing the paradox repeatedly mentioned by studies in the field: research in the history of education is flourishing, numerous national and international academic journals are published, conferences and summer schools are held, but the history of education as a study subject has been marginalized at universities over

recent decades (Fuchs, 2012, 7; Reyniers et al., 2018, 845). The University of Latvia is no exception in this respect: in the syllabus of year 1992, 72 academic hours were allocated for the history of education (Anspaks, 1992), in 2001, the history of education was reduced to 32-48 academic hours in both bachelor's and master's programmes (Kaļķe, 2001, Ķestere & Krūze, 2001) but in 2020/2021, the history of education subjects vanished from bachelor's programmes, and in master's programmes are taught alongside the philosophy of education in the course 'History and philosophy of education in the 21$^{st}$ century perspective', securing only 24 academic hours to the history of education (Rubene et al., 2020). This modest share of hours is a compromise achieved by overcoming the scepticism of students and colleagues regarding the need for the history of education, which is mainly based on two arguments:

1) the history of education has no use in teachers' daily practice;
2) each professor provides a historical outline of the respective study subject in the introductory lecture(s) of their study courses.

The education historians themselves, who enthusiastically develop academic research, but rarely turn to the history of education as a study subject, including didactics, could be accountable for the lack of awareness of the need for the education history in the field of education sciences. Nowadays, following the research by Tyack (1976), Beales (1989), Salimova and Johanningmeier (1993), Campbell and Scherington (2002) and Depaepe (2001, 2012), tertiary studies in the history of education are examined by Reyniers et al. (2018) in one of the few studies which puts teaching of education history in an international context.

Our research aims at discussing the potential of the history of education in the student-centred and research-based study process, as backed up by the experience in teaching the history of education in master's study programmes at the University of Latvia in the time span from 1920 to 2020.

Our study comprises three sections: the first section offers an overview of the evolvement of the history of education as a study subject in Europe and Latvia, with the reference to relevant previous research; the second section, based on the review of teaching the history of education, research in history didactics and the author's 20 years of experience in teaching history of education, reveals three possible approaches to the study course in the history of education; the third section, while resorting to quantitative research, foregrounds the integration of digitized historical sources in the delivery of student-centred and research-based education history courses.

## History of Education at Universities: The Background

The history of education entered European universities with the establishment of chairs or professorships in pedagogy in 18th century Germany. The study courses in pedagogy or education sciences were rooted in three theories: philosophy of education, educational psychology, and history of education from Plato onwards (Beales, 1989, 131). The acquisition of theoretical concepts distinguished study courses at university from practical training in teachers' seminaries and colleges, established *en masse* in the first half of the 19th century Europe, including the territory of Latvia. The colleges curriculum contained the studies of schooling (*Die Schulkunde*), which included also "the history of folk schools from Luther to the present day" (Bach et al., 1898, 87). However, the teachers' training colleges mainly focused on practical skills. Prospective teachers, beside the knowledge of the school subject, also mastered its teaching methodology, which they further reproduced in their teaching practice. Teachers' training colleges were practice-oriented, while universities put emphasis on theoretical knowledge.

In comparison with other European countries, the subjects in education sciences or pedagogy were introduced at tertiary level rather late in Latvia, because the first humanities-type higher education institutions (including the University of Latvia) were founded only after the establishment of the Latvia nation-state in 1918. Yet, it should be noted, that the University of Latvia, started delivering the history of pedagogy as a separate study course from its very beginnings (Latvijas Universitāte…, 1939, 253–255, 262–263), while the University of London, for example, did not offer the special history of education subject from 1910 to 1932 (Beales, 1989, 133).

Since the academic year 1920/1921, the history of education at the University of Latvia was taught by professors with a degree in philology and philosophy from the University of Tartu (Latvijas Universitāte…, 1939, 253-255, 262-263) which determined the course content by spotlighting the history of ideas. This general European trend of the interwar period is described by Richardson (1999) as follows: the history of education comprised the history of pedagogical thought (ideas, theories), which methodologically was closely related to philosophy and philology, and the history of educational institutions (schools, universities, teachers' training colleges, etc.), which chronologically described facts (Richardson, 1999). Campbell and Scherington (2002) also showcase philosophy as "a natural partner of the history of education" (46–47).

After World War II, when Latvia was incorporated into the Soviet Union, all curricula, from primary schools to universities, were streamlined

with the guidelines of the Soviet education system (Raudys et al., 2013). Undeniably, these changes affected the courses in the history of education too. Both, the history of ideas and the history of educational institutions remained in the curriculum, but now they were taught from the perspective of trivialized Marxism: when teaching the history of education, the social class aspect was emphasized (Ķestere, 2014a). For example, the social origin of the "great" educator, his attitude towards public education and the limited educational opportunities of the lower social strata.

In the 1960s and 1970s, the Western world took a "realistic turn" (Bracke et al., 2019, 24) in education sciences, history and education history, characterized by a conceptual shift from the analysis of ideas in the spirit of classical philosophy to the social science paradigm: "(..) we may well assume that a 'paradigm shift' took place under the inspiration of cultural revisionism: the history of ideas was replaced by the postulate of the social history of education" (Depaepe, 2001, 632).

The influence of social sciences expanded the boundaries of the field of education sciences and the history of education; interdisciplinary research became topical, and empirical research borrowed from the social sciences was taken up as a field of interest (Campbell & Scherington, 2002, 50; Bracke et al., 2019, 25). The history of various social groups (e. g. children, women, immigrants, people with special needs) gained popularity. The time of various "turns" began (e. g., the visual turn, the linguistic turn, the transnational turn, etc.), namely, the time of the search for new concepts and sources, which attracted history researchers and was called by Osterhammel (2019) the time of "carefully orchestrated 'turns' in global history" (22). Education reality studies became topical, while educational ideas about how "it should be" were moved to the background.

The "new" history of education made its way into in study courses at universities. Describing the history of education in Belgium, Professor De Vroede at the University of Leuven in 1970s saw the future of the history of education in discovering the correlation between, on the one hand, the development of society and, on the other, upbringing and education, which develops the relevant social history of education (De Vroede, 1979, 30).

The paradigm shift in the history of education so topical in the West went unnoticed in Soviet Latvia. Firstly, the "Iron Curtain" meant intellectual isolation from the Western world, and secondly, educational research within the social paradigm did not seem to be new in the Soviet Union. As mentioned earlier, Soviet historians already viewed education in a strict (ideologically dictated) social "framework" (Ķestere & Ozola, 2014).

After the restoration of Latvia's independence in 1991, information banned and hidden in the Soviet Union came to the forefront in the history of education and was enthusiastically studied by the faculty and gladly

mastered by students (Nobik et al., 2019). The research mainly focused on a certain chronological period, namely, the silenced time of Latvia's independence in the 1920s and 30s, the educational institutions of that time and the pedagogical ideas. However, history as chronologically listed facts, without concept, interpretation, explanation, soon became uninteresting to the public, including the student audience, and therefore, seemingly irrelevant (Depaepe, 1993, 5–6). As a result, the history of education began to lose its place in the study programmes of Latvian higher education, giving space to study courses that were supposedly more hands-on and beneficial for practice (Ķestere, 2015, 219–220).

A new turn in the research in the history of education in Latvia began with the development of international networking, where the International Standing Conference for the History of Education, attended by professors and doctoral students of the University of Latvia from the early 21st century, played an important role (Ķestere, 2014b). International experience inspired changes in the history of education in Latvia, namely, a conceptual turn towards social sciences, which took place in the West already in the 1960s and 70s. The revision of the content and approaches to teaching of the history of education has started.

## Three Approaches to Studying the History of Education

The analysis of teaching of education history at universities and research on the history didactics, as well as the author's 20-year experience in teaching education history at the University of Latvia reveal three approaches to the study course in education history:

1. The history of education as "acts-and-facts history" (Reyniers et al., 2018, 840) i.e, the traditional combination of pedagogical ideas and the history of educational institutions in chronological order, or "memorizing and reproductive learning" (Bracke et al., 2019, 34). This approach showcases the importance of chronologically sequential depiction of the history of education and acquisition of facts in the study process. However, the formation of historical thinking, focusing on factual knowledge, is considered old-fashioned (Köster et al., 2019, 10). Such study process is "dominantly cognitive and simple" (Bracke et al., 2019, 34), but the students find it tedious and start questioning the relevance of history. In addition, the reciting of facts is no longer relevant in the digital age, when information for different levels of knowledge and preferences is offered by Internet also at a good academic level.

At the same time, it must be admitted that students lack systematic knowledge of history, which is not an exclusively Latvian problem: Bracke et al. (2019), summarizing the research surveying the students in Germany,

admit that young people mix "naïve everyday knowledge" with "systematic scientific or scholarly knowledge," and lack "narrative competence" (50–53) i.e, students struggle to produce coherent historical narratives. The University of Latvia students' skills to deliver a source-based, logical, contextualized historical narrative are also quite modest, as evidenced by essays in the history of education. For example, it is a regular mistake to define the first half of the 20th century as the chronological boundary of the study, ignoring two different political contexts of this period that play an important role in understanding and explaining educational (as well as social and cultural) processes: Latvia's independence in the interwar period and drastic changes in education under Soviet and Nazi occupations in the 1940s and 1950s.

2. Problem-oriented, conceptual history of education in the paradigm of social sciences. This approach requires extracting a certain educational discourse (or range of problems) and discussing it with students in different contexts of political, social and cultural history, going beyond the nation-centred history, and accordingly interpreting different historical sources (Sandwell, 2019, xvi). Using this approach, for example, childhood history, education reforms and innovations, gender education, classroom culture, educational technologies are analysed. The choice of the range of problems can be flexibly applied to the interests of a certain student group. However, as Campbell and Scherington (2002) note in describing the "new" history of education in the 1960s and 1970s, the problem-oriented approach has contributed much to the development of education history as an academic discipline, but has become less useful in teacher education programmes (56). Indeed, this approach is difficult, first of all, because the search for generalizations, conceptualizations, free operation with various facts and theories is attractive, but requires prior knowledge – a wide horizon in politics, history, culture and education. Second, the "understanding and explorative learning" (Bracke et al., 2019, 34), which prop this approach, is time consuming, as it involves comparing different sources and interpretations, devoting a significant time to discussions.

Consequently, professors have to choose between teaching the "boring and unnecessary" facts of education history and discussing current education issues in a historical perspective, at the risk of students without prior knowledge failing to adequately participate in the study process and contribute to discussions.

3. The third approach is revealed by Reyniers et al. (2018) in the article with the telling title 'Let us entertain you (..).' The history of education can also be a study course that provides a "relief" in an intensive study process, offering students to expand their cultural horizons by taking a popular science stance and, thus, getting an "edutainment" (Reyniers et al., 2018, 842).

This approach is characterized to a large extent by the presentation of the education as a part of nations' cultural and intellectual development. This approach does not focus on students' academic achievements, but attractively reveals the most significant and/or, in the lecturer's view, the most interesting events in the history of education. This approach is characterized by a variety of pedagogical tools, such as excursions, museum visits, historical commemorations and film screenings without burdening students with intellectual pressure and time-consuming independent tasks: "historical evidence and narrative is sacrificed in the name of entertainment" (Donnelly, 2019, 222), thus turning academic studies into a glittering and glamorous "show" (Reyniers et al., 2018, 843).

Nonetheless, like the two previous approaches, this approach offers certain benefits: learning the history of education is not imposed, its acquisition (or non-acquisition) is the personal choice of each student. However, replacing learning with "edutainment" leads to "student consumerism" in university education that today affects teaching in a much broader sense, not limited to teaching history (Reyniers et al., 2018, 843).

Here we come to the question of the need for the history of education in pedagogues training programmes. The acquisition of theoretical knowledge has always been considered one of the indicators of the quality of education ("good education") in the history of mankind (Beales, 1989). Without theoretical knowledge, the worker is only a craftsman. Competence in history, including education history, allows to contextualise our present and make it meaningful and comprehensible (Reyniers et al., 2018, 840; Clark, 2019, 49). As Beales (1989) admits, "Only when the Victorian public ceased to regard its elementary school teachers as primarily craftsmen, as artisans with a veneer of culture, could the training of these teachers take on a new dimension, and their vocation be appreciated as that not only of teacher but of educator" (131). In other words, a teacher equipped with theoretical knowledge is not only a skilled craftsman, but also an intellectually established individual. The National Development Plan of Latvia for 2021–2027 (2020) mentions the word 'smart' 127 times, for example, "Latvia creates and attracts a smart (..) workforce" (9). Undoubtedly, smart teachers, in the broadest sense of the word 'teacher', is an essential precondition for the creation of demanded "smart" specialists.

A more pragmatic argument can be added to what has been said about the importance of intelligence in pedagogical work: the history of education provides a critical look at "canonical knowledge" (Bracke et al., 2019, 45), the creation and assessment of innovations. The history of education is a repository of ideas that helps to find new pedagogical solutions and contextualise existing educational reality. The history of education helps to find answers to the most challenging question in research: why? For example,

why radical education reforms often fail and teachers, after the reform culmination, try to return to their comfort zone, to traditional educational practices (e. g., Labaree, 2012).

With respect to the subject of three approaches in the study of education history, the conclusion is obvious: studies must lead to historical thinking with structured factual knowledge, to historical thinking which includes a set of skills and competencies to reflect on historical experience, generalizing it and explaining it in a logical narrative (Bracke et al., 2019, 23, 53; Goulding, 2019; Köster et al., 2019, 9, 11).

## Research Sources in the History of Education Study Course

If a problem-oriented approach to teaching education history is chosen, the starting point is personalization of history research, which is recognized as permanently important for the history studies (Bracke et al., 2019, 23) and is widely used teaching education history in Western universities (Reyniers et al., 2018, 841).

Early on, in the education history course at the University of Latvia, students identify a personally topical education issue and 3 to 5 keywords related to it. The chosen issue is studied from a historical perspective, resulting in the submission of an essay of about 1800 words. Having formulated the research problem and defined the research question and/or goal, students determine the chronological boundaries and decide on research sources.

In 2020, the choice of historical sources was limited due to the quarantine imposed by the COVID-19 pandemic. However, it has to be taken into account that also during regular classes students' research in the history of education, if it is not intended for a bachelor's or master's thesis, is only one of many tasks that must be performed within their study time. Therefore, when offering students body of historical sources, their availability must be considered.

The Latvian National Digital Library, which contains Latvian press publications from the first editions to the present day (including 2021) is one of the highly useful repositories of the written sources. The most important education policy documents published in the press are available there, as well as textbook resources, including primers. If the chronological boundaries of the study allow it, interviews with eyewitnesses are conducted. Published autobiographies, previous empirical studies, websites and family archives can also be academically applicable (Golledge, 2019, 154–155).

The group of sources that we will focus on are materialities, stored in the museum collections. This group of sources, which has long been on the periphery of historical research, has now entered the field of education history, as evidenced by numerous publications, projects and conferences

(e. g., Lawn, 2009; Allender et al., 2021). As it is hardly possible to visit museums during a pandemic, the question of how to "bring" museum collections into the university auditorium for both research and pedagogical purposes becomes relevant. One of the options described by Daniela (2020), is to use virtual museums as "learning agents," the offer of which is constantly expanding and experiencing a new impetus due to pandemic quarantine. In addition to virtual museum tours, several digitized museum collections have been created, where it is possible to search for sources with the help of a browser (e. g., Joint Catalogue of the Collections of Latvian National Museums and *Europeana*).

Both, virtual museums and digitized repositories of museum objects are certainly an aid in the education history studies, but none of these resources is purposefully designed for research in education sciences. Therefore, the researchers from the University of Latvia, in cooperation with museums, creating a digitized collection of museum objects in e-environment based on the following principles: 1) objects are classified according to students' research interests, which were identified on the basis of the defended master's theses in education sciences; 2) the digital collection includes items that are valid for multiple interpretations and help to reveal "the complex, problematic and often contested nature of historical inquiry" (Goulding, 2019, 239) and whose research requires the application of competencies learned in the course of education history, such as source critique, source comparison, source contextualisation, connotation and denotation of visual sources (e. g., photographs, films, posters, drawings, games, textbooks, letters, learning technologies); 3) the collection can be used in workshops both in the history of education and in other education sciences study courses; 4) the collection can be supplemented by the students themselves, including digitized objects from museum collections and personal archives described in accordance with the specific guidelines, elaborated by museums' employees.

As mentioned earlier, one of the principles in creating a collection of digital sources is its application to students' research interests. Therefore, in order to identify students' areas of interest, we compiled 883 keywords that are included in the master's theses defended in the education sciences programmes of the Faculty of Education, Psychology and Art of the University of Latvia. The University of Latvia database contains 223 master's theses in education sciences, which were defended from 2015 to 2018. As 29 theses did not contain indicated keywords, the research body narrowed to 194 master's papers. Coding was done by moving keywords from the context of education sciences to the context of history. This means that the concepts of education are considered in the discourse of childhood social history, including education, in which childhood is viewed and analysed as

the application of pedagogical conditions for achieving adult status in the context of a certain society (Prout & James, 2005, 7; Ali Norozi & Moen, 2016, 75–80). Based on this approach, 883 keywords were divided into the following five thematic groups:

Child and political power. The research on this topic reveals the impact of political power on childhood, including supervision and control of education. Examples of keywords: education policy, education law, education quality (education quality control, education quality assessment), education standards.

Child and society. The research on this topic exposes the education of the child for social life and society as an educator. Examples of keywords: cultural education (cultural learning), non-formal education, intercultural education (promotion of intercultural competence, international learning), career education, diaspora education, attractiveness of education.

Child and institutions. The research on this topic reveals the institutionalization of childhood and the child's life in educational institutions. Examples of keywords: pre-school (pre-school educational institution), primary school, national minority educational institution, inclusive education, special education, interest-related education institutions, sports schools, vocational education institutions, religious education, child-friendly school, classroom culture, educational environment, school management strategy.

Actors or personalities. The research on this topic reveals the child and the adult in the educational environment: personality activities, professionalism, value orientation and mutual communication. Examples of keywords: 1st grade students, 2–3 (4–5, 5–6, 5–7) years old children, immigrant children (re-immigrants), gender differentiation in education, value education, children with hearing impairments, peculiarities of language development, learning abilities, teacher (pre-school teacher), teacher's personality, school principal, new teachers, professional competence, teacher's professional identity, teacher as a leader, cooperation (challenges in cooperation, types of cooperation), parenting sense of competence.

Pedagogy (didactics). The research on this topic exposes the teaching and learning process, teaching tools, analyses teaching materials and learning outcomes. Examples of keywords: learning (learning culture, learning skills, learning motivation, learning outcomes, self-regulated learning, independent learning), competences (competence approach, natural science competence), teaching methods, educational technologies, group working method, cooperative learning, methodological materials, extracurricular reading, foreign language acquisition.

The variability of the keywords is extremely wide, but we singled out the six words that are most commonly used in different combinations.

As Fig. 1 demonstrates, the most commonly used word with various collocates is 'education' (11.0%), mainly meaning different educational institutions. The words 'primary school' and 'pre-school' are also common (both 3.9%) and are also associated with the word 'education', such as 'primary education'. A relatively large number of students' research is also devoted to 'learning' (2.5%), to which 'foreign language acquisition' (1.0%) can be added. An important place is given to the keyword 'collaboration' (1.7%), using it in various word combinations mentioned above.
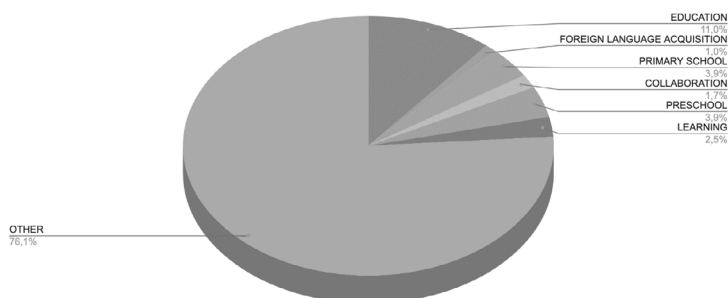


**Figure 1.** Typical keywords in the master's theses of the University of Latvia Education sciences programmes from 2015 to 2018

The research of master's theses keywords provides a basis for further work on the selection of educational sources for digitization and inclusion in the database. Thus, attention should be paid to the sources of the history of institutions, especially pre-school and primary schools (thematic group 3), which are widely represented in museum collections. The same can be said about learning (thematic group 5), including foreign language acquisition, where there is no shortage of sources in museum collections, but it is necessary to pay more attention to didactic materials for foreign language acquisition. In turn, the identification of sources for research on collaboration (thematic group 4) is an interesting challenge, which encourages the authors of this study to look at museum collections from a new perspective.

## Conclusions

The experience in the history of education studies at universities allowed to construct three approaches to teaching the course, none of which is ideal or completely discardable. Both, the "acts-and-facts history," and the problem-oriented history of education within the social sciences paradigm, and the history of education as "edutainment," are in a sense tailored to

students' interests and needs, hence are student-centred, although not quite obviously: passionate motivation of students as consumers to study the history of education by staging "shows" can only have a short-term effect, while "difficult" and "boring" fact-learning can become a long-term contribution to a teacher's intellectual and professional competence, including the skills to create and evaluate pedagogical innovations in practice.

Undeniably, the ideal is a combination of all three approaches to shaping students' historical thinking, which includes a set of knowledge and skills for reflecting on historical experience, generalizing it and explaining it in a logical narrative thus forming a narrative competence. The "big problems" of education should be discussed with students, without losing, but rather emphasizing the chronological framework, the political, social and cultural context, as well as with the purposeful and meaningful use of various pedagogical tools.

The student-centred study process in a modern university is closely related to research-based academic teaching (Reyniers et al., 2018, 838), which in the history of education study course would mean independent research in history, in accordance with the individual interests of students in the field of education. The basis of this research is work with sources, the methodology for the selection, comparison and interpretation of which is learned in the history of education study course. History research has its own rules, its own methodology, which is not taught in other education sciences study courses. Therefore, a purposefully created digitized database of historical sources for education studies is an important objective for further research and teaching/learning practice.

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# COVID-19 DIFFICULTIES IN THE REMOTE LEARNING PROCESS AND OPPORTUNITIES TO OVERCOME THEM: THE PERSPECTIVE OF FUTURE TEACHERS

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## ABSTRACT

The study explores the difficulties experienced by second-year students of the professional bachelor's study program "Teacher" at the Faculty of Education, Psychology, and Art of the University of Latvia during the remote learning in three courses in the first and second COVID-19 wave, in 2020, spring and autumn. The research provides students', future teachers' perspectives on both – experienced difficulties during remote learning in COVID-19 circumstances and possible solutions to overcome challenges. Data were obtained from students' self-reflections which were filled in at the end of the spring semester in June 2020 at the end of autumn semester in January 2021. Totally 230 students completed self-reflection, 223 statements (97 in June and 126 in December) were selected and analyzed using inductive thematic analysis, as result 9 themes emerged: technology related, physical, cognitive, social-emotional, motivation related, mental health-related, lack of recourses, insufficient learning skills, difficulties to apply professional knowledge and skills in educational praxis. In the first COVID-19 wave, there were identified two themes (extra additional workload and insufficient digital skills) that were not present in the second. However, the second added another theme – health problems due to COVID-19. There were students both in the first and second COVID-19 wave who did not consider this time and remote learning as a difficult one.

***Keywords:*** *COVID-19, difficulties, future teachers, higher education, online learning, remote learning.*

## Introduction

The COVID-19 pandemic has caused a global health and socio-economic crisis and strongly affected many economic sectors and, among others, it has impacted higher education. Since then higher education is facing difficulties at various levels. One of the challenges was the rapid transition from face-to-face teaching to remote teaching and learning. Following the

Law of Education of Latvia, the remote learning is a part of the full-time educational process in which learners study, including using information and communication technologies, without being physically in the same room or place of study together with the teacher (Izglītības likums [Law of Education], 1998, amended in 2020). At the University of Latvia, the transition to remote learning in the first COVID-19 wave took place on March 13, 2020, in the spring semester, when students had to adapt to remote learning, most often in front of a computer screen. Neither students nor lecturers were ready for such unexpected transformations (Vindača & Abuže, 2020). At the beginning of the autumn semester, the face-to-face lectures and seminars resumed, but after a short while, in October 2020, the remote learning were started again.

Since the beginning of the pandemic several extensive studies on the impact of COVID-19 on education, including higher education, have been conducted in Latvia both by higher education institutions researchers and nongovernmental organizations. Researchers from the University of Latvia investigated the use of technologies and digital platforms (Daniela et al., 2020) during the COVID-19, Riga Stradiņš University lead the research on university lectures' digital competencies in a remote learning (Jansone-Ratinika et al., 2020), Latvia's Student Union researched student's financial situation (LSM, 2020). The current research was started by the University of Latvia lecturer in March 2020, while working with second-year students of the professional bachelor's study program "Teacher" at the Faculty of Education, Psychology, and Art of the University of Latvia in the courses "Inclusive and special education" "Diversity in the school pedagogical process" "Classroom management". The necessity for research was driven by practice to understand better the impact of COVID-19 and remote learning on students and to find out the best possible solutions to support students during the organization of the study process. Therefore, the study aimed to explore difficulties students faced during the remote learning study process in COVID-19 situation (first and second wave) and to find out what helped them overcome the difficulties? There were two main research questions introduced: RQ 1. What kind of difficulties did students face during the remote study process during COVID-19 (first and second wave)? RQ 2. What helped them to overcome the difficulties?

## Methodology

The research was carried out from March 2020 to January 2021. This descriptive study follows a qualitative methodology. To build an understanding of students', future teachers' experience in the new teaching and learning circumstances in the pandemic situation, thus to explore new

phenomena in the higher education context, the study used interpretive research paradigm (Taylor & Medina, 2011). In data analyses, there were used inductive thematic analyses (Braun & Clark, 2006). Inductive thematic analyses first of all were chosen due to flexibility. Secondly, the choice was based on the underpinning that at the beginning of COVID-19 little was known about the pandemic effect on students learning in higher education.

The data was acquired through students' written self-reflection at the end of the spring semester during the first wave of COVID-19 (June 2020) and at the end of the autumn semester during the second wave of COVID-19 (January 2021). Self-reflection at the end of the course is performed regularly and is a quite typical way to get feedback from students after completing the study course. Within regular written self-reflection students were asked voluntarily to write freely about the difficulties of COVID-19 time, remote learning, and what have helped them to overcome those difficulties. Students (before filling in the self-reflection) were orally informed that the obtained results will be used for research, will be analyzed, taking into account the ethical aspects, anonymously and only in a summarized way.

230 second-year students' of professional bachelor's study program "Teacher" at the Faculty of Education, Psychology, and Art of the University of Latvia (full-time and part-time full-time students), future teachers, filled in the self-reflection after completing study courses "Inclusive and special education" "Diversity in the school pedagogical process" and "Classroom management". After collecting them, all student self-reflections were anonymized. In the next step, only student statements related to COVID-19 and remote learning were selected and analyzed. There were a total of 223 statements: 97 from the first COVID-19 period (written in June) and 126 from the second COVID-19 period (written in December), selected. Data collection was followed by the data analyses, using inductive thematic analysis (Braun & Clark, 2006). As is acknowledged by Braun and Clark (2006), thematic analysis involves searching the data and finding repeating patterns of meaning; it identifies, analyses, and reports patterns (themes) within data. After the data corps was selected (statements), the researcher started reading and rereading the data. After that, codes were identified. The coding was done manually, after which codes were arranged in mind maps. First themes emerged. Established themes were reviewed several times over the period. Final themes were described and analyzed, and some data matches were performed. To avoid pre-existing assumptions, the data was re-examined by the researcher several times during the research process. In the data analyses, all 6 steps suggested by Braun and Clark (2006) were implemented: familiarizing with data, generating initial codes, searching for themes, reviewing themes, defining and naming themes, producing the report. The ethical aspects were taken in mind both during the collecting the data and analyzing.

## Results

Answering the RQ 1, the main themes (both in the first and second COVID-19 wave) were established as a result of inductive thematic analyses (Fig. 1).
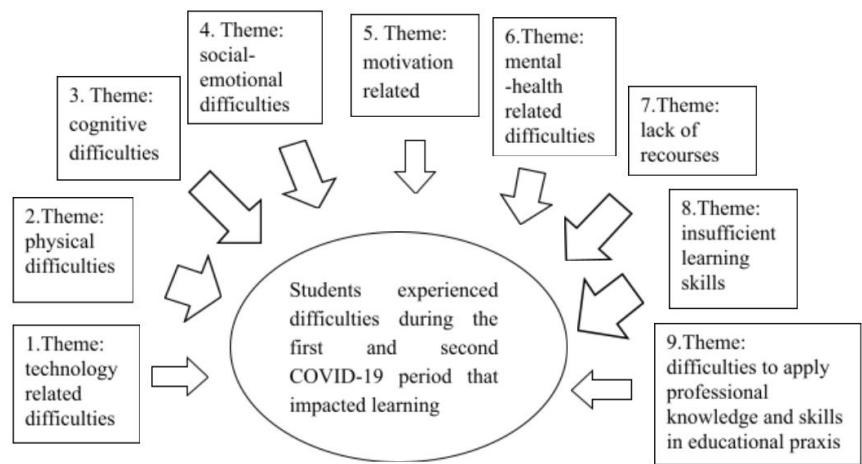


**Figure 1.** Thematic map of common student's difficulties during the first and second COVID-19 period

1. Theme: technology-related difficulties. Students admitted that they experienced a lot of technology-related difficulties. Limited Internet connection or weak coverage during the online simultaneous lectures and seminars left students without the possibility to participate in online lectures. As students could only partially hear what the lecturer said, some parts of the information from the lecture were missing.

> "*The Internet coverage was not so good, so there were lectures in which I could hear the sentences incompletely or not at all.*"

There were problems with computers that broke down, and due to the situation in the country, it was hard to replace them with new ones. Many parents of school children and students at that time were looking for new computers, prices went up and there were limited number of good and affordable computers available. Students admitted that they had technical problems due to old, outdated computers and programs. Sometimes just electricity disappeared during the lectures.

> "*There were more technical difficulties – weak internet, program problems, once the electricity was lost and the computer and phone were discharged, while the electricity returned, I had to miss the start of the lecture.*"

2. Theme: physical difficulties. Students experienced physical difficulties as they had to sit long hours in front of the computers – both during the online lectures and seminars and even after that to do their independent work. Sitting in front of a computer for a long time made students feel tired and physically exhausted. Students admitted that they had "tired back" "pain in knees" "painful eyes".

3. Theme: cognitive difficulties. Students experienced several difficulties related to cognition during the remote learning process. The major challenge was to keep the attention and follow up the lecture or seminar, as there were lots of distractions around.

> *"At home, something is constantly distracting and it is difficult to focus fully on the learning process with undivided attention. It's much harder to keep an eye on the computer as a living person."*
>
> *"The greatest difficulties arose during the lectures in keeping attention and focusing because before the lectures I had been sitting at the computer for about 3–4 hours, which was morally and physically tiring."*

Some students experienced difficulties capturing information, following the information, and remembering it:

> *"It was difficult to grasp the information provided, which was significant but in large quantities. In-person, the content of lectures and classes is better remembered."*

In some cases, there were difficulties in understanding the tasks. That is why students had to ask university lecturers to repeat the task several times. Such extra explanations form lecturers shortened the lecture or seminar time when lecturer could explain the new topic. Students had to rely only on the verbal or written information provided by the teacher. On contrary, in the face-to-face lectures or seminars students could easily turn to another student for advice and explanation. During the remote learning, such peer support was less obvious. Students admitted that during face-to-face learning nonverbal communication was an important part of learning.

> *"I called the course mates several times because I did not understand the instructions and the task I have to do, so far before remote learning, I have not noticed anything like that in myself."*

4. Theme: social-emotional difficulties. During the remote learning students were missing life communication both between students and lecturers. Students admitted that generally they were missing people and felt socially isolated. Remote communication in remote learning could only replace it partially, and not for all.

> *"There was a great shortage of people and face-to-face communication, but it's much nicer than remotely."*

Students were missing opportunities to work together face-to-face in group works, participate in lively discussions. Remote learning made

communication less effective. Although students used other communication channels (e-mail, Whatsup, Facebook, etc), it took much more time and it was more complicated, so it left students with some kind of frustration. As it was admitted by students, it was not possible to put in the written text all the necessary details, emotions, concerns, and real meaning. To write an email took a much longer time if compare with face-to-face conversation and there was a waiting time for response to consider, sometimes even 5 days. Even before COVID-19 students preferred to be engaged in person communication instead of e-communication. Students felt that they had limited opportunity to receive feedback from lecturers. Some students hesitated to ask for feedback. It was much harder to organize consultations, as it took an extra effort to do it.

> *"It's hard to get direct feedback during COVID-19, but you have to live with it and be understandable because there's a lot of work for everyone."*
> *"It was not possible to talk in person and ask the teacher because I will not write an e-mail about every detail."*

Students had some trouble with time planning during the pandemic. Even if the time was more because they did not have to go to university, many other things were taking up the time. There was some kind of fatigue from long-term changing conditions at work and home.

> *"Because you don't have to go anywhere, it's harder to plan your time, because it seems like it's a lot, but you have a feeling that you are doing less and you are constantly late for something. "*

Disrupted daily routines were another difficulty. Students' life changed and they had to make a new daily routine, but it was not as easy as it seems. Changing the habits took time.

> *"Without going to school every day, but sitting at home, I lose my routine, of course, I had to figure out, how to change it."*

The intensity of independent work and being alone, socially and physically isolated created new challenges for students to perform self-directed learning.

5. Theme: motivation-related. Due to the new circumstances, students experienced a lack of motivation to continue their studies, it resulted in being late with assignments, missing lectures, or even quitting studies:

> *"During COVID-19, I face a lack of motivation, the desire to learn fell by 50%, which often resulted in missed lectures or being late for them and late submission of assignments."*

6. Theme: mental health-related difficulties. COVID-19 situation for same students exacerbated mental health problems:

> *"I had difficulties with my mental health condition, I don't want to make any excuses, but due to COVID-19, I showed signs of severe depression.*

> *Of course, because of that, I lost motivation and any strength to do things for both school and life. But I'm trying to deal with it now."*

COVID-19 took everyone by surprise, so some students experienced emotional breakdowns, depressions, and panic attacks. As those students admitted, it was a new reality they have learned about themselves, as they did not experience it before.

7. Theme: lack of recourses. During the lockdown, the lack of resources was a common difficulty among the students, especially for those who were living in rural areas. The unavailability of online resources made students anxious. Libraries did not work or worked partially.

> *"It was difficult to get books in libraries because many did not work."*
>
> *"No books were available in rural libraries to help with courses. You have to pay money to order a book from Latvia's National Library."*

8. Theme: insufficient learning skills. Another difficulty explained by students concerned the new learning skills in front of a computer. Learning in the room together with other students was considered different learning if compare with learning during the remote learning at home. The new learning skills were required.

> *"It was also difficult to write something down on the notebook, to structure the information."*

9. Theme: difficulties to apply professional knowledge and skills in pedagogical praxis. As part of the professional education of the future teacher is a school practice. The students admitted that it was almost impossible to do it. The remote learning process at school made it impossible to practice important skills for teaching pupils face-to-face. According to the students, there are things in pedagogy that cannot be learned remotely.

> *"It was not possible to try many techniques remotely with pupils, we learned things that we could not practice."*
>
> *"Difficulties during COVID-19 were caused by remote learning in practical classes, for example, there was no opportunity to act out situations in life. If you do it in front of a computer, it is no for real."*

In response to RQ 1, two themes emerged only in the first COVID-19 period: insufficient digital skills and additional workload given by lecturers. At the beginning of COVID-19, it was quite a common situation when extra work was given to students.

> *"During COVID-19, it was difficult only at the beginning, because all the lecturers asked to do the work, which had to be completed for several hours (more than the lecture time) and it was not easy."*

When lecturers started to provide simultaneous online lectures regularly, the situation changed.

> *"Lectures in the MT (Microsoft Team) system was a good solution, everything went back to normal."*

In the second wave of COVID-19, the theme about insufficient digital skills and the extra workload was missing in the data, but a new theme emerged: health difficulties related to COVID-19. Students or family member were either ill with COVID-19, or recovering after COVID-19.

> *"The difficulty was that exactly in the days before 28th of December our family fell ill with C19, so it was difficult to get to write and complete the last work. But with God's help and strength, my husband's support, I managed to finish everything and then could have rest."*

Although students were asked to reflect on the difficulties during COVID-19, some students did not consider COVID-19 time and remote learning as a difficult one, in contrary, they stated that changes provoked by COVID-19 have been beneficial to them. Those students admitted that it was very pleasant to stay at home and not to go to the university.

> *"Very cool that in winter, in the cold, in the morning you do not have to go to university, but you can listen to lectures from home."*

By staying at home, they had extra time to do other things, to learn independently, to "dig deeper". Students admitted that by learning remotely they were able to keep up with duties at home, for example, continue to study with a new-born baby at home or look after the prolonged ill mother. Some students were very optimistic about the new form of learning, they explained, that the new experience encouraged them to learn and to try new educational platforms, digital tools, and find new recourses. The number of such positive comments increased during the second COVID-19 wave (3 statements in the first period and 16 in the second).

Answering the RQ 2, the three main themes (both in the first and second COVID-19 wave) were established as a result of inductive thematic analyses: quality of the study implementation, social and professional support (Fig. 2).
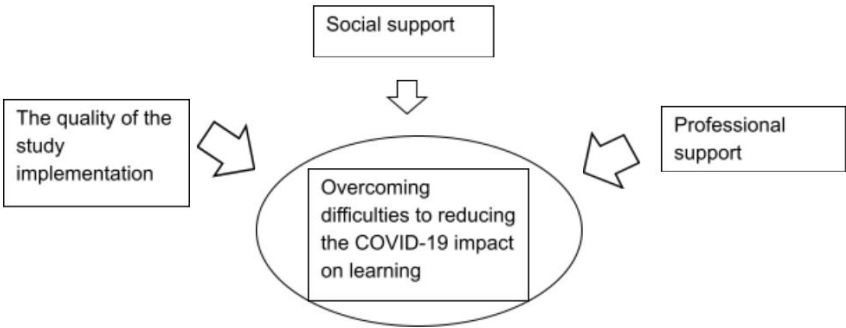


**Figure 2.** Thematic map of overcoming the difficulties during the first and second COVID-19 period

1. Theme: the quality of the study implementation. Students admitted that the fact that all lectures and seminars took place online simultaneously following schedule was very important and helped them to keep up with the study process. Certain rules and routines established at the beginning of the course or the beginning of the remote learning period helped students to keep up with learning and new circumstances.

> *"This course taught me that work remotely is very successful if certain rules are set for it (mandatory greeting, notation that you have joined the lecture, asking questions, presentation of works)."*

Course objectives, learning outcomes, clear instructions, how, when, and what to do, predictable assessment procedures, effective feedback, student self-reflection, summary at the end of the lecture helped students to learn and feel successful.

> *"Repetition of the content – both at the end of the lecture and at the beginning of the next lectures helped us to master the content of the course, which did not allow for us to lose focus during the lectures. At the end of the lecture, there was a summary provided or we were asked to reflect about our learning."*

Various forms and methods in the study process: lectures, videos, seminars, discussions, situation games, modeling, pair work, group work, experience sharing, supervision, as well as meaningful independent work and practice encouraged students' active participation and engagement in the online classes.

> *"Methods in lectures – mostly it is very difficult to receive and work productively in lectures of other courses, but here"* there were no options *"– could be called at any time, group work was organized, etc. It all helped a lot."*

Provided resources in e-studies (e-learning platform of the University of Latvia) – presentations, additional materials, self-examination tests; library and internet resources – books, e-books, were considered important by students.

2. Theme: social support. During the pandemic and remote learning, students could appreciate even more than before the support they were getting from their group mates. Students admitted that such support was taking place because they were second-year students, so they had time to get to know each other, make friendships within the groups. The short face-to-face learning period at the beginning of the second semester was helpful, learning groups were established. They could support each other both during the online learning and during the independent learning time. Most of group mates were open minded, ready to cooperate.

> *"If quite honest-my group mates, who helped a lot in stressful situations."*

> *"The group mates helped to learn the content of the course the most because, by online learning, we all tried to help each other and explain if something was not understood."*

Another's social support system was university lecturers who helped students to overcome the difficulties. There were provided several opportunities to communicate – before, between lectures, seminars, and even during the class. Lecturers stayed longer online, answered to questions or engaged in discussions during the simultaneous online class breaks. The chat was used for asking and answering questions.

> *"Lecturers communication with us helped to master the content of the course".*
>
> *"Even if I had a problem, I noticed it quickly and then I communicate and was able to solve it, and the group mates and the lecturers were so responsive and ready to offer help."*

3. Theme: professional support. As it was admitted by students who had experienced some mental health issues, they appreciated very much the professional support provided by the University of Latvia Psychological service. The service was free of charge for University students and it was very much appreciated professional support the students got.

> *"For the first time in my life, I experienced an emotional breakdown, in November I even asked help from UL psychologist".*

## Discussion

This article has discussed and highlighted aspects of the impact of the COVID-19 pandemic and remote learning in the perception of second-year students of the professional bachelor's study program "Teacher" at the Faculty of Education, Psychology, and Art of the University of Latvia in the courses "Inclusive and special education" "Diversity in the school pedagogical process" "Classroom management". The results of current research coincide with finding from other research in Latvia and worldwide, both in the context of COVID-19 impact on the general population and specifically on higher education students. Most of the difficulties described by students, future teachers are common across universities, programs, and countries (Tab. 1).

Three themes emerged from the current study that was not specifically mentioned in any other study so far: physical difficulties, insufficient learning skills in front of the computer, difficulties of future teachers to apply professional knowledge and skills in pedagogical praxis. Two themes emerged in the first COVID-19 period of remote learning (problems with digital skills and extra workload). Students experienced problems with digital skills at the initial phase of remote learning (Adedoyin & Soykan, 2020).

**Table 1.** Difficulties in the remote learning process during the COVID-19

| Themes | Coincide with other research findings |
|---|---|
| Technology related difficulties | No personal computer (Said-Hung et al., 2020), no internet access (Händel et al., 2021, Lāma & Lāma, 2020, Adedoyin & Soykan, 2020), problems with internet or outdated (or incomplete) equipment old, computer programs (Lāma, & Lāma, 2020). |
| Mental health issues | General population increases in self-reported anxiety, depressive thoughts, suicidal ideation, and being currently depressed/distressed (Vrublevska et al., 2021, Centers for Disease Control and Prevention (CDC), 2021), psychological challenges (Kruks et al., 2020). The lockdown caused 'panic' and 'anxiety' (la Velle et al., 2020), which followed by students insecurity and anxiety due to isolation (physical and social isolation) (Jung et al., 2021), loneliness and stress-induced emotions (Händel et al., 2020 Lāma, & Lāma, 2020, De Man et al., 2021), anxiety and depression heightened by family worries (Kee, 2021), there is more need for psychological counseling (Naidoo & Cartwright, 2020). |
| Lack of recourses | Students experience difficulties in accessing study materials and textbooks (Murphy & Shelley, 2020, Lāma, & Lāma, 2020). |
| Lack of motivation | Problems with motivation and productivity levels (Naidoo & Cartwright, 2020, Lāma, & Lāma, 2020). Lagging behind other students, delaying, there are late submission of papers, making it difficult to obtain credit points accordingly (De Boer, 2021). |
| Cognitive difficulties | Students inability to concentrate, to get involved (Said-Hung et al., 2020, Bhagat & Kim, 2020) due to caring for family and children, cooking (Said-Hung et al., 2020, Martinsone et al., 2020), study process destruction by family members and even by pets (Adedoyin & Soykan, 2020). |
| Social-emotional difficulties | Limited communication between students and lecturers (De Boer, 2021), lack of contact with lecturers, not being able to ask questions, lack of peer learning opportunities (Buckley et al., 2021), hard "to read" the lecturers and other students emotions, lack of "human contact" (Lāma, & Lāma, 2020). Problems with self-management and self-regulation – time management, planning, goal setting (Naidoo & Cartwright, 2020, Lāma, & Lāma, 2020). Disrupted daily routine that previously created a certain structure and security, providing predictability (Naidoo & Cartwright, 2020). |

At the first COVID-19 wave university lecturers, unable rapidly to adapt to remote learning, imposed much additional independent work on students, which required much more time than face-to-face studies. In the second COVID-19 wave, with the transition to online simultaneous lectures and seminars, this theme no longer appeared.

In a current study, several statements were found to be very positive about remote learning, thus students considered remote learning even

beneficial. Ramlo (2021) calls those students Loners. Loners see remote learning and online classes as convenient and as making their lives easier. This also refers to a study done by Suleri (2021) in the Dutch academic universities where students believe that online learning should be maintained even after social isolation will end, as there are many benefits of it.

Based on the current research the main support system for students to overcome the difficulties during the remote learning in the COVID-19 situation were regular lectures, seminars, qualitative, well-organized digital study process. Digitization of the study process means – synchronic online lectures and seminars, remote exams in the form of tests in front of the computer, re-planned practical tasks (De Boer, 2021), student active involvement in the seminars and lectures (Händel et al., 2021), which helped students to continue with learning successfully. The social support from peers and lecturers was another support system. By promoting communication in the group to feel the unity and cohesion of the group, working in the groups, was possible not only to ensure the achievement of study results but also to provide support to each other – to reduce tension by discussing various situations, stressors (Händel et al., 2021). The professional support for those students who experienced mental health issues was important. Hoverer, besides specialists (for example psychologists), there would be a possibility for university staff to be involved professionally in providing support for students (Händel et al., 2021).

This small-scale study has some limitations – the participants of the study were reflecting both on the courses lead by two university teachers. The participants were second-year students with certain experience in higher education.

## Conclusions

The pressure for the university, university lecturers, and students to adapt quickly during the COVID-19 to remote learning has meant that several difficulties were experienced by students during the first and second COVID-19 wave, in 2020, spring, and 2020, autumn semester. There were identified 9 themes that were common both in the first and second COVID-19 wave. Two themes were established during the first COVID-19 period but were not present at the second, which can be explained by adjustments there were made both by students and lecturers between first and second remote learning period. The new theme emerged in the second COVID-19 period, which was related to health issues and the spread of the COVID-19 in Latvia. The majority of difficulties in the current study were similar to those experienced by students in other higher education

institutions, programs, and countries elsewhere, which suggests the global impact of the crisis on students and higher education. However, three themes were new in the current research: physical difficulties, insufficient learning skills in front of the computer, difficulties to apply professional knowledge and skills in pedagogical praxis. The last two could be specific for the students, future teachers.

As it was suggested by research, it is important to deliver a high-quality study process in the remote learning situation to students, it helped students to keep up with their studies and encourages participation. Social and professional support was perceived as important by students to overcome the difficulties caused both by COVID-19 and remote learning.

The shift to remote learning for some students was beneficial, which can suggest that remote learning in higher education might remain in the future. Given the impact of COVID-19 on second-year students and the possibility of remote learning being the new reality in the university, some issues need to be addressed, particularly about physical difficulties students experience during long online lecture hours, providing students with social, professional support concerning mental health issues, technical support, and availability of resources would be essential. In the context of future teacher's education, it would be important to perform further studies, to find out the possibilities to acquire the necessary skills for future teachers to perform face–to-face learning while learning in the remote learning process. It would be important to continue research to monitor the further developments of the situation to make necessary adjustments in the study process.

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# DIGITAL TRANSFORMATION OF EDUCATION: ENVISIONING POST-COVID EDUCATION IN LATVIA

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## ABSTRACT

The project "Life with COVID-19: Evaluation of overcoming the coronavirus crisis in Latvia and recommendations for societal resilience in the future" (CoLife) was launched in Latvia in the summer of 2020. In this project, researchers representing different fields of social sciences were involved; researchers of education sciences were aiming to find out how the COVID-19 crisis contributed to the digital transformation of education and which changes in education caused by the COVID-19 crisis situation should be maintained in the future. The results of the project are a scientific prognosis on future action scenarios related to the digital transformation of education in Latvia, scientifically backed recommendations for related competency transformation, and tools for evaluating proposed solutions from the perspective of education to conceptualize recommendations for policy-makers on the digital transformation of education in relation to the digitalization and use of digital solutions at all levels of education (preschool, general education, higher education), thus laying the foundation for establishing and implementing a flexible and student-focused education. This article is dedicated to conceptualizing the recommendations for policy-makers on the digital transformation of education using the Delphi method.

*Keywords: COVID-19, digital learning platforms, digital transformation of education, (pedagogical) digital competence of educators, remote learning,*

## Introduction

Experts from the World Health Organization say that "the virus is here to stay and will be a constant threat for the foreseeable future" (Nabarro & Atkinson, 2020). This is a reminder that the public needs to learn to live with COVID-19 until the vaccines have been sufficiently developed and rolled out internationally to allow the lifting of restrictions and treatments are developed. Addressing the challenges of the virus is not just a matter for the medical sciences – it poses challenges for all academic fields, including the social sciences and, especially, the educational sciences, as

the crisis caused by the virus has changed education around the world in a very short time.

Therefore, the project "Life with COVID-19: Evaluation of overcoming the coronavirus crisis in Latvia and recommendations for societal resilience in the future" (CoLife) was launched in Latvia in the summer of 2020. The project was implemented by Latvian social scientists and is based on the recognition that this new situation also requires new ways of researching society and analyzing socio-political processes. That is why a novel model of cooperation was created, in which scientists from different institutions and different fields form scientific groups that share a common vision on finding a suitable approach to the changed social situation. This is a social science project with a public focus; representatives of different social groups are directly involved in the development of the study itself – their opinions, experience, and behavior are analyzed in interviews, focus groups, surveys, and behavioral observations.

The results of the CoLife study – recommendations for policy development for various institutions – will be applied by local, regional, and state institutions and non-governmental organizations to improve public resilience to future crisis situations. Thus, the findings and recommendations of the study will be available for policy-makers, institutions, and civil society, as well as for individuals looking for the optimal way to live with the consequences caused by the COVID-19 crisis in the long run.

In the field of education sciences, the task of the project was to collaborate with experts in the field of computer science to develop a scientific prognosis on future action scenarios, scientifically backed recommendations for the digital transformation of education, and to provide tools for the evaluation of the proposed solutions. The findings of this study will help scientists as well as policy-makers and government authorities to develop efficient communication plans and reach broader audiences.

Finally, we will scrutinize the effects of the abrupt and radical shift to remote learning during the state of emergency in Latvia. This shift was an unprecedented event both in Latvia and globally, and we plan ample opportunities to interact with the international scholarly community to study this phenomenon and share our data and findings. The novelty of the research is based on its orientation towards the creation of new guidelines and recommendations for policy-makers of all levels in Latvia (including regional, institutional, and state level) related to the digital transformation of education.

## Digital transformation of education in the context of the COVID-19 crisis

Digital transformation, i. e. "a process that aims to improve an entity by triggering significant changes to its properties through combinations of information, computing, communication, and connectivity technologies" (Vial, 2019), is taking place in all spheres of our lives. The field of education has been somewhat resistant to widespread digital transformation up until the crisis caused by COVID-19 for various reasons – a lack of financing for technologies and technological solutions; a lack of continuous technological support and quality further education for educators; a negative attitude towards technologies caused by a lack of experience or negative experience using technologies; concerns about increased screen time for students and its consequences; concerns about technology companies' possible impact on the curriculum and education policy; and last but not least the need to shift the focus on student-centered education since remote learning reduces the amount of control that teachers have over students and their learning process and increases students' responsibility for their learning, thus demanding a new approach to teaching (Azorín 2020, Dhawan 2020, Reimer, Schleiche 2020, Digiuseppe et al. 2017, Bonde et al. 2014.).

The COVID-19 crisis overshadowed all of these reasons with an unprecedented and unavoidable need for long-term mass remote learning. This need could not be fully met by any other means than using technologies, therefore considerably accelerating the digital transformation of education by investing a large amount of resources in it – not only by buying the technologies and technological solutions needed to carry out remote learning but also by organizing learning events for educators, students, and their parents and by searching for new approaches to enhance students' remote learning experience. We acknowledge that the digital transformation of education in these circumstances is somewhat unusual as it is not strategically initiated or led, but rather is a desperate attempt to adjust to the state of current affairs (Azorín 2020, Iivari et al. 2020, Karalis 2020, Tria 2020). Nevertheless, solutions for providing continued access to education relied extensively on digital technologies and initiated attempts to manage and deal with a variety of structural and cultural changes and barriers obstructing the successful implementation of digital solutions in education (Darling-Hammond, Hyler 2020, Harris 2020, Reimer, Schleiche 2020).

The COVID-19-caused crisis will pass, and it is clear that long-term remote learning has risks, especially for younger students, students lacking the motivation or skills to direct their own learning, students with learning difficulties, and students from socially disadvantaged families (Bundell et al. 2020, Reimer, Schleiche 2020, Dhawan 2020, Daniela, Rubene,

Rudolfa 2021). But there are also benefits that will not be so easily forgotten – the chance of the individualization of learning experiences, the opportunity to develop self-directed learning and digital skills, access to learning when it would not otherwise be possible, and the fact that technologies and technological solutions that are widely used by students and are often convenient solutions for other activities have now been introduced as effective ways of learning as well (Bonde et al. 2020, Dhawan 2020, Nolen, Koretsky 2018). Therefore it is likely that technologies will be used in education to a larger extent than before the COVID-19 crisis. Moreover, technology will probably be demanded by students, their parents, and even governments as an alternative form of learning in parallel to face-to-face learning in schools as well as institutions of higher education and further education (Azorín 2020, Balyer, Öz 2018, Nolen, Koretsky 2018). However, the cases in which remote learning can be scientifically justified over face-to-face learning and how it should be organized for the maximum benefit of society are yet to be discerned. To ensure that learning can happen in a remote mode, there is a necessity to strengthen the digital competence of all parties involved (Olesika, Lama, Rubene, 2021; Biezā, 2020; Rubene, 2018; Lee & Choi, 2017; Davis, 1986), which is an important component of remote learning (Becker et al., 2020, Eustler, 2020, Daniela, Visvizi, 2020), whether it is a synchronous or asynchronous learning process (Cleveland & Block, 2017, Anderson and Dron, 2011).

## Methodology

To study the digital transformation of education, as a part of CoLife project, an interdisciplinary team was established. During the project, close collaboration between scientific groups and specialists from the related economic sectors was developed – both educators and IT specialists were involved in the research. Educational science researchers from three higher education institutions – the University of Latvia, Rezekne Academy of Technologies, and Riga Stradins University – collaborated in the project, and the IT field was represented by the Institute of Electronics and Computer Science.

The research questions were connected by two education transformation directions related to digitalization processes at all levels of education: the human orientation (Education Law, 1998; European Commission, 2018), and the orientation towards a technology-enhanced environment (Prague Communiqué, 2001; Paris Communiqué, 2018). The research questions were as follows:

1. How did the COVID-19 crisis contribute to the digital transformation of education?

2. Which of the changes in education caused by the COVID-19 crisis situation should be maintained in the future?

Until the crisis caused by COVID-19 in Latvia, there was no previous experience of remote learning being organized for students of all educational levels to such an extent. When the educational institutions were abruptly closed in March 2020 and remote learning was introduced, much of the decision-making was left to local governments and educational institutions, resulting in diverse and often not very successful measures to ensure further learning. As the remote learning caused by the COVID-19 pandemic continues, there is a growing need to find the trigger points that inhibit successful teaching and learning, adapt learning processes, and clarify the terminology used when addressing remote learning as a new phenomenon of education.

In order to respond to the educational challenges posed by the COVID-19 crisis, the following research tasks were put forward:
- to develop a tool for the functional evaluation of existing digital learning platforms as well as recommendations for the implementation of these platforms in order to provide a technology-enhanced learning process;
- to identify the needs for the digital skill development of educators from preschool level to general and higher education and to develop proposals for the improvement of the digital and pedagogical skills of educators in the context of the COVID-19 crisis;
- to conceptualize recommendations for policy-makers for the digital transformation of education in relation to digitalization and the use of digital solutions at all levels of education (preschool, general education, higher education), thus laying the foundation for establishing and implementing a flexible and student-focused education.

This article focuses on the process and results of the conceptualization of these recommendations, which is put forward as an objective of this research. All other results will be published separately (Daniela, Rubene, Rudofa, 2021).

To fulfill the research objective, it was important to understand the relationship between the theoretical framework and empirical research and society, as well as to indicate different conceptions of this relationship. The consequences of the crisis are forcing education researchers to re-evaluate and re-conceptualize the digital transformation of education and society. Re-conceptualizing the social world means providing a critical view of society, demonstrating that familiar and apparently unremarkable features of everyday life can stimulate diverse questions (Cooper, Meadows, 2016).

To conceptualize the recommendations for policy-makers on the digital transformation of education, we chose the Delphi method. This is

characterized as a method for structuring group communication processes, so it is effective in allowing a group of individuals as a whole to deal with complex problems. The Delphi method is often termed the 'Delphi technique' because it provides a design for undertaking research which is underpinned by theoretical explanation. This makes it more than just a data collection mechanism (Cohen et al. 2007; Williamson 2002). The Delphi method is often used as a method of systematic interactive prognosing which is based on expert opinion. Assessing the consequences of the COVID-19 crisis and conceptualizing guidelines for future education are complex issues that require the collaboration of experts from multiple fields to solve, so we considered the Delphi method to be appropriate for reaching our aim.

The Delphi method is designed to achieve a consensus between the views of the group members involved, and it usually includes three rounds:

1. The researcher asks participants to respond to a series of questions and statements in writing. This may be done on an individual basis or on a small group basis.

2. The researcher collects the written responses and collates them into clusters of issues and responses (maybe providing some numerical data on the frequency of responses). This analysis is then passed back to the respondents for comment, further discussion, and the identification of issues, responses, and priorities. At this stage, the respondents are presented with a group response (which may reflect similarities or record differences), and the respondents are asked to react to this group response. By adopting this procedure, individuals have the opportunity to agree with the group response (i. e. to move from a possibly small, private, individual disagreement to a general group agreement) or to indicate a more substantial disagreement with the group response.

3. The recirculation of responses has to stop at a group meeting (in our case, a focus group discussion), which is the endpoint of data collection (Cohen et al. 2007).

To reach the planned results of the CoLife project, 8–10 experts took part in each discussion. Among them were educators from preschools (2–3), schools (2–3), and higher education institutions (2–3), as well as school and high school management representatives of both state-funded and privately-funded institutions and a business representative from the education technology field. All experts had experience in the field of remote learning and expressed their views on the digitalization of education, remote learning, and the development of the professional competence of educators. The experts completed three questionnaires (expressing their opinions without interacting) and after that participated in three focus group discussions (expressing their opinions interactively). The experts

were coded according to the following logic – the letter P was used for experts from preschools, S for experts from schools, H for experts from high schools, and T for the representative of the education technology field. A number was added to each letter to differentiate between experts; this was done in alphabetical order of their names and according to the date they joined the expert group.

Three surveys were created to gather the views of the experts. Each survey was designed to take around 10–15 minutes of the respondents' time. Approximately a week was given for the experts to fill in each survey. The questionnaires included statements with key terms for the discussions. The first survey consisted of nine questions. The first five questions were definitions of key terms for the discussion; the experts had to use a 3-point Likert scale (agree, partially agree, or disagree) to evaluate each definition. Experts who partially agreed or disagreed were asked to explain their opinion. In the 6th question, the experts had to arrange five provided categories of platforms and tools for online learning by their importance. The 7th question asked about the importance of the possibility to enhance self-directed learning via a learning platform (Likert scale – very important, important but not critical, not important: learning content is more important). The 8th question asked the experts to evaluate the importance of 10 criteria provided for evaluating online learning necessities (on a 5-point Likert scale from not important to very important). The 9th question asked experts to evaluate the importance of 13 criteria provided for evaluating online learning platforms (on a 5-point Likert scale from not important to very important).

The second survey consisted of four parts. The first part contained five main conclusions from a statewide evaluation of the distance learning process caused by the COVID-19 pandemic in spring 2020; answers from students, their parents, and teachers were taken into consideration. The experts were asked to read these conclusions before filling in the rest of the form. A link to the full dataset was also given. The second part of the survey asked the experts to express their opinions on eight statements about the distance learning process (on a 7-point Likert scale from fully agree to fully disagree). They were asked to briefly comment on the evaluations. In the third part of the survey was an open question, which asked the experts to express their opinion about the possible continued use of remote learning as part of the learning process even after the COVID-19 pandemic and state the main risks and benefits of doing so. The last part of the survey asked the participants to evaluate if, and if so to what extent, remote learning should be used for different student age groups – from preschool to high school – on a scale from 0–100%. They were asked to comment on their choices.

The third survey consisted of five parts. In the first part, the experts had to choose one main component out of four concerning teachers' and lecturers' digital competency. It was possible to add different components and comment on their choice. The second question asked about the importance of five criteria for organizing digital competence development courses (on a 5-point Likert scale from not important to very important). It was possible to add different criteria and comment on their choice. The third part of the survey asked experts to evaluate the impact that the COVID-19 pandemic-caused distance learning had had on teachers' and lecturers' digital competency; four statements were given (with a 7-point Likert scale from fully disagree to fully agree). It was possible for them to comment on their choice. The fourth part of the survey asked the participants to evaluate teachers' and lecturers' digital competency at that moment; ten statements were given (using a 7-point Likert scale from fully disagree to fully agree). It was possible for them to comment on their choice. The last part of the survey was an open question that asked the experts to share their views on what factors could motivate teachers and lecturers to further develop their digital competency even after the COVID-19 pandemic.

Focus group discussions were organized to reach a consensus. The surveys were analyzed, and the results were then used for discussion purposes. Quotes from the answers were also included in discussion presentations. First, the participants of the discussions were introduced to the research results, their survey responses were analyzed, and then a moderator organized discussions amongst them using both the research results and the survey analysis. All conversations were filmed and transcribed for later analysis and formation of the most important theses about each topic discussed. The discussions took place online; each discussion was 2 hours long, including presentations of the research results and participant survey analyses. As a result of the focus group discussions, the experts reached a consensus on their proposals and recommendations for policy-makers.

The focus groups with experts were organized in Latvian, and all the answers were translated into English by the researchers.

## Results

As mentioned above, the Delphi method was used to conceptualize recommendations for educational policy-makers on three issues: the use of digital learning platforms, blended and remote learning in education at all levels, and developing digital and pedagogical digital competences of educators, emphasizing the consequences of the COVID-19 crisis. The data was analyzed using a hermeneutic design approach (Wernet 2014) for the interpretation of the data obtained from the analysis.

**Expert opinions on the use of digital learning platforms**

Experts pointed out that although there was no ideal learning platform, a common platform was needed, not just for collaborating online but also for nationwide access to digitized learning materials.

> P2: *"Many of the digital tools currently used for educational purposes were not initially built for this. Having a common digital solution specially designed for education needs could significantly improve the situation."*

> P3: *"The sheer amount of accessible digital tools to choose from is an inconvenience for many teachers. Having common digital solutions could relieve this extra burden."*

> S1: *"A lot of resources are spent irrationally, with each learning institution trying to choose from the offered platforms and support educators learning to use them. It would be much more effective to collaborate on learning and using a common platform."*

> H2: *"It is a task for the state to provide a common learning platform that includes not just the tools for learning but also access to digitized learning materials. Having a common digital solution could also ensure the compatibility of the chosen tools, therefore making the sharing and transfer of data easier."*

> T1: *"It is also important to have content customized for cultural background. A common platform with access to such content could promote accessibility."*

Some experts, however, were hesitant about choosing a common digital solution for everyone.

> S3: *"I would not like educators to be forced to use specific digital solutions, especially if they have a good justification for using other digital tools."*

> T1: *"Although a common platform is needed, I do not believe that it would be used by everyone."*

One expert pointed out that having a common digital solution would not exclude using other digital solutions if the educator chose so.

> S2: *"There could still be an option to individualize such a common platform for those who wished it by embedding other digital solutions, for example."*

Several experts also expressed their concerns about data safety while using digital solutions for learning.

> H1: *"I choose not to create digital content. I do not have the confidence that my copyrights will be respected."*

> H4: *"Currently, students have the right not to use Zoom as a communication tool, if they so choose."*

An expert from the field of higher education pointed out that although there were clear benefits to having common learning materials for schools,

this probably did not apply for higher education, since specialization at this educational level gets narrower and there are therefore much fewer common materials that could be used nationwide.

> *H1: "The needs in higher education are too specific for common content to be relevant. A common technical solution could, however, be useful."*

## Blended and remote learning in education at all levels

The survey showed that the experts were cautious when evaluating educational institutions and educators' readiness for the remote learning process; furthermore, they felt less sure about educators' readiness for it.

> *S3: "Before introducing remote learning outside the pandemic context, we must understand the aim for it."*
>
> *P5: "It is important to know how the remote learning process will be organized. In our institution we have guidelines for remote learning, containing clear points for what students, their teachers, and parents should be doing. It is not self-evident. "*

Most experts who participated in focus group discussions agreed that remote learning was less qualitative than face-to-face learning apart from one, who strongly disagreed with this statement, explaining that if it was well organized it could be as qualitative as learning face-to-face. In the discussion, it was established that social interactions were lacking, especially for those groups who had never had the chance to meet face-to-face. Several experts expressed concern about students' academic honesty while learning remotely. The lack of support and availability of possible solutions were some of the concerns raised. It was also pointed out in the discussion that we should not undervalue the importance of a comfortable learning space and the possibility to socialize offered by educational institutions while learning face-to-face, especially considering that many students do not have suitable conditions for learning and socializing at home.

> *H1: "If you work remotely from the beginning it's different. You haven't had the chance to meet face-to-face, to talk. This has to be artificially organized online – it doesn't happen on its own."*
>
> *H4: "Academic honesty and risk evaluation is not a simple task. Educators can't even imagine the ways in which they could be deceived."*
>
> *P4: "It is possible that school is the only place where positive emotions can be acquired for some students."*

One expert agreed that distance learning was contributing to improving students' and educators' digital competencies. The results about self-directed learning skills were not so definitive, although the majority tended to agree that remote learning improves them.

> *H4: "Students start their studies and have to learn not only the planned content but also using the technologies chosen by educators. Furthermore,*

*not all educators use the same tools. This greatly increases the cognitive load for students. This has to be taken into consideration when planning learning."*

*H1: "Why can't teachers plan the learning framework and let students choose the most suitable forms of learning for themselves? For instance, some students might find it boring to learn from videos and therefore choose other, perhaps face-to-face activities, while others might choose to watch these videos because it helps them learn at their own pace. This would help them take responsibility for their learning."*

Approximately 30% of the experts in the survey were mostly positive about remote learning, 40% were neutral in their statements, and 30% were mostly negative. Most experts agreed that remote learning should not be organized for preschool students but can be introduced gradually in schools, starting from the 1st grade.

*P3: "It is complicated to organize remote learning in preschool, but not impossible. Students love remote learning in small doses. The amount of remote activities should be increased gradually with students getting older. It helps students grasp that they need the learning, not their teachers."*

*H4: "Remote learning is a problem now, but it could be an opportunity after the pandemic."*

## Expert opinions on developing digital and pedagogical digital competencies of educators

In the survey, all experts admitted that participants' age was of importance when planning professional development. 75% of experts agreed that remote learning caused by the COVID-19 pandemic increased the digital competencies of educators, and 90% agreed that educators had improved their skills to use digital solutions for communicating with their students remotely and used digital tools better in order to teach theoretical content online. However, only 40% of experts agreed that educators improved their skills in creating digital learning materials and problem-solving skills connected with digital solutions. Opinions were divided on whether educators promoted student collaboration online, gave and received feedback, with approximately half of the experts mostly agreeing and half mostly disagreeing. 90% of experts believe that educators see the need to improve their digital skills and that support from IT specialists is needed to successfully digitize learning.

During the focus group discussion, experts pointed out that although there is an interest amongst educators to learn to use digital solutions, many are hesitant because of their lack of experience..

*P3: "There is an interest among educators, but many don't have enough skills to successfully use digital solutions yet."*

> *P1: "It is important to get rid of the fear of using digital solutions. Practical learning with help in using digital tools that are readily required in the learning process might help. Students could learn together with their teachers."*
>
> *S2: "Teachers need to experience learning activities with digital solutions themselves to be able to successfully implement them in their work."*

Experts pointed out that, oftentimes, educators lacked not only access to digital tools and solutions but also resources to create digital learning content – time and necessary support.

> *H6: "There are many opportunities to digitize the learning content, but no time or support is planned for it."*
>
> *T1: "It is relevant that teachers have continuous support in using digital solutions. Someone who offers advice in choosing and using digital solutions for certain activities. It is not something each educator can always do on their own, especially considering current workloads among educators."*

After analyzing and synthesizing the experts' opinions, the recommendations for the institutional and national levels were formed.

## National level recommendations:

- Clarification of technology-enhanced learning terminology, especially the terms related to blended and remote learning.
- National level guidelines for the management of personal data that can be supplemented with institution-specific information.
- An instrument for evaluating the readiness of educational institutions to carry out technology-enhanced learning.
- A common learning platform for educators to reduce fragmentation in the offerings of currently available platforms. It is necessary to publish information on this platform about the digital learning tools offered by the state and developed by private entrepreneurs, as well as to provide self-learning tools in Latvian for teachers to be able to master the offered tools.
- A common learning platform for students with differentiated digital learning materials according to national standards and curricula and integrated digital learning and teaching tools that allow a high level of participatory interactivity to promote self-directed student learning.
- New digital solutions must be sought for by public-private partnerships to fill educational necessities that cannot be met by existing solutions.
- Entirely remote learning is not suitable for students under 12 years of age outside the crisis context because social learning is especially important for students of this age – the need for care, teacher mediation, possible risks for cognitive development, etc. It would therefore be productive to carefully consider the suitability of remote learning for

specific pupils or groups at this age. However, the gradual implementation of blended learning to a certain extent for students under the age of 12 promotes the development of self-directed learning and digital skills, as well as the personalization of the learning process.

- For students from the age of 12, blended or remote learning is considered to be a more appropriate type of learning, while for students aged 17 and above, the above-mentioned risks are significantly reduced by remote learning. However, from the age of 12, a new group of risks emerges, which are related to the decline of skills in social and relationship building, verbal communication, acceptance of different opinions, recognition of false messages, etc. A separate group of risks is related to the psychological challenges caused by social isolation and loneliness.

- In the process of implementing blended and especially remote learning, special attention should be paid to reducing the risk of early school drop out for students from the age of 12, which is the most significant risk for this age group.

- Remote education is the "new normal" and must therefore remain part of formal education in the future. However, it is important to distinguish between crisis periods when there are no possible alternatives to remote learning and post-crisis periods in which it should be possible to choose the most appropriate activities to complement face-to-face learning.

- Further research is needed to acquire evidence-based conclusions and a common view on the appropriate proportion of remote learning for students from different age groups.

- Institutional level recommendations:

- To develop an algorithm for remote learning in educational institutions, taking into account the available equipment, the technical readiness of staff and students, the specificities of the age group, the number of contact hours, the social conditions of families, and other relevant factors.

- To provide technical and methodological support staff for educators to implement digitally and pedagogically suitable solutions for teaching and learning, evaluating, gathering, and interpreting data for decision-making and other relevant requirements to provide qualitative remote education.

- To take into account three aspects in the professional development of educators: (1) knowledge related to the various available technologies, their characteristics, and interest in them; (2) knowledge of key theories and concepts of the specific field of training (e. g. natural sciences, mathematics, languages) and their specific research tools; and (3) knowledge of learning theories, i. e. the training process and readiness to support and manage the learning situation and learning process.

- To acquire and implement technical solutions to ensure monitoring possibility for remote learning, including verifying the originality of study papers and monitoring examinations.
- The OECD report "Impacts of technology use on children. Exploring literature on the brain, cognition and well-being" [35] states that the recommended screen time for school-age children is two hours a day. We encourage schools to work with families so that children use this time for learning purposes. We also call for attention to the fact that not all families can address this problem, and support from professionals is needed.
- Educational institutions and/or parents should be able to choose remote learning to meet the needs of a particular student or group of students (e. g. caused by students' long-term illness or absence or his/her parents' professional activity, home-schooling).

## Conclusions

The COVID-19 crisis has caused rapid changes in educational institutions around the world, creating numerous challenges that require urgent solutions. Ongoing comprehensive remote learning is a solution to the crisis, but the remote learning brought about by this crisis often is not full-fledged remote learning. Face-to-face formats are transferred online without much consideration of the specific nature of remote learning, and there are not enough centralized support systems available for teachers, learners, or their families, who often find themselves trying to correct deficiencies in the available systems.

The large-scale digitalization of education during the COVID-19 crisis has shown that, at such a scale, this process poses a number of significant risks, including differences in access to education caused by the digital divide; differences in student skills and accessible support systems; limited resources accessible to educational institutions and educators for providing a qualitative remote learning process; the readiness of educational institutions and educators to shift towards a student-centered learning process which is at the core of remote learning; the standardization of curricula and technology companies' potential impact on education; and security risks such as breaches of data security, copyright, evaluation, etc. However, there are also undeniable benefits and opportunities that the digitalization of education offers: the chance to individualize learning experiences, the opportunity to develop self-directed learning and digital skills, the provision of access to learning when it would not otherwise be possible, etc.

The challenges caused by this crisis have contributed to the availability of digital resources and the improvement of the digital competencies of

professionals involved in all levels of education who now have to implement blended and especially remote learning in their practice. There is a growing interest among education professionals in digital content and opportunities to communicate, collaborate, and create a favorable 'learning ecosystem' online. It is agreed that better technological solutions are needed to achieve the required educational goals, but it is even more important to provide professional development and the necessary resources for educators to make appropriate use of existing and new technological solutions. Therefore, we believe that the process of digital transformation in education needs to be continued in order to ensure a modern and efficient learning process at all levels of education in the future.

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# DRIVERS OF FACULTY PEDAGOGICAL DIGITAL COMPETENCE OR HOW TO GET THINGS GOING ONLINE

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## ABSTRACT

The world`s health crisis was started and the area of higher education was significantly challenged by the spread of the virus SARS-CoV-2. The academic community was forced to rethink its ways of learning and teaching dynamically. It transformed the understanding of the faculty competence as an essential component of the continuity of qualitative education, which emphasizes the need to increase the competence to work in a technology-enhanced study environment and to support students in achieving learning outcomes remotely.

The aim of the article is to explain the pedagogical digital competence of faculty, which reflects one of the research aspects covered in the State Research Programme (SRP) dedicated to mitigating the consequences of COVID-19.

The research methodology consists of a set of quantitative data, which was obtained by surveying 349 faculty from 33 higher education institutions of Latvia. In turn, a questionnaire was developed based on the obtained conclusions, performing an analysis of literature and educational guidelines. Patterns of the use of educational technologies of faculty were analyzed and described in the framework of the research. The wide analysis performed during the research can be summarized in several conclusions. (1) Skills that faculty have self-assessed as the highest primarily characterize the use of technologies and technological solutions (TTS – analogous to hardware and software) to meet students basic learning needs. In turn, skills in the use of TTS, which would help students to develop digital competence and achieve study results in line with labor market trends, are assessed lower. (2) Faculty consider themselves to be more proficient in using TTS to promote students' cognitive skills than in acquiring practical skills. (3) Faculty feel more proficient in providing feedback to students, rather than collecting it from them and performing summative rather than formative assessment. (4) The improvement of pedagogical digital competence (PDC) of faculty is driven more by cooperation with students than by administrative pressure.

*Keywords: digitalization of higher education, faculty pedagogical digital competence, learning and teaching, pedagogical innovations, remote learning.*

## Introduction

The spread of the SARS-CoV-2 virus to the extent of a global pandemic in 2020 has significantly shaken the international higher education area (International Association of Universities, 2020). The tension has concentrated around three trigger points, which have produced a shock-like effect in physical-epidemiological, occupational and socio-economic dimensions (Roehrig, 2020). The academic community has joined forces to ensure, in the first place, epidemiological security for all its members, to maintain and even increase professional capacity and performance, as well as community itself, has felt responsible for maintaining stability in the socio-economic dimension, and has been seriously influenced by it and overcome a number of obstacles. The focal point was the responsibility to adapt instantly to the changing situation without losing the quality of studies (Cirlan, Loukkola, 2021).

In these fluctuating circumstances, the way in which the university management and faculty actions are operated is marked by two successive approaches. Spring 2020 is characterized by the rapid reactive action required to transform the campus-based study process to remote learning. A proactive approach to the adaptation of new habits ensures the succession, when the organisers and implementers of the study process have strived to anticipate the expected limitations and facilitations, and look into the future in order to develop, as far as possible, flexible further development strategies. To ensure that the solutions are not only based on ad-hoc short-term responses but also to jointly develop a long-term vision at the state level, the State Research Programme (SRP) of Latvia "Life with COVID-19: Evaluation of overcoming the coronavirus crisis in Latvia and recommendations for social resilience in the future" (Project/agreement No. VPP-COVID-2020/1-0013) was launched, on the results of which this article is based.

To provide students an opportunity to acquire the learning outcomes defined in the study programs to the fullest extent in an alternative way, it was necessary not only to invest in e-infrastructure but also to ensure massive pedagogical growth of faculty, which is one of the research aspects of the SRP. The complexity of the situation in Latvia, as well as in many other countries, where the study process in higher education institutions is mainly implemented on-site, is determined by the fact that the transition to remote teaching and learning does not include self-evident teaching and learning strategies. Naturally, this concept is surrounded by a halo of misunderstanding and broad interpretation. Many in the field initially associate it with distance learning, which is by no means synonymous with it. By exploring, testing, adapting, fact-finding and creating new solutions, faculty strengthen their awareness of the technology-enhanced learning and teaching (L&T) as an overarching goal of the pedagogical activity, rather than self-serving

digitalization as a mechanically forced trend. The technology-enhanced study process (TESP) is implemented in various L&T approaches (Web-Facilitated, Remote, Blended, Flipped, Distance, Online, Hybrid, HyFlex, etc.), using TTS to diversify and promote students' learning experience, improve digital competence, and acquire industry-specific competencies (Parchoma, 2011; Pombo & Moreira, 2016; Hew, Cheung, 2014; Bokolo, Phon, Kamaludin, 2020). This setting of the pedagogical process naturally encourages awareness of the need to strengthen one of the main driving forces – faculty pedagogical digital competence (PDC) – the consistent application of knowledge, skills, and attitudes needed to plan the study process, develop study content and guide L&T in different approaches and ways, also to continuously evaluate and review the technology-enhanced study environment, based on theories, research and evaluated experience, to promote students' learning experience for the acquisition of learning outcomes corresponding to the contemporary labor market (From, 2017; Guillén-Gámez et al., 2020).

## Methodology

A review of the scientific literature and education development guidelines was performed to compile an evidence-based self-assessment questionnaire for faculty of higher education institutions and colleges of Latvia. Selection of scientific articles was performed in the database Web of Science using keywords: *digital competence/digital skills/digital literacy and academic staff/university lecturer*. The search was limited to full text articles in English published between 2019 and 2020. Criteria for inclusion of the article: the abstract of the article reveals aspects directly/related to the digital competence of the faculty, including the integration of technologies in the study process. Of the 144 identified articles, only 13 were accepted for in-depth research and used to develop the content of the questionnaire. In the next research phase 17 national and international education development guidelines were analysed. The aim was to identify a narrative that reflects the political discourse in the field of education on the TESP and the digital competence of faculty and the results were incorporated into the content of the questionnaire.The results of the scientific literature and education development guideline analysis are not reflected in this article but can be found in the SRP final report (Jansone-Ratinika, Strods, Brants, et al., 2020). The questionnaire was developed using Google Forms and the link was sent to the e-mails of faculties, maintaining the possibility to provide an anonymous answer. Faculty e-mails were obtained by searching them on higher education institutions (HEI) websites. Survey was conducted from 13 October to 1 November 2020, during which 349 valid, fully completed questionnaires were obtained (representing 33 HEI).

It was technically impossible to provide a representative sample of the faculty of Latvia because:

- the project external timeline is very short for an extensive question-naire at a time when faculty are still trying to provide a qualitative remote learning process;
- of a lack of comprehensive statistical data on the socio-demographic parameters of the faculty of Latvia.

Thus, the survey represents those 349 faculty who have completed the questionnaire. MS Excel and SPSS programs were used for data processing, providing tabulation of results, calculation of statistical differences, and preparation of graphs.

Descriptive statistics were mainly used to reflect the results:

- frequencies of variables;
- arithmetic means for variables that provide self-assessment of skills on a scale of 1 to 5.

In addition, the Spearman rank correlation coefficient was used to determine the interrelationships of the variables, the possible values of which range from +1 to –1.

## Results

This section reflects the results obtained in the study, which explain the self-assessment of faculty skills to use TTS in the study process, as well as the correlation of skills with the conditions determining the choice of TTS, the use of digital learning tools, and individual factors influencing faculty PDC.

To establish the faculty use of TTS in the study process (see Table 1) and to explain their PDC, the respondents were asked to evaluate 21 state-ments on a scale from 1 (very low-skilled) to 5 (very high-skilled). The statements are designed to cover all areas of the faculty pedagogical activ-ity in the provision of remote learning: planning and organization of the study process; study content development; L&T; evaluation of students' per-formance and study process. The average score of all considered statements (mean 3.7) demonstrates the faculty belief in using TTS not only to ensure remote learning, but also to promote interactive, personalized and engag-ing learning. Although the faculty self-assessment indicates that PDC is at a sufficiently high level, there are still trends that indicate that this area of the faculty competence needs to be improved. Faculty reveal that they feel more skilled to organize communication with students in the study process (mean 4.20); to create visualizations of the study content (mean 3.99) and to organize the L&T process (mean 3.97) rather than to provide students with the opportunity to experiment (mean 3.19); to personalize the way

students learn (mean 3.45) and to promote the acquisition of students' self-paced learning skills (mean 3.53).

**Table 1.** Self-assessment of skills to use TTS (scale from 1 to 5)

| Statements | Mean |
|---|---|
| To provide students with the opportunity to experiment | 3.19 |
| To personalize the way students learn | 3.45 |
| To promote the acquisition of students' self-paced learning skills | 3.53 |
| To promote the acquisition of students' lifelong learning skills | 3.53 |
| To promote students' cooperation in learning | 3.55 |
| To make the form of the study organization more interactive | 3.56 |
| To implement formative assessment (descriptive) | 3.58 |
| To combine TTS according to different needs of the study process | 3.63 |
| To promote active student learning | 3.64 |
| To implement summative assessment (grading) | 3.68 |
| To promote the acquisition of students' professional core skills | 3.70 |
| To make the study content more interactive | 3.72 |
| To receive feedback from students | 3.74 |
| To diversify learning and teaching methods | 3.77 |
| To develop students' cognitive skills (thinking, reasoning) | 3.78 |
| To structure study content in Learning Management System (Moodle) | 3.84 |
| To provide feedback to students | 3.89 |
| To promote the acquisition of students' theoretical knowledge | 3.91 |
| To organize the learning and teaching process | 3.97 |
| To create visualizations of the study content | 3.99 |
| To organize communication with students in the study process | 4.20 |

The results demonstrate the higher self-confidence of the faculty in organizing the study process and ensuring the support using TTS rather than implementing the learning characterized by the up to date tendencies of higher education that involves the activization of student learning in different ways. Also faculty feel more skilled to promote the acquisition of students' theoretical knowledge (mean 3.91) than to promote the acquisition of students' professional core skills (mean 3.70) or to promote students' cooperation in learning (mean 3.55). It can be concluded that faculty feel more skilled in promoting students' cognitive abilities than in developing practical skills and promoting cooperation to solve higher-level tasks.

More faculty-focused tendencies are also observed in the assessment process, as that higher self-assessment rates are discovered of skills to provide feedback to students (mean 3.89) and to implement summative assessment (mean 3.68) rather than to alternative activities in which students are more meaningfully involved: to receive feedback from students (mean 3.74) and to implement formative assessment (mean 3.58). The results suggest that faculty technology use habits should be developed to support learning goals and needs more proficiently, while PDC should be guided and adapted to strengthening and revitalizing the student-centered approach within the form of remote learning.

The use of selected TTS in the study process plays a significant role in providing a technology-enhanced environment. In turn, the choice of TTS can be determined by various factors. Primarily, of course, it is the availability of TTS, but the rapid development of digitalization of education in recent years has created a natural demand for university administration to provide faculty with wide access to various TTS, and therefore the choice is already determined by various factors shown in Table 2. In general, it can be concluded that based on the choice of TTS there is no convincing correlation with the self-assessment of faculty skills, or a small correlation is observed only in a few cases, which suggests that developed technological environment provides opportunities for pedagogical digital skills development, but is not an influential factor for a high level of pedagogical digital skills.

The results show that if the faculty involve students in the choice of TTR integration and jointly create new solutions, then faculty also feel more skilled in promoting students' cognitive processes ($rs$ = .365), opportunity to experiment ($rs$ = .364), and active learning process ($rs$ = .362). There is a smaller but also significant correlation between making a common choice of TTS integration or creating new solutions with the ability to evaluate the study process and self-assessment of feedback organization. Respectively, if the TTS to be integrated in the study process are coordinated with the students, or new solutions are created together, then the faculty also feel more skilled in receiving ($rs$ = .338) or providing ($rs$ = .298) feedback, as well as implement summative ($rs$ = .279) or formative ($rs$ = .256) assessment in the evaluation of students' performance. When evaluating correlations, the conclusion can be put forward that the involvement of students in deciding on the TTS to be used and creating new TTS solutions together can contribute to the provision of a meaningful and comprehensive study process in a technology-enhanced study environment. By other means, considering the issue of TTS choice in another cross-section, there is no positive or negative correlation between the requirements of the university administration to integrate certain TTS in the study process and the self-assessment of faculty skills to use the TTS in the study process.

**Table 2.** Correlation between the choice of TTS and the skills of faculty

| *Spearman's rho*<br><br>**Skills to use TTS in the study process:** | **The implementation of TTS in the study process is determined by** | | | | |
|---|---|---|---|---|---|
| | **an agreement made together with students** | **creating solutions together with students** | **the aim of the study course** | **options available** | **the requirements of the administration** |
| To implement summative assessment (grading) | 0.239 | 0.279 | 0.142 | 0.180 | 0.042 |
| To implement formative assessment (descriptive) | 0.247 | 0.256 | 0.177 | 0.172 | 0.013 |
| To promote active student learning | 0.297 | 0.362 | 0.228 | 0.242 | 0.109 |
| To promote students' cooperation in learning | 0.245 | 0.338 | 0.199 | 0.184 | 0.141 |
| To provide students' with the opportunity to experiment | 0.270 | 0.364 | 0.118 | 0.155 | 0.064 |
| To receive feedback from students | 0.274 | 0.338 | 0.243 | 0.242 | 0.013 |
| To provide feedback to students | 0.240 | 0.298 | 0.271 | 0.257 | 0.034 |
| To make the study content more interactive | 0.178 | 0.251 | 0.149 | 0.200 | 0.016 |
| To develop students' cognitive skills (thinking, reasoning) | 0.275 | 0.365 | 0.213 | 0.241 | 0.023 |
| To promote the acquisition of students' professional core skills | 0.221 | 0.291 | 0.224 | 0.249 | 0.063 |
| To promote the acquisition of students' self-paced learning skills | 0.264 | 0.317 | 0.195 | 0.188 | 0.041 |

Note: The green color shows a strong correlation, while red shows a weak one

The authors of the study, based on the obtained results, put forward the thesis that university faculty accept and fulfill the requirements of the administration, but they do not clearly direct the development of skills to use certain TTS in the study process. Although there is no close correlation between the choice of TTS, which is determined by the aim of the study course and the self-assessment of faculty skills to use TTS, the authors of the study believe that this would be one of the areas of faculty skills development so that students gain a solid experience of using TTS for learning

purposes. Hypothetically, it could also contribute to the development of students' self-paced learning skills, as TTS would serve as a meaningful and independently used support tool. Analyzing the overall results, the thesis emerges that the self-assessment of faculty skills to use TTS in the study process is more closely correlated with the involvement of students, rather than the commitment or demand of the environment, university administration or educational goals.

**Table 3.** Correlation between the choice of digital learning resources and the skills of faculty

| *Spearman's rho* <br><br> **Skills to use TTS in the study process:** | **Often used in the study process:** | | |
|---|---|---|---|
| | **22%** <br><br> **digital learning resources created by other authors** | **26%** <br><br> **self-adapted digital learning resources created by other authors** | **69%** <br><br> **self-created digital learning resources** |
| To diversify L&T methods | 0.100 | 0.178 | 0.257 |
| To promote active student learning | 0.170 | 0.211 | 0.254 |
| To promote students' cooperation in learning | 0.115 | 0.142 | 0.263 |
| To personalize the way students learn | 0.160 | 0.179 | 0.241 |
| To develop students' cognitive skills (thinking, reasoning) | 0.098 | 0.133 | 0.245 |
| To promote the acquisition of students' professional core skills | 0.086 | 0.087 | 0.245 |

Integrating digital learning resources into the study process is an important activity in creating a technology-enhanced study environment. Research statistics show that faculty more often develop (69%) digital learning resources themselves than adapt (26%) or use existing (22%) resources. The results could indicate both the high level of digital skills of faculty in developing learning resources as well as L&T needs that require individualized solutions, in addition to the fact that faculty may not have access to databases to search for such resources. The third table shows how the contribution of faculty to the development of digital learning resources and their use correlates with the self-assessment of faculty skills. In the overview, there is a tendency, as faculty invest more in the adaptation or development of learning resources, the closer the correlation with the

higher self-esteem of skills. On one hand, the trend is very logical and can be seen as an axiom of learning, while on the other hand, the benefits are worth investing time and intellectual resources. There is a correlation between the faculty ability to create their own digital learning resources and the provision of active ($rs = .254$), student-involved ($rs = .263$) learning process, as well as diversification of L&T methods ($rs = .257$). The observed correlations develop the student-centeredness of the technology-enhanced study process and therefore can also be considered as meaningful drivers of the faculty PDC.

**Table 4.** Correlation between factors influencing the skills of faculty

| Spearman's rho<br><br>Skills to use TTS in the study process: | I use various TTS on a daily basis | I invest time in exploring various TTS on a daily basis | It is very interesting for me to keep up with the latest developments in TTS | The administration sets requirements for faculty to improve their digital skills | I am aware of international higher education tendencies | I regularly study the latest articles on technology-enhanced learning |
|---|---|---|---|---|---|---|
| To diversify L&T methods | 0.256 | 0.350 | 0.368 | 0.099 | 0.229 | 0.263 |
| To promote active student learning | 0.313 | 0.372 | 0.424 | 0.167 | 0.247 | 0.339 |
| To promote students' cooperation in learning | 0.262 | 0.376 | 0.364 | 0.168 | 0.227 | 0.338 |
| To personalize the way students learn | 0.240 | 0.311 | 0.397 | 0.117 | 0.232 | 0.335 |
| To provide students with the opportunity to experiment | 0.226 | 0.339 | 0.409 | 0.091 | 0.218 | 0.393 |
| To receive feedback from students | 0.265 | 0.289 | 0.389 | 0.082 | 0.226 | 0.293 |
| To develop students' cognitive skills (thinking, reasoning) | 0.252 | 0.346 | 0.377 | 0.032 | 0.251 | 0.228 |
| To promote the acquisition of students' professional core skills | 0.219 | 0.309 | 0.345 | 0.042 | 0.229 | 0.211 |
| To promote the acquisition of students' lifelong learning skills | 0.239 | 0.323 | 0.377 | 0.137 | 0.272 | 0.363 |
| To promote the acquisition of students' self-paced learning skills | 0.223 | 0.259 | 0.300 | 0.069 | 0.261 | 0.270 |

Faculty are the key drivers of innovation in higher education, so it is important to understand the impact of the factors summarized in Table 4 on the development of their PDC. Generalizing the obtained results, it is possible to draw inference that the faculty personal motivation to improve their competence to develop a TESP is closely related to high self-assessment of pedagogical digital skills. Table 4 includes such TTS use skills that characterize a distinctly student-centered approach and contribute to a meaningful student learning experience. Although the factors influencing skills are not strictly separable, it can be observed that the internal motivation of lecturers, or interest in following TTS development, correlates more strongly with high skills self-assessment to use TTS in the study process than daily TTS use, investing time in TTS research, following higher education development trends or even analysis of scientific articles. Similar to Table 1, in this situation there is neither a strongly positive nor a negative correlation between the requirements of the university administration to improve skills and the self-assessment of faculty skills to use TTS in the study process. Accordingly, it can be assumed that the definition of strict administrative requirements for skills development could be replaced by a greater emphasis on creating a supportive and mutual learning environment. The authors of the study believe that the development of faculty PDC is mainly purposefully and comprehensively driven by a set of all positive correlation factors, and not by a single factor.

## Discussion

Analyzing the obtained results, which reflect the faculty self-assessment of skills to use TTS in the study process, two levels can be distinguished: basic and mastery, which are complementary and more broadly characterize the faculty PDC explained in the introduction. The basic level includes basic necessities for ensuring a technology-enhanced, remote learning process in the current situation. To provide remote learning, faculty must have access to synchronous and asynchronous L&T technical solutions, as well as an online learning environment that ensures the integration of these solutions and the availability of digital learning materials to students. However, at the basic level of pedagogical categories, the faculty is able to communicate effectively and promptly with students in order to ensure accessible learning opportunities for all, digital learning resources created by other authors are used most common or they are minimally adapted to the specifics of the study course and the learning needs of students. The TTS study process is mostly used to visualize the content of the studies, demonstrate learning resources, and visually supplement faculty explanations. L&T are mostly focused on promoting the theoretical knowledge and cognitive

capacity of students. The assessment of student performance and results achieved is mainly based on summative assessment and feedback providing rather than collecting strategies. At the mastery level, the use of TTS is transformed from the provision of the teaching and visualization of information to the development of a full-fledged and active learning process for students, already including complex TTS in the study process. In addition, different TTS are used to develop different L&T methods. The process of learning the content of studies focuses on strengthening professional skills, promoting cooperation and mutual learning, as well as experimenting to create new solutions. Digital learning resources are created unassistedly and personalized according to various needs of students in order to promote the development of students` self-paced learning skills. The students' performance in the process is assessed using a formative technique so that the study results can be measured more objectively and faculty pay great attention to receiving feedback from students with the aim to be able to improve the study process.

Regardless of the level of PDC of faculty, it is always possible to improve it and more fully orient faculty activities to the provision of a student-centered L&T approach in a remote format. Analyzing the research results, several driving forces of pedagogical digital competence of faculty have been put forward and interpreted:

**Involvement of students in designing and managing of the study process.** The results of the research demonstrate that higher self-assessment of PDC is provided by faculty who not only involve students in the choice of TTS in the study process, but also work together to develop new solutions and generally delegate more responsibility for the learning process and outcomes to students themselves. The more students are involved in decision-making, the wider technological opportunities are discovered in the study process, which also improves faculty skills and expands their view on technology in general.

**Efforts in the development of personalized learning resources.** The development of learning resources corresponding to the needs of students and the goals of the study course will promote not only the improvement of the faculty PDC, but also the promotion of student-centered learning. The development of meaningful digital learning resources is labour&time-intensive but will make a significant contribution to promoting both synchronous and asynchronous, as well as self-paced learning. The development of learning resources will naturally contribute to the improvement of faculty PDC, as it will be necessary to think of new ways of finding innovative TTS and pedagogical solutions and adapting them to L&T contexts.

**Combining content sources and forms for growth.** The more skilled faculty will be in finding the various sources for the growth of PDC, the

more it will result in higher pedagogical performance with students – both in the face-to-face and online formats. Greater emphasis should be placed not only on the day-to-day use of TTS but also on experimenting with the latest digital solutions offered in the industry and beyond. The results of the research demonstrate that the faculty internal motivation and interest in following innovations prevails over other influences of the PDC, which repeatedly reminds of the role of the faculty professional vocation, which must be appreciated and supported.

There are certain limitations of this study and factors should be taken into account when continuing research in this area: the sampling limit does not allow to fully study the situation in the population; the circumstances of the emergency situation dictate a number of constraints that affect both the acquisition and the interpretation of the data; long-term and comparative research is needed to reveal the pedagogical efficiency of the use of TTR; measurements of the pedagogical efficiency of continuing education for academic staff is a separate area of research, which requires systemic methodological renewal and determined input.

## Conclusions

The development of a supportive and mutual learning-oriented professional mastery development plaform plays an important role when it is necessary not only to transform the L&T in the higher education area from on-campus to remote but also to continuously improve the quality of the study process. The authors of the study make recommendations for the improvement of faculty PDC at two levels:

**Individual:**
- to master the simple use of TTR in the study process and move towards more complex TTR acquisition to create a more interactive, engaging, and skills-oriented L&T;
- to align the choice of using TTS in the study process with the learning goals and to make the final decision in the discussion with the students, so that the learning process corresponds to their needs;
- to ground the improvement of the PDC in the results of the evaluation of the study process, which have been obtained by analyzing the collected analytics on the effectiveness of L&T in the TESP.

**Institutional:**
- to promote the development of a culture of collegial mutual hospitation of faculty classes with an intention to approbate and evaluate the efficiency of the use of TTS in the study process;
- to promote the development of a culture of co-development and sharing of digital learning resources through co-operation and mutual

support, at the same time, through proper respect for copyright and principles of academic integrity;

- • to mitigate faculty workload in terms of performing administrative tasks to encourage and release greater resources for the growth of pedagogical mastery, which is considered to be the core competence in the designing of a highly efficient technology-enhanced study process.

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# LATVIAN STUDENTS' UNDERSTANDING OF GLOBAL PROBLEMS AND READINESS TO GET INVOLVED IN SOLVING THEM IN OECD PISA 2018 COMPARISON

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## ABSTRACT

Students' life in the modern globalized world gives them many new possibilities and at the same time also creates new serious challenges putting forward also new requirements. Students' understanding of the global problems (climate changes and global warming, global health (including pandemics), migration, international conflicts, famine or insufficient food, the causes of poverty, etc.) become more and more important. The aim of the study is to analyze the results of Latvia's fifteen years old students in the OECD PISA 2018 in the aspect of the global competence paying a more detailed attention to the students' understanding of the global problems and their readiness to take action for collective well-being. The research questions are follows: 1) What is Latvian students' global competence in the international comparison and what is its relation to the characteristics of students, their families and school; 2) What is Latvian students' understanding of the global problems and readiness to get involved in their solution? The descriptive statistical analysis employs the data from surveys/questionnaires (66 countries) and tests (27 countries) included in PISA 2018 international data basis. Latvian students' performance in the cognitive test of the global competence is considerably higher than the average of the participating countries, and as regards the OECD countries we are on the average level. In Latvia, students of capital Riga schools have the highest level of global understanding, it is lower in other cities and even lower in rural schools. Latvian students have a slightly lower readiness to get involved in solving the global phenomena and participation in concrete activities than the average in OECD countries.

*Keywords: global competence, intercultural interaction, OECD PISA, students` performance, sustainable development.*

## Introduction

Globalization means an ever faster and more intensive flow of people, capital, goods, ideas and technologies among countries and regions. These

globalization processes will influence more and more the economics and culture of the countries and the environment in the whole world. Therefore it is crucial to understand what our young people should know and be able to do so that they are better prepared for the life in the globalized world (Sahlberg & Brown, 2017). Theoretical approaches and definitions are developed, the respective themes and teaching/learning methods are updated in the curriculum so that then to assess to what extent the global competence is developed in students and then give recommendations. OECD PISA 2018 study had developed and applied the innovative assessment module of students' global competence.

The aim of the study is to explore the global competence of Latvia's fifteen years old students in the PISA 2018 comparison paying special attention to the students' understanding of the global problems and their readiness to get involved in solving them. The young people need to be informed, they must have the understanding of the global problems that influence significantly the life of current and future generations in the whole world so that they could form their life, which means also engaging in promoting the development of the society and sustainable environment.

## Theoretical background and previous research

The OECD PISA 2018 study measures the fifteen years old students' understanding of the global problems and their readiness to get involved in solving them as part of the global competence. The global competence in PISA 2018 study is defined as a multidimensional capacity that encompasses the ability to: 1) examine issues of local, global and cultural significance; 2) understand and appreciate the perspectives and world views of others; 3) engage in open, appropriate and effective interactions across cultures; and 4) take action for collective well-being and sustainable development (Organisation for Economic Co-operation and Development (OECD), 2019; OECD, 2020). In turn, the definition developed by the Council of Chief State School Officers of the United States and Asia Society in the project about the acquisition of the global competence at school underlines, in particular, the competence to understand and solve problems of global importance, "Global competence is the capacity and disposition to understand and act on issues of global significance" (Boix-Mansilla & Jackson, 2011); however, a bit later both the mentioned definitions are combined (OECD/ Asia Society, 2018). Global Competence Associates consider that the global competence implies the ability to interact positively and effectively with anyone in the world; it has also developed the global competence model according to the definition "Having flexible, respectful attitudes, including self-perspective, and applying knowledge of the historical, geographic, and

societal factors that influence cultures in order to effectively interact and build relationships with people around the world" (Hunter et al., 2006; Hunter, 2004). The mentioned authors have also developed a tool to measure the global competence based on the surveys – The Global Competence Aptitude Assessment (GCAA®), which is Web-administered and accessible from any location in the world. However, the authors consider that it can be used only for people older than fifteen therefore the studies and their results are applied in upper secondary schools, higher education institutions, enterprises and offices. This definition of global competence does not directly include such global issues as the environment, world hunger and famine, the spread of HIV/AIDS, the availability of clean water, social justices etc. (https://globallycompetent.com/assessment/), which, in principle, were incorporated in the two approaches previously looked upon.

The Council of Europe has adopted the "Maastricht Global Education Declaration" "Reference Framework of competences for Democratic Culture: Policy context, content and impact" and has developed a set of policy documents of different other levels as well as a full set of tools for introducing global education in different stages of education. These documents and materials provide the following definition "Global Education is education that opens people's eyes and minds to the realities of the world, and awakens them to bring about a world of greater justice, equity and human rights for all" a conceptual model of democratic and intercultural competence, which, all in all, consists of 20 elements (skills, knowledge and critical understanding, attitudes and values) is also offered (Barrett, 2020; Council of Europe, 2018; Huber & Reynolds, 2014; O'Loughlin & Wegimont, 2002). The Council of Europe materials note that Global Education incorporates many global dimensions of the Education for Citizenship (Intercultural Education, Human Right Education, Education for Peace and Conflict Prevention, Education for Sustainability, Development Education).

UNESCO, too, develops documents and guidelines in this field, mainly, using the concept "global citizenship education" the conceptual dimensions of which are, for instance, "to acquire knowledge, understanding and critical thinking about global issues, to act effectively and responsibly for a more peaceful and sustainable world" (United Nations Educational, Scientific and Cultural Organization (UNESCO), 2015a) that coincides with several global education dimensions discussed above. Global citizenship education and education for sustainable development are mentioned also as the foundation for measuring concrete indicators. This is also topical in the program of the United Nations 2030 Sustainable Development Goals (SDGs) (for example, percentage of students by age group (or education level) showing adequate understanding of issues relating to global citizenship and sustainability, Target 4.7. Indicators Framework) (UNESCO, 2015 b).

The term global competence is relatively new but many related fields have been developed in even longer period of time (Hunter et al., 2006; Buckner & Russell, 2013). There are still discussions going on; there is not a common theoretical approach to the concepts of global competence and global citizenship, and the respective framework and constructs for measurement (Gardinier, 2021; Dill, 2018; Sälzer & Roczen, 2018; Engel et al., 2016; Torres, 2015; Davies et al., 2005; Kymlicka, 2003). Studies continue about the current situation in the field of global competence, global citizenship and related fields as well as improving it in schools (Biseth et al., 2021; Nguyen, 2018; Chou et al., 2015; Buckner & Russell, 2013), in higher education (Liu et al., 2020; Menga et al., 2017; Torney-Purta et al., 2015) and, especially, in teacher education (Bordeianu, 2019). Researchers from the University of Tel Aviv (Goren & Yemini, 2017) have performed the comparative analysis of many empirical studies in the field of global citizenship in schools.

The International Association for the Evaluation of Educational Achievement (IEA) together with more than 60 countries of the world implements already the fifth cycle of citizenship education study, namely, International Civic and Citizenship Education Study (ICCS 2022) (https://www.iea.nl/ ). Since 1997, Latvia has participated already in four of these cycles – CIVED, ICCS 2009, ICCS 2016, ICCS 2022 (Kangro, 2003; Čekse et al., 2010 a; Čekse et al., 2010 b; Čekse et al., 2017). The content of ICCS 2016 includes civic society and systems, principles, participation and identities (Schulz et al., 2016). When participating in the study, students fill in the test and a questionnaire; their teachers and school directors, too, fill in the questionnaires. The performance of Latvian students in ICCS tests is lower than the average of the participating countries. The results of the global competence module of ICCS and PISA 2018 cannot be compared directly because the framework of studies, the composition of the participating countries, to a certain extent, are different. The participants of the ICSS are Grade 8 students but the participants of the PISA study are, mainly, Grade 9 students.

The explored approaches and studies include ideas that the global competence has to be developed in the context of lifelong education as it is vital both in the modern labor market and in ensuring sustainable development of the society. Certainly, it is exactly the school education stage that plays a huge role in the formation of the global competence. Global competence in schools is developed both as transversal skills (civic participation, cooperation, critical thinking etc.), and in the social and civic, natural sciences, languages and others fields of studies (Boix-Mansilla & Jackson, 2011; Council of Europe, 2018; Chou et al., 2015; *Regulations Regarding the State Basic Education Standard and Model Basic Education Programmes*, 2018;

*Recommendations on placing development/global education on school agenda*, 2015). Of course, also many out-of-school extracurricular factors impact profoundly students' global competence, namely, the opinions of the peers, family members as well as opinions expressed in the society, etc. (Schulz et al., 2008).

It has been discussed that different definitions of the global competence include both the understanding and attitude to the topical modern problems in ensuring sustainable development of the society and environment and the issues of intercultural interaction (OECD, 2019), although the different approaches have emphasized either one or the other of these aspects.

## Methodology

In order to explore the Latvian fifteen years old students' understanding of the global competence, its separate aspects and relation with different factors in view of the PISA 2018 study, the following research questions were put forward: 1) What is Latvian students' global competence in the international comparison and what is its relation to the characteristics of students, their families and school; 2) What is Latvian students' understanding of the global problems (climate change, global health (e. g. epidemics), migration, international conflicts, hunger, causes of poverty, equality between men and women) and readiness to get involved in their solution? The methods used in the study are the literature analysis for defining the theoretical approaches to global competence, for identifying its nature and previous studies in this field, the procuring of specific results for Latvia based on the analysis of students' performance in the PISA 2018 cognitive test and the opinions expressed in students' and school directors' questionnaires applying the descriptive statistical methods and the PISA 2018 international data basis (https://www.oecd.org/pisa/data/2018database/).

The participants from Latvia in the main study of PISA 2018 were 5985 students from 308 schools, who resulting from the statistical sampling represented 16107 fifteen years old (born in 2002) students who attend different educational institutions of Latvia (except special education institutions) no lower than Grade 7. PISA participants are mainly students of Grade 9 (86%). The PISA 2018 global competence module test was completed by students from 27 countries of the world (including 11 OECD countries), the respective students' questionnaire, in turn, was filled in by students from 66 countries.

The approach used in the PISA 2018 study for assessing the four dimensions of the global competence mentioned above is presented in Figure 1 (OECD, 2019). The cognitive test has been developed to assess students' understanding of the global problems. According to the definition developed

in the PISA 2018 study (OECD, 2019) the construct "global understanding" includes both the knowledge about global and intercultural problems and 4 groups of cognitive skills that the student needs to fulfil successfully the test items. These groups of cognitive skills include the capacity to: 1) evaluate information, formulate arguments and explain complex situations and problems, 2) identify and analyze multiple perspectives and world views, 3) understand differences in communication in diverse cultural contexts, 4) evaluate actions towards sustainable development (OECD, 2019).

| Global competence | | |
|---|---|---|
| Knowledge | Cognitive skills | Social skills and attitudes |
| Assessed in the cognitive test (18 units with 69 items) | | |
| Assessed in the student questionnaire | | |
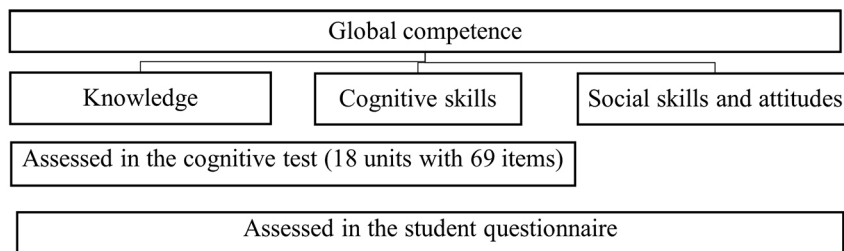
**Figure 1.** The PISA 2018 approach to assessing global competence (OECD, 2019)

As always in PISA tests, each test unit is based on the scenario after reading which the student answers the test items. Each of the scenarios of 18 units of the cognitive test corresponds to one of the content domains: 1) Culture and intercultural relations, 2) Socio-economic development and interdependence, 3) Environmental sustainability, 4) Institutions, conflicts and human rights (OECD, 2019). The test is computerized, 5 test units are available for on-line completion in different languages (also Latvian and Russian) in the OECD PISA home page (https://www.oecd.org/pisa/test/other-languages/pisa-2018-global-competence-test-questions.htm), and the rest of items of the global competence module of the PISA 2018 basic study are confidential. Latvian students completed the test items either in Latvian or in Russian depending on the language of instruction in school. Regarding the response format, the tasks contain both simple multiple choice items, complex multiple choice items, and open-response items.

Including a new PISA study content domain for the first time, a scale is developed for assessing student performance where the mean value of student performance of OECD countries is 500 points and standard deviation is 100 points, and the average performance of participating countries is compared with this average indicator. However, as the cognitive test of the global competence module was done only by students of 27 countries and only 11 of them were OECD countries, then the mean value of student performance in all participating countries, which is 474 points and standard deviation – 91 points, is used for the international comparison.

## Results and discussion

The performance of Latvian students in the cognitive test of the global competence (497 points, standard deviation 84) is considerably higher than the average level (474 points) and considering all 27 countries participating in the test we take the 9th place. The top performing students are in Singapore, Canada and Hong Kong (China). In turn, in relation to the 11 OECD countries that participate in the test, we actually are on the average level. 42% of Latvian students, in turn, have given correct answers to those 37 test items, which correspond to the first dimension of the OECD global competence definition – students` ability to examine local, global and intercultural issues. The percentage of correct answers given by students of OECD countries to these test items is also 42%, but the result of all countries participating in the test is lower – 38% (OECD, 2020).

Although results of the IEA civic education study (IEA ICCS 2016) and PISA 2018 global competence module are not directly comparable, among 10 countries that participated in both studies Latvia is the only country in which the student performance in ICCS 2016 is significantly lower than the average indicator of the participating countries (Schulz et al., 2018), but in PISA 2018 global competence module – significantly higher than the average of participating countries. The explanation of this fact can be that participants of ICCS are Grade 8 students while in PISA – mainly (86% of all participants) Grade 9 students, and topics of civic education are mainly incorporated in the Grade 9 curriculum.

There is a high, statistically significant correlation (see Table 1) among the student performance in all PISA 2018 content domains, both on average in all participating countries and Latvia. The global competence performance of Latvian students has the highest correlation with the performance in reading (higher than the average of OECD countries). For our students a one-unit increase in the index of students' enjoyment of reading is associated with an increase of 25 points in the global competence performance. The high correlation of the global competence performance with the reading performance could be explained also by the considerable difference (32 points) between girls' (512 points) and boys' (480 points) mean performance in the global competence test, in reading the girls' performance is by 33 points higher than the boys' performance.

Similar to other PISA content domains student performance in the global competence test, too, depends on the social economic status (ESCS) of the student's family in all countries participating in the study. In Latvia, the performance of students from families in the bottom quarter of ESCS on average is 465 points, in the top quarter – 529 points, the average in all participating countries is 440 points un 516 points, respectively.

**Table 1.** Correlation of students' performance in global competence and in other PISA subjects

| Correlation between performance in … | | | |
|---|---|---|---|
| Mathematics | Reading | Science | … and performance in … |
| 0.73 | 0.84 | 0.79 | Global competence |
|  | 0.79 | 0.78 | Mathematics |
|  |  | 0.85 | Reading |
| Correlation between performance in … | | | |
| Mathematics | Reading | Science | … and performance in … |
| 0.75 | 0.86 | 0.80 | Global competence |
|  | 0.78 | 0.77 | Mathematics |
|  |  | 0.83 | Reading |

Thus, in Latvia the impact of ESCS on student performance is slightly lower than in the countries participating in the study on average (the performance of students with high ESCS is, respectively, higher by 64 points in Latvia and by 76 points on average in participating countries). The relation of performance to ESCS of students' families influences also the distribution of Latvian student performance by the location of the school (see Fig. 2). In Figure 2, the average ESCS of school groups is expressed in z-scale with Latvian mean value 0 and standard deviation 1. The student performance of Riga schools is significantly higher in all content domains (subjects) than the student performance in rural schools. It should be noted that in global competence the student performance of rural schools is the highest in comparison with other subjects. The difference in performance between Riga and rural students, in turn, is explicitly higher exactly in reading.
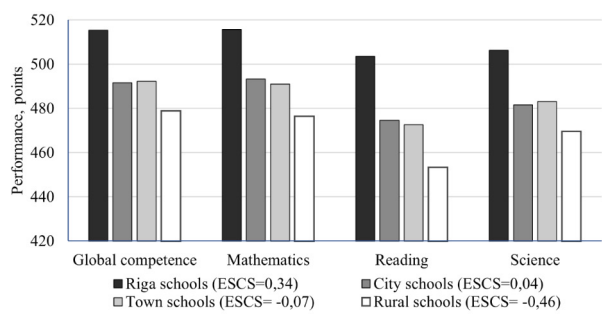


**Figure 2.** The average mathematics, science, reading and global competence performance distribution of Latvian students according to school location, PISA 2018

Analyzing Latvian students' awareness about their knowledge regarding global issues, it is evident that our students feel less informed about the given issues than students of OECD countries on average (see Fig. 3).
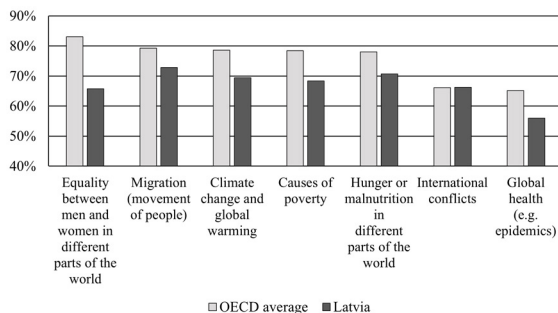


**Figure 3.** Students' awareness of global issues, by topic (Students who reported knowing about or being very familiar with the following topics)

Latvian students admit that they are the least informed about the currently due to the pandemic most topical issue – global health (e. g. epidemics), but the greatest difference in comparison with the average of the OECD countries appears in our students' awareness of the equality between men and women in different parts of the world (the difference is 17 percentage points). In the school survey, school principals in Latvia (90% and more), in turn, more frequently than school principals of OECD countries on average have answered that these topics are included in the school curricula. In Latvia, as well as in Estonia, Lithuania and 13 other OECD countries, there are no statistically significant differences in students' awareness of the given global topics in relation to the inclusion of these topics in the school curriculum (OECD, 2020). Thus, the opinion of Latvian school principals in this question is too optimistic, the mentioned results prove that both in Latvia and many other countries the opinions of school principals and students about the teaching/learning content that is planned and acquired differs. Consequently, not all topics are paid enough attention to in the teaching/learning process at school, most likely Latvian students have learnt the information about some of these topics outside the school. For instance, the sample programme of Latvian Social science subject (https://www.visc.gov.lv/lv/media/2695/download), according to which PISA 2018 participants learnt, in Grade 9 only four lessons are envisaged for the topic "Care about the environment" and only two lessons for developing the understanding of the global process and forms of its expression in Latvia and in the world. In turn, the new sample programme of Social science for Grade 9 envisages 9 lessons for acquiring the topic "How to use sustainably the advantages

of globalization and diminish its threats?" (https://mape.skola2030.lv/resources/200). Problems connected with teaching the globalization-related topics at school were established already in PISA 2015 study where answering the question on how interesting it was to learn about ecosystems and sustainability in science lessons at school, only 37% of Latvian students answered that it was interesting or very interesting (Geske et al., 2020).

Latvian students' awareness of globalization-related topics is very closely linked (correlation 0.55) with students' conviction about their self-efficacy to perform certain tasks of the global competence (see Fig. 4). Latvian students as well as students of OECD countries (80% and 77%, respectively) consider that it is best to discuss different reasons why people decide to become refugees, and the least convinced (in Latvia 52%, on average in OECD countries 58% students) that they can establish a connection between prices of textiles and working conditions. Both in Latvia and on average in OECD countries, only approximately 60% of students could explain and discuss the consequences of the economic development on the surrounding environment and the influence of the carbon dioxide emission on climate changes in the world. This means that 40% of our students lack sufficient knowledge and understanding of these topics that are included in the content of science subjects.
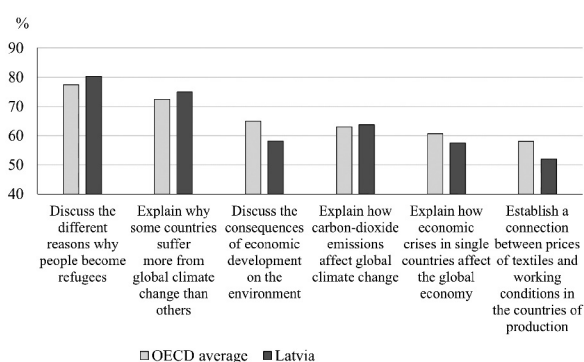


**Figure 4.** Students' self-efficacy regarding global issues, by task (Students who reported doing these tasks easily or with some effort)

Also the distribution of the number of students' responses "yes" and "no" by task, whether you acquire the further listed at school, shows that relatively seldom world events are discussed or analyzed at school during the lessons; students rarely are invited/encouraged to express their opinion or participate in discussions (see Fig. 5). In comparison with the average of OECD countries, Latvian students are less frequently invited or participate in these activities.
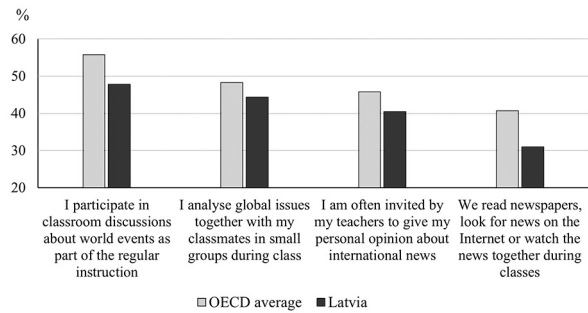
**Figure 5.** Students who reported learning the following at school

Students' questionnaire inquires not only about their knowledge and understanding of different problems related to globalization and sustainability but also their willingness, readiness and real engagement in solving these problems. 71% of Latvian students and 76% students on average in OECD countries consider themselves citizens of the world and admit that it is important to look after the global environment (see Fig. 6). In turn, less than a half of Latvian students (43–45%) consider that they are able to do something to diminish the problems of the world and that their behavior can impact people in other countries. Students of OECD countries are more certain about their capacity to influence global problems (56–57%). Probably, the relatively lower number of positive answers to these questions in Latvia and OECD countries can be explained by the age of the students, they do not yet feel mature enough to influence the world's problems and people. Although the example of Swedish environmental activist, school girl Greta Thunberg, proves the opposite.
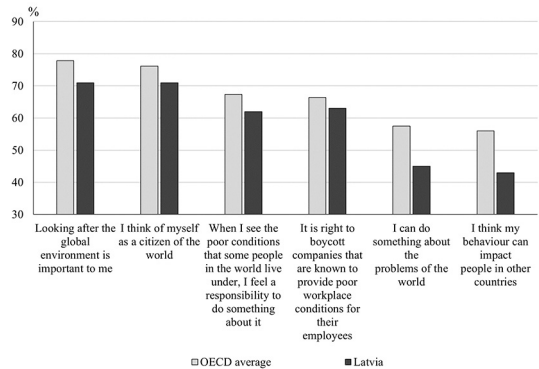


**Figure 6.** Students' agency regarding global issues, by attitudes towards those issues (Students who agreed or strongly agreed with the following statements)

Regarding activities included in the survey, in which students could engage to promote sustainable development and common well-being (see Fig. 7), Latvian students as well as students of OECD countries have mentioned that they most frequently reduce the energy consumption (56% and 71%, respectively). Most seldom, only one fifth of our students participate in activities that promote equality between men and women and/or boycott goods or producers, there are more such students in OECD countries (33% and 27%, respectively). The equality between men and women is also a topic which our students consider to be less informed about (see Fig. 3).
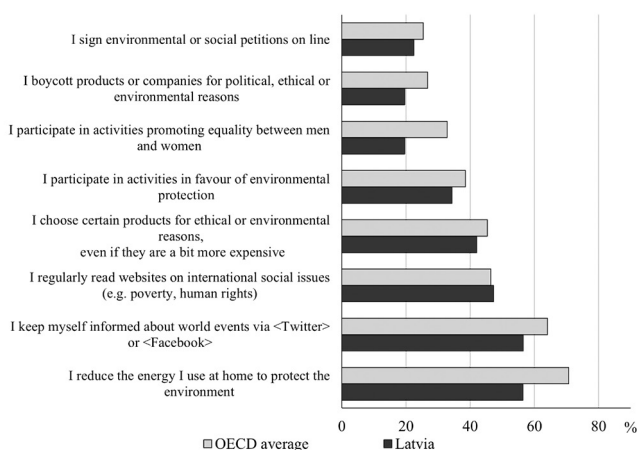


**Figure 7.** Students' capacity to take actions for common well-being and sustainable development

Both students of OECD countries in general and Latvian students more frequently have indicated that they follow different events in the world in Twitter and Facebook, but they read less the information in the internet sites, thus the awareness and knowledge of our students about globalization processes, probably, is more based on the opinions of their peers and the society than the objective information.

## Conclusions

- Research sources surveyed in the study, including theoretical approaches and study materials developed by important international organizations, as well as the OECD PISA 2018 addressing the development of an innovative module for assessing students' global competence and using it in the study, show that education of today's young people for a full-fledged life in the global world is continuously in the focus of

attention of researchers, developers of the teaching/learning content and teachers, and many research works and everyday pedagogical work is devoted to this.

- The average performance of Latvian 15-year-old students in the OECD PISA 2018 global competence cognitive test is generally quite similar to their performance in mathematics, science and reading tests – we are at the OECD average (significantly above the average of all countries participating in study). In Latvia, the highest performance of students is in the capital Riga, followed by other cities and towns, but the lowest is for students in rural areas.

- The OECD PISA study always shows a high correlation between students' performance in different content areas. The highest correlation with the results of the global competence cognitive test is directly with the results of the reading test (0.86 for Latvian students), also the index of students' enjoyment of reading is positively associated with global competence performance. As with reading, girls perform better than boys in the global competency test.

- Principals of Latvian schools more often than on average in OECD express the opinion about including different global issues in the school curricula (respectively, 98–90% and 88–78%, depending on the concrete theme); however, it has to be mentioned that in Latvia and other 13 OECD countries (including Estonia and Lithuania) students' answers are not statistically significantly connected with that. Thus, the opinion of Latvian school principals in this question is too optimistic; the given results prove that both in Latvia and many other countries the opinions of school principals and students about the planned and implemented, and the acquired study curriculum differ.

- 56% to 73% of Latvian students consider that they now or are very familiar with many global issues (climate change, global health (e. g. epidemics), migration, international conflicts, hunger, causes of poverty, equality between men and women). The respective average indicators in OECD countries are higher; however, the Latvian students' self-efficacy regarding their ability to perform concrete tasks in relation to global problems (e. g., to explain concrete phenomena, to discuss their causes, etc.) is very close to the average indicators of OECD countries – 50–80% of students are convinced that they will be able to do this. The compliance between Latvian students' opinions about their awareness of different global issues and the self- efficacy about their abilities to explain them in more detail is good (correlation is 0.55).

- Approximately 40% to 70 % of Latvian students confirm their understanding of global issues and at the same time express their readiness to get involved in their solution. The greatest majority of students (71%)

express support to the care for the global environment, less than a half (43–45%) – to the conviction about their capacity to diminish the problems of the world and with their behavior to influence people in other countries. The number of positive answers given by our students is only by 3–13 percentage points (depending on the concrete item) lower that the average of OECD countries.

- 20–55% of Latvian 15-year – old students engage in different activities to promote sustainable development and common wellbeing, which in general is slightly below the average in OECD countries. The most, Latvian students reduce the energy consumption at home to protect the environment, the least – they boycott products or companies for political, ethical or environmental reasons or participate in activities promoting equality between men and women.

- The analysis of the data of PISA 2018 global competence module demonstrates that Latvian students display greater understanding and engagement exactly in relation to issues and activities of preserving the environment, lower – in relation to intercultural issues and problems that could be the direction of further research. The preliminary analysis shows that global competence topics are more represented in the new teaching/learning content, yet the implementation of the new teaching/ learning content – the teachers' work – will define the outcome.

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# THE INFLUENCE OF SCHOOL FACTORS ON STUDENTS' SELF-CONCEPT: FINDINGS FROM PIRLS 2016

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**ABSTRACT**

In recent years, studies have put emphasis on school not only as an institution for academic achievement but also as an environment for social-emotional development, learning and shaping students' attitudes and beliefs. There are studies that show the correlation between the environment and development of a child's self-concept, as well as the correlation between self-concept and school anxiety. The studies have discovered very strong relationship between school success factors such as enjoyment, engagement and achievement and the school's climate. However, there are many unknown answers to the question how significant the role of school is in shaping child's awareness of self, self-confidence, self-concept, self-efficacy and self-esteem. The purpose of this study is, first, to analyse different studies on the impact of school on students' self-concept, academic self-concept and self-efficacy and, second, to identify school factors that influence students' self-concept from the PIRLS 2016 study. The research question is as follows: which school level factors influence students' academic self-concept?

Authors of this article used linear regression, correlation and frequency analysis of the International Association's for the Evaluation of Educational Achievement (IEA) Progress in International Reading Literacy Study (PIRLS) 2016 data from 8 countries around the Baltic Sea.

The results showed that the 4th graders' academic self-concept in reading correlated with reading achievement and engagement in reading lessons, self-concept had a negative correlation with bullying, absenteeism from school and tiredness during school day. Overall, the authors of this article found that in the PIRLS 2016 study the direct impact of school factors on students' academic self-concept in reading is very low.

**Keywords:** *academic self-concept, PIRLS, self-concept, self-confidence, self-efficacy, self-esteem.*

## Introduction

Every child is surrounded by a community or a social system (Bronfenbrenner, 1979; Penn, 2005). The first and closest community or micro-system through childhood for a child usually is one's family. The

family's impact on child's well-being, self-system development and achievement has been well studied; there are studies that support the view of significance of various factors like quality time spent together (Harwood et al., 2008; Geske & Ozola, 2020; Mullis et al., 2017), social-economic status (Filippin & Paccagnella, 2011; Mullis et al., 2017; Geske et al., 2021) and reading enjoyment of parents (Mullis et al., 2017; Geske et al., 2021). An educational institution is another community or meso-system a child is very closely related to. Every child becomes a member of this community with the background given in one's family. As world's economies need employees that have developed competencies, behaviours, attitudes and personal qualities rather than those who just know the facts (Fadel et al., 2015), a common contemporary understanding is that the role of school is not only to educate students according to the curriculum but to upbring them (Trinite, 2020) and enhance the development of their "soft skills" including social-emotional skills (Scheerens et al., 2020). One dimension of soft-skills is related to positive beliefs about self, self-confidence, self-efficacy, self-awareness, self-esteem; according to Lippman and colleagues (2015), the term "self-concept" integrates it all in one concept. Shavelson and colleagues (1976) state that every human has self-concept beliefs about oneself that are general and domain specific. Reading is the skill that shapes person's domain specific beliefs about self. As it is known, reading is more than just ability to sequence written symbols; it is an ability to understand the written form of language, it provides the ability to select the information that is needed in the process of learning, decision making and critical thinking (Schleicher, 2019). Reading literacy is indicated as one of the top skills for future education and economies (Fadel et al., 2015; Scheerens et al., 2020); moreover, Moterri and Frandell (2013) emphasize that reading is one of the basic needs for humans in the 21st century. Tubele and Serova (2020) state that reading literacy skills can serve as an indicator for one's quality of life. It is proved by several studies cited in McArthur and colleagues (2020) that there is a significant association between poor reading literacy skills and poor self-concept and anxiety.

IEA (International Association for the Evaluation of Educational Achievement) every five years conducts the PIRLS (Progress in International Reading Literacy Study) which gathers data about 4th grade students' reading achievement, students' reading literacy competences and background data about student, school, family and personal factors that possibly could affect the achievement in reading literacy from 61 countries. As the age of 10 is approximately the age in which student's presumption about what one can and cannot comes close to one's real abilities (Bjorklund, 2000), in Grade 4 students have reached the appropriate age for studying their beliefs about themselves.

The questions that are worth examining are the following: first, can the school impact child's beliefs about self; second, are these general or domain specific beliefs about self; third, if the school can impact or shape these beliefs, then what are the factors and their significance?

The purpose of this study is to analyse different studies about the impact of school on students' self-concept, academic self-concept and self-efficacy and to identify factors that are related to school and influence students' academic self-concept in reading in the PIRLS 2016.

## Theoretical background

It has been found that person's belief system about self has an impact on one's behaviour, attitudes, deeds, actions, chosen tasks and goals, task performance, productivity and persistence (Bandura, 2001; Pervin & Cervone, 2013; Tabernero & Wood, 2009). Besides, beliefs might be and might not be related to reality (Pervin & Cervone, 2013), they might even be taken over from one's family (Filippin & Paccagnella, 2011), but they all form a person and determine one's behaviour accordingly.

The term self-concept has a variety of definitions. There are authors who define self-concept as a dynamic pattern of perceptions that makes the structure of personality (Pervin & Cervone, 2013) or a descriptive component or knowledge structure of the self (Larsen & Buss 2018). Berk (2009) gives the most extensive definition stating that the concept of self is everything, i. e., abilities, attitudes and attributes, beliefs that define oneself. Hooper and colleagues (2015) define self-concept as student's own perceived competence. Marsh and colleagues (1988), Pervin and Cervone (2013), Larsen and Buss (2018) acknowledge that self-concept is developing, dynamic, complex, structured and multi layered; and in this case it can be divided into general self-concept, academic self-concept (in particular academic domain) and non-academic self-concept (social, emotional, etc.), with reference to Areepattamannil and Freeman (2008). Academic self-concept is defined as one's belief of academic abilities (Harwood et al., 2008). Ishak (2014) adds that the academic self-concept serves as a mediator for non-academic self-concept and enhances learning. It is common that terms academic self-concept, domain-specific self-esteem, self-confidence in a particular subject and perceived self-efficacy are used as synonyms because they belong to the person's self-belief system. Whitcomb and Merrell (2013) explain that the above-mentioned terms form one of the basic human capabilities, according to social cognitive theory, the self-reflective capability. Bong and Skaalvik (2003) stress the difference between academic self-confidence and perceived self-efficacy, emphasising that, as an academic self-concept, beliefs are based on previous experience in the

academic subject whereas self-efficacy is formed from future beliefs on specific task performance in the subject. Both are closely related to motivational, emotional and performance outcomes, but, in addition, self-efficacy predicts self-regulatory processes and forms an important part of academic self-concept.

Academic self-concept as well as perceived self-efficacy is strongly related to academic achievement (Marsh et al., 1988; Harwood et al., 2008, Pervin & Cervone, 2013, Vesić et al., 2021). Academic self-concept predicts academic achievement better than intrinsic motivation and enjoyment (Vesić et al., 2021). Academic self-concept is a significant mediating variable for desirable outcomes (Shavelson et al., 1976; Marsh & Craven, 2005). Academic self-concept is significantly related to academic buoyancy in mathematics and reading domains (Colmar et al., 2019). Some studies show that academic self-concept is reciprocal in nature with academic achievement (March & Craven, 2005, McInerney et al., 2012; Chena et al., 2013; Seaton et al., 2013). Sánchez and Roda (2003) suggest that elementary school teachers should foster students' self-concept in order to raise their academic achievement and foster positive peer relationships.

It is well studied that engagement and absenteeism affect learning outcomes and achievement in particular (Hooper et al., 2015). Vesić et al. (2021) highlight that the academic self-concept is lower for students who are absent more often; these students like school less and usually are less emotionally and cognitively engaged and show lower achievement than their peers (Hirschfield & Gasper, 2011; Vaughn et al., 2013). Students' self-system has a significant effect on school engagement (Fall & Roberts, 2012; Green et al., 2012). Student's self-concept may serve as a predictor for engagement (Bakadorova et al., 2020) in a way that students with high self-concept are engaged in lessons with variety of forms (Schnitzler et al., 2020). Thus, concluding from the current studies, self-concept is a mediator not only for achievement, but for engagement as well.

Self-concept is closely related to mindset (Dweck, 2006), both are negatively affected by fear, especially by fear of bullying, cyberbullying and school anxiety (Lange et al., 2017; Escortell et al., 2020). Bullying has a negative effect not only on achievement (Hooper et al., 2015), but on global self-concept, and students with low social self-concept are bullied more than students with higher social self-concept (Parada et al., 2005), but as the authors mention, usually low social self-concept is the reason for being bullied (Parada et al., 2005; Houbre et al., 2010). Being a victim lowers the global and social self-concept (Roeleveld, 2011), academic self-concept in math and reading (Caputo, 2014). Meanwhile, demonstrating disruptive behaviours could be a subordinating strategy for low

self-concept (Marsh et al., 2001). Bullying can have lifelong effects on persons' social relationships and self-views and, if accompanied with trouble-maker characteristics, fosters early school drop-offs.

## Method

For the purpose of this study, the authors analysed answers from the PIRLS 2016 students' questionnaire and used students' reading achievement as an additional reference factor. The Baltic Sea region countries were chosen as countries of comparison: Finland, the Russian Federation, Estonia, Latvia, Lithuania, Poland, Germany, Denmark and Sweden, as these countries are comparatively closely located, people have quite similar mentality and some of these countries have had a similar historical development, too.

For the data analysis the authors of this article used linear regression models, correlation and frequency analysis. The purpose of this study was to find factors that influenced students' academic self-concept in reading.

In order to measure students' beliefs about self in reading or academic self-concept in reading, the students' questionnaire in the PIRLS 2016 contains a question "How well do you read? Tell how much you agree with each of these statements." followed by six statements. From this question, a scale titled "Students Confident in Reading Scale" was created. Students' answers were measured in the Likert-type scale with four values from "agree a lot" to "disagree a lot". Each answer was coded into values from 1 to 4. First two statements were coded directly – 1 for "agree a lot" to 4 – "disagree a lot" but other four were inverse-coded – 1 for "disagree a lot" to 4 – "agree a lot". The six statements were as follow (Hooper et al., 2015):

1. I usually do well in reading;
2. Reading is easy for me;
3. I have trouble reading stories with difficult words;
4. Reading is harder for me than for many of my classmates;
5. Reading is harder for me than any other subject;
6. I am just not good at reading.

This scale was a continuous scale and average values within the scale for each student varied from 2.9 to 13.5, and the Cronbach's Alpha Reliability Coefficient for the selected countries of comparison varied between 0.79 and 0.83.

In the linear regression analysis, the scale titled "Students Confident in Reading Scale" was used as a dependent variable. Further in this article the authors reference this variable/factor as "Academic Self-Concept in Reading".

In order to explain the variance of the "Students Confident in Reading Scale" values in the PIRLS 2016, two scales were used for the linear regression analysis as independent variables: "Students Engaged in Reading Lessons Scale" and "Student Bullying Scale" and the answers to two questions: "About how often are you absent from school?" and "How often do you feel tired when you arrive at school?" as these factors were mentioned in the literature as influential factors for self-concept.

The answers on the question "About how often are you absent from school?" were coded with the following values: 1 – once a week, 2 – once every two weeks, 3 – once a month, 4 – never or almost never. Further in this article the authors reference this factor as "Absent from School".

The answers to the question "How often do you feel tired when you arrive at school?" were measured in the Likert-type scale with values from 1 to 4: 1 – every day, 2 – almost every day, 3 – sometimes, 4 – never. Further in this article the authors reference this factor as "Feels Tired".

The scale titled "Students Engaged in Reading Lessons Scale" was created focusing on a question in the PIRLS 2016 students' questionnaire – "Think about the reading you do for school. How much do you agree with these statements about your reading lessons?" followed by nine statements. Each statement was measured in the Likert-type scale with four values from "agree a lot" (coded as 1) to "disagree a lot" (coded as 4). The nine statements were the following (Hooper et al., 2015):

1. I like what I read about in school;
2. My teacher gives me interesting things to read;
3. I know what my teacher expects me to do;
4. My teacher is easy to understand;
5. I am interested in what my teacher says;
6. My teacher encourages me to say what I think about what I have read;
7. My teacher lets me show what I have learned;
8. My teacher does a variety of things to help us learn;
9. My teacher tells me how to do better when I make a mistake.

This scale was a continuous scale and average values within the scale for each student varied from 2.5 to 13.1, and the Cronbach's Alpha Reliability Coefficient for the selected countries of comparison varied between 0.81 and 0.86. Further in this article the authors reference this variable/factor as "Engaged in Reading Lessons."

The scale titled "Student Bullying Scale" was created focusing on one question in the PIRLS 2016 students' questionnaire: "During this year, how often have other students from your school done any of the following things to you (including through texting or the Internet)?" followed by eight statements. Each statement was measured in the Likert-type scale. The values

were coded as follows: 1 – "Never" 2 – "A few times a year" 3 – "Once or twice a month" 4 – "At least once a week." The eight statements were the following (Hooper et al., 2015):

1. Made fun of me or called me names;
2. Left me out of their games or activities;
3. Spread lies about me;
4. Stole something from me;
5. Hit or hurt me (e. g., shoving, hitting, kicking);
6. Made me do things I didn't want to do;
7. Shared embarrassing information about me;
8. Threatened me.

This scale was a continuous scale and average values within the scale for each student varied from 3.3 to 12.9, and the Cronbach's Alpha Reliability Coefficient for the selected countries of comparison varied between 0.79 and 0.85. Further in this article the authors reference this variable/factor as "Student Bullying".

As the Cronbach's Alpha Reliability Coefficient for all scales is above 0.7, the scales are well-designed, and their internal consistency is excellent.

## Results

Before the linear regression modelling, the authors analysed if there was a correlation between the academic self-concept in reading and other chosen factors, and students' reading achievement (see Table 1). All coefficients given in Table 1 are statistically significant.

**Table 1.** Correlations of "Academic Self-Concept in Reading" with Four Other Factors and Reading Achievement

| Country<br><br>Name of the Factor | Latvia | Denmark | Finland | Germany | Lithuania | Poland | Russian Federation | Sweden |
|---|---|---|---|---|---|---|---|---|
| Absent from school | 0.09 | 0.08 | 0.13 | 0.14 | 0.13 | 0.13 | 0.13 | 0.13 |
| Feels tired | 0.13 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.12 | 0.15 |
| Engaged in reading lessons | 0.18 | 0.24 | 0.18 | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 |
| Student bullying | 0.16 | 0.09 | 0.13 | 0.16 | 0.23 | 0.18 | 0.14 | 0.11 |
| Reading achievement | 0.42 | 0.50 | 0.42 | 0.40 | 0.46 | 0.40 | 0.41 | 0.41 |

From the chosen factors, the reading achievement has the strongest correlation with students' academic self-concept for all countries of comparison. Students with high achievement in reading have high academic self-concept in reading and vice versa. Students' engagement in reading lessons is the second most correlated factor with academic self-concept in reading for all countries of comparison, except Lithuania. Students who are engaged in reading lessons are more confident in reading than others and vice versa. Although from the countries of comparison Lithuania has the same intensity of bullying in schools as it is in Germany (and that is less than in Latvia and the Russian Federation), bullying is the second most correlated factor with Lithuanian students' academic self-concept in reading. The third most correlated factor for other countries of comparison is students' bullying. Students' bullying scale is inverse-coded, this is the reason why the correlation is positive in numbers but in reality the correlation is negative, i. e. the more students are bullied, the lower academic self-concept they have and vice versa. The factors "Feels Tired" and "Absent from School" have very similar correlation rates with the academic self-concept in reading, except Latvia and Denmark, as they have the lowest correlation values for absenteeism from school. Factors "Feels Tired" and "Absent from School" are inverse-coded, i. e. if students are more tired or more absent from school, they have lower value of the academic self-concept in reading.

As all the correlations from the observed factors were statistically significant, the authors performed multifactor linear regression analysis in order to discover the impact of factors on how the dependent variable is influenced by independent variables and how much of the variance of the dependent variable can be explained with these factors.

First, linear regression models were applied to the independent variable without controlling for the reading achievement, i. e., only "Absent from School" "Feels Tired" "Engaged in Reading Lessons" "Students Bullying" were included in the model. The result of this linear regression analysis is presented in Table 2.

As it can be seen in Table 2, the coefficient of determination ($R^2$) for academic self-concept in reading with independent variables of the linear regression model is very low. The highest value for $R^2$ is for Lithuania, i. e., the model explains 9% of the variance of students' academic self-concept in reading. For Latvia, Finland, the Russian Federation and Sweden, the model only explains 6% of the variance, in Denmark and Germany – 7% and in Poland – 8% of the variance of students' academic self-concept in reading.

**Table 2.** Linear Regression Coefficients of Regression Equations Representing How Students' Academic Self-Concept in Reading is Affected by the Set of Selected Factors and the Coefficients of Determination (R2) of These Models

| Country<br><br>Name of the Factor and $R^2$ | Latvia | Denmark | Finland | Germany | Lithuania | Poland | Russian Federation | Sweden |
|---|---|---|---|---|---|---|---|---|
| Absent from school | 0.06 | 0.06 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| Feels tired | 0.07 | 0.08 | 0.08 | 0.09 | 0.08 | 0.08 | 0.05 | 0.09 |
| Engaged in reading lessons | 0.14 | 0.21 | 0.15 | 0.15 | 0.13 | 0.15 | 0.15 | 0.15 |
| Student bullying | 0.12 | 0.03* | 0.07 | 0.12 | 0.18 | 0.13 | 0.08 | 0.05 |
| $R^2$ | 0.06 | 0.07 | 0.06 | 0.07 | 0.09 | 0.08 | 0.06 | 0.06 |

* not significant, $p > 0.05$

Overall, the strongest impact on academic self-concept is from the factor "Engaged in Reading Lessons" except for Lithuania, with the highest value of 0.21 for Denmark and the lowest, i. e. 0.13 for Lithuania. The second strongest impact on academic self-concept is from the variable "Absent from School". School absenteeism is almost twice as important for such countries as Finland, Germany, Lithuania, Poland, the Russian Federation and Sweden than it is in Latvia and Denmark. The factor of student bullying is the strongest for Lithuania with the highest value 0.18 from all the variables. On the contrary, Denmark is the only country in this model where bullying is not a significant factor, and in Sweden bullying is more than three times less important for academic self-concept in reading than in Lithuania. In Latvia, Germany, Poland and the Russian Federation bullying is the second strongest factor from the chosen set which influences students' academic self-concept in reading. Although German fourth graders are the most tired at school, i. e., 49% of students stated that they were tired at school every day or almost every day, the impact on academic self-concept in reading is as high as in Sweden, where 37% of students indicated being tired every day or almost every day. The students of the Russian Federation are the least tired from countries of comparison, i. e. 29% of students reported being tired at school every day or almost every day; thus, the impact of tiredness on academic self-concept in reading is the lowest. Denmark, Finland, Lithuania and Poland have an equal value and just 0.1 points less than Germany and Sweden.

In order to increase the explained variance of academic self-concept in reading the authors of this article added students' reading achievement in the linear regression model as an additional factor. The result of this linear regression analysis is shown in Table 3.

**Table 3.** Linear Regression Coefficients of Regression Equations Representing How Students' Academic Self-Concept in Reading is Affected by the Selected Factor and Coefficients of Determination ($R^2$) of These Models

| Country / Name of the Factor and $R^2$ | Latvia | Denmark | Finland | Germany | Lithuania | Poland | Russian Federation | Sweden |
|---|---|---|---|---|---|---|---|---|
| Absent from school | 0.02* | 0.02* | 0.04 | 0.05 | 0.04 | 0.03* | 0.05 | 0.06 |
| Feels tired | 0.04 | 0.06 | 0.03 | 0.07 | 0.04 | 0.03* | 0.04 | 0.06 |
| Engaged in reading lessons | 0.15 | 0.15 | 0.13 | 0.12 | 0.12 | 0.18 | 0.16 | 0.16 |
| Student bullying | 0.05 | 0.02* | 0.04 | 0.07 | 0.11 | 0.07 | 0.05 | 0.02* |
| Reading achievement | 0.39 | 0.47 | 0.39 | 0.36 | 0.42 | 0.39 | 0.4 | 0.39 |
| R² | 0.21 | 0.28 | 0.2 | 0.19 | 0.26 | 0.21 | 0.21 | 0.21 |

* not significant, $p > 0.05$

By adding reading achievement as an additional factor, it was possible to increase the amount of explained variance by 15% on average. The highest increase in explained variance is for Denmark – $R^2$ increased by 0.21, followed by Lithuania with increase by 0.17, Latvia, the Russian Federation, Sweden – by 0.15, Poland – by 0.13 and Germany – by 0.12.

As it was already presented in Table 1, the reading achievement had the strongest correlation with academic self-concept in reading. This impact is seen in the linear regression models, too. When controlling for the reading achievement, several regression coefficients of all the factors decreased and lessened their impact and few factors in different countries became insignificant at all. The change in the values of regression coefficients can be explained by the fact that all of these factors are very closely related to reading achievement, and reading achievement being the most significant factor for academic self-concept in reading. With reading achievement having the strongest influence, the engagement in reading lessons is the second most important factor for all the countries of comparison, including Lithuania with all coefficients being significant. When controlling for

reading achievement, the students' engagement in reading lessons decreased its impact in Denmark – by 0.6, Finland – by 0.2, Germany – by 0.3, Lithuania – by 0.1, but increased its value in Latvia – by 0.1, Poland – by 0.3, the Russian Federation – by 0.1 and Sweden – by 0.1. The factor of students being bullied decreased its importance in all the counties of comparison and was not significant in Denmark as well as in Sweden. It means that the students' academic self-concept in reading is less affected by bullying if a student has higher achievement in reading. Nevertheless, the strongest impact of bullying is seen in Lithuanian data. When reading achievement is controlled, bullying, absenteeism from school and tiredness have lessened their effect on the academic self-concept in reading. Absenteeism from school is not a significant factor for students in Denmark, Latvia and Poland, and tiredness is not important for Poland. Students being absent from school impacts their academic self-concept in reading the most in Sweden, followed by Germany, the Russian Federation, Finland and Lithuania, but tiredness impacts academic self-concept in reading the most in Germany, followed by Denmark, Sweden, Latvia, Lithuania, the Russian Federation and Finland.

## Discussion and Conclusions

Looking internationally, the factor prevalence in population does not explain the value of correlation between the chosen factor and the academic self-concept in reading, i. e., Latvia has the highest percentage of the bullying in schools, but in Lithuania bullying in schools is more correlated with academic self-concept in reading. Students in Finland and Poland are absent from school most often; however, the correlation with the academic self-concept in reading has the same value as in Lithuania and the Russian Federation, although students from these countries attend school most regularly. The same is true for the linear regression equations.

Some studies claim that the self-concept is related to the "Big-Fish-Little-Pond" effect (Marsh, 2005), but others could not prove the existence of this phenomenon (Adegoke, 2015). Analysing the data from the PIRLS 2016, the authors of this article found that, examining internationally, Latvian students have the lowest academic self-concept among countries of comparison despite being at the 4th place by reading achievement among the chosen countries.

Tosto et al. (2016), Dotter and Lowe (2011) cite several studies where the importance of classroom on students' self-confidence is emphasized, but the authors of this research could not find any significant impact of class level factors on students' academic self-confidence.

This research supports other studies mentioned in the theoretical background where significant relationship between students' academic

self-concept and achievement was found. When controlling for reading achievement in the linear regression analysis, all other factors reduced the impact in the model and achievement became the strongest factor, it means that academic self-concept in reading is best explained by reading achievement.

Despite the studies cited in the theoretical background that prove the impact of bullying and victimisation on students' self-concept and beliefs about self, in this research the impact of bullying on academic self-concept in reading was relatively low. The authors assume that there might be two reasons: first, the PIRLS 2016 questionnaire might not cover all forms of bullying; second, it has been discovered that social self-concept is affected negatively by bullying more than general self-concept, however, the authors explored the academic self-concept in reading in the PIRLS 2016.

As it is seen in both tables of linear regression models (see Table 2 and Table 3) the overall impact of school factors other than reading achievement on academic self-concept in reading is relatively low. From all the factors on average the most significant was students' engagement in reading lessons for all countries of comparison, followed by students being bullied and students being absent from school. Although tiredness was significant for all the countries of comparison, when the reading achievement was not controlled, its impact was very low.

As academic self-concept is closely related to soft-skills and social-emotional learning, and for many years, these aspects of learning have not been included into school curriculum it is not surprising that overall impact of school factors on students' academic self-concept is very low. As social-emotional learning is now a part of the curriculum in Latvia, the authors are eager to repeat this analysis with the latest data from PIRLS 2021.

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# THE RELATIONSHIP BETWEEN STUDENTS' CITIZENSHIP ACTIVITIES AND BULLYING AT SCHOOL

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## ABSTRACT

School violence and bullying highlighted as a global issue outside and in the school. In this research, IEA International Civic and Citizenship Study (ICCS) 2016 data from eight countries – Finland, Estonia, Latvia, Lithuania, Germany (North Rhine-Westphalia), the Russian Federation, Sweden and Denmark – was compared. The aim of the article is to observe the relationship between bullying and students' citizenship activities at school and in the future. The research determined a relationship between bullying and factors that described students' citizenship activities. The results show that there is a link between bullying and students' experiences of participation in illegal and legal activities, participation in classroom discussions, interest in the wider community, and at-school citizenship activities. This article was supported by research application no. 1.1.1.2/VIAA/1/16/020, and European Social Fund project No. 8.3.6.2/17/I/001.

*Keywords:* attitudes, bullying, citizenship, civic education, ICCS 2016, students.

## Introduction

### Bullying

In the first decades of the 21$^{st}$ century, bullying became one of the most important complications of the global world and education in general. Bullying has been defined as aggressive and violent behavior that can be identified through three criteria: it is repeated, intentional, and demonstrates power imbalance (Longobardi et al., 2020; Bochaver et al., 2019; Cosma et al., 2018). Bullying can be redefined into three traditional types – physical, verbal and emotional – and in the latest decade, there appeared a new type named cyberbullying (Meszaros et al., 2020). The three traditional types of bullying can be divided by forms of acting: direct (verbal abuse and physical bullying) or indirect (ignoring, excluding, spreading rumors). Verbal and indirect bullying has been most prevalent in schools, as noticed by Australian students and teachers (Rigby, 2020).

Cyberbullying is indicated as a growing type of violence over traditional bullying (Charalampous et al., 2021). There is evidence that cyberbullying might be categorized as a unique form of bullying (Williford & DePaolis, 2019). It differs from traditional types of bullying due to its virtually limitless audience, the time and space over which violence can be spread, and the anonymity of the bullies (Selkie et al., 2016).

The gender factor appears to play a significant role in school bullying. Boys were more likely to be involved as bullies and victims in bullying and cyberbullying, while girls' participation was statistically significantly lower. Girls report significantly higher levels of post-traumatic symptoms in the event of bullying (Baldry et al., 2019). In some aspects of indirect bullying (spreading rumors), girls are more likely to be involved as bullies than boys (Geske et al., 2020).

### Bullying at the school

Several authors (Mischel & Kitsantas, 2020; Rønning et al., 2009) emphasize that it is very important to inform school staff and especially parents about bullying identification and programs to solve bullying-related problems in schools and in wider society. Improvements in the school climate lead to a reduction of bullying (Jia & Konold, 2021) and lead to an open class climate. Regular measurements of bullying indicators must be provided in schools to indicate their appearance early on (Newgent et al., 2009). Teachers and medics must have a clear understanding of bullying behaviors, as they have a negative impact on children's mental and physical health (Fekkes et al., 2005). A large number of seminars must be provided and information disseminated on clear and practical methods to prevent and solve problems of bullying.

Students' inexperience of bullying is critical for their wellbeing and their achievements. It can have an impact on the school climate and create an environment that does not support students' development, openness and wish to participate in school life. To avoid bullying between students, some authors (Jenkins & Canivez, 2021) have suggested discussing community building-related problems in the class. Discussions about compassion and the value of community-building can be a tool for teachers to identify students in the at-risk group of being bullied (Hart Barnett et al., 2019).

### Cyberbullying as upcoming problem

Cyberbullying has differences from traditional bullying in circumstances, motivation and outcome. There are three characteristics (internet, repetition and power imbalance) that define cyberbullying (Englander et al., 2017).

However, both traditional bullying and cyberbullying will continue to be significant problems for wider society. While conducting intervention and prevention programs against bullying, cultural values should be respected (Scheithauer et al., 2016). The most successful idea that focuses against violence and bullying is "No one should be unkind or hurtful" (Woolley, 2019). What has more influence than the curriculum are extracurricular activities, such as discussions with parents on civic, political and civically responsible activities (Li, 2020). Parents are the most important actors in students' civic activities (Muddiman et al., 2019); moreover, the COVID-19 pandemic has undoubtedly changed teachers', students' and their parents' everyday lives across the globe. The "lockdowns" implemented the need for distance work and learning. Moving to the digital space increase threats of cyberbullying (Barlett et al., 2021). Nowadays, thoughts on the digital space and digital citizenship education come together with wonderings about cyberbullying, anxiety and burnout syndrome.

## School Climate and civic activities

However, the school climate plays a significant role in students' well-being and, ultimately, life satisfaction (Aldridge et al., 2020). Further, class climate and attitudes against bullying affects a number of bullying cases (Košir et al., 2020; Thornberg et al., 2020). The external stressor of cyberbullying has the impact of negative attitudes toward school (Betts et al., 2017), but a positive attitude to peers and empathy help to improve victims' sense of safety in school (DeNike & Gordon, 2020). The connection between school achievements and bullying is controversial and has been reported as a not dominating or impacting factor (Bilic et al., 2014). Others have found that academic achievements are connected with school results and classroom behavior in terms of bullies and victims (Gomes et al., 2020). There was some evidence for Grade 4 student achievements in Latvia during IEA PIRLS 2016. Researchers found a statistically significant relationship between students who have never been bullied and higher achievements in reading. A rising frequency of being bullied led to students having lower achievements in reading (Dedze & Golubicka, 2020). A similar relationship between bullying and achievement is shown in the results of OECD PISA studies (Geske et al., 2020).

The results of Schihalejev et al. (2020) show that students from Estonia, Sweden and Finland believe that they are bullied because of otherness (clothes, friends, language, etc.). Also, a correlation was found between low belonging to school and the role of victims of bullies. In OECD PISA research (Geske et al., 2020), evidence is highlighted that students in Latvia feel they belong to their school less than OECD countries' average. The self-representation method may help the emotional rehabilitation of

bullying victims in some cases (O'Brien & Dadswell, 2020), but collaboration between schools and the wider environment will improve students' understanding of how school life relates to real life (Rauhansalo & Kvieska, 2017). The results of another study (Lazar, 2013) show a significant connection between bullying and later antisocial behavior. Variables related to bullying are related to the current and future civic activities of students (including illegal activities) (Javornik et al., 2019). Being a bullying victim is a precondition for being a system outsider in future life (Bochaver et al., 2019). This factor makes an impression both on the student's young and adult life periods and can be a reason for radical civic activities.

However, civic education is multidisciplinary and needs to be integrated into every subject and extracurricular activity (Saveikaitė, 2014). Social actors and structures have direct links to civic processes (Haav, 2010). Every phenomenon in school today becomes a social phenomenon in adult life in later years. Now it is time to take care of our future. We understand that bullying has an influence on a broad number of life areas, but in this study, we focus on the relationship between bullying and students' citizenship activities at school and in the future. Accordingly, the research question of this article is: What is the relationship between bullying and factors that describe students' attitudes toward their country, perception of future citizenship activities, and perception of openness in the classroom and at school?

## Method

For this research data from the IEA's International Civic and Citizenship Study (ICCS) 2016 (data available at https://doi.org/10.3886/ICPSR37147.v1) was used. The ICCS 2016 study is the fourth ICCS study. The aim of the study was to find out the ways in which young people are prepared to undertake their roles as citizens (Schulz et al., 2016).

In this article, the analyses use students' data from Finland ($n$ = 3173, FIN), Estonia ($n$ = 2857, EST), Latvia ($n$ = 3224, LVA), Lithuania ($n$ = 3631, LTU), Russia ($n$ = 7289, RUS), Denmark ($n$ = 6254, DNK), Sweden ($n$ = 3264, SWE) and from the German state of North Rhine-Westphalia ($n$ = 1451, DNW). All countries belong to the Baltic Sea region.

Bullying largely characterizes the school's microclimate; it seriously affects not only the victims and abusers but also other students. There are four types of bullying participants: bullies, victims, bullies/victims, non-bullies/non-victims (Cho et al., 2020). The aim of this article is to study the relationship between bullying and students' civic activities, but it should be noted that the impact of bullying is much broader. In Latvian schools, it is the second most important factor influencing the achievements of civic education after the socio-economic status of students.

In this study, we use scales made up of individual items. This provides higher validity than using individual questions. The student bullying scale is made up of their answers to the question "*During the last three months, how often did you experience the following situations at your school?*" There were four possible answers – "*Not at all,*" "*Once,*" "*Two to four times,*" and "*Five times or more*" – for each of the six situations – "*A student called you by an offensive name,*" "*A student said things about you to make others laugh,*" "*A student threatened to hurt you,*" "*You were physically attacked by another student,*" "*A student broke something belonging to you on purpose,*" and "*A student posted offensive pictures or text about you on the internet.*" Both this and other scales were calibrated with a mean value of 50 and a standard deviation of 10. Higher values on the bullying scale indicate a higher level of abuse (Schulz et al., 2018).

## Results

This analysis provides results from eight countries. The predictors describing bullying at school were divided into three groups. The first group describes students' attitudes toward their country, state institutions and individual responsibility (predictors: *Students' positive attitudes toward their country of residence, Students' trust in civic institutions, Students' perception of the importance of personal responsibility for citizenship*). The second group characterizes students' future citizenship activities (predictors: *Students' perception of the importance of conventional citizenship, Students' expected electoral participation, Students' expected participation in illegal protest activities*). The third group comprises students' attitudes toward the situation at school (predictors: *Students' perception of openness in classroom discussions, Students' participation at school*).

Table 1 shows the mutual correlations of these scales, which were calculated using the aggregated data of Latvian schools. The correlations can be seen to be positive (except for possible illegal activities) and mostly statistically significant with 95% confidence. This indicates that the students' current attitudes toward the state and its institutions, as well as their activity at school, form the model of their future activity as citizens.

Table 2 shows the correlations of bullying using the scales discussed above across the eight countries in the Baltic Sea region considered in this article. This restriction was chosen because these countries have much in common in terms of geographical location, past, present, and possible future. The lowest impact of bullying is in Lithuania and Finland, but this cannot be related to the frequency of abuse – this is highest in Lithuania but lowest in Finland. A strong impact of bullying is found in Russia, Germany and Denmark, and a medium impact in Latvia, Estonia and Sweden.

**Table 1.** Mutual correlations of the scales at the school level in Latvia

| | Scale | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Students' positive attitudes toward their country of residence | 1 | **0.42** | **0.40** | **0.44** | **0.32** | -0.03 | 0.12 | **0.21** |
| 2 | Students' trust in civic institutions | **0.42** | 1 | **0.58** | **0.47** | **0.48** | -0.14 | **0.35** | **0.35** |
| 3 | Students' perception of the importance of personal responsibility for citizenship | **0.40** | **0.58** | 1 | **0.49** | **0.51** | -0.16 | **0.34** | **0.31** |
| 4 | Students' perception of the importance of conventional citizenship | **0.44** | **0.47** | **0.49** | 1 | **0.49** | **0.20** | **0.25** | **0.42** |
| 5 | Students' expected electoral participation | **0.32** | **0.48** | **0.51** | **0.49** | 1 | -0.18 | **0.45** | **0.46** |
| 6 | Students' expected participation in illegal protest activities | -0.03 | -0.14 | -0.16 | **0.20** | -0.18 | 1 | **-0.28** | 0.01 |
| 7 | Students' perception of openness in classroom discussions | 0.12 | **0.35** | **0.34** | **0.25** | **0.45** | **-0.28** | 1 | **0.44** |
| 8 | Students' participation at school | **0.21** | **0.35** | **0.31** | **0.42** | **0.46** | 0.01 | **0.44** | 1 |

*Note.* Figures in bold indicate a statistically significant correlation with 95% confidence.

**Table 2.** Correlation of bullying at the school level with students' opinions and possible civic activities

| | DNK | DNW | EST | FIN | LTU | LVA | RUS | SWE |
|---|---|---|---|---|---|---|---|---|
| Students' positive attitudes toward their country of residence | **-0.28** | -0.14 | **-0.22** | -0.12 | -0.04 | **-0.31** | **-0.32** | -0.03 |
| Students' trust in civic institutions | **-0.39** | **-0.38** | **-0.24** | -0.19 | -0.10 | -0.09 | **-0.44** | **-0.40** |
| Students' perception of the importance of personal responsibility for citizenship | **-0.39** | **-0.23** | -0.15 | **-0.26** | -0.07 | **-0.22** | **-0.31** | **-0.36** |
| Students' perception of the importance of conventional citizenship | **-0.25** | **-0.34** | 0.02 | -0.04 | -0.08 | -0.15 | **-0.32** | -0.16 |
| Students' expected electoral participation | **-0.34** | **-0.30** | -0.17 | -0.03 | 0.04 | **-0.28** | **-0.37** | **-0.31** |
| Students' expected participation in illegal protest activities | **0.41** | **0.25** | **0.36** | **0.24** | 0.12 | **0.35** | **0.24** | 0.19 |
| Students' perception of openness in classroom discussions | **-0.34** | -0.19 | -0.09 | -0.05 | -0.19 | **-0.26** | **-0.43** | **-0.32** |
| Students' participation at school | 0.00 | **-0.43** | -0.17 | 0.17 | 0.00 | **-0.21** | **-0.32** | -0.03 |

*Note.* Figures in bold indicate a statistically significant correlation with 95% confidence.

The table shows that bullying is positively correlated with the possibility of students participating in illegal protest activities in the future. This could be explained by the victims' desire to do something similar to others. Bullying correlates negatively with other variables. Affected students have less positive attitudes toward their country of residence and civic institutions. It is also worth noting their lower self-confidence, which is indicated by the negative correlation with the perception of the importance of personal responsibility for citizenship. Bullying victims are also less involved in classroom and school activities.

## Discussion

The aim of the present article was to observe the relationship between bullying and students' citizenship activities at school and in the future. The aggregated eight Baltic Sea region countries' ICCS 2016 data at school level was used to look for an answer to the research question of the article, which was: What is the relationship between bullying and factors that describe students' attitudes toward their country, perception of future citizenship activities, and perception of openness in the classroom and school?

There is not much previous research on recognizing the relationship between bullying and citizenship-related issues. More often, attention has been paid to other issues, for example, gender differences, where the percentage of girls in the profile of victims of severe harassment was higher (Jiménez, 2019), achievement in general (Al-Raqqad et al., 2017), or reading skills (Turunen et al., 2021).

The results of this research showed anegative relationship between bullying and students' perception of future citizenship activities and openness in the classroom and school. Our observations also highlighted a positive correlation in the relationship between bullying and expected participation in illegal protest activities. We can assume that bullying has a strong relationship with potential illegal protest activities in the future. On the other hand, victims also can change their behavior and become aggressive, unaccountable, and have a tendency to take excessive risks (Kretschmer et al., 2017). In summary, our findings show that bullying has an impact on future citizenship activities and values. Students who have no or less experience with bullying show a positive attitude toward citizenship activities, participation in different levels of elections, and getting information before voting in the future.

The findings (Chiu et al., 2016) show that, in general, students' sense of belonging is related to their relationships in school and the teacher-student relationship. In this survey, all eight countries show that there are negative relationships between bullying and attitudes toward their country

of residence. Again, bullying does not contribute to the formation of an open classroom climate for discussions. The most pronounced observers are in Denmark, Latvia, Russia and Sweden. Moreover, the student's involvement in the citizenship activities at the school (e. g. participation in school debates on similar activities, student councils or senior elections, etc.). This is especially common in Germany, Latvia and Russia. The greater social competence of students leads to better competence in solving interpersonal problems that might prevent students from an escalation of potential violence against him or her (Javornik et al., 2019).

Accordingly, we can conclude that a pleasant and friendly environment in the classroom and school is a precondition for powerful citizenship activities in the present and future. Our findings hold the idea that the environment has a significant role in students' development as good citizens, attitudes, behavior and activities. Moreover, previous evidence (Brown & Taylor, 2008) supports the idea that school bullying has an adverse effect on human capital accumulation both at and beyond school, and the adverse influence of bullying on educational attainment remains during adulthood.

In conclusion, bullying is a current problem in both the physical and virtual learning environments and attention must be paid to possible threats of cyberbullying that can also be recognized outside school (Englander et al., 2017).

## Conclusions

The research highlighted three mean results. First, negative relationship between bullying and students' perception of future citizenship activities and openness in the classroom and school. Second, results show that bullying has an impact on future citizenship activities and values. Finally, findings show that students who have no or less experience with bullying show a positive attitude towards citizenship activities, participation in different levels of elections, and getting information before voting in the future.

Research in bullying needs to be continued, nevertheless, as the issue of bullying has broad and deep problems both inside and outside schools, and this has an impact on both students' development and the wellbeing of society.

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# IS THERE A RELATIONSHIP BETWEEN SCHOOL FACTORS AND STUDENTS' CITIZENSHIP EDUCATION? THE CASES OF LATVIA AND FINLAND BASED ON IEA ICCS 2016 DATA

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## ABSTRACT

In this research, the aim was to determine teacher- and school-level factors that are associated with students' civic knowledge, future engagement in society as a citizen, opinions about future global issues and sense of belonging to their country. For that purpose, the research took IEA International Civic and Citizenship Education Study (ICCS 2016) questionnaire data from Latvian and Finnish students (Latvia $n$ = 3224, Finland $n$ = 3173), teachers (Latvia $n$ = 1933, Finland $n$ = 2097) and schools (Latvia $n$ = 137, Finland $n$ = 174). The study used a subset of the teacher dataset that corresponds only to those teachers who teach civic and citizenship education lessons in school (Latvia $n$ = 131, Finland $n$ = 165). The research shows that there are some significant relationships with teacher- and school-level factors and four student factors: civic knowledge, future engagement, sense of belonging to their country and global problems (sustainability, violence and economy). The research supported by research application no. 1.1.1.2/VIAA/1/16/020.

*Keywords: citizenship education, ICCS 2016, Finland, Latvia, multivariable regression analysis, school factors.*

## Introduction

Citizenship education has an essential role in the education process and "refers to how education can support students' development of identity" (Veugelers & Groot, 2019, 15). Over time, citizenship education goals have changed according to the concept of citizenship and local and global issues in politics and economics (WTO, 2010). Also, the definition of what a citizens must be according to the activities they do has become important. Horst and colleagues (2020) talk about the "good citizen" as an active citizen, where an individual assess themself and his activities and acts according to values that are considered desirable by the welfare state. In

the "global citizenship" concept, individuals see themselves as members of a wider community in which they, as "global citizens" participate in a common job market, and live in a community without statehood, institutions and passports (Sterri, 2015). "Digital citizenship" is the ability to participate in society online (Mossberger et al., 2008). Nowadays, social platforms offer vehicles of civic participation and allow people to become "digital citizens". That raises questions about the competencies of digital citizenship, as well as about the meaning of digital citizenship, digital rights and digital literacy, and preparing individuals adequately (Sefton-Green & Pangrazio, 2021).

School has an important role in each person's life. And teachers are key agents in formal education area (Sampermans et al., 2021). Formal and life experiences from school are highlighted during one's whole life. That is why the the schooling period is so important for one's personality to develop a sense of belonging, engagement, formal achievements, critical thinking and a view of local and global problems. Impressions on individual achievements and attitudes come from different factors like school, family and society (Schulz et al., 2017). Several school factors might be teachers' personality, the principal's leadership style and skills, the school environment, the location and size of the school, and other students in the school.

A relevant factor that describes citizens' participation in society is engagement. Engagement is a concept where citizens need to feel concerned about issues with issues and information in their communities in order to participate effectively (Schulz et al., 2008). But to be successful participants in society, they need to have a high level of civic knowledge and citizenship education. Civic knowledge is like a tool that helps citizens understand their interests as individuals and as members of groups. The more knowledge students have, the better they can understand the impact of public policies on their interests and the more effectively they can promote their interests in the political process (Galston, 2007).

Accordingly, it is important to acknowledge school-level factors that make an impression on students' citizenship knowledge and attitudes towards local and global issues. That is why the aim of this article is to determine school-level factors that are associated with students' civic knowledge, future engagement in society as a citizen, their opinion about future global issues, and their sense of belonging to their country. Research question: what is there a relationship between school factors and students' citizenship education?

## Method

In order to address research question, we have utilized data from the IEA's International Civic and Citizenship Education Study (ICCS) 2016 (data available at https://doi.org/10.3886/ICPSR37147.v1). The IEA's ICCS

provides a rich source of data that reveals considerable variation among and within countries about the provision ofcivic and citizenship education (CCE), as well as the civic knowledge of students, sense of democracy, etc. The 2016 study is the fourth ICCS study that aimed to find out the ways in which young people are prepared to undertake their roles as citizens (Schulz et al., 2016).

All of the response variables in this study were obtained by utilizing data from Latvia's and Finland's student questionnaires (Latvia $n = 3224$, Finland $n = 3173$). Corresponding datasets of teachers' and principals' responses were used as explanatory variables. Subsets of only those teachers who teach a civic and citizenship education-related subject in Grade 8 were chosen from the teachers' questionnaires (Latvia $n = 131$, Finland $n = 165$). Data from these questionnaires contain variables describing teachers' professional activities, their students' and parents' activities in school and the local community, teachers' perceptions of students' behaviour, bullying in school and the class climate. The school datasets consist of principals' responses (Latvia $n = 137$; Finland $n = 174$). These answers describe basic information about the school and resources of the local community, principals perception of teachers and students activities, and teachers and students sense of belonging to the school.

In the first stage of this study, a combined dataset was created with schools as the observed variables. Corresponding teacher variables were averaged within schools. Then the obtained averaged teachers' dataset was merged with the school dataset by matching the school indicators (IDSCHOOL). To investigate the association between school factors and students' civic knowledge, plausible values from students' tests were utilized. To make any inference, all five plausible values (measurements of civic knowledge) needed to be used. Hence we imputed five datasets for each plausible value, then computed weighted means within all schools and finally combined the results, thus obtaining a school's average civic knowledge score. These values were added to the merged dataset. For the exploration of other facets of civic attitudes and engagement, items from the International Student Questionnaire were used. Study to investigate the associations of school factors with such civic characteristics as students' future engagement, their concerns about global issues and their sense of belonging to their country.

The variable "Future engagement" (18 items) was meant to describe students' possible future engagement in society. Due to the somewhat large amount of items, confirmatory factor analysis was used to test its unidimensionality. Unacceptably low model fit measures were obtained (CFI and TLI below 0.50, RMSEA and SRMR above 0.12 for both countries), so it was decided to investigate associations between school factors

and potential future engagement by constructing four separate models with scales already provided in a student data file built from these items. Consequently, four aspects of engagement were investigated: students' expected participation in illegal protest activities (S_ILLACT), students' expected participation in legal activities (S_LEGACT), students' expected electoral participation (S_ELECPART), and students' expected active political participation (S_POLPART). For the same reasons, the variable named "Global issues" (12 items), which was meant to describe students' attitudes towards global problems, was also divided into three subscales. Here, the question "*To what extent do you think the following issues are a threat to the world's future*" was asked. Several potential threats were given, and students were asked to choose the extent to which they are concerned about them. Answers about pollution, energy shortages, water shortages, food shortages, climate change and overpopulation were used to construct the sustainability scale. Its internal consistency was measured with Cronbach's alpha, which was 0.73 for Latvia and 0.80 for Finland. Answers about crime, violent conflict and terrorism as global threats were used to construct the violence scale, which had Cronbach's alpha values of 0.67 (Latvia) and 0.71 (Finland). Answers about the global financial crisis, poverty and unemployment as global threats were used to create the economy scale, which had Cronbach's alpha values of 0.66 (Latvia) and 0.70 (Finland). The remaining answer about infectious diseases was omitted since it did not fit well with any of the three scales. Confirmatory factor analysis was used to test the proposed latent variable structure. An acceptable model was obtained with the following fit statistics: CFI = 0.938 (Latvia), CFI = 0.939 (Finland), TLI = 0.913 (Latvia), TLI = 0.917 (Finland), RMSEA = 0.062 (Latvia), RMSEA = 0.073 (Finland), SRMR = 0.035 (Latvia) and SRMR = 0.036 (Finland). The scores of these latent variables were obtained by using a generalized partial credit model from item response theory and estimated with weighted maximum likelihood. Finally, the variable called "Sense of belonging to the country" was created from 3 items. Here, the question "*How much do you agree or disagree with the following statements about the test country*" was asked. The following items were used to create the values scale: the flag of the country is important to me; I have great respect for the test country; we should be proud of what we have achieved in the test country. The Cronbach's alpha values were 0.87 for Latvia and 0.86 for Finland. This scale was used to investigate school factors that may be related to students' respect for and pride in the country he/she lives in. Finally, each of the obtained scales was averaged at the school level and added to the previously merged dataset.

To investigate which school factors may be related to students' civic characteristics, we used a survey-weighted multivariable regression analysis

where school weights were attached to observations. Since all of the school and teacher factors that were used in this analysis could potentially have some influence on students' level of knowledge and different attitudes, at least from a theoretical point of view, a model was first constructed with all school and teacher variables as predictors for each of the explanatory variables. Then, sequentially, the least significant predictors were dropped, thus finally providing a model with only statistically significant variables remaining. The number of predictors in the final model varied between one and seven. For all the models reported, the adjusted R-square varied between 2.8% and 29%. The variance inflation factor was below 3.4 for all the predictors that were considered.

All of the analyses were conducted with statistical software R. To take the complex survey design into account, appropriate functions from the *survey* package were used. To perform multiple imputations of plausible values, the *mitools* package was used. To test unidimensionality and the proposed latent variable structure, the *lavaan.survey* package was used. To create scales in the item response theory framework, the *mirt* package was used.

## Results

In this section, we describe the obtained results. For each model with more than three significant predictors, a table is provided with descriptive names for the significant predictors, regression coefficients (standardized for continuous predictors), standard error and p-values.

### Civic knowledge

First, we constructed a model to explore which school factors could be related to the level of students' civic knowledge. For Latvian students, it appears that background variables such as school size and teacher's age (see Table 1) are the factors that may be related to their scores on a civic knowledge test. According to this model, their level of knowledge is positively related to school size. Based on the number of students, schools were divided into four categories with 50 (Finland $n = 36$) schools in the first category with less than 300 students, 44 (Finland $n = 99$) schools in the second with 301 to 600 students, 28 (Finland $n = 28$) schools in the third with 601 to 900 students, and 9 (Finland $n = 2$) schools in the fourth with more than 900 students. In Table 1, the first category is used as a reference category, meaning that students from schools in the second category scored on average 22.9 points more than those in the first category. Moreover, students from schools in the third category scored on average 42 points more than those in the first category, and students from schools in the

fourth category scored on average 46 points higher than those in the first category. Apparently, a positive relation exists, however causality cannot be deduced. It would be reasonable to assume some third factors being positively associated with school size and level of civic knowledge.

**Table 1.**  Regression output of the model for Latvian students with civic knowledge as the response variable

|                | Coefficient | Standard Error | P-value   |
|----------------|-------------|----------------|-----------|
| C_SCSIZE_CAT2  | 23.00       | 11.21          | 0.04*     |
| C_SCSIZE_CAT3  | 42.73       | 10.75          | < 0.00**  |
| C_SCSIZE_CAT4  | 46.33       | 14.99          | < 0.00**  |
| T_AGE          | -14.11      | 3.73           | < 0.00**  |

In contrast, teachers' age appears to be negatively related to the civic knowledge level of Latvian students. With an additional year of average teacher age, students score on average 1.8 points lower. The adjusted R-square of the final model was 15%. A similar model was constructed to investigate what kind of factors may be related to Finnish students' civic knowledge level (see Table 2). School size and teachers' age were not significant predictors in this model, however there appear to be positive associations with more nuanced predictors such as availability of resources (C_AVRESCOM), environment-friendly practices at school (C_ENPRAC), teachers' perception of students' behaviour (T_STUDB), and social problems at school (T_PROBSC). A negative association was observed between civic knowledge and frequency of activities against bullying at school (C_BULACT), teachers' perception of the classroom climate (T_PCCLIM), and their perception of other teachers' participation at school (T_TCHPRT). The adjusted R-square for this model was 22%.

**Table 2.**  Regression output of the model for Finnish students with civic knowledge as the response variable

|             | Coefficient | Standard Error | P-value   |
|-------------|-------------|----------------|-----------|
| C_AVRESCOM  | 5.53        | 2.41           | 0.02*     |
| C_BULACT    | -5.10       | 2.59           | 0.05*     |
| C_ENPRAC    | 9.41        | 2.40           | < 0.01**  |
| T_PCCLIM    | -8.36       | 4.27           | 0.05*     |
| T_PROBSC    | 5.65        | 3.21           | 0.08      |
| T_STUDB     | 7.87        | 4.11           | 0.06      |
| T_TCHPRT    | -3.84       | 2.27           | 0.10      |

Demographic factors such as age and gender can be logically explained in the case of Latvia. First, the majority of Latvian teachers are women who are more than 45 years old (TALIS, 2014). According to this, we can assume that their life experience of living in the Soviet Union and the first decade after the restoration of national independence had an influence on teachers' attitudes to citizenship issues and teaching methods. In addition, the Latvian and Finnish results both highlighted the importance of background factors that should be kept in mind for the education environment and higher achievement in citizenship education. Alivernini and Manganelli (2011) mentioned an open classroom climate as one of the preconditions for a higher level of knowledge. In summary, background issues are critical for civic knowledge and must be viewed as specific conditions during the learning process.

### Sense of Belonging to the Country

In the final model, in which the sense of belonging to the country scale was a response variable, for Latvian students (see Table 3), there was a positive relationship with the principals perception of crime in the community and environment-friendly practices at school as well as teachers' perceptions of student activities in the community. A negative association was observed between the principal's perception of social tension due to ethnic differences in the community, the school's urbanization level, the principal's perception of the engagement of the school community, and the teacher's teaching load at school. Also, it appears that students from schools with 601–900 students score significantly lower than students from smaller schools. The adjusted R-square for this model was 29%.

**Table 3.** Regression output of the model for Latvian students with sense of belonging values as the response variable

|  | **Coefficient** | **Standard Error** | ***P*-value** |
|---|---|---|---|
| C_SCSIZE_CAT2 | -0.79 | 0.67 | 0.25 |
| C_SCSIZE_CAT3 | -2.63 | 0.78 | < 0.00** |
| C_SCSIZE_CAT4 | 0.15 | 0.70 | 0.83 |
| C_COMCRI | 0.98 | 0.39 | 0.01** |
| C_COMETN | -1.13 | 0.51 | 0.03* |
| C_URBAN | -2.23 | 0.68 | < 0.00** |
| C_ENGAGE | -0.56 | 0.22 | 0.01** |
| C_ENPRAC | 0.72 | 0.35 | 0.04* |
| T_TIME | -0.54 | 0.27 | 0.05* |
| T_STDCOM | 0.70 | 0.32 | 0.03* |

In a similar model for Finnish students, only one significant predictor (T_GENDER) remained in the final model (Coefficient 1.27, Standard Error 0.72, *P*-value 0.08). This predictor indicated average higher scores when the teacher is a female. For this model, the R-square was 18%. However, there could be other predictors that have an influence on sense of belonging to the country values. There is no gender equality, for example, as 80% of all respondents in Latvia are women, and in Finland – 32%.

### Future engagement

Of the four aspects of possible future engagement, the association between school factors and participation in illegal protest activities was investigated first (see Table 4).

**Table 4.** Regression output of the model for Latvian students with expected engagement in illegal protest as the response variable

|           | Coefficient | Standard Error | *P*-value |
|-----------|-------------|----------------|-----------|
| C_COMETN  | 0.81        | 0.39           | 0.04*     |
| T_AGE     | 0.77        | 0.35           | 0.03*     |
| T_STUDB   | –1.06       | 0.50           | 0.04*     |

In the case of Latvian students, the final model shows a positive relationship between participation in illegal activities and the principal's perceptions of social tension due to ethnic differences in the community. We consider that the reason for this could be pressure between Latvian- and Russian-speaking groups due to the struggle for minority schools' rights and Russian being the dominant learning language in schools. To extenuate this aspect might be possible with activities that explain the significance of legal protest activities in society and engaging with ethnic groups' rights and the rules of living in Latvia. Also, teachers' age appears to be positively correlated with the tendency to participate in illegal protests. On the other hand, teachers' perception of students' behaviour at school seems to have a negative relationship with participation in illegal protests. The adjusted R-square of this model was 14%. This kind of result can be explained by the relationship with the level of students' achievement. First, there could be a relationship between students with a low level of knowledge and participation in illegal protest activities. Another group include students with a high level of achievement who have been radicalized (Biseth et al., 2021). In the case of Latvia, the first of these could be plausible.

However, a similar model for Finnish students (see Table 5) shows that participation in illegal protests is negatively associated with teachers'

perceptions of social problems at school and teachers' preparedness for teaching CCE topics. This can be explained by, on the one hand, the social tension that reduces the willingness to participate in civic activities and, on the other hand, the "Greta Thunberg generation" which can be described as a part of the youth who have been radicalized (Biseth et al., 2021). The results also show that students from schools with 601 to 900 students tend to participate less in such activities. Since only two schools are in the fourth category with more than 900 students, this shows that students who participate in illegal protests generally come from smaller schools (less than 600 students). On the other hand, there seems to be a positive association with schools' composition by student background, principals' responses on activities against bullying at school, teachers' responses on civic-related activities in class, and teachers' perceptions of student participation at school. Similarly to Latvian students, teachers' age also appears to have a positive relationship with participation in illegal protests. The adjusted R-square for this model was 22%.

**Table 5.** Regression output of the model for Finnish students' participation in illegal protests

|  | Coefficient | Standard Error | *P*-value |
|---|---|---|---|
| C_COMP | 0.56 | 0.26 | 0.04* |
| C_SCSIZE_CAT3 | −1.62 | 0.73 | 0.03* |
| C_BULACT | 0.45 | 0.24 | 0.07 |
| T_AGE | 0.63 | 0.23 | 0.01** |
| T_CIVCLAS | 0.54 | 0.28 | 0.05* |
| T_PROBSC | −0.65 | 0.24 | 0.01** |
| T_PRPCCE | −0.56 | 0.26 | 0.03* |
| T_TCHPRT | 0.61 | 0.26 | 0.02* |

### Future engagement in legal protest activities

In the final model for students' participation in legal protest activities, the following results were obtained (see Table 6). For Latvian students, the final model shows a positive relationship with principals' responses on environment-friendly practices at school and their perceptions of teachers' sense of belonging to the school. The results highlight the importance of teachers' wellbeing (Spil & Koomen, 2011) and motivating students to deal with conflict in a nonviolent way. There seems to be a negative association between participation in legal protest activities and principals' perceptions of teachers' participation in school governance. The corresponding adjusted R-square was 10%.

**Table 6.**  Regression output for Latvian students with participation in legal protest activities as the response variable

|            | Coefficient | Standard Error | *P*-value |
|------------|-------------|----------------|-----------|
| C_ENPRAC   | 0.75        | 0.28           | 0.01**    |
| C_TCPART   | −1.06       | 0.33           | < 0.01**  |
| C_TCSBELS  | 0.73        | 0.37           | 0.05*     |

In a similar model for Finish students (see Table 7), participation in legal protest activities seems to be positively associated with principals' perceptions of the engagement of the school community and teachers' perceptions of teacher participation at school, while there is a negative association with principals' perceptions of poverty in the community. The adjusted R-square was 12%.

**Table 7.**  Regression output for Finnish students with participation in legal protest activities as the response variable

|            | Coefficient | Standard Error | *P*-value |
|------------|-------------|----------------|-----------|
| C_COMPOV   | −0.47       | 0.20           | 0.02*     |
| C_ENGAGE   | 0.55        | 0.18           | < 0.01**  |
| T_TCHPRT   | 0.33        | 0.16           | 0.04*     |

Biseth et al. (2021) found that the experiences of Northern European countries (Denmark, Sweden, Norway, Finland) highlighted the relationship between students' participation in legal citizenship activities and a higher level of citizenship knowledge. Moreover, that increases the need for a holistic approach to citizenship education. However, in general, we can assume that citizenship practices at the school level and activities in the school provide positive support for better participation in decision-making processes and support active participation in society in the future.

## Future engagement as expected electoral participation

This model (see Table 8) shows that Latvian students' expected electoral participation may be positively associated with principals' perceptions of teachers' sense of belonging to the school but negatively associated with teachers' preparedness for teaching CCE topics as well as the school's urbanization status and the teacher's age. The adjusted R-square was 13%.

**Table 8.** Regression output for Latvian students with expected electoral participation as the response variable

|  | Coefficient | Standard Error | *P*-value |
|---|---|---|---|
| C_URBAN1 | –1.21 | 0.65 | 0.07 |
| C_TCSBELS | 0.86 | 0.35 | 0.02* |
| T_AGE | –0.81 | 0.34 | 0.02* |
| T_PRPCCE | –0.87 | 0.37 | 0.02* |

A similar model for Finnish students shows only one significant variable: students' expected electoral participation seems to be negatively associated with schools' composition by student background (Coefficient –1.6, Standard Error 0.50, *P*-value 0.01). The adjusted R-square for this model was 18%.

## Future engagement as expected political participation

In the model with Latvian students' expected political participation as the response variable (see Table 9), a positive association can be observed with principals' perceptions of teachers' sense of belonging to the school and teachers' teaching load at school. There appears to be a negative association with principals' perceptions of teachers' participation in school governance. Also, students from larger schools with more than 600 students seem to be more inclined to political participation. The adjusted R-square was 16%.

The results also support the idea of the teacher as an educator, not an administrative person in the school. At the same time, useful questions related to the results could be asked, for example, what does a teacher having a sense of belonging to the school mean – is it about care and responsibility for the values of the school, is it about wellbeing, or is it something else? The results of Latvia on this issue are still open to deeper observations in future research.

**Table 9.** Regression output for Latvian students with expected political participation as the response variable

|  | Coefficient | Standard Error | P-value |
|---|---|---|---|
| C_SCSIZE_CAT3 | –2.87 | 0.71 | < 0.01** |
| C_SCSIZE_CAT4 | –2.17 | 1.05 | 0.04* |
| C_TCPART | –1.09 | 0.41 | 0.01** |
| C_TCSBELS | 0.86 | 0.36 | 0.02* |
| T_TIME | 0.69 | 0.26 | 0.01** |

In a similar model for the expected political participation of Finnish students (see Table 10), a positive association can be observed with principals' perceptions of students' opportunities to participate in community activities, teachers' preparedness for teaching CCE topics, and teachers' perceptions of student behaviour at school. The results support the fact that Finland's national curricula for comprehensive education have been emphasizing democratic values since the 1970s and have supported teachers in citizenship education. This is indicated by the democratic culture tradition in the school environment and the target to support civic participation and increase active citizenship (Rautiainen et al., 2020). For example, the Civic Education Study (CivEd) and ICCS indicate that between 1999 and 2016, students' democratic activities (e. g. decision-making, voting in class or school elections, etc.) in schools rose (Schulz et al., 2017; Amadeo et al., 2002). However, a negative association can be observed with principals' perceptions of poverty in the community and teachers' perceptions of the classroom climate. The adjusted R-square was 16%.

**Table 10.** Regression output for Finnish students with expected political participation as the response variable

|           | Coefficient | Standard Error | *P*-value |
|-----------|-------------|----------------|-----------|
| C_COMPOV  | −0.67       | 0.16           | < 0.01**  |
| C_STDCOM  | 0.33        | 0.18           | 0.07      |
| T_PCCLIM  | −0.70       | 0.31           | 0.03*     |
| T_PRPCCE  | 0.37        | 0.14           | 0.01**    |
| T_STUDB   | 0.64        | 0.33           | 0.05*     |

## Global issues

There are three sub-categories under the heading Global issues.

First, economic factors. In the model for Latvian students, there was a positive association between students' perception of economic threats and principals' perceptions of poverty in the community and teachers' sense of belonging to the school (see Table 11). A negative relationship was observed with principals' perceptions of teachers' participation in school governance and teachers' gender, and school size also appeared to be negatively associated with students' perception of economic threats. The corresponding adjusted R-square was 27%. In a similar model for Finnish students, two predictors remained as significant in the final model: a positive association was observed with principals' perceptions of student

opportunities to participate in community activities (Coefficient 0.65, Standard Error 0.24, *P*-value 0.01), while there was a negative association with principals' responses on activities against bullying at school (Coefficient –0.56, Standard Error 0.25, *P*-value 0.03). The adjusted R-square was 4.1%.

**Table 11.** Regression output for Latvian students with economic threats as the response variable

|                | Coefficient | Standard Error | P-value    |
|----------------|-------------|----------------|------------|
| C_SCSIZE_CAT2  | –1.86       | 0.70           | 0.01**     |
| C_SCSIZE_CAT3  | –2.30       | 0.69           | < 0.01**   |
| C_SCSIZE_CAT4  | –3.54       | 1.07           | < 0.01**   |
| C_COMPOV       | 0.78        | 0.35           | 0.03*      |
| C_TCPART       | –1.62       | 0.53           | < 0.01**   |
| C_TCSBELS      | 1.00        | 0.25           | < 0.01**   |
| T_GENDER       | –0.32       | 0.17           | 0.07       |

Second, violence. In the model for Latvian students (see Table 12), there was a positive association with teachers' perception of the classroom climate and students' activities in the community and a negative association with principals' perceptions of teachers' participation in school governance and teachers' preparedness for teaching CCE topics. The adjusted R-square was 22.4%. In the corresponding model for Finnish students (see Table 13), there was a positive association with principals' perceptions of crime in the community, principals' responses on environment-friendly practices at school, principals' perceptions of students' sense of belonging to the school and teachers' teaching load at school. Negative associations were observed with principals' responses on activities against bullying at school, teachers' preparedness for teaching CCE topics and teachers' gender, meaning higher scores on average were seen when the teacher is a male. The adjusted R-square was 13.5%.

**Table 12.** Regression output for Latvian students with violent conflicts as the response variable

|           | Coefficient | Standard Error | P-value  |
|-----------|-------------|----------------|----------|
| C_TCPART  | –0.59       | 0.34           | 0.09     |
| T_PCCLIM  | 0.98        | 0.43           | 0.03*    |
| T_PRPCCE  | –0.97       | 0.35           | 0.01**   |
| T_STDCOM  | 0.92        | 0.44           | 0.04*    |

**Table 13.** Regression output for Finnish students with violent conflicts as the response variable

|            | Coefficient | Standard Error | P-value    |
|------------|-------------|----------------|------------|
| C_BULACT   | –0.54       | 0.20           | 0.01**     |
| C_COMCRI   | 0.69        | 0.22           | < 0.01**   |
| C_ENPRAC   | 0.41        | 0.19           | 0.03*      |
| C_STSBELS  | 0.50        | 0.20           | 0.01**     |
| T_GENDER   | –0.44       | 0.23           | 0.06       |
| T_TIME     | 0.67        | 0.25           | 0.01**     |
| T_PRPCCE   | –0.57       | 0.16           | < 0.01**   |

Finally, a model was constructed with the sustainability scale as a response variable. For Latvian students, a positive association was observed with principals' responses on the availability of resources in the local community (Coefficient 0.55, Standard Error 0.28, *P*-value 0.06), while a negative association was observed with teachers' age (Coefficient –1.03, Standard Error 0.31, *P*-value < 0.01). The adjusted R-square was 8.7%. In the case of Finnish students (see Table 14), there were positive associations with the school's urbanization level and principals' responses on environment-friendly practices at school. There were negative associations with principals' responses on activities against bullying at school and teachers' preparedness for teaching CCE topics. The corresponding adjusted R-square was 5.2%.

**Table 14.** Regression output for Finnish students with sustainability as the response variable

|            | Coefficient | Standard Error | *P*-value  |
|------------|-------------|----------------|------------|
| C_URBAN    | 0.93        | 0.54           | 0.09       |
| C_BULACT   | –0.55       | 0.27           | 0.04*      |
| C_ENPRAC   | 0.46        | 0.21           | 0.03*      |
| T_PRPCCE   | –0.47       | 0.22           | 0.04*      |

## Discussion

Our aim was to determine school-level factors that are associated with students' civic knowledge, future engagement in society as a citizen, opinions about future global issues, and their sense of belonging to their country. The empirical strategy for this was to take school-level predictors and

compare these with response variables from student data. We looked specifically at the cases of Finland and Latvia with the task to find out the most characteristic school factors that have an influence on students' civic knowledge and their attitudes and opinions about issues related to citizenship. The aim of this was to recognize differences between both countries, to find out more about Finland's education success story, and to determine factors that can be important improvements for Latvia's citizenship education.

According to the results of the research, we observed that schools and teachers have an essential role in citizenship education. Teachers' background factors have a notable influence on students' level of citizenship education in Latvia. The results showed that older teachers in Latvia have a negative relationship with the level of citizenship education and attitudes to important global citizenship issues. There are negative relationships between teachers' age and students' civic knowledge, opinions about sustainability and global issues. In the case of Finland, teachers' age did not play a statistically significant role at the level of students' civic knowledge and citizenship attitudes. Teachers' more common influence on students' knowledge and citizenship attitudes. That results for Finland can be expalned as the conciseness of education reforms since the 1970s and Finland teachers' education content at a national level (Rautiainen et al., 2020). However, Latvia has had shorter practice with democracy, and there is still post-Soviet thinking that influences national ideology. In summary, older teachers in Latvia still have post-Soviet thinking in the educational space (Rubene, 2009).

However, the context of each country and its education policy also have important roles in citizenship education. The results show that, in Finland, schools' and teachers' support for wellbeing (Seligman, 2011) has an impact on higher levels of civic knowledge, the sense of belonging to one's country, and attitudes towards global issues. Another survey (OECD, 2018) also highlighted that Finland's unique teacher preparation approach and education policy (OECD, 2020) is a predictor of its strong and quality teacher workforce (Hammerness et al., 2017). Hovever, resech results show that In Latvia case, the concept of wellbeing does not have a substantial impact; instead, a crucial role is played by the geographical location of the school and the size of the school. Based on IEA PIRLS results, Johansone (2009) also mentioned urbanization and the size of schools as factors that have an impact on students' wellbeing and achievement. Our observation highlighted that students at small-sized schools from low socioeconomic backgrounds do not pay attention to global issues. This could be a disadvantage in the future for a democratic society as it might develop an unsustainable understanding of citizenship and be an insecure place to live.

In conclusion, there are different relationships between school factors and student citizenship education in Latvia and Finland. The explanation for this could be the historical and cultural contexts of both countries. Finland has purposefully built its education system since the 1970s with the aim of getting a stronger economic system (Rautiainen et al., 2020). Latvia, however, only regained independence from the Soviet Union at the beginning of the 1990s and had to rebuild its democratic society and institutions from the beginning. This has had an influence on its education system, education aims and citizenship education. Nowadays, to get a higher level of citizenship education for Latvia's students, more focus should be put on wellbeing in society and on expanding the importance of global issues and the relevance of a sense of belonging to one's country.

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# STRENGTHENING AND SUPPORTING THE SCHOOL COMMUNITIES: A CASE OF REGIONAL SCHOOLS IN LITHUANIA

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## ABSTRACT

The paper discusses how the school microclimate could be improved within the school community, based on the results of a research carried out in 15 regional schools in Lithuania. The analysis is specifically focused on how the school community could be strengthened by improving the relationship between teachers and schools' administration. Following the methodology of the thematic analysis, the paper highlights key issues which might be important to reconsider the formation of a positive relationship, internal communication, democratization of governance, reduction of competition between teachers, strengthening the confidence in the teacher, respect for each other as well as fostering an open, tolerant culture. The results of the research indicate the need to strengthen collaboration and engagement-based community: a need to develop a participatory culture, to develop teachers' support systems, to rethink how to involve parents more actively into the school life, to ensure more effective feedback system (teachers-administration-parents). The paper also highlights a need to improve the emotional climate of schools, to develop clear guidelines for evaluating teachers' activities, to ensure smooth internal communication, informing and involving teachers about planned changes, and allowing all members of the community to feel part of the organization, not only by informing about the activities being carried out, but also by enabling critical opinions to be expressed; to form different working groups involving different educators (e. g. primary school and subject teachers) on different issues of school performance development.

***Keywords:*** *community, emotional climate, microclimate, organisational culture, school performance improvement.*

## Introduction

There are many reasons for strengthening school community and developing school, the family and community partnerships. A strong school community and the integration of school community in different processes of the school life can bring an added value to several processes: improved

school programs, better school climate, learning results and achievements of students, shared responsibilities providing family services and support, connected families, better feedback to teachers, created participatory culture. When the communication between parents, teachers, students, and others (e. g., local businesses, community colleges, and health agencies) becomes a collaboration, that builds a partnership between all sides, and everyone benefits. Following the results of the study conducted by Cohen et al. (2009, p. 181) "positive school climate is associated with and/or predictive of academic achievement, school success, effective violence prevention, students' healthy development, and teacher retention".

Studies identified that building school community is important for better learning results and achievements of the learners (Henderson & Mapp, 2002) and it is noted as a critical factor affecting the success of individual students and the school environment itself. A growing interest of research about the community schools confirms the importance of strengthening community in schools. There are studies which indicate that students in schools with a strong sense of community are more likely to be academically motivated (Lenzi et al., 2017); to act ethically and altruistically, develop understanding of justice (Thomas et al., 2019), to develop social and emotional competencies (Solomon et al., 2000) and to avoid problems in behaviours, including chronic school absence (Van Eck et al., 2017) creating in that sense trust-full environment. Several studies highlighted that schools with strong community have better academic outcomes – higher grade-point averages and achievement test scores (Henderson & Mapp, 2002), teacher ratings of behaviour – better academic engagement, respectful behaviour, and social skills.

The research about school microclimate and school community confirms the benefits of building a sense of community in schools. The sense of strong community in schools is connected to the culture and the context of the school. Community schools seeks to create a culture of trusting and positive relationships (Brewster & Railsback, 2003). As authors Harris et al. (2013, p. 4) state, that "a culture of trust enhances performance" which creates a positive microclimate in schools. The paper, thus, aims to analyse the microclimate of the school communities and identify areas for its improvement.

## Methodology

The quantitative research was conducted in 2019 in 15 regional schools in Lithuania. The overall aim was to evaluate the microclimate of schools by assessing work-related psychosocial factors and work satisfaction related questions. The research objectives were addressed to reveal the peculiarities

of teacher-parent, school administration-teacher relations, to identify the peculiarities of the above-mentioned group communications, conflicts, possible risks and identifying factors influencing the formation of a positive school microclimate.

The study participants were selected using targeted and convenient selection methods. The questionnaire was online and distributed through emails to the selected schools. The sample consisted of 424 school staff – 368 teachers, 24 administrative staff and 32 child support specialists. Of these, 35 (8.3%) men and 389 (91.7%) women aged between 22 and 69 (average 49.2 years).

This paper is based on the analysis of open questions which were given to the research participants. The two open questions addressed positive and negative aspects of the school community. The analysis was done by applying the methodology of thematic analysis (Braun & Clarke, 2006). The method is characterized by flexibility in data interpretation and includes 6 steps: repeated reading of the text, distinguishing semantic ideas; extraction of quotes from semantic texts and developing initial codes; combining codes into primary themes; review of selected themes and codes; formulation of themes; final analysis of the selected passages of text. An inductive research strategy was used because the themes were formed based on the data from the open-ended questions.

The participants in the study were left space to answer, with a targeted indication of the possibility of making five statements each question. However, the study participants were free to make the desired number of statements or not to answer any questions. The study participants were not given an indication of the need to rank the characteristics of the school community.

## Results

The thematic analysis allowed to identify the repeating themes which reflect positive and negative aspects of the communication between teachers and administration. Three major themes emerged as a result of the data analysis:

- Positive communication
- Management improvement
- Strengthening and mobilizing community.

### Positive communication

One of the evident areas for improvement is related to the strengthening of a positive communication. A positive communication is most needed to be developed between teachers and administration and between teacher

colleagues. Teachers and administrative staff, child support specialists, who participated in the research, emphasized the following aspects which contribute to the developing a positive communication culture:

- Openness and tolerance.
- Respectful relationship.
- Tension, stress reduction.
- Empathy.

The research participants associate openness and tolerance with tolerance of other opinions, openness between teachers and administration. Openness is associated with non-concealment of truth, more sincere communication. The research participants see openness as a very important aspect that helps building a culture of trust in the community.

Respect is viewed as the foundation of positive communication. The issue of respect was very strongly highlighted in the study and the participants associated it both with warmer communication with each other and with a sense of tact, empathy, and the competence of the administration to resolve conflicts. It should be noted that the aspect of respect is mentioned both in the context of communication between teachers and in communication with schools' leaders.

Tensions in the schools are revealed by the teachers' stated desire to speak calmly, to solve problems without fever, without humiliating others.

## Management improvement

The second aspect is related to the improvement of the management. Management improvement is associated with:

- Democratic spirit, listening, culture of consultation with teachers.
- Objective evaluation of teachers' activities.
- Ensuring internal communication.
- Creating an emotionally safe environment.
- Innovation.
- Cutting red tape.
- Improving infrastructure.

The research revealed that schools' administration should pay more attention to the fact that dialogue and a culture of consultation are very important for a good school microclimate. Teachers' responses indicate that a culture of discussion and negotiation is still underdeveloped. The research participants suggest looking for other forms of meetings, to create conditions for expressing different opinions, which may not always coincide with the position of the administration. The administration needs to build a culture of trust and free thought because there seem to be schools where teachers are afraid, intimidated, and therefore do not feel like full members of the community.

Objective evaluation of teachers, reduction of competition between teachers is an important aspect too. Teachers expressed the opinion that their activities are not sufficiently evaluated or evaluated biasedly. Teachers feel that the school administration is not sufficiently open to different opinions. There is no developed culture of mutual support, teachers feel a lack of systematic feedback regarding their work and miss a well-functioning and transparent incentive system.

Competition between teachers should not be a norm in schools. Competition in an educational institution brings more harm than good. Representatives of the administration should rethink strategies to ensure objective evaluation of teachers' activities, continuous provision of feedback, and the formation of a support system.

Internal communication is a powerful tool in ensuring that a culture of openness and trust would prevail in the community. The teachers involved in the study indicated that a lot is hidden from them, there is a lack of information, sharing of what is happening and why, the rationale for one or another decision is not always clear. The research results show that it is important for both teachers and school administration to create internal communication systems, they must ensure the continuous provision of information to teachers, and it is also necessary to think about the improvement of communication competencies. The achievements of the whole community, which are described by teachers as initiatives, innovations, also contribute to the formation of a good microclimate.

Creating an emotionally safe environment is linked to issues discussed earlier, such as building a culture of trust, preventing bullying between teachers and students, and promoting teachers 'self-efficacy. The research data show that teachers do not feel emotionally calm and safe, there is a lot of anxiety, fear, a sense of control. There is a lack of unifying activities.

Although the problem of bureaucracy was not dominant in the research participants' answers, its reduction can contribute to improving the microclimate of organizations. Bureaucracy is also perceived as an obstacle to communication between teachers and administration, because everyone has fill in the "paper" properly, and there is little time left for live communication.

The infrastructure improvement is a secondary aspect of the microclimate improvement, but it is associated with a safe physical and emotional environment. Teachers feel inadequate in untidy or long-renovated environments, although they realize that this is not just a consequence of the inability of the school administration.

**Strengthening and mobilizing community**

The third area for improvement is community mobilization and strengthening. It is associated with:

- Building trust in teachers.
- Sharing culture.
- Development of a teacher support system.
- Strengthening communication and cooperation between different educators.
- Improving communication with parents.

A need to strengthen the community is defined by the idea that values and traditions are very important for community mobilization. The participants of the study placed a strong emphasis on the issue of trust in teachers. This testifies the lack of open collaboration in school communities and that teachers feel that the administration, their parents are too critical about their work and thus, teachers' professionalism is not recognized.

One of the tools for strengthening the community, according to the study participants, is the sharing of experiences and work. This view has to do with another aspect: providing help to teachers, instead of being criticized, intimidated, monitored.

Teachers lack understanding, support, and help from the administration. They feel that teachers' initiatives are not encouraged, too little attention is paid to the evaluation of their activities, and too much tension prevails, which hinders the creative work of teachers.

Teachers point to a lack of co-operation, especially in schools where both primary and lower secondary education are provided. Teachers feel that there is a separation between subject and primary school teachers.

Improving communication with parents might also contribute to more positive school microclimate. The research participants note that schools need to think about more active strategies for involving parents in school activities. This should strengthen a community spirit.

## Discussion

The ongoing education reform poses many challenges for teachers and school administration, which in one or another way is linked to their satisfaction with the work done and perceived psychological well-being (Ilgan et al., 2014; Smetackova et al., 2019). The research revealed very important aspects while developing stronger school communities and ensuring a positive microclimate. The most prominent characteristics of the school microclimate are related to the formation of positive and sincere relationships, strengthening of internal communication, democratization of management (listening to different opinions, tolerance of opinion, objective

evaluation of teachers' activities, etc.), reducing competition between teachers, community and communality, teacher trust, strengthening mutual respect, fostering an open, tolerant culture.

The research results well correlate with similar studies, especially looking at the need to strengthen community in schools, rethinking how to involve parents more actively in school life and ensuring a more effective feedback to them. According to Maier et al. (2017, 13) "community schools are organized around four key features (pillars): (1) integrated student supports; (2) expanded learning time and opportunities; (3) family and community engagement; and (4) collaborative leadership and practice". Several of those pillars are very closely related to our research results such as community development, strengthening trust in teachers, collaboration, reducing of competition.

The research results revealed that there is a lack of trust in teachers or between teachers in schools, while the systems of control, monitoring and a sufficiently rigorous assessment prevail, which makes teachers feel fear, tension, competition. Brewster and Railsback (2003, p. 16) also noted, that it very important to create conditions for teacher's collaboration, like "principals can support collaboration by making time in the schedule for teachers to work together, providing training on effective strategies for team-building, and offering incentives for teachers to collaborate". While schools seek to create a culture of trusting relationship, positive collaboration by improving school climate, developing trust between teachers and community members should be as a priority and taking time to develop and to create a culture of trust, should be worth of the investment. According to Blase and Blase (2001, p. 23), "without trust a school cannot improve and grow into the rich, nurturing micro-society needed by children and adults alike".

The research results revealed a need for strengthening a collaborative leadership and good management. Maier et al. (2017, p. 6) also identified, that "the collaborative leadership, practice, and relationships found in community schools can create the conditions necessary to improve student learning and well-being, as well as improve relationships within and beyond the school walls". This was noted as an important development area in the paper as well, that partnerships within and beyond the school's walls is an integral part in creating a positive microclimate and trustful community in schools.

Some very important findings are related to the improvement of students' achievements and learning results as well participation in the school's activities. Studies were made in order to find answers how strong school community could make an added value for the school itself. Those studies bring us some specific evidence that strengthening school community

improves students' achievements (Anderson et al., 2010; Bryk, 2010;); increases students tests scores (Blank et al., 2003; Sheldon, 2007); increases students attendance rates (Sheldon, 2007; Sheldon, Epstein, 2004).

This research is novel in the fact that it expands **qualitative** aspects of a positive school microclimate. It reveals what is beneath positive communication at schools and points to such values and attitudes as openness and tolerance, respectful relationship, tension, stress reduction and empathy. Strengthening community is qualitatively associated with trust building, sharing culture, teacher support system development. The new aspect is to focus on communication and cooperation between different teachers: subject teachers and primary teachers and similar, which indicates that teachers understand that collaboration only in their discipline groups might be a limitation while striving for a stronger school community. One important aspect related to the management improvement – cutting red tape is linked to effective school leaders, principals, who might protect their school community from abundant bureaucracy.

## Conclusions

Competition in educational institutions does not contribute to a good institutional microclimate. Administration representatives should rethink strategies to ensure an objective appraisal of teachers' performance, provide a continuous feedback, and ensure the formation of the support system.

School communities lack a trust in teachers, while the systems of control, monitoring and a sufficiently rigorous evaluation prevail, which makes teachers feel fear, tension, competition, division into 'loved ones' and 'unloved'.

The research results show that schools' administration does not pay enough attention to individualized and collegial appraisal of teachers' activities. It is proposed that school administrations could apply a continuous method of evaluation of teachers' activities based on the individual and group reflection. Feedback to teachers should be based on a positive and critical paradigm involving all members of the community, i. e., systematically applying an evaluation based on the views of teachers, administrations, parents and pupils themselves.

The results of the research identified the need to strengthen community in schools, i. e., a culture based on the engagement of all members (formation of a participating culture) and rethink how to involve parents more actively in school life, ensuring a more effective feedback to them.

The school community might be strengthened through the developed teacher support systems and sharing best practices scaffolding young teachers who lack experience or competence.

For the schools' principals it is important to ensure that everyone's voices and opinions are heard in schools, to allow all members of the community to feel part of the organization not only by informing about the activities carried out, but also by providing the opportunity to express critical opinions; to form different working groups involving teachers (e. g., primary education and subject teachers) on different issues of improving school performance. The last but not the least schools should learn how to disseminate and share the achievements of school communities.

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# TRANSFORMATIVE DIMENSIONS
# OF EDUCATIONAL CHANGE CONTEXT

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## ABSTRACT

Nowadays in the changeable life conditions it is essential to analyse and understand the synergy of intervention sets for a successful procedure of educational processes in order not to create conditions and situations when incompatibility of opinions and points of view in the action and outcomes can be noticed, which is hard to be justified with the quality indicators and positive performance. This applies both to the practising teachers' capacity arsenal and the need for teacher training programme renewal. The focus of responsibility of socialization agents' interaction, their needs and values are changing in the educational cultural space and organization. In pedagogy and its processes there has always been the risk of resilience in changing the paradigms of subjects' thinking which is deepened in the transformation conditions by the presence of digitalization. The authors of the article analyses how the educational development tendencies are related to the need for quality cooperation, attitude and personal responsibility issues during the teacher training process. The goal of the research is to study, analyse and model the change agent strategies and educational reform implementers' professional competences for the development of pedagogical components of transformable quality cooperation in the teacher training process renewal.

In the publication the aspects of the education system have been raised, analysing the current offer of the teacher training study programmes and their quality, emphasizing the impact of the socio-economic status, as well as the significance of school as an organizational culture, the need for professional pedagogical self-development motivation and compliance of the educational standards and content settings with the reforms. The data obtained during the pedagogical practice confirm that the vision of the potential action is not sufficient, there have to be the strategies of Specific Measurable Relevant and Time-bound (SMART) model which help to transform the current approaches and quality education process in development. Unfortunately, it has been proven in practice that lots of intentions to improve the education system cannot be implemented successfully, as the platform of the processes and activities to be implemented have not been in synergy with the education policy implementers and decision makers. The reason for that is the lack of interests, confidence, motivation and awareness of risks for all agents involved in the process of changes: teaching staff, students, pupils, teachers and parents.

*Keywords:* agents, cooperation, education, qualities, risk, strategy, transformation.

## Introduction

Education is not the same as schooling. "Education is not a linear process that prepares for the future; actually, it develops talents and perceptual abilities due to which we are able to live the best life right now and create the best possible future" (Robinsons, 2013, 23). One has to admit that the educational process is both destructive and preservative in its nature, which is restricted in time and space. From the aspect of educational philosophy Nietzsche already lived in his life perception by the principle if one knows *Why*, then they also know *How* to live, get educated and create their own professional career. The issue of the 21st century debate on education *To Whom, Why and How* does not have merely a theoretical context any longer. It is clear that education, economics, labour market, politics, social harmony are a transversal process which influences every individual's development and growth. In the theory and research data analysis it has already been proved that planning of the educational process, observance of the principle of succession and longitudinality promote growth of subjects involved in the educational process. It has been proved by several countries: Australia, Finland, South Korea, Scotland and Singapore, implementing the transformation of the education system, highlighting the shift of mindset and processual paradigms and approach at all intervention levels: administrative, political and in teacher training programmes. Logically, transformative procedures, interactions and rapprochement of all these processes happen simultaneously there. The global experience confirms that the set educational standards and principles are implemented into practice, bearing into mind every individual's health, prosperity, wellbeing, and socio-economic impact in the future.

## The purpose of the paper

The versality of the educational process also includes in itself the presence of risk at all levels. The risk is not there because the teacher may not be sufficiently qualified without implementing pedagogical practice based on scientific evidence, not because the pupils would work inefficiently due to a distinct lack of motivation to learn, but rather because education is not a bucket which has to be filled up, but rather a fire which has to be kindled. The risk is there because education in not an interaction amongst robots, but socially live judgemental beings. The pupil is not an object of things and order, but rather a subject of co-responsibility for action, engagement and processual development. Technologies of education are not merely a platform, where the contributor has to be in constant synergy with the outcomes.

Expectations the society expect from teachers are the process of an unpredictable risk-free education acquisition. Implementation of a stable – mutually aligned and efficiently monitored reform is desired by both education policy makers, politicians, media, society and also organizations that analyse the processes and quality indicators happening in the sector, for instance the Organisation for Economic Co-operation and Development (OECD) and the World Bank. Just these organizations are willing to promote attitudes towards a strong, safe and predictable/forecastable education. Education is more and more often being constructed as an efficient solution to a pre-defined learning assignment.

Resistance to risk permeates the space of modern education, causing increasingly more complicated conditions for the teacher, implementing anew education content in the distance learning process. In its turn, education policy makers analyse the rating results and learning achievements at a national, municipal and school administration level, which can easily be interpreted in comparative categories at the municipal and national level, losing the aspect of reality that in the learning process not everything is a direct identification of data or it can be performed at a very high multi-dimensional goal setting in the achievement of education quality indicators (Biesta, 2016, p. 4).

## Method

In the context of the empirical study, a survey of the 25 school administrative leading experts' opinions of Liepaja Municipal Education Department was carried out with the help of the Wordle visual diagram formation tool, naming the most characteristic set of concepts, in order to find out the most characteristic values of educational processes of the respondents involved in the research at the level of education supervision. The outcomes of the survey have been systematized and collated in Figure 1.
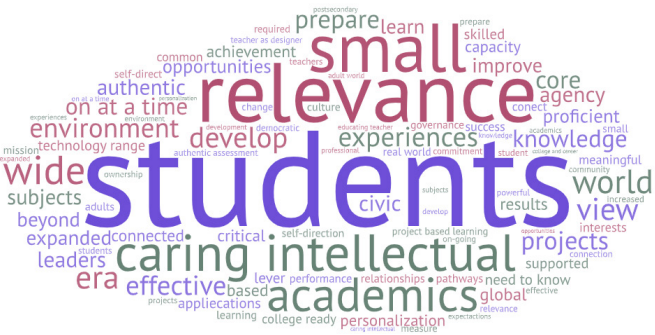


**Figure 1.** Values describing the educational process

As it can be seen in Figure 1, it can be concluded that the results of the diagram highlight and escalate the need for a pupil-centred process, significance of authentic projects, respect of pupils' interests, relevance of mutual pedagogical relations as the most essential factors of impact and success in the learning success promotion and personal growth.

Through the empiric process the set of questions were asked to selected group of professionals in education, revealing their most relevant aspects, habits, virtues in educational process to demonstrate high standards in professional achievements. As a result of the remote interviews, observations and discussions with the representatives of 15 comprehensive school administration, teacher staff, directors of teacher training programmes, a unified ecosystem model of the pedagogical process has emerged based on Trilling & Fadel concept (Trilling, Fadel, 2009):

1. *Learning* – deeply engaging, personalized, and collaborative learning motivated by relevant questions and deep inquiry, problems and the design of creative solutions, and real-world issues and challenging projects, all with a focus on high-quality student work.
2. *Teaching* – teachers as learning designers, model learners, mentors, guides, and school leaders
3. *Evaluation* – student work evaluated through public presentations and by a variety of authentic performance assessments incorporated into everyday learning
4. *Culture/climate* – for both students and educators, a professional culture of high expectations, responsibility, ownership, and self-direction; and a personal culture of caring, respect, trust, cooperation, and community
5. *Development* – teacher and student development focused on improving the quality of student work through collaboration and embedded coaching, modelling, mentoring, and leadership
6. *Tools* – pervasive use of technology and other learning resources to support Deeper Learning outcomes and practices.

The model of the educational process includes in itself three key dimensions of activity: *qualification, socialization and subordination*, providing all intervention agents with knowledge, skills and disposition (Biesta, 2016). An appropriate qualification enables participation in the planning and implementation of the educational process, creating the conditions and environment in which the individual becomes as an existing social, cultural and socially active citizen with their identity, participates in socialization processes, expressing their attitude, forms and cultivates their position and stance in the society in compliance with generally accepted prevailing norms without losing their personal freedom and without harming socio-emotional intelligence.

Considering pandemic circumstances the authors of the paper in ZOOM discussions with students and teachers revealed existing gaps between the pupils and teachers' diverse understanding on the impact of socio-emotional skills in the learning process. A personalized approach of the learning process is the Skola 2030 characteristic. It is a tool to reveal the teacher's irreplaceable role in the pupils' development performance, accelerating everybody's individual growth. Modern learning experience design should centre attention on the needs of students; approaching learning as a fluid, holistic, seamless set of experiences. Modern learning experience designs include inquiry-based learning, project-based learning, challenge-based learning, phenomenon-based learning, and personalized learning (Cavanaugh, 2016).

In the pedagogical practice in the context of topical changes, analysing the teacher training programmes and their content, it is important to be aware of the 3 most crucial factors transforming the educational environment:

**Collaboration/communication platform**, which develops in pupils the skill to collaborate with each other and the teacher; enables the teacher to develop customizable lesson plans, providing the opportunity for a realistic personalized feedback.

Role and impact of the **artificial intellect** on the learning process and paradigm shift in thinking in all stakeholders' interaction in the target-orientated content implementation.

The **mixed reality of the pedagogical environment** which creates immersive learning experiences and develops in pupils the growth of the cognitive and socio-emotional intelligence (Trilling and Fadel, 2009) (see Fig. 1).
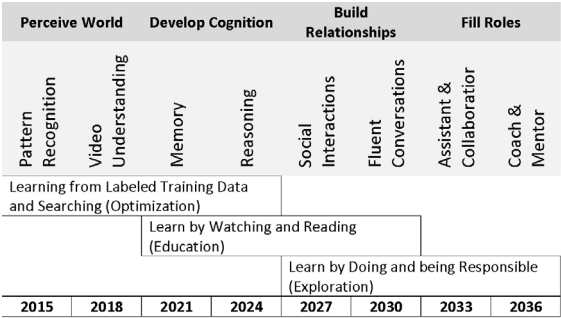


**Figure 1.** Approach of deep learning

In the information society any human is situated in a constant disordered flow of information where the digital age triggers challenges and

becomes as an important indicator of the modern social capacity which is the base for the formation of a new learning culture, diminishing the gap between the academic knowledge and topical needs of the society in the intergenerational interaction, causing constant risks of growth, whose prevention depends on productive and individualized learning strategies at all levels of education. In the development and approbation of the innovative teacher training programme, the above defined challenges and preconditions of the information society have to become as the fundamental principle of sample study planning which harmonize and increase the capacity of human resources in the self-educating and self-development perspectives. Developing a new learning culture, it is important to highlight Svarcs's cognition: "Thinking capacity which takes to knowledge is a lot more important than the volume of the accumulated information" (Švarcs, 2017, p.38).

When organizing the pedagogical process, the balance has to be found among three domains: the *load of logistics* – related to the synchronization of different tools, e-platforms, software applications for the improvement of the operational efficiency; *cognitive load* – amount of information that should be memorized in order to be able to operate with digital gadgets (remembering multiple different passwords and access codes); *work load* – what requirements have to be observed both by the teacher when teaching efficiently and the pupil when learning efficiently in order to reach the goal with the volume and depth of the set tasks (see Fig. 2).

The identification of the previously set and raised criteria characterizing the pedagogical process in the innovatively developed educational programmes facilitates not only the asking of rhetorical questions, but also a purposeful discussion about the domains of programme transformation.
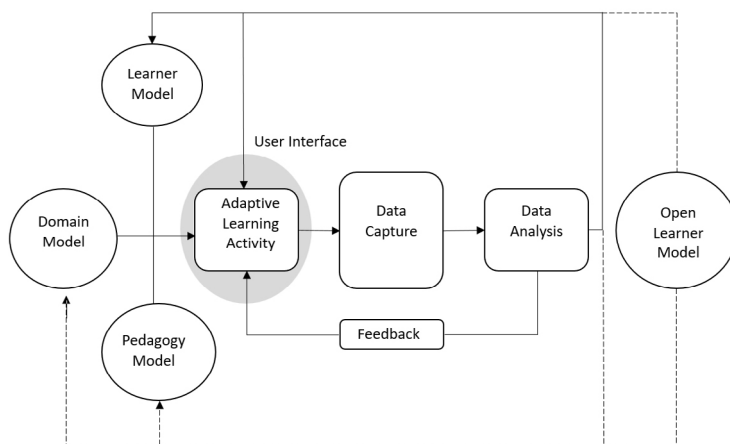


**Figure 2.** Structure of Intelligence Monitoring System

## Conclusions

The multimodality of the pedagogical approach reveals efficient teaching and learning approaches based on scientific theories and experts' findings. Based on the challenges encountered during the pedagogical practice, the authors highlight the importance of the intelligent mentoring/tutoring system in the development of pupils, students' personal performance (Fadel, 2019). Knowledge on the approach of the intelligent mentoring system and its operational strategies enables us to structure the educational process in the proximal development zone, application of transversal skills, cognitive load adequacy and provision of formative feedback.

Modern educational content based on the principles of deep learning must be aimed at the possibility of knowledge transfer, motivation-promoting, content-wide and versatile acquisition of knowledge and skills:
- Versatility, for robustness to face life and work.
- Relevance, for applicability, and student motivation.
- Transfer for broad future actionability.

Developing it through:
- Selective emphasis on important areas of traditional knowledge.
- The additional of modern knowledge.
- A focus on essential content and core concepts.
- Interdisciplinarity, using real-world applications.
- Embedded skills, character, and meta learning into the knowledge domains.

It is vital to find the balance between vocational and social life dimensions in the open education system. Looking for and finding the balance, developing educational strategies directed towards the personality and obtaining the experience of an individualized approach, the wellbeing of everybody involved in the educational process improves, which accumulates energy, reveals the inner growth resources and causes vitality, which harmonizes with the personal and social life aspects.

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# STUDENTS' DIGITAL COMPETENCE: A SCOPING REVIEW OF MEASURING INSTRUMENTS

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## ABSTRACT

In today's society, digital competence is becoming increasingly relevant, as this competence is necessary to function on both a personal and professional level. Digital competence is essential for students, since it enables them to exist in a digitalised world. Over the last few decades, the concept of digital competence has been used more frequently (Spante et al., 2018), and now it is actively discussed, particularly in terms of policy documents (European Council, 2018; European Commission, 2014; European Commission 2021). During the discussions related to policy, the following questions have been raised: 1) what kind of skills and knowledge people should possess in a knowledge society, and 2) what should be taught to young students and how it has to be done (Ilomäki et al., 2016). The purpose of the present scoping review is to provide a comprehensive overview of relevant research regarding the instruments commonly used to measure digital competence of university students. Arksey and O'Malley's (2005) five-stage framework underpins the scoping review. Three databases were used to conduct a scoping literature review, including ERIC, ProQuest and EBSCO. The inclusion criteria were peer-reviewed publications written in English within the period from 2014 till 2020. Initially, 395 articles in total were selected; the full texts of 43 articles were assessed. Finally, only 13 out 395 articles that met the inclusion criteria were considered in the present research. This paper reports on three main categories: (1) definition of digital competence, (2) development and characteristics of an instrument measuring digital competence, and (3) key findings. The most commonly used framework found during this research was *The European Digital Competence Framework for Citizens 2.0.* (Vuorikari et al., 2016). A larger part of studies reports on a designed self-assessment questionnaire comprising of multiple-choice items and quantitative evaluation of the competence. The scoping review showed that the majority of the existing tests enable to assess students' digital information searching, communication and technical skills. The findings of previous studies indicate that students tend to overestimate their digital competence and lack knowledge of basic topics, the ones related to information and data literacy. Our findings point to the necessity to use different approaches for assessing digital competence on different levels.

*Keywords:* assessment instrument, digital competence, digital literacy, scoping review, student.

## Introduction

In the past decade, digital competence has become a key concept in the discussions about the activities that individuals should be able to do and the goals that should be achieved when using digital technologies (European Council, 2018). In higher education institutions and universities there is currently a high number of students who certainly have not experienced a moment without the presence of digital technology in most, if not all, aspects of their life (Maderick et al., 2016). It was estimated that, in broad terms, 72 per cent of households in urban areas had access to the Internet at home in 2019, which is almost twice more than in rural areas, where only 38 per cent had access to the Internet (International Telecommunication Union, 2020). It implies that people, including students and educators, use different digital tools on the daily basis.

It has to be taken into account that during the COVID-19 crisis in spring 2020, various study courses and trainings were provided only in a digital environment, which was experienced for the first time by local students. Such condition has caused a need to focus on educators' and learners' digital competence. With the advent of digital technology, learning has been focused on processing the information received. Information and communication technology tools (ICT) have been used for various purposes, including searching, collecting and presenting information, communicating, collecting and processing data, simulating processes, as well as building new knowledge and creating products. A minimum set of digital skills is no longer enough to allow students to work effectively with digital tools, access the Internet or perform basic computer tasks (Buckingham, 2015). For this reason, enhancing digital competence is one of the priority objectives in education (European Commission, 2021, p. 6). Several different inventions have been applied to boost pupils' and students' motivation, so they could acquire the content of study courses more efficiently and qualitatively (Slavova & Garov, 2019).

Digital competence is one of the eight key competencies for lifelong learning defined by the European Council of European Union (European Council, 2018, p.10) as "Digital competence involves the confident, critical and responsible use of, and engagement with, digital technologies for learning, at work, and for participation in society". Digital competence includes eight categories: information and data literacy, communication and collaboration, media literacy, digital content creation, safety, intellectual property issues, problem-solving and critical thinking (European Council, 2018).

In recent ten years there has been a growing interest in the assessment of digital competences and certification by various bodies, for example,

education administrations, European Community, etc. (Stopar & Bartol, 2019). Calvani working in collaboration with other colleagues managed to ascertain that the field of assessment of digital competence may be divided in different ways; the first is related to the possibility of obtaining information, that is, for a relatively short time; and the second may require repetition of observations over time to get more meaningful assessments of student involvement (Calvani et al., 2008).

The process of digital competence assessment is the complex one. Most of the examples of digital competence assessment that are reviewed in the *Global Education Report: Creating Sustainable Futures For All* (United Nations Educational, Scientific and Cultural Organization, 2016) involve computer-based performance assessments rather than assessments of knowledge about digital and ICT literacy.

In this scoping review, we are interested to summarizing and analysing the digital competence assessment tools explicitly used to assess students' digital skills.

### Defining digital literacy and digital competence

Digital competence is essential for learning, work and active participation in a society. Over the past ten years the terms *Digital competence* and *Digital literacy* have become more widely used and more often discussed, especially in the field of policy documentation (European Commission, 2014; Eurydice, 2011). There have also been active discussions related to the types of skills and knowledge people need in a knowledge-based society, specifically what to teach and how to teach (Ilomäki et al., 2016).

The term *Digital literacy* was first introduced by Gilster as "the ability to understand and use information in multiple formats from a wide variety of sources when it is presented via computers" (1997, p. 6). Parvathamma and Pattar, in their turn, define digital literacy as the "ability to use ICT tools and internet access, manage, integrate, evaluate, create and communicate information to function in a knowledge society" (2013, p. 159).

Digital competence and digital literacy are often used synonymously (Krumsvik, 2008). Sometimes they are used to underpin each other, for instance as in Ferrari's report:

Digital Competence is the set of knowledge, skills, attitudes (thus including abilities, strategies, values, and awareness) that are required when using ICT and digital media to perform tasks; solve problems; communicate; manage information; collaborate; create and share content; as well as build knowledge effectively, efficiently, appropriately, critically, creatively, autonomously, flexibly, ethically, reflectively for work, leisure, participation, learning, socializing, consuming, and empowerment. (2012, p. 30)

The concept of digital competence is a multi-faceted moving target covering many areas and literacies and rapidly evolving as new technologies appear. This way, Calvani and colleagues define digital competence as:

> *Digital competence consists of exploring and facing new technological situations flexibly, selecting and critically evaluating data and information, exploiting technical potentials to represent and solve problems, and building shared and collaborative knowledge while fostering awareness of one's responsibilities and the respect of reciprocal rights/obligations.* (2008, p. 186)

Ferrari also highlights that the concept of digital competence is multifaceted, prone to continuous progress and rapid development, and is already influenced by the emergence of technology. According to Ferrari, to be digitally competent means to have the ability to understand media, to search and be critical about retrievable information, and to be able to communicate with others through a variety of digital tools and applications (Ferrari, 2012*)*.

Digital competence can be understood as the ability to use technology effectively to improve performance in all areas of daily life. Several researchers suggest that digital competence is not just an isolated skill to be developed, but a range of skills, abilities, and attitudes to be deployed across different areas and dimensions of knowledge (Ferrari et al., 2014; Vázquez-Cano, 2014).

## Frameworks of digital competency

According to the *World Bank 2020 report Digital Skills: Frameworks and Programs*, one of the most comprehensive and widely used frameworks for general digital skills is the European Union's European Digital Competence Framework for Citizens (DigComp) (Bashir & Miyamoto, 2020). This framework has become a reference for strategical planning and development of digital competence initiatives at European and Member State levels. In 2013 the European Commission published the Digital Competence Framework (DigComp 1.0.). In June 2016 the European Commission Joint Research Center (JRC) published DigComp 2.0., updating the terminology and conceptual model (Vuorikari et al., 2016). In 2017 the Commission expanded it and published DigComp 2.1. which describes those competencies across eight proficiency levels, from foundation/beginner to highly specialized (Carretero et al., 2017). DigComp is subdivided into five areas and 21 competences, which include the notion of digital literacy (Ferrari, 2012).

From 2013 till now DigComp has been used extensively in the context of employment, education, as well as training and lifelong learning. The changes between the version of DigComp published between 2013 and 2017

reflect certain developments such as an increased perception of "digital content" and "digital technologies," and include relevant updates regarding EU legislation, for example, *The EU General Data Protection Regulation.*

## Method

A scoping review refers to the process of mapping or summarising the existing literature to understand the range of the field (Davis et al., 2009). A scoping study tends to present broader themes to which various types of study may be applicable and is less likely to seek to assess the quality of the studies included (Arksey & O'Malley, 2005). To illustrate the search results of the study and to provide an overview of the inclusion and exclusion criteria, a scope review method was used; it is based on the framework of Arksey and O'Malley (2005). The method consists of five steps: "1) Identifying the research question; 2) Identifying relevant studies; 3) Study selection; 4) Charting the data; 5) Collating, summarizing, and reporting the results" (Arksey and O'Malley, 2005, p.22). A scoping review of studies, enabling us to describe instruments with the aim to assess digital competence, was conducted. A detailed description of inclusion and exclusion criteria is given in Table 1.

**Table 1.**  Inclusion and exclusion criteria

| Criteria | Included | Excluded |
|---|---|---|
| Time frame | 2014–2020 | Before 2014 and after 2020 |
| Publication type | Online peer-reviewed articles | Policy documents, books, reports |
| Focus | Studies with a primary focus on assessment or self- assessment of digital competence | Articles focusing on other aspects |
| Language | English | Other languages |
| Target population | Articles focusing on university students and digital competence assessment | Articles focusing on pupils, other population (seniors, special needs, adults) |

Eligibility criteria for final databases selection for this scoping review were the topic of interest, type of the article, and the accessibility of the databases.

Finally, scientific databases ERIC (Educational Resources Information Centre), ProQuest, EBSCO were included in this review of the scope literature. The research search was performed using only the following keywords: *digital literacy, digital competence, digital competence assessment, assessing digital competence, student and assessment instrument.*

## Results

The search generated 395 articles. All titles were analysed using the set inclusion criteria; 220 articles were excluded (Figure 1).
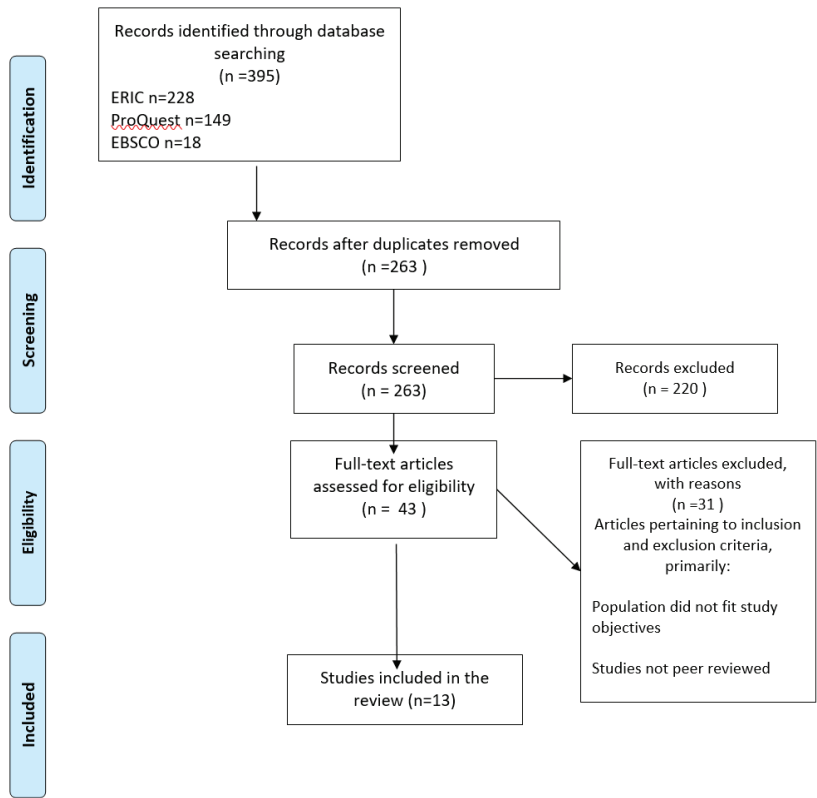


**Figure 1.** Flow diagramme for the scoping review search

The full texts of 43 articles were assessed. In the process of manual screening 30 of these articles were excluded, and 13 articles that met the inclusion criteria were included in the research (see Table 2). The exclusion on the studies was for two reasons: irrelevance of study objectives and absence of peer review.

Among the reviewed articles, 2 of them were from Spain, two – from Italy, and others – from Argentina, Chine, Chile, Colombia, Ecuador, Greece, Ireland, Japan, Peru, Poland, Slovakia, Ukraine and Venezuela. Eight of the total 13 articles reported were published within the last two years. This indicates that the research interest for digital competence assessment has increased.

**Table 2.** Frameworks for Digital Competence

| Country | Author (Year) | Theoretical / Conceptual Framework |
|---------|---------------|-----------------------------------|
| Argentina, Colombia, Peru, and Venezuela | Crawford-Visbal et al. (2020) | European Framework of Digital Competence 2.0., 2016 |
| Italy | Sciumbata (2020) | European Framework of Digital Competence Framework 2.0., 2016 |
| Ukraine | Kuzminska et al. (2019) | European Framework of Digital Competence 2.1., 2017 |
| Spain, Italy, Ecuador | Tejedor et al. (2020) | Digital Competence Framework for Educators, 2017 |
| Greece, Ireland, Scotland | Martzoukou et al. (2020) | European Framework of Digital Competence 2.1., 2017 Digital capability framework (JISC) |
| China | He and Chang (2014) | iDCA (instant digital competence assessment) instrument framework (Calvani et al., 2008, 2012) |
| Spain | Vázquez-Cano et al. (2017)[1]; Gutiérrez Porlán and Sánchez Serrano (2016)[2]; Esteve-Mon et al. (2020)[3]; Guzmán-Simón et al. (2017)[4] | [1] "University Students' Basic Digital Competences 2.0" (COBADI) [2] European Framework of Digital Competence 1.0. for citizens, 2013 [3] INCOTIC: Inventory of Competencies in Information and Communication Technologies INCOTIC questionnaire [4] New Literacy Studies approach (Barton & Hamilton, 1998; Baynham, 1995; Gee, 1990; Street, 1995) |
| Japan | Cote and Milliner (2016) | Digital literacy questionnaire adapted from a seminal survey created by Son et al. (2011) |
| Poland, Slovakia | Hajduová et al. (2020) | Authors develop an assessment instrument |
| Chile and Uruguay | Silva et al. (2019) | Digital competence indicators and dimensions proposed by Lázaro and Gisbert (2015) |

To identify the range of the study, article summaries with regard to the year of publication, country, purpose of the study, sample/participants, theoretical/conceptual framework, assessment instrument and key findings were provided (see Table 3).

Three types of data collection methods were identified, namely, self-assessment, performance-based assessment and test-type assessment. The digital competence framework consisting of six assessment instruments was based on DigComp assessment methodology, thus, it includes multiple-choice items. In the study by Tejedor and colleagues (2020) the design of the questionnaire was based on the Digital Competence Framework for Educators (DigCompEdu) (Redecker & Punie, 2017). DigCompEdu is directed towards educators at all levels of education, from early childhood to higher and adult education, including general and vocational education and training, special needs education as well as non-formal learning contexts. In this scoping review, we also identified other digital competence assessment conceptual frameworks (see Table 2).

Four assessment instruments used a questionnaire based on a Likert – type scale of digital competence, which represents different levels of skills. In one of the studies by Crawford-Visbal and colleagues (2020) qualitative communication methods were used: focus groups and semi-structured interviews were conducted to measure progress in digital competencies. In the study by Sciumbata (2020), participants answered the survey that consisted of four sections, including preliminary questions, two self-assessment parts and a section containing multiple-choice questions to test the actual knowledge of the participants. In their study, Gutiérrez Porlán and Sánchez Serrano (2016), basing on DigComp 1.0. methodology at the core of which there are statements divided into five blocks, two questionnaires were distributed to students, namely, a questionnaire onself-perception and on digital competence. The second questionnaire on digital competence was an adaption of the first one, since it included the following statement: "Task X has helped improve my competence in area X." that helped to get more profound understanding of the issues on the basis of students' responses (Gutiérrez Porlán & Sánchez Serrano, 2016, p. 53)

Most of the tools consisted of several dimensions, categories, or areas of digital competence (see Table 3).

**Table 3.** Characteristics of included students' digital competence assessment instruments

| Author (Year) & Title | Theoretical/ Conceptual Framework | Study purpose/ Context & Focus | Participants Sample | Methods | Key findings |
|---|---|---|---|---|---|
| Crawford-Visbal et al. (2020) Assessment of Digital Competences in Communication Students across four Latin American Universities | DigComp 2.0., 2016 Dimensions: 1) Information & data literacy; 2) Communication & collaboration; 3) Digital content creation | To assess how Communication students of the four universities in Latin America are developing their digital competencies. | 157 freshmen (new students); sophomores (students between fourth and fifth semester) Seniors (close to graduation) | Questionnaire Focus group Semi-structured interviews | Students presented relatively low competence levels, especially in terms of Data and Information Literacy and Digital Content Creation competencies. |
| Sciumbata (2020) Students of humanities and digital skills: a survey on Italian university students | DigComp 2.0., 2016 Dimensions: 1) Information & data literacy; 2) Communication & collaboration; 3) Digital content creation; 4) Safety; 5) Problem solving | To assess how students perceive their level of digital skills and whether there is a discrepancy between their self-assessed level and their actual knowledge | 270 students, born after 1993 234 female, 27 men | Questionnaire of four sections: preliminary questions two self-assessment parts multiple-choice questions based on the DigComp 2.0. The survey was distributed through social media (47 Facebook groups) | Students tend to overestimate their digital skills and lack knowledge of a fundamental topic. The most problematic area is the information-related one. Although most respondents declared themselves as independent users, they seem to lack understanding in the safety area. |
| Kuzminska et al. (2019) Study of Digital Competence of Students and Teachers in Ukraine | DigComp 2.1., 2017 Dimensions: 1) Information & data literacy; 2) Communication & collaboration; | The purpose of this study is to define how well education participants (teachers and | Employees, teachers, and students of higher education in various fields. | 1. Sample survey; 2.Case Study (practical example); 3.Comparative study | The teachers and students have an above-average level of usage of digital tools and communications. The level of competency of professional usage of IT is |

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|---|---|---|---|---|---|
| 3) Digital content creation; 4) Safety; 5) Problem-solving | | students) are prepared to use their educational environment as a space for using and improving their digital competencies. | | | much higher for students than for teachers. No difference in gender, age, and availability of technical means were defined. The level of competencies does not depend on the way that the skills were obtained. |
| Tejedor et al. (2020) Digital Literacy and Higher Education during Covid19 Lockdown: Spain, Italy, and Ecuador | Digital Competence Framework for Educators, 2017 Dimensions: 1) Teacher's professional engagement and collaboration; 2) Digital learning and sources; 3) Teaching and teachers guidance and skills; 4) Supporting students | To determine how higher education in three different countries faced a global lockdown situation in ensuring digital literacy development. | 376 students aged between 18 and 40 years old | Questionnaire with an exploratory-correlation scope. The instrument was designed using Google Forms. | Students felt they were not sufficiently supported enough during lockdown; Digital skills and competencies should be reinforced in teachers as a critical point in a new learning scenario. |
| Martzoukou et al. (2020) A study of higher education students' self-perceived digital competencies for learning and everyday life online participation | DigComp 2.1., 2017; Dimensions: 1) Information & data literacy; 2) Communication & collaboration; 3) Digital content creation; 4) Safety; 5) Problem solving | To explore how students in higher education self-assess their digital competence | 61 postgraduate students; 97 undergraduate students | Questionnaire-based on five-point Likert-type. | Students' self-assessment of digital competencies was lacking in a number of areas (information literacy, digital creation, digital research, and digital identity management. Students' digital competencies were found to be linked to previous experiences within the everyday life digital |

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|---|---|---|---|---|---|
| | Digital capability framework (JISC), 2012; 1) ICT proficiency; 2) Digital creation, problem-solving, and innovation; 3) Digital communication and participation; 4) Digital learning and development; 5) Digital identity and wellbeing | | | | environment. The more the self-perceived digital competence levels of students were based on dealing with everyday life digital tasks, the more likely they were to develop high self-perceived digital competence in other digital areas related to their education. |
| He and Chang (2014) Digital informal learning among Chinese university students: the effects of digital competence and personal factors | iDCA Dimensions: 1) Technological (visual literacy, troubleshooting, understanding Technical Concepts) 2) Cognitive Skills (Organizing and connecting textual and visual data, Organizing structured data, Information Research) 3) Ethical Knowledge (Staying safe online, respect for others) | To investigate the interactions and effects of digital competence, personal innovativeness, and attitudes to digital competence tend to get involved in digital informal learning more. informal learning on digital informal learning behaviors among university students | 235 university students; | Questionnaire Digital Competence Scale based on the iDCA; Digital informal learning scale | University students' digital competence has a positive association with students' digital informal learning, while students with a higher level of digital competence tend to get involved in digital informal learning more. |

| Author / Study | Instrument | Aim | Sample | Instrument details | Findings |
|---|---|---|---|---|---|
| Vázquez-Cano et al. (2017) Differences in basic digital competencies between male and female university students of Social Sciences in Spain | The "University Students' Basic Digital Competences 2.0" (COBADI – registered at the Spanish Patent and Trademark Office, http://cort.as/gNom)<br><br>Modules:<br>1)Competences in the use of ICT for the search and treatment of information<br>2)Interpersonal competencies in the use of ICT at university;<br>3)Virtual and social communication tools at university | The study aims to determine whether, through the Bayes factor method, we can attribute significant differences in basic digital competencies to first-year male and female university students studying Social Sciences courses, specifically Social Education, Social Work, and Pedagogy Spain. | 923 students | 2.0 COBADI® questionnaire IT contains 23 items divided into three modules. All items formed off on a 1–4 point Likert scale | Men have greater perceived competence in digital cartography and online presentations, whereas women prefer to request personal tutorials to resolve doubts about technology and have greater perceived competence in corporate emailing. There is also evidence the men have greater perceived competence in developing "online presentations" than women do |
| Cote and Milliner (2016) Japanese university student self-assessment and digital literacy test results | Digital literacy questionnaire adapted from a seminal survey created by Son et al. (2011). | To assess freshmen students' digital literacy? | 112 freshmen student | Digital literacy questionnaire adapted from a seminal survey created by Son et al. (2011) | Almost all students had very low self-assessment of their digital skills, and respondents returned inferior results in the digital literacy test. Although smartphone ownership and personal computer ownership are at 100%, students do not appear to be using these devices in any depth. |

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|---|---|---|---|---|---|
| Gutiérrez Porlán and Sánchez Serrano (2016) Evaluation and development of digital competence in future primary school teachers at the University of Murcia | DigComp1.0., 2013 Dimensions: 1) Information; 2) Communication; 3) Content creation; 4) Safety; 5) Problem-solving | To ascertain the perception of first-year Primary Education degree students about their own digital competence before and after taking the ITC subject. | 134 students | Questionnaire on self -perception of digital competence | Students mainly consider themselves to be competent in aspects related to information, communication, and problem-solving. Students rate their competence quite highly in the most basic and general elements (level 1), but this falls as the level of complexity increases (levels 2 and 3) The tasks used in this experience were rated very positively by the student, with all the tasks helping to improve their digital competence to a large degree. |
| Hajduová et al. (2020) Digital competencies of Polish and Slovak Students – Comparative Analysis in the Light of Empirical Research | Study authors develop an assessment instrument: Dimensions: 1) IT competencies (33 variables) 2) Information competencies (11 variables) | To analyse the perception of digital competencies by Polish and Slovak students. | 343 students, 172 from Poland and 171 from Slovakia | Questionnaire | Students cope better with basic tasks describing digital competencies than with more challenging tasks. Polish students demonstrate higher competencies than Slovak ones in all surveyed areas. |
| Silva et al. (2019) Teacher's digital competence among final year Pedagogy students in Chile and Uruguay | Teacher's digital Competence (TDC) indicators and dimensions proposed by Lázaro &Gisbert (2015) Dimensions: | To assess the level of TDC in a sample of students from Chile and Uruguay. To determine | 568 students | Test-type assessment instrument The responses were scored according to their level of precision: 1, 0.75, | The distribution of students with a low level of D4 is significantly higher than that of students with intermediate competency. A high percentage, 39,3%, of |

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|---|---|---|---|---|
| 1) Curriculum, didactics, and methodology (D1); 2) Planning, Organizing and Managing Digital Technology Resources (D2); 3) Ethical, legal, and security aspects (D3); 4) Personal and professional development | the relationship between the level of TDC and the factors of gender and educational status. | | 0.5, 0.25 points. The assessment instrument was made up of the four top-rated questions by experts. The instrument was composed of 40 questions, distributed in four dimensions. | male students, reach advanced digital competencies in D2 compared to female students. |
| Guzmán-Simón et al. (2017) Undergraduate students' perspectives on digital competence and academic literacy in a Spanish University | The instrument was created from the New Literacy Studies approach (Barton & Hamilton, 1998; Baynham, 1995; Gee, 1990; Street, 1995); Dimensions: 1) personal literacy (reading), 2) personal literacy (writing), 3) cultural consumption, 4) library culture 5) undergraduate academic literacy. | To determine characteristics of digital competence of undergraduate students in one Spanish University. To assess literacy practices of students and which practices they use to develop digital competence at university. | 786 students | Self-report questionnaire. The items were assessed with a Likert scale from 1 (never) to 6 (always). It consisted of 39 questions (146 items) clustered in five dimensions: personal literacy (reading), emotional literacy (writing), cultural consumption, library culture, and undergraduate academic literacy. | The study indicates a wide gap between digital competence developed in informal learning contexts and its scarcity in university literacy practices (formal learning settings). Spanish University academic practices do not incorporate ICT and information literacy processes as a part of student's academic literacy. |

| Esteve-Mon et al. (2020) Digital Competence and Computational Thinking of Student Teachers | INCOTIC: The Inventory of Competencies in Information and Communication Technologies (*González-Martínez, Esteve, Larraz, Espuny & Gisbert, 2018*) Dimensions: 1) Availability of ICT resources, 2) Use of ICT resources, 3) Digital competence (informational dimension, technological, multimedia and communicative, 4) Attitudes towards ICT, Expectations of the use of ICT in education | To determine the relationship between computational thinking and digital competence. | 248 university students | INCOTIC questionnaire of self-perception of the digital competence 20 items distributed from the four literacy areas: informational, technological, multimedia, and communicative, with a 5-points in a Likert-type format. TPC: The Computational Thinking Test (32 questions of previous knowledge of a programming language) | According to the results, most students perceive themselves as having medium to high level of digital competence. Students with a more significant perception of their digital competence obtain a higher score in computational thinking. |

In some studies, the issues related to validity and reliability in terms of digital competence assessment instruments use were examined (Table 4).

**Table 4.** Validity and Reliability of Digital Competence assessment

| Author (Year) | Validity | Reliability |
|---|---|---|
| Crawford-Visbl et al. (2020) | No information | No information |
| Sciumbata (2020) | No information | No information |
| Kuzminska et al. (2019) | No information | Cronbach's alpha |
| Martzoukou et al. (2020) | No information | Cronbach's alpha |
| He and Chang (2014) | Confirmatory factor analysis and partial least squares modelling | Cronbach's alpha |
| Tejedor et al. (2020) | No information | Cronbach's alpha |
| Esteve-Mon et al. (2020) | No information | No information |
| Guzmán-Simón et al. (2017) | Principal component analysis (PCA) | Cronbach's alpha |
| Gutiérrez Porlán and Sánchez Serrano (2016) | No information | No information |
| Vázquez-Cano et al. (2017) | No information | Cronbach's alpha Guttman's |
| Cote and Milliner (2016) | No information | No information |
| Hajduova et al. (2020) | No information | Cronbach's alpha |
| Silva et al. (2019) | Expert judgment (nine experts in the field of higher education linked to ITT) | Cronbach's alpha |

Cronbach's alpha was the most frequently used reliability coefficient. It was noted that four instruments reported neither validity nor reliability tests. Only three tools reported both validity and reliability tests.

## Discussion

A scoping review was undertaken to describe digital competence assessment instruments to measure students' digital competence. The scoping review showed that most of the existing tests assess students' digital information searching communication and technical skills. In the review, most of the instruments were composed of several competence areas: information and data literacy, communication and collaboration, digital content creation, safety and problem-solving. The majority of the studies report on a designed self-assessment questionnaire comprising

multiple-choice items and evaluation of digital competence. The present research helped to establish that the most commonly used framework was appeared to be the European DigComp framework for Citizens 2.0. (Vuorikari et al., 2016).

As part of the scoping review, the main key findings of the included studies were analysed. Some studies show that students tend to overestimate their digital competence and lack knowledge of fundamental topics (Gutiérrez Porlán & Sánchez Serrano 2016; Sciumbata, 2020). The study conducted by Martzoukou and colleagues (2020) indicates that the development of digital competence is linked with their previous experiences in the digital environment in everyday life. For example, according to the research in Argentina, Colombia, Peru, and Venezuela, despite the high levels of digital literacy in communication and collaboration, students' competence in information and data literacy and digital content creation remained low (Crawford-Visbl et al., 2020).

In several research it was also found that men had higher levels of digital competence than women (He & Milliner 2014; Crawford-Visbal et al., 2020). The results obtained by Esteve-Mon and colleagues (2020) show that digital competence is closely related to digital problem-solving (computational thinking), that is, students with higher digital competence scores had also higher digital problem – solving competency.

The study conducted by He and Milliner (2014) indicate that university students' digital competence has a positive association with students' digital informal learning, while students with a higher level of digital competence tend to get more involved in informal digital learning. Sciumbata (2020) established that 270 students participating had an excellent opinion of their digital skills most of them consider themselves to be good users and independent users in three out of five DigComp areas. However, when tested, significant gaps in their knowledge in all the areas were identified.

Our approach was not without limitations. First of all, the selection process, the inclusion, and exclusion criteria have influenced the outcomes of this scoping review. The exclusion of non-English studies further limits potentially relevant studies, which contain important and valuable information. This scoping review did not conduct a quality appraisal process of the research included. This may have influenced the interpretation of the research results. It is significant to note that, our search included three multidisciplinary databases, namely, ERIC, ProQuest, EBSCO). For further exploration of the issue, it is recommended to enlarge the number of databases by including other databases (i. e. Scopus, Web of Science). This scoping review could serve as the groundwork for a stricter systematic review.

## Conclusions

Nowadays, digital competence is gaining importance and represents a critical factor in every aspect of our lives. We have provided an overview of literature on digital competence assessment instruments in the field of higher education. The conclusion of our review is that research conducted at universities and colleges does not have a developed systematic approach to researching and assessing students' digital competencies. Several studies (Gutiérrez Porlán & Sánchez Serrano 2016; Kuzminska et al., 2019) included in the report included such research participants in which students took part in short online study courses to acquire and improve digital skills, as a result of which students' existing digital skills were not systematically assessed, and students' existing digital skills were not taken into account. Some higher education institutions, such as National University of La Plata in Argentina, University of the Coast in Colombia, San Ignacio de Loyola University in Peru, Cecilio and Acosta Catholic University in Venezuela), conducted research on students' digital competences and focused mainly on the skills related to digital technologies, for example, which ICT and digital media that students use and integrate into the study process. The results obtained in the scoping review are significant in order to better assess students' future digital competences. Further research has to be focused specifically on high-validity digital competence assessment tools.

The digital competence assessment tools included in the review could be helpful for both universities and education policymakers for the development of digital competence assessment tools in higher education.

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# SELF-DIRECTED LEARNING IN SECONDARY EDUCATION DURING REMOTE STUDY PROCESS. CASE STUDY IN LATVIA

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**ABSTRACT**

Due to rapid technological changes and innovations, by graduation students have to be equipped with skills necessary for lifelong learning. There is an increasing potential for students' further development in the digital environment. In high school, it is necessary to build and improve the students' skills of self-assessing their own learning needs, as well as setting educational objectives and measuring their success. The importance of self-directed learning has increased particularly in the context of COVID-19. In many countries, educational institutions are closed and studying process is remote, reducing the level of teacher involvement and increasing pupils' own responsibility for their learning outcomes. Changing the classroom from direct spatial presence to the digital environment also changes learning opportunities and increases the importance of digital skills. It is therefore necessary to identify whether pupils possess the necessary self-directed learning skills for the purpose of learning, selecting activities and study materials, managing time, structuring the learning environment, skills to communicate and collaborate and assess their performance, as well as the digital skills needed to organise the digital learning environment and identify the major challenges in remote learning. The results of the study show that pupils have assessed their self-driving learning skills as sufficient, however, as well as that the learning process has been challenging and has created motivational, self-discipline and socializing problems.

*Keywords: digital skills, secondary education, self-directed learning, remote studying, transversal skills.*

## Introduction

Due to rapid technological changes, by graduation students have to be equipped with the skills needed for lifelong learning. Lifelong learning is seen as an important cornerstone of professional development in the 21st century, due to globalization and internationalization and permanent access to information (Mohd Salleh, Zulnaidi, Abdul Rahim, Zakaria, & Hidayat, 2019). Students will have to continue to acquire new knowledge and skills throughout their careers (Voskamp, Kuiper, & Volman, 2020).

Self-directed learning is one of the skills needed to organise an independent learning process and is an essential part of life-long learning (Tekkol & Demirel, 2018). Traditionally a direct learning model based on teaching knowledge or skills using appropriate teaching methods is used; however, such learning methods provide knowledge and skills transfer (Sukardjo & Salam, 2020), but do not allow students to choose and analyse their own learning strategies and evaluate their suitability, set their own learning goals and achievable results as well as make sure that learning outcomes are achieved. Failing to develop these skills at school could lead to problems for students to continue to learn independently in future.

In Latvia, due to the restrictions of the COVID-19 pandemic, for several month the entire study process in secondary schools took place remotely, which means that the collaboration between the student and the teacher is only possible in the digital environment. In a remote study process, the teachers control of the learning process is reduced, and, thus, students' responsibility for their own learning process is increased. In the digital environment, self-directed learning is particularly relevant for a meaningful learning process (Zhu, Bonk, & Doo, 2020). The challenges of the remote learning process relate not only to the skills needed to implement a self-directed learning process, but also to skills required for changing the learning environment from direct spatial presence to digital environment (Lāma & Lāma, 2020). It is the digital environment and the ability to act on it that is a prerequisite for the success of a remote learning process. Consequently, it is essential that the learning process is not simply transferred to the digital environment but also transformed. The goal of the research is to find out, whether students have the necessary skills to be able to fully participate in a self-directed remote learning process and to identify challenges of remote learning process.

## Self-directed learning

Self-directed learning is often referred to as a set of 21st century skills that can be developed directly by students at school (Voskamp, Kuiper, & Volman, 2020; Global Partnership for Education, 2020). At the same time, self-directed learning is also a way to motivate students to learn at school; by giving students more choice and responsibility, they will be more actively involved in the learning process (Francom, 2010). The Self-directed learning (SDL) theory has its origins in adult education (Voskamp, Kuiper, & Volman, 2020). Knowles (1975) describes self-directed learning as a process in which an individual, either independently or through others, sets his or her educational objectives, independently forms learning strategies and identifies the resources needed to achieve the learning objectives pursued, as well as continuously verifying the achievement of learning outcome (Voskamp, Kuiper, & Volman, 2020, Knowles, 1975).

Self-directed learning is an active process in which learner supervises and controls their own cognition, behaviour and motivation (Onah, Pang, & Sinclair, 2020), as well as assessing the appropriateness of learning strategies for achieving, and, if necessary, adjusting the goal. In addition, the self-directed learning is treated as learning and motivating processes, based on the individual responsibility of students to learn with or without instructions. Metacognition is therefore an essential component of the self-directed learning process. Improving self-directed learning skills also helps to develop critical thinking as well as to improve the ability to take initiative, particularly in the context of planning and adapting the learning process (Sukardjo & Salam, 2020).

Self-directed learning can be defined as a learning process in which learner plays a central role and is included in planning learning process, setting goals, selecting information or resources and searching and evaluating their own learning process (Silamut & Petsangsri, 2020). In the context of secondary education, the student's opportunities are limited and therefore self-directed learning is significantly influenced by the school's curriculum.

Although self-directed learning process is characterised by a relatively high level of student involvement and responsibility (Voskamp, Kuiper, & Volman, 2020), the student cannot fully set his or her own learning objectives, as defined in the curriculum, thereby bringing self-directed learning closer to self-regulated learning skills within the scope of this research. In view of the objective, the ability to manage own learning process effectively in both formal and non-formal education (Zhu, Bonk, & Doo, 2020) after graduation of secondary school. School is a transitional phase in which the teacher's responsibility should be gradually reduced and the involvement of the student should be increased, according to the level of his or her capacity. However, the active student's involvement in the presentation of ideas and taking responsibility not only for the learning results of but also for the learning process itself, allows students to develop critical thinking and planning skills (Mamun, Lawrie, & Wright, 2020).

Self-directed learning is characterised by three stages of the learning process: preparation, implementation and self-reflection phase (Zimmerman, 2015). The preparatory phase is characterized by the diagnosis of learning needs, the formulation of learning objectives, including the nomination of measurable learning outcomes (Larson, Jordan, Lande, & Weiner, 2020). In the implementation process, the motivation, self-discipline, and student's adaptation skills, as well as the skills to search and critically evaluate information, are essential. In particular, the importance of self-discipline in the process of implementing training activities should be highlighted, since that includes the ability to focus on learning objectives, and also helps to

collaborate in the learning process, as a teacher's guided process. The process is iterative, and the reflection phase is not only important part of the evaluation of learning outcome, but it is also essential for adjusting learning strategies. Therefore, reflection serves as a tool for evaluating objectives, activities and learning strategies and as a self-directed learning skills assessment tool (Toh & Kirschner, 2020). Thus, self-directed learning process can be characterised by six dimensions (Onah, Pang, & Sinclair, 2020):

- goal setting;
- task strategies;
- time management;
- structuring of environment;
- seeking help;
- self-evaluation.

Consequently, in view of the self-directed learning as a complex skill or set of skills, it consists of (Mohd Salleh, Zulnaidi, Abdul Rahim, Zakaria, & Hidayat, 2019; Tsai, 2019): Self-assessment of learning gaps, Self-evaluation skills, reflection skills, critical thinking skills, information management skills, communication skills and collaboration skills, self-discipline.

**Digital skills**

The concept of digital skills relates to the ability to use specific digital technologies or software (Guillén-Gámez, Mayorga-Fernández, Bravo-Agapito, & Escribano-Ortiz, 2020). However, digital skills are more widely perceived in the context of education. They are also skills for the full employment of digital technologies for learning purposes. Meaningful digital communication is characterized not only by the ability to use software functionality, but also by understanding the psychological aspects of communication and the corresponding social conventions (Lāma & Lāma, 2020). Therefore, in the context of learning, digital skills include the students' ability to use technology to access information, acquire and evaluate it, present and share with others, and to be able to work on a team (He & Li, 2019), communicate in different formats (live video, e-mail, chats etc), and be able to find and use different digital learning tools. Digital skills are particularly relevant in the remote learning process; they are a prerequisite for managing the virtual learning environment.

Digital skills can be divided into five domains (Carretero, Vuorikari, & Punie, 2017):

- information and data literacy;
- communication and collaboration;
- digital content creation;
- safety;
- problem solving.

Therefore, the most important learning skills of self-directed learning skills in remote learning can be considered to be: planning skills, self-discipline, self-assessment of learning gaps, reflection skills, information literacy, digital communication and collaboration skills and skill to use digital learning tools.

## Method

Students' self-directed learning skills were measured through a self-assessment survey. The survey was distributed through boosted *Facebook* and *Instagram* posts, reaching 6974 adolescents, aged 16–19. In total, the questionnaire was completed by 419 secondary-school students. In the questionnaire, secondary-school students had to self-evaluate seven self-directed learning dimensions: planning skills, self-discipline, self-assessment of learning gaps, reflection skills, critical thinking skills, digital communication and collaboration skills and the skill of using digital learning tools. Each of the skills was evaluated on a 5-point Likert scale (5 – excellent, 4 – good, 3 – acceptable, 2 – poor, 1 – very poor) as well as one open-ended question in which students were asked to share their challenges with remote learning. Completing the first seven questions was mandatory; results were analysed using descriptive statistics, but the last open-ended question was optional and was analysed through content analysis. The study considered all ethical research standards in accordance with the General Data Protection Regulation (GDPR). The questionnaire was anonymous and participation in it completely voluntary.

## Results

Survey's internal consistency Reliability is high (Cronbach's alpha value 0.775).

Secondary school student self-directed learning skills for remote studying can be divided into two groups:
- skills that are essential to conduct self-directed learning;
- skills needed to manage the digital learning environment.

By analysing students' self-assessment of the skills needed to implement the self-directed learning process, it can be concluded that students have evaluated their self-directed learning skills as good (Table 1). However, mean values of students' self-evaluation of different self-directed learning skill components are quite different, and dispersion and standard deviation is rather high. Planning skills  and self-discipline skills  students have evaluated higher, and reflection-skills  and self assessment of learning skills have been evaluated lower.

**Table 1.** Students' self-evaluation of self-directed learning skills

| Variable | Mean | SD | Variance |
|---|---|---|---|
| 1. Reflection skills | 3.05 | 1.15 | 1.33 |
| 2. Self-assessment of learning gaps | 2.95 | 1.10 | 1.20 |
| 3. Self-discipline | 3.46 | 1.10 | 1.20 |
| 4. Planning skills | 3.73 | 1.06 | 1.12 |
| 5. Use of digital learning tools | 4.02 | 1.07 | 1.14 |
| 6. Digital communication and collaboration skills | 3.47 | 1.24 | 1.54 |
| 7. Information literacy | 3.37 | 1.21 | 1.45 |

The results show that pupils have assessed their ability to organize and plan learning process rather high. Skills required for evaluating and reviewing the learning process is evaluated lower, indicating the need for teacher's involvement in the reflection phase, as well as in the knowledge evaluation phase. In particular, the skill to assess learning gaps should be highlighted, as the mean value of students' self-evaluation is less than three – less than fair.

Analysis of skills for digital environmental management shows that students have well developed digital skills, and the assessment mean value is rather high. Use of digital learning tools ($x = 4.02$) is evaluated with the highest mean value. Digital communication and collaboration skills ($x = 3.47$) and information literacy ($x = 3.37$) evaluation should also be considered high. It indicates that students have the necessary skills to manage the remote study process. In particular, the high assessment of use of digital learning tools indicates that the learning process can be enriched with digital resources by including them in teaching. This indicates that pupils are prepared not only for the transfer of the learning process to the digital environment, but also for the transformation of learning.

To understand the ratio of students who are well prepared for remote self-directed learning it is important to analyse the self-directed learning skill relative distribution by self-assessment levels.

By analysing self-directed learning skills that are not related to the digital environment (Fig. 1), it can be concluded that students' perception of self-discipline and planning skills is rated rather high. 61% of respondents rated planning skills as good or excellent and only 12% as poor or very poor. Similarly, 52% of respondents evaluated self-discipline as good or excellent and only 12% as poor or very poor. Reflection skills and self-assessment of learning gaps are evaluated lower. Analysis shows that 36% of respondents evaluated their reflection skills and 34% self-assessment of learning gaps as

good or excellent; almost a third of respondents (31%) evaluated reflection skills as poor or very poor, and similarly 36% of respondents evaluated their self-assessment of learning gaps as poor or very poor. This indicates that students with the help of their teachers should focus on improving their skills to self-assessment of learning gaps. This skill enables students to understand the need of learning and provides a basis for organizing the learning process independently after leaving school, particularly in the context of informal learning.
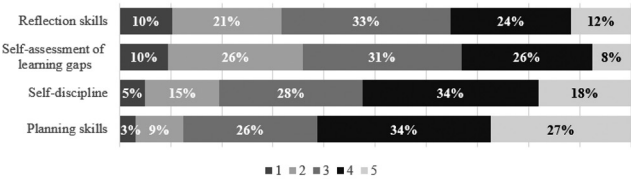


**Figure 1.** Skills that are required to implement a self-directed learning process

By analysing self-directed learning skills that are related to the digital environment (Fig. 2), it can be concluded that students evaluate their use of digital learning tools as the most developed: 73% of respondents evaluated them as good or excellent and only 11% as poor or very poor. Digital communication and collaboration skills and information literacy are evaluated lower. More than a half of respondents (54%) evaluated digital communication and collaboration skills to be good or excellent; 48% of respondents evaluated their information literacy as good or excellent. A quarter of respondents (24%) evaluated their digital communication and collaboration skills and a similar number of respondents (26%) evaluated their information literacy as poor or very poor. It can therefore be concluded that there is a need to improve students' information literacy.
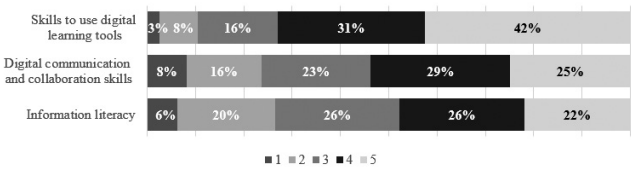


**Figure 2.** Skills for digital environment management

Results of open-ended question were clustering around different themes and most relevant remote studying challenges (Fig. 3). Students' answers to the open-ended question were of different length and contained from 1 to 3 different themes.
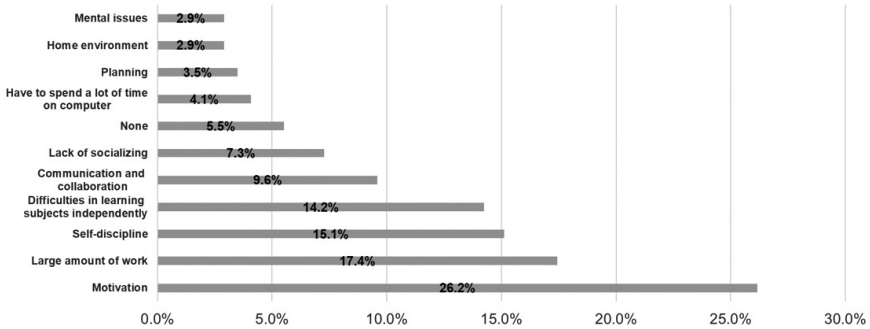
**Figure 3.** Student challenges with remotes studying

Respondent answers show that motivation and self-discipline are major challenges. These challenges, although categorized separately, are essentially very closely linked. Lack of motivation also affects self-discipline. 41.3% of students recognize one of the two factors as a major challenge to remote learning, which points to the need for teachers and students to pay increased attention to tackling these challenges. It also raises the question about quality of remote study process. It is important to highlight that students' evaluation of self-discipline was rather high: the mean value is 3.5. The inconsistency of self-discipline self-assessment and the fact that it is pointed out as the major challenge could be due to the fact that students were able to overcome this challenge, or it could also be explained with the students' inability to connect their self-discipline problems with the lack of motivation.

Most respondents have not specified the reason for the lack of motivation, but from some more expanded responses, it can be concluded that lack of motivation is connected with lack of socialization:

- "Lack of presence of teachers and classmates, lack of emotions, sports, dancing, singing! Hard to find motivation at home"
- "Motivation, too exhausting to sit at a computer all day"
- "There is no collective feeling when you are at home, so sometimes there are problems with self-motivation, because with learning in-person your classmates can encourage you".

Similarly, detailed analysis of the main challenges connected with self-discipline problems shows that they relate to the daily regime and the distraction caused by the learning environment at home:

- "Sometimes there is unrestrained laziness to start tasks that take longer (such as reading a book in literature)"
- "Wake up in time to school"
- "Hard to get together when there are things around (videogames, TV) that distract"

One of the major challenges was digital communication and collaboration as it caused problems with interaction and did not fulfil social needs (lack of socializing) as more than 7% of respondents thought it was a major challenge to remote study process. Other aspects that influenced digital communication related to the inability to construct conversation the same way students had done previously, in person:

- "The fact that there is no communication in person leads to unanswered questions"
- "Can't immediately communicate with teachers on topics I don't understand"
- "I can't come to the Conclusions and understanding of the theory, in consultation with my friends"

Some of students distinguish difference between communication in person and digital communication; their answers indicated that they have not adapted yet. Students also struggle with the problem to socially construct knowledge digitally.

Other major challenges were connected with heavy workload, lack of direct guidance and mental health issues:

- 17.4% of students point to the fact that there is heavy workload, which could be linked to the teachers' inability to adapt to remote studying or to the student illusion of heavy workload caused by lack of self-driven learning skills. Further research is required to find it out.
- 14.2% of the students have difficulties to learn independently. Indicating that they are not capable to learn without direct teacher guidance.
- 2,9% of students have mentioned some mental health issues caused by remote learning and isolation.

It can be concluded that in spite the fact that most of the direct-learning skills students evaluate as good, remote study process has been difficult and challenging. Teachers should create the necessary learning environment that supports the development of self-directed learning skills especially emphasizing activities that promote reflection skills, self-assessment of learning gaps, self-motivation, and self-discipline.

## Discussion

The study identified the self-assessment of secondary education students learning skills for remote learning and identified the major challenges students face with remote studying. The results indicate that students feel they have the necessary skills to learn remotely effectively and successfully. However, students also point to significant challenges encountered during the remote learning process.

Student self-assessment was used to measure student skill level. Self-assessment often reflects a student's feelings about their performance and may differ from the true level of skills measured with different and more reliable methods (Allen & Velden, 2005). Therefore, it is essential that the results of self-assessment are interpreted in conjunction with the challenges indicated by the students.

An analysis of the challenges identified by students points to lack of motivation and self-discipline as well as its relevance to the specificity of a remote learning process. The problems identified in the responses of students relate to the learning environment at home and the lack of positive effects from socializing with their peers, excluded in remote study process in comparison to direct spatial study process. Teachers have not been able to integrate these in-person learning elements into remote learning process.

It is essential to investigate, how home environment and other aspects could be changed or how students can handle them better, as it could be the key to success in alleviating motivation and self-discipline problems. It may also have been the reason behind student mental issues. Geng together with colleagues (2019) found that self-directed learning skills positively correlate with learning motivation (Geng, Law, & Niu, 2019). Future studies would need to identify the extent to which self-directed learning skills can help students in overcoming the challenges of a remote learning process.

## Conclusions

The challenges of the global pandemic have led to a change in the learning environment that could change the traditional direct spatial learning practice in the future. By analysing the current situation, and by adjusting the learning process, by addressing most pressing issues and by developing skills that are essential for remote learning, students will be more prepared for life-long learning. Analysis of the results of the research allows to draw some conclusions on the students self-directed learning skills and challenges they have faced in remote learning process:

- Students have self-evaluated self-directed learning skills that are related to digital environment management as sufficient. *Use of digital learning tools* ($x$ = 4.02)*, digital communication and collaboration skills* ($x$ = 3.47)*, information literacy* ($x$ = 3.37).
- Students have self-evaluated their planning skill ($x$ = 3.73) and self-discipline ($x$ = 3.46) as sufficient, but students should improve reflection skills ($x$ = 3.05) and self-assessment of learning gaps ($x$ = 2.95) to be fully ready to manage their learning process.

- Overall, most of the students have sufficient self-directed learning skills for remote studying, but 14% of students admitted that they have difficulties to learn without teachers' explanations.
- Lack of motivation is the most common learning challenge. Lack of motivation has a significant impact on self-discipline and, consequently, on the education quality. The focus should be on promoting motivation by better adjusting the home environment for learning needs and promoting remote socialization.
- A large percentage of students (17%) mention heavy workload as a learning challenge. The results of the study indicate that this could be linked to the need for further development of self-managed learning skills but could also be linked to the inability of teachers to adapt to the specificities of remote learning. Further studies are needed to clarify this.

The results highlight the significant challenges faced by students during a remote study process and further studies would need to identify how to create appropriate conditions for learning at home and to improve the motivation and self-discipline of students, as well as the ability to identify their personal learning needs. It should also be noted that the questionnaire data is collected in the digital environment, thus representing the views of students who are actively participating in remote studies and are comfortable in the digital environment. Therefore, it would be essential to further focus on those students who do not possess the skills and means for adequate remote learning.

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# SOCIAL INNOVATIONS IN EDUCATIONAL SCIENCES: ANALYSIS OF CURRENT RESEARCH AND POLICY DOCUMENTS

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**ABSTRACT**

The Guidelines for Science, Technology Development and Innovation for 2021–2027 developed by the Ministry of Education and Science of Latvia focus on promoting research excellence and increasing the social and economic value of research. Considering the previously mentioned, higher education institutions' goal is not only the transfer of knowledge but also the creation of economic and social value, which communicates to society through learning and research results.

Social innovation as a driver of social change promotes societal openness and active participation in socio-economic processes. The introduction of new forms of social innovation as Responsible Research and Innovations (RRI) can bridge the gap between science and societal needs by engaging in social debate and policy decisions in society and fostering collaboration between scientists from different sectors. The study aims to analyze Social Innovation's essence and the academic and administrative definitions and dimensions of the Responsible Research and Innovation approach. In order to achieve the aim of the study, a systematic literature analysis was performed. The study reveals the main features of Social Innovation and the perspective of Responsible Research and Innovation implementation in higher education in the institutional and processual dimensions.

*Keywords: Educational Sciences, Higher education, Innovations, Responsible research, Social Innovation.*

## Introduction

New social practices, such as social innovation, need to be tackled successfully in order to meet the various social challenges. Its promotion has become one of the European Union's priorities, as it contributes to the country's sustainable development, promotes competitiveness, and improves the quality of life of society (Vingre, 2018).

Informative involvement of stakeholders in social innovation processes is needed to understand and identify complex needs and gather ideas for new and better solutions. One of the stakeholders are higher

education institutions, which have a role to play in providing knowledge and skills, as they inform the public about existing knowledge or generate new knowledge, and work with the social partners to jointly create new knowledge for social innovation (Benneworth, Cunha, 2015; Vingre, 2018; Oganisjana, 2019).

In order to promote public participation in socio-economic processes, it is necessary to introduce new forms of social innovation, which can take the form of concrete ideas, activities, frameworks, models, systems, processes, services that would promote the development of social innovation-oriented education (Nicholls, Simon, Gabriel, 2015; Felt, 2014). One of these forms of social innovation is Responsible Research and Innovation (hereinafter referred to as RRI), a cross-cutting issue in Horizon 2020, which seeks to identify research and innovation issues, anticipate the consequences of research and innovation, and engage the public in discussions on how to create a world and society that suits future generations (RRI Tools, 2015).

The topicality of responsible research and innovations is also substantiated in Latvia in the document of the Ministry of Education and Science – The Guidelines for Science, Technology Development and Innovation for 2021–2027, which focuses on promoting research excellence and increasing the social and economic value of research (Par Zinātnes, tehnoloģijas attīstības un inovācijas pamatnostādnēm 2021.–2027. gadam, 2021). Responsible research and innovation is a tool that can be used to promote research, as one of the reasons for the introduction of RRI is the interaction of economic growth, humanities, social sciences with science and bridging the gap between science and society (RRI Tools, 2016; Ribeiro Smith, Millar, 2016).

The problem of the study is that the concept and understanding of social innovations are so far portrayed with increasing importance worldwide on the one hand and with a vague understanding and untapped potential on the other hand and the studies into Responsible Research and Innovation approach will provide a better awareness of how to put social innovation into practice (Howaldt, Domanski, Kaletka, 2016; Oganisjana, 2019; Moalert, 2017). This systematic literature review aims to analyze research articles, monographs, and policy documents on the social innovations and Responsible Research and Innovation approach. To achieve the aim of the research, two research questions were raised: How are social innovations defined, and what are their structure and types? What are the academic and administrative definitions and dimensions of Responsible Research and Innovation?

## Method

To find the answers to the research questions mentioned above, a systematic literature review was conducted. A systematic review was carried out in five phases, developed by Xu Xiao and Maria Watson (Xiao, Watson, 2019). The first phase included searching the literature in the EBSCOhost Web search platform, including the databases – Web of Science, Science Direct, and Primo. The keywords for the search were stemmed from the research questions mentioned above and from the researcher's knowledge of the field. Originally, studies were selected using the following keywords: "*social innovation in education," "responsible research and innovation in higher education," "social innovation in higher education".*

All searches were limited to the full text available, published between 2017–2020, English and Latvian language articles. The search procedure covered the search in Primo using above mentioned keywords. After reviewing the first fifteen pages of search results, a total of 10 potentially relevant articles were found. A search on Web of Science and Science Direct databases using the same keyword resulted in 565 records of scientific articles. After an initial screening of the titles, 20 studies were selected. Overall, 30 potential studies were identified.

Within the second phase, based on the review of abstracts, each article was screened to decide whether it should be included for data extraction and analysis. Inclusion and exclusion criteria were developed that selected material must meet to be included or excluded from the study (see Table 1).

**Table 1.**   Inclusion and exclusion criteria

| Inclusion criteria | Exclusion criteria |
|---|---|
| Studies in the English and Latvian language. | Studies in other languages. |
| Studies from the higher education field. | Studies from other fields. |
| Scientific articles, reviews or books, monographs. | Conference review, Conference paper. |
| Definition of Social innovation or Responsible research and innovation. | No definition provided. |

After careful review, a total of 14 studies were excluded for different reasons (primary education was described in the articles, there was no definition of social innovations or responsible research and innovations, the full text was not available, only abstract, there were articles only in French or Spanish languages). Overall, 15 studies from the initial search were included in the next stage of full-text analysis.

To obtain a complete list of literature, the backward search was conducted to identify relevant work cited by the articles by using the list of references at the end of articles (Webster, Watson 2002; Xiao, Watson, 2019). Such search resulted in 4 more articles, expanding the search criteria – the year of publication of scientific articles, and the need to include policy documents in the analysis was highlighted, as the concepts of definitions of social innovations have evolved from the policy.

## Results

In the third phase, after screening for inclusion, full texts of studies were obtained for the quality assessment to refine the full-text articles, and it is the final stage in prepare studies for data extraction and analysis (Xiao, Watson, 2019). In total, 19 units of different research and policy documents were selected – three scientific monographs, ten literature or policy document reviews, three policy papers, two frameworks, and one empirical study. The research was conducted from 2012 to 2019 in the following countries: Latvia, England, Luxembourg, Canada, Italy, Norway, Belgium, and the Netherlands which emerged as a result of the data analysis of 19 units of research and policy documents.

In the fourth phase – data extraction or characterization of the studies (Xiao, Watson, 2019) from each study, information was extracted and divided into research areas or categories by an inductive method. After

**Table 2.** Thematic categories of systematic review

| Thematic category | Authors |
|---|---|
| Definitions and structure of social innovation | Oganisjana, 2019<br>Bella, 2018<br>Rüede, Lurtz, 2012<br>Howaldt et al., 2016 |
| Social innovations in policy documents and research | Nicholls, Simon, Gabriel, 2015<br>European Commission, 2013<br>Moulaert et al.., 2017<br>Bonifacio, 2014<br>Benneworth et al., 2014 |
| Social innovation in higher education | Kumari, Kwon, Lee et al., 2019<br>Milley, Szijarto, Bennett, 2020<br>Benneword et al., 2015 |
| Responsible Research and Innovation approach | European Commission, 2013<br>European Commission, 2020<br>Tassone et al., 2017<br>Tassone, Epping, 2016<br>Ribeiro, Smith, Mirral, 2016<br>Burget, Bardone,Pedaste, 2015<br>RRI Tools, 2015 |

careful reading of the literature units and policy documents, four thematic categories were developed: Definitions and structure of social innovation, Social innovations in policy documents and research, Social innovation in higher education, and Responsible research and innovation approach (see Table 2).

## Discussion

The main features of the thematic inductive analysis were applied to analyze the content of the given articles, monographs, and policy documents, dividing them into four categories, as mentioned in the previous section (see Results section).

"Thematic analysis is a method for describing data, a distinguishing feature of thematic analysis is its flexibility to be used within a wide range of theoretical and epistemological frameworks and to be applied to a wide range of study questions, designs, and sample sizes." (Kigel, Varpio, 2020, p. 2).

### Definitions and structure of social innovation

In order to reveal the main features of social innovation, several definitions of social innovations and their structures were selected from the four analyzed scientific articles. The first definition is mentioned in the monograph "Social innovation: challenges and solutions in Latvia" where "Social innovation is a better, more efficient, and more rational (compared to existing) solution and implementation of current social problems, creating a new culture of cooperation and promoting social progress in society." (Surikova, Līcīte, Grīnberga-Zālīte, 2019, p. 26).

Another definition of social innovation brings up five features that are needed to be able to talk about social innovation in general. Firstly, social innovation must be something new. Secondly, it must address a problem or need that is relevant to society, or at least update it, which shows that social innovation can also be a process. Thirdly, it must be put into practice, otherwise, it would be more accurately called a social invention, which is just an idea. Fourthly, it must involve the target groups it concerns in order to ensure its legitimacy. Finally, it must be able to change social behavior and bring change (Vingre, 2018, Howaldt et al., 2016).

Dominik Rüede and Kathrin Lurtz, in their study, analyzed 318 scientific articles and monographs, as a result of which seven categories of social innovation were developed:

1. Does something good for society – includes the promotion of social welfare;
2. Change social practices and/or structure – highlighting new ways in which people organize their social interactions;

3. Contributes to the development of the environment or society, it combines the notion of "socially desirable" with changes in social interactions in favor of disadvantaged and socially excluded people;

4. Reorganizes the work process – where the organizational aspect is emphasized, but it is applied only a narrower understanding of the work environment;

5. Attaches technological significance and essence to technological innovation, where technological and social aspects are different, but both contribute to the overall innovation process;

6. Promotes changes in the sphere of social work – on social work and social policy;

7. Creates innovation in the digital context – linked to the introduction of Digital social innovations (Rüede & Lurtz, 2012).

Analyzing the definitions of social innovations, it can be concluded that social innovations are mentioned in scientific articles as a solution to current social problems that will be applied in practice. Several studies point out that social innovation must also involve target groups or people, improving their opportunities for collaboration in the form of new social practices or change in them (Rüede, Lurtz, 2012; Howaldt et al., 2016; Surikova, Līcīte, Grīnberga-Zālīte, 2019).

## Social innovations in policy documents

An analysis of policy papers reveals that social innovation is defined as a new idea (products, services, and models) to meet social needs and create new social relationships or collaborations. It represents new responses to current social demands that affect the process of social interaction. It aims to improve people's well-being. Social innovation is the innovation that is social both in setting goals and means to achieve them. These are innovations that not only benefit society but also enhance the capacity of those who are involved (Guide to Social Innovation, 2013; Moulaert et al., 2017).

Policy documents and one monograph also described the research process of social innovation, which has the following characteristics: it must be interdisciplinary, where social science disciplines interact with others. It must be transdisciplinary, meaning that external stakeholders are closely involved in the research, not only as informants and/or "users" of the research but as partners in helping to define research questions, methods, analysis, and dissemination formats in a continuous reflexive way (Guide to Social Innovation, 2013; Nicholls, Simon, Gabriel, 2015).

Several researchers point out that there is no consensus on the definition of social innovation, as the definition of social innovation is largely determined by the branch of science that looks at it. This means that research

on social innovation is interdisciplinary, as social innovation is of interest to different sub-sectors of the social sciences, exploring it from different perspectives (Bonifacio, 2014; Benneworth et al.., 2014; Surikova, Līcīte, Grīnberga-Zālīte, 2019).

## Social innovation in higher education

When thinking about social innovations from the perspective of the university, the main question is about their practical implementation. The strict institutional environment and lack of flexibility to adapt to the changing social context have hampered social innovation initiatives in higher education. Improving efficiency in higher education requires a more flexible environment that is more accountable to society (Kumari, Kwon, Lee, Choi, 2019).

To create successful innovations, higher education institutions depend on the capabilities of their social networks, such as pooling resources, the process of disseminating knowledge, and identifying opportunities through social networking, thus increasing the legitimacy of collective action and the social innovation process. Social innovation in higher education usually results from collective action and cooperation with institutional institutions (Kumari et al., 2019). The above mentioned demonstrates the importance of understanding the ways in which higher education institutions can ameliorate their networking capacity to foster shared social innovation (Kumari et al., 2019; Milley, Szijarto, Bennett, 2020).

Research suggests that the promotion of social innovation in higher education requires the development of interdisciplinary and transdisciplinary cooperation while using innovative methods that help to engage and strengthen cooperation between higher education institutions and social actors (Milley, Szijarto, Bennett, 2020; Kumari et al., 2019; Benneword, Cunha, 2015).

## Responsible research and innovation approach

Responsible research and innovation in research are defined as a transparent, interactive process in which societal actors and innovators become mutually responsible, considering (ethical) acceptability, sustainability, sociability, and the relevance of the innovation process to society (Options for Strengthening Responsible Research and Innovation, 2013; RRI Tools, 2015).

The analysis of research on responsible research and innovation allowed to highlight three perspectives of this concept: RRI as an umbrella term, which combines aspects of research, innovation, and society; RRI as a process in which society is involved in science, research, and innovation processes; RRI as a political initiative through which the European Union

addresses current issues. RRI implementers are actors in the general public: policymakers, the educational community, researchers, entrepreneurs, civil society organizations (RRI tools, 2015; Burget, Bardone, Pedaste, 2015; Options for Strengthening Responsible Research and Innovation, 2013; The Horizon Work Programme 2018-2020).

The research and innovation process must comply with certain procedural dimensions, which are divided into four groups that characterize the research process:

- **Diverse and inclusive** (involve different actors in research and innovation processes to show different perspectives and create high-quality science that is inclusive);
- **Predictable and reflective** (in the process of research and innovation, it is necessary to rethink the motives and consequences of the research project, to reveal uncertainties and dilemmas more clearly, to reveal visions to the general public);
- **Open and transparent** (the research and innovation process must be open to the public in a meaningful and fair way in order to build public confidence in science, taking into account the adaptation of information to the needs of stakeholders);
- **Responsive and able to adapt to change** (Research and innovation must respond to the views of stakeholders and be able to adapt to different views and changing circumstances by changing existing thinking and behavioral routines) (RRI Tools, 2016; Tassone et al., 2017).

In order to provide some guidance on RRI in the policy context, the European Commission has identified a number of key institutional dimensions of RRI. These dimensions can be seen as strong policy agendas, each with its own potential to deliver RRI processes and outcomes. In 2013, the European Commission defined six dimensions of RRI, but later in 2015, they were supplemented by two additional dimensions (Options for Strengthening Research and Innovation, 2013, Tassone et al., 2016).

These eight dimensions are: governance, public involvement, gender equality, science education, open access, ethics, sustainability, and social justice (RRI Tools,2015; Burget, Bardone, Pedaste, 2015).

Several studies mention that the practical application of a Responsible Research and Innovation approach is difficult, so it is necessary to study the practical attempts to implement this approach (Burget, Bardone, Pedaste, 2015; Ribeiro, Smith, Millar, 2016).

To promote the RRI approach to higher education, the EnRRICH project developed the EnRRICH *(Enhancing Responsible Research and Innovation through curricula in higher education),* a tool designed to improve university curricula based on a Responsible Research and Innovation approach.

The structure of this tool consists of three pillars and two interrelated elements: definition of RRI, design principles, and competencies. (Tassone, Eppink, 2016).

The definition of RRI includes the promotion of RRI in higher education curricula, which is the encouragement of students to think about the future through the management of research and innovation practices that address current challenges in an ethically, sustainably, and socially desirable way (Tassone, Eppink, 2016,2017). To facilitate the implementation of RRI in higher education, three main design principles are proposed:

- **Education for a society** where education can become a tool to help students navigate today's challenges and improve the use of interdisciplinary knowledge in the context of societal challenges.
- **Education with a society** where science and innovation are not only meant for the challenges of society, but also for meeting the needs of actors or participants of society, including values, wishes while solving the above-mentioned problems, fostering interaction between academia and society.
- **Education to "whole" persons** The EnRRICH instrument mentions three domains that are essential to facilitate the implementation of RRI: the cognitive, affective, and physical learning domains. Cognitive learning is necessary to learn and understand today's complex issues, navigate uncertainties, apply the acquired knowledge, experiment, and evaluate new solutions to these problems in society. However, learning about RRI also includes learning in the affective field, which manifests itself in affective abilities, such as feelings and management, cooperation, feelings of responsibility, social attitudes, and values, which is a way to relate to oneself, to others. The physical field is related to the tangible and physical manifestations of cognitive and affective abilities, knowledge, and attitudes, such as appropriate communication skills, use of equipment in laboratories, etc. (Tassone, Eppink, 2016, 2017).

It is also crucial to think about what competencies higher education students need to successfully participate in responsible research and innovation practices (Tassone, Eppink, 2016, 2017).

The EnRRICH tool defines RRI competence as a comprehensive and multidimensional competence that ensures responsible research and innovation. Competencies are formulated in four dimensions or quadrants: anticipation, reflexivity, inclusion, and responsiveness. (Tassone, Eppink, 2016, 2017). Although each of the proposed competencies is in a certain dimension, these competencies and dimensions are interrelated, and each competence dimension is supplemented with application possibilities that will not be discussed in this article.

Analyzing the dimensions of RRI, it can be concluded that it has not only a basis for promoting responsible research and technological development but also an educational component aimed at developing knowledge, skills, and attitudes related to "RRI-based thinking" on past and present and future scenarios for scientific and technological developments (RRI Tools, 2016; Tassone, Eppink, 2016, 2017; Burget, Bardone, Pedaste, 2015).

## Conclusions

In regard to answering the two research questions, systemic literature analysis showed that the main features of academic definitions of social innovations are related to the solutions of social problems or at least the updating of these problems and the implementation of these solutions in practice, involving the target groups. Policy documents, on the other hand, emphasized meeting the social needs of society and new aspects of social relations or cooperation, highlighting that the innovation research process is interdisciplinary and that there is no consensus on the definition of social innovation. In turn, the seven categories of social innovation included the above-mentioned basic features as well as were supplemented with the sphere of social work, technological innovation, and digital context, which actualized the concept of "Digital social innovation" and creates the need for further research of this definition.

Analyzing social innovations from the perspective of the university, it can be concluded that universities need to improve interdisciplinary and transdisciplinary cooperation and promote cooperation with social actors. Using a Responsible Research and Innovation approach can ensure that scientific and technological advances are properly incorporated into society. The concept of RRI can be seen from three perspectives: as a unifying umbrella term linking science, research, and society, as a process of public involvement in the above aspects, and as a policy initiative through which the European Union addresses current societal issues.

The perspective of RRI in higher education can be implemented through a procedural dimension, which is divided into four groups and describes the research or education process, and the institutional dimension, which is divided into eight areas that were developed as policy programs. Each of the perspectives has the potential to implement the RRI approach. Practical attempts to promote a RRI strategy in higher education have resulted in the development of the EnRRICH tool, which has three interlinked pillars: RRI definition, three RRI design principles, and RRI competencies that include four procedural dimensions. However, there is a need for a broader systemic literature analysis involving other researchers to enhance the validity of the study, as well as a review of studies on the applicability of the above-mentioned RRI tool.

## Acknowledgement

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# PEDAGOGICAL DIGITAL COMPETENCE AND ITS ACQUISITION IN A TEACHER EDUCATION PROGRAMME

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### ABSTRACT

Pedagogical digital competence can be characterised as an opportunity to improve the pedagogical process by using digital technologies in professional activities (From, 2017). In 2017, the European Commission presented a model of pedagogical digital competence, viewing teacher professional pedagogical competence, as well as demonstrating their impact and developing students' digital literacy (Redecker, 2017). The aim of this study is to research pedagogical digital competence and its planned acquisition in one teacher professional bachelor study programme.

As a result of the analysis of the theoretical literature, the concept of digital literacy and pedagogical competence was defined, and the understanding of pedagogical digital competence was provided. The empirical research looked at 1553 learning outcomes advertised in 201 course descriptions of one teacher professional bachelor study programme and analysed them from the perspective of pedagogical digital competence. As a result of the study, a concept-model of pedagogical digital competence was developed.

***Keywords:*** *concept-model, digital literacy, pedagogical competence, pedagogical digital competence, teacher education.*

## Introduction

As a result of the COVID-19 pandemic, national education systems are under severe pressure. Most European countries have chosen to terminate full-time education in schools (UNESCO, COVID-19 Educational Disruption and Response), therefore educators and practitioners are looking for new opportunities and solutions to continue and fully ensure the pedagogical process. The most common solution found is the use of digital technologies for the implementation of distance learning.

According to the data on the impact of COVID-19 on education gathered by the OECD (Reimer & Schleiche, 2020), the greatest difficulties are seen in continuing the learning process and supporting students who are

less independent and lack online learning skills. The most complex aspects of the distance learning process are availability of technological infrastructure, ensuring a balance between digital and screen-free activities and addressing students' emotional wellbeing. This leads to the conclusion that in the students' daily learning process there is insufficient systematic and planned digital technology usage to practice independent and self-directed learning.

In half of European countries, the only criterion for obtaining a full teacher qualification is the acquisition of initial teacher education, which attaches increased importance to the provision of high-quality and comprehensive initial teacher education (European Commission/EACEA/Eurydice, 2018). Nevertheless, higher education institutions have a key role in managing and organising the learning content and process of teacher education and the development of teacher education curriculums (European Commission/EACEA/Eurydice, 2019). Such an approach poses a risk to the balanced and equal qualitative provision of pedagogical digital competence in all teachers' professional education programmes.

The European Commission (2018) has developed a model that brings together the knowledge and skills teachers need to successfully and meaningfully integrate digital technologies in the teaching-learning process. The idea is emerging that digital competence in education it is not just a question of what technologies should be introduced in the learning process, but also of how to relate them to the content and goals of learning, making technologies a learning tool to promote higher learning outcomes and achievements (Instefjord & Munthe, 2017). For these reasons, it is important for teacher education to take into account pedagogical digital aspects that explain how to plan and implement a technology-enhanced learning process.

**Aim of the research** – to analyse the concept of pedagogical digital competence and its planned acquisition in a teacher education programme.

**Research questions:**
1) What are the components of pedagogical digital competence that teachers needs in their work?
2) How is the acquisition of pedagogical digital competence in the teacher education programme planned?

## Limitations

1. The study was conducted from the spring of 2019 to the spring of 2020.
2. Systematic literature review was conducted using articles available in the scientific database EBSCO that define digital literacy/pedagogical competence. The keywords used for the search were "defining digital literacy"

and "pedagogical competence". In the selected articles the definitions of digital literacy or pedagogical competence were further analysed.

3. Four models found during the systemic literature review, which characterise the variations of pedagogical competence and digital literacy integration, were analysed.

4. For document analysis, the study course descriptions of the seven study sub-programmes of the professional bachelor's study programme "Teacher" were used.

## Method

In the research three-stage triangulation was implemented (see Fig. 1).
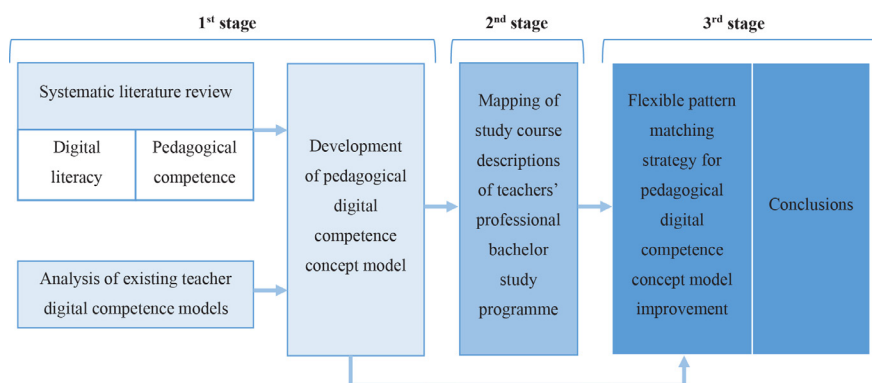


**Figure 1.** Research design

1. Theory triangulation (Flick, 2007), through which the concepts of digital literacy and pedagogical competence were analysed conducting systemic literature review. The results of the systematic literature review were contrasted with four models that integrate pedagogical competence and digital literacy found in the literature. As a result of the literature analysis, a pedagogical digital competence concept model was developed.

2. Triangulation of the results of document analysis with pedagogical digital competence concept model using pattern matching strategy (Johnson & Christensen, 2012). The understanding of pedagogical digital competence included in the concept model was used to map the course descriptions of a teachers' professional bachelor study programme in the perspective of pedagogical competence and digital literacy.

3. Triangulation of the pedagogical digital competence concept model with the results of document analysis using flexible pattern matching strategy (Sinkovics, 2018). The study course description mapping was

conducted using steps of gap/redundancy analysis (Joyner, 2016). The conclusions made from the study course mapping were again contrasted with the developed pedagogical digital competence concept model and the concept model was improved.

## Understanding of digital literacy and pedagogical competence

The analysis of the theoretical literature was performed by analysing and defining
1) components of digital literacy,
2) components of pedagogical competence, and reviewing 4 existing models of pedagogical digital competence.

### Digital literacy

Digital literacy is a widely used term with several analogous terms (information literacy, technology literacy, computer literacy, digital competence, digital skills) that include identical or conceptually similar content. Digital literacy focuses on individual's life, learning, work skills and abilities in the digital society (Spante et al., 2018). The concept of digital literacy, unlike the concept of digital competence, is based on the acquisition of specific skills, and is described at different levels of its acquisition (Spante et al., 2018). This makes it easier to integrate digital literacy content into the acquisition of other skills and competences. As the study integrates digital literacy into the acquisition of pedagogical competence, the concept of digital literacy has been chosen as the basis of the study, distinguishing concrete components of digital literacy (see Table 1).

Digital proficiency includes (Bieza, 2020):
1) using digital tools to master new digital technologies and ensuring their most efficient use;
2) critically using digital resources: choosing, evaluating and circumspectly applying digital technologies and media content;
3) modern skills which are a significant part of social life, requiring reflection on one's own security and responsible behaviour within the digital environment.

**Table 1.** Components of digital literacy (Bieza, 2020)

| Basic skills | Derived skills |
|---|---|
| Usage of new technologies | Personal growth |
| | Flexibility |
| Utilisation of technological potential | Finding the most effective use of digital technology |
| Information and media literacy | Searching of information |
| | Storing information |
| | Sending information |
| | Processing information |
| | Demonstration of digital content |
| | Creating digital content |
| Technology literacy | Usage of digital tools |
| | Use the potential of digital tools |
| | Evaluate digital tools |
| | Understand the importance of and need for digital tools |
| | Creation of new solutions |
| Social skills | Communication skills in the digital environment |
| | Participation in social processes |
| | Ability to build relationships |
| | Ability to develop personal identity |
| | The ability to position oneself in the digital environment |
| Security and responsibility | Responsible use of digital resources – Evaluating information before continuing to use it |
| | Digital Security – The ability to protect yourself from the threats of the digital environment. |

## Teachers' pedagogical competence

The concept of pedagogical competence differs from the similar concept of pedagogical competency in its understanding. The concept of pedagogical competency looks at the pedagogical process from the perspective of teachers' skills (Pekkarinen & Hirsto, 2017). In turn, in this research, pedagogical competence is viewed from the aspect of a teacher's knowledge, attitudes and personality traits, which is included in the concept of pedagogical competence.

Pedagogical competence can be described as a set of knowledge, skills and attitudes, that include planning and organising a student-centered and inclusive learning process based on the teacher's knowledge of the content of the subject and its teaching methodology combined with constant teacher reflection on students' learning activities and on the teacher's own pedagogical practice.

The main components of pedagogical competence are:

1) knowledge related to the teaching methodology and content of the subject, as well as knowledge about students (developmental stages and age differences, knowledge about students' individual knowledge and skills) and knowledge about the essence of the inclusive learning process:
   - knowledge of the subject (Cui, 2018; Yürekli Kaynardağ, 2019)
     ◊ content (Soysal & Radmard, 2018; Farinde-Wu et al., 2017)
     ◊ teaching methodology (Pekkarinen & Hirsto, 2017; Soysal & Radmard, 2018; Ekmekçi, 2018; Kabakci Yurdakul, 2018)
   - knowledge about students
     ◊ developmental stages and age differences (Hayes & Filipović, 2018)
     ◊ knowledge about students' individual level of knowledge and skills (Soysal & Radmard, 2018; Farinde-Wu et al., 2017)
   - knowledge about implementation of an inclusive teaching-learning process (Cui, 2018; Yürekli Kaynardağ, 2019)
2) skills that a teacher acquires by practicing his/her theoretical knowledge (Pekkarinen & Hirsto, 2017)
3) attitudes that are in accordance with the teacher's personal value system and current knowledge (Wilkins, 2008; Jons, 2008)
4) competencies that are necessary for every member of modern society (Trilling & Fadel, 2009):
   - learning skills – independent learning, critical thinking and problem solving, research skills (Pekkarinen & Hirsto, 2017; Kabakci Yurdakul, 2018)
   - creativity (use of existing solutions) and innovation (creation of new solutions)
   - digital literacy – information literacy, media literacy, technology literacy (Cui, 2018; Yürekli Kaynardağ, 2019)
   - career skills – adaptation skills, communication skills (Cui, 2018; Yürekli Kaynardağ, 2019), skills of productivity and leadership (Kabakci Yurdakul, 2018)
   - life skills – social skills, responsibility
5) awareness and self-regulation, which promotes the pedagogues' reflection on his/her professional work and needs (Altan et al., 2019; Pekkarinen & Hirsto, 2017)

## Existing approaches for integrating digital literacy and pedagogical competence

Digital literacy in teacher education is a widely discussed topic among researchers searching for solutions for implementing digital literacy in teacher education. There is a consensus among researchers that the solution to the problem of successful acquisition of digital literacy is an integrated approach, combining acquisition of digital literacy and pedagogical competence. The literature depicts two ways in which pedagogical competence and digital literacy are integrated:

- base of digital literacy in which teacher pedagogical competences are integrated (Krumsvik, 2011; Ottestad et al., 2014),
- base of teacher pedagogical competence in which digital literacy components are integrated (Kelentrić et al., 2017; Mishra & Koehler, 2006; Redecker, 2017).

Teachers' digital literacy can be divided into 4 developmental stages:

1. *Generic digital competence*, digital skills needed for anyone in modern society (Krumsvik, 2011; Mishra & Koehler, 2006; Ottestad & Kelentrić Guðmundsdóttir, 2014).
2. *Didactic digital competence*, involving the teacher in the implementation and alteration of digital technologies in the teaching-learning process (Krumsvik, 2011; Ottestad & Kelentrić Guðmundsdóttir, 2014, Kelentrić et al., 2017).
3. *Professional digital competence*, the teacher makes extensive use of digital technologies to improve and organise his/her professional work, as well as to ensure inclusive and active learning for students both in the classroom and in the digital environment (Redecker, 2017; Ottestad et al., 2014).
4. *Pedagogical digital competence*, based on planning, organising and evaluating the students' use of digital technologies, as well as on assessing the impact of digital technologies on the teacher's work and students' learning (Krumsvik, 2011; Ottestad et al., 2014; Redecker, 2017).

### Pedagogical digital competence

Based on the literature review the author developed a pedagogical digital competence concept model, aiming to demonstrate the stages of pedagogical digital competence development and to explain how its sequential acquisition takes place.

## Interrelationships between pedagogical competence and digital literacy

The components of pedagogical competence and digital literacy were used as a basis for explaining pedagogical digital competence. Similarities between the knowledge, skills and attitudes required in both competencies were sought (see Table 2) and 7 categories of pedagogical digital competences were identified. Each category includes aspects of digital and pedagogical competence that can be integrated with each other forming pedagogical digital competence.

**Table 2.** Categories of pedagogical digital competence

| Category | Components of digital literacy | Components of pedagogical competence |
|---|---|---|
| Awareness and self-regulation | Being aware of the importance and need for digital tools<br>Personal growth | Awareness and self-regulation<br>Career skills |
| Attitudes | Using digital technologies<br>Evaluating digital content<br>Managing the power of digital tools<br>Flexibility | Attitudes in accordance with the teacher's personal value system and current knowledge |
| Knowledge acquisition and processing | Information and media literacy<br>Searching for information<br>Storing information<br>Sending information<br>Processing information<br>Showcasing digital content<br>Creating digital content | Learning skills<br>Knowledge about the content of the subject<br>Knowledge about diversity and inclusion<br>Life skills<br>Digital literacy |
| Cooperation and communication | Social skills<br>Communication skills in the digital environment<br>Participation in society<br>Ability to build relationships<br>Ability to form a personal identity<br>Ability to position oneself in the digital environment | Classroom management skills |
| Ethics | Security and liability<br>Responsible use of digital resources<br>Digital security | Professional ethics |
| Effective organisation of teaching-learning process | Effective use of digital technology | Planning and prepping skills<br>Skilful application of teaching methods<br>Creating a learning environment<br>Creativity |

Pedagogical digital competence is a set of knowledge, skills and attitudes in the critical use of digital tools in planning, organising and evaluating a student-centered and inclusive learning process based on a teacher's (1) knowledge of effective use of digital technologies for organising teaching and learning while assessing and selecting suitable digital solutions, (2) skills for organising student learning in both digital and classroom environments, reflecting on his/her own and students' benefits in using various forms of cooperation, (3) positive attitude and openness to the use of new pedagogical and digital solutions in the development of their professional activities.

## Pedagogical digital competence concept model

Based on the results of the literature review the author developed a pedagogical digital competence concept model (see Fig. 2), explaining in more detail each stage of pedagogical-digital competence and its role in pedagogical digital competence acquisition. The structure of the model is adapted from Krumsvik's (2011) teachers' digital competence model.
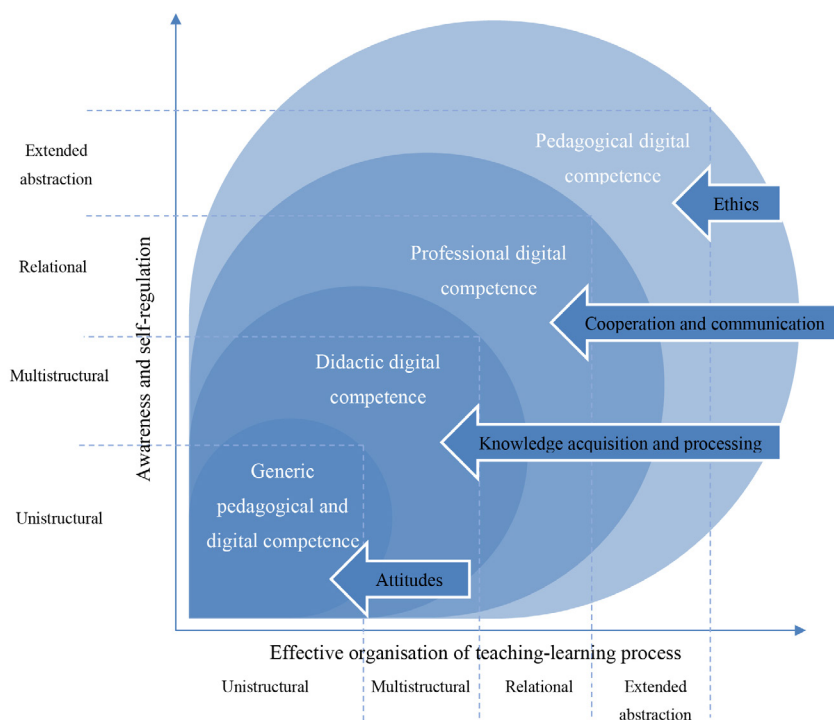


**Figure 2.** Pedagogical digital competence development in teacher education (concept model developed by the author)

The concept model is based on two pillars: (1) development of teacher's awareness and self-regulation, as well as (2) improvement of effective teaching work organisation. Each of these aspects develops as the teacher's knowledge and experience of pedagogical concepts and the use of digital technology evolves and expands. To illustrate this development, the SOLO (Structure of the Observed Learning Outcome) taxonomy model (Biggs, 1999) was used, which adapts to the organisation of the teaching process at the university. The SOLO taxonomy distinguishes 4 levels of knowledge construction (Biggs & Collins, 1982; Biggs, 1999): unistructural operation, multistructural operation, relational operation, extended abstraction.

Accordingly, the development of pedagogical digital competence can be described in 4 stages:

1. **Generic pedagogical and digital competence**, which is based on attitude formation by exploring one's pedagogical self and acquiring basic knowledge about the pedagogical process as well as about the role of digital technologies in it. Assuming that any teacher in today's world has experience interacting with digital technologies and basic software, the teacher has some experience and understanding of digital technologies (Ottestad et al., 2014). As digital competence develops, the teacher expands his/her general knowledge and skills in the use of digital technologies and the understanding of pedagogical concepts by identifying and researching separate and self-relevant ideas (Biggs, 1999; Krumsvik, 2011). The teacher's main task is extending their awareness about the role of digital technologies and education in their lives, as well as identifying their existing knowledge and skills along with their shortcomings. To achieve this, teachers should mutually share their experiences and individually reflect on their own experience and knowledge acquisition (Kelentrić et al., 2017). As a result, the teacher should reflect on their own understanding of a successful learning process and the role of digital technologies in it.

2. **Didactic digital competence** is related to the acquisition and processing of knowledge. It means acquiring fundamental pedagogical and digital knowledge about theories and tools that can help to implement the teacher's pedagogical vision in a technology enhanced learning environment (Krumsvik, 2011; Ottestad et al., 2014). In this process a person becomes aware of him or herself as a teacher, as well as of his/her approach and goals in his/her professional work. Thus, the teacher purposefully expands his/her knowledge, supplementing his/her ideas with facts, theories and resources. The teacher explores various digital technologies relevant to modern education and begins to consider how they can help or interfere with the learning process. To support the development of a teacher's knowledge and experience, it is possible

to organise pedagogical observation to demonstrate the application of pedagogical concepts or digital technologies in the educational process, as well as to diversify the forms and methods of organising teacher learning activities (Røkenes & Krumsvik, 2014). As a result, teachers can model simple learning situations by combining knowledge in particular aspects.

3. **Professional digital competence** is related to active application of a teacher's theoretical knowledge in a variety of social situations. This includes organising students' learning activities and their professional development in both the digital and school environment. Professional digital competence is most relevant when the teacher sees the interrelationships between the concepts and he/she knows and applies them widely in their work (Kelentrić et al., 2017). The teacher continues to improve his/her knowledge and skills in both pedagogical competence and digital literacy, for example, by learning class management techniques, methods and tools for assessing student learning outcomes, organising cooperation with parents, etc. (Mishra & Koehler, 2006). Most importantly, the teacher gains practical experience working with the class and solving various learning situations, as well as collaborating with other teachers and engaging in various school activities (Heath, 2018; Wilkins, 2008). Therefore, the teacher also uses digital technologies as a collaboration and communication tool for planning, organising and evaluating his/her professional activity as well as organising the teaching-learning process.

4. **Pedagogical digital competence** includes high-level evaluation and decision-making skills, where the teacher is able to analyse the impact of digital technologies on students' learning and their professional activities, thus creating new ideas and tools for addressing different educational situations. Pedagogical digital competence entails that the teacher is able to abstract from his/her direct knowledge of the teaching-learning process and from his/her professional work, creating new ways and solutions for teaching and learning (Ottestad et al., 2014). The teacher develops new teaching materials (both analogue and digital) and uses complex theoretical knowledge in difficult pedagogical situations (Kabakci Yurdakul, 2018; Nykes, 2018). However, awareness of ethical aspects is also important in this stage, as the teacher is able to consider not only how to use digital technologies and organise students' learning activities, but also to take into account how these technologies and tasks affect students' learning achievements, learning motivation, attitude, personality, etc., as well as to influence the work of the teacher himself (Krumsvik, 2011). Therefore, the aspects of ethics in education – inclusiveness, confidentiality, responsibility,

values – must be considered at this stage of pedagogical digital competence, as the teacher is able to reason about best solutions that can be implemented.

## Pedagogical digital competence acquisition plan in teachers' professional bachelor study programme

During empirical research, the study course descriptions mapping was conducted (Joyner, 2016). Teacher professional bachelor study programme consists of seven study sub-programs and compulsory course plan. In the research the course descriptions of these seven study sub-programs and compulsory courses were analysed. A total of 201 study course descriptions, and within them 1553 learning outcomes, were analysed. The mapping tool was developed based on the descriptions of the four stages of pedagogical digital competence acquisition. At each stage of pedagogical digital competence, the most important aspects of its successful acquisition were defined. Accordingly, for each pedagogical digital competence stage learning outcomes were formulated for acquiring digital literacy and pedagogical competence. In order to assess the depth of the defined learning outcomes, the SOLO taxonomy model was used, distinguishing comprehension levels for each outcome.

The overall planning of study courses in different study sub-programmes is different both from the viewpoint of study content distribution between pedagogical digital competence stages and from the viewpoint of its acquisition levels. The least planned stages of pedagogical digital competence were the generic pedagogical and digital competence stage and the pedagogical digital competence stage (see Tables 3 and 4). At the same time, unistructural activity is the most actualised pedagogical digital competence level, as opposed to extended abstraction, which was the least actualised. However, it is important to highlight the successful planning of compulsory courses, which, when included in the acquisition of each study sub-programme, balances both the stages and the levels of acquisition of pedagogical digital competence.

The planning of teachers' pedagogical knowledge, skill and attitude acquisition in the analysed teacher education sub-programmes differs in terms of the content included in each sub-programme; however, in terms of content distribution between stages and levels of pedagogical-digital competence, the content is distributed similarly in all study sub-programmes. The least pedagogical competence is reflected in the generic pedagogical and digital competence stage; consequently the actualisation of teachers' previous knowledge and experience before the acquisition of new knowledge and skills is not fully planned.

**Table 3.** Learning objective distribution between stages of pedagogical digital competence

| | Sub-programme 1 | Sub-programme 2 | Sub-programme 3 | Sub-programme 4 | Sub-programme 5 | Sub-programme 6 | Sub-programme 7 | Compulsory courses | TOTAL in each competence stage | % |
|---|---|---|---|---|---|---|---|---|---|---|
| 1. Generic pedagogical and digital competence | 21 | 9 | 13 | 18 | 1 | 3 | 0 | 6 | 71 | 4.6% |
| 2. Didactic digital competence | 143 | 91 | 101 | 161 | 133 | 249 | 177 | 33 | 1088 | 70.1% |
| 3. Professional digital competence | 42 | 16 | 29 | 22 | 29 | 28 | 13 | 47 | 226 | 14.6% |
| 4. Pedagogical digital competence | 38 | 13 | 11 | 23 | 15 | 16 | 14 | 38 | 168 | 10.8% |
| TOTAL in a study subprogramme | 244 | 129 | 154 | 224 | 178 | 296 | 204 | 124 | 1553 | |

**Table 4.** Learning objective distribution between levels of pedagogical digital competence

| | Sub-programme 1 | Sub-programme 2 | Sub-programme 3 | Sub-programme 4 | Sub-programme 5 | Sub-programme 6 | Sub-programme 7 | Compulsory courses | TOTAL in each competence level | % |
|---|---|---|---|---|---|---|---|---|---|---|
| Unistructural | 87 | 65 | 58 | 119 | 66 | 136 | 125 | 39 | 695 | 44.8% |
| Multistructural operation | 61 | 33 | 28 | 44 | 56 | 62 | 43 | 24 | 351 | 22.6% |
| Relational | 70 | 22 | 55 | 58 | 44 | 78 | 26 | 35 | 388 | 24.9% |
| Extended abstraction | 26 | 9 | 13 | 3 | 16 | 20 | 10 | 26 | 123 | 7.9% |
| TOTAL in a study subprogramme | 244 | 129 | 154 | 224 | 178 | 296 | 204 | 124 | 1553 | |

In all study sub-programmes, great attention is paid to particular subject content knowledge, which suppresses the acquisition of pedagogical knowledge and skills. A successful aspect which is widely included in all study sub-programmes is the activities where students plan and solve various simple and complex pedagogical situations. However, there is insufficiently planned student cooperation and communication skill promotion, not only regarding cooperation with fellow students during the study courses, but also in terms of gaining experience and skills for cooperation with education professionals, parents and school management. Given that the analysed study sub-programmes do not pay enough attention to the implementation of generic pedagogical and digital competence, there is a risk that future teachers in their professional work will stick to the model of pedagogical process that they have experienced and will not be able to fully and reasonably assess the advantages and disadvantages of such an approach.

The pedagogical digital competence acquisition planning in the analysed study sub-programmes mainly differs due to varying digital literacy planning. The plan for the acquisition of digital literacy is based on unistructural operations, where students are often expected to create and present independent study papers using digital technologies (mostly presentations). However, most study sub-programmes also plan to teach teachers the use of digital technologies in the organisation of the teaching-learning process, the use of certain digital tools and the development of digital teaching materials. In the analysed study programme the most significant shortcomings in the acquisition of digital literacy are:

1) insufficient involvement of teachers' existing knowledge, skills and attitudes,
2) incomplete digital literacy acquisition process, which lacks experimentation with different digital technologies and tools,
3) poor attention to teacher cooperation skills in the digital environment and
4) insufficient understanding of how to develop student self-directed learning in a digital space.

## Discussion

The concept model of pedagogical digital competence was adjusted (see Fig. 3) primarily to reflect the proportional distribution of pedagogical digital competence acquisition stages: (1) the share of the generic pedagogical and digital competence stage was reduced, (2) the segment of the didactic digital competence stage was increased, (3) the share of professional digital competence versus professional digital competence dimension was increased.

Secondly, in the context of pedagogical competence, (1) the knowledge of the subject content knowledge was included in the last three stages of pedagogical digital competence and (2) the aspect of educational management was included in last two stages of pedagogical digital competence.

Thirdly, the division of pedagogical competence and digital literacy was emphasised in all stages of pedagogical digital competence, determining an approximate ratio between the amount of pedagogical competence and digital literacy acquisition – two thirds of the study content should consist of topics related to pedagogical competence, while one third of the study content should be devoted to digital literacy.
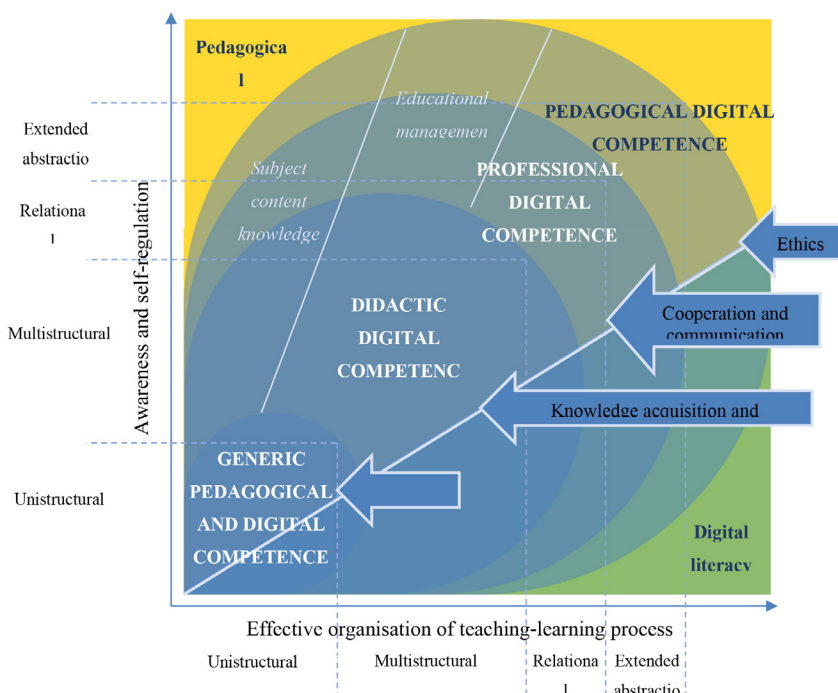


**Figure 3.** Improved pedagogical digital competence concept model

## Conclusions

The concept of digital skills today is relevant in all areas of life, forcing the education industry to actively seek solutions for teaching digital skills in the context of society as a whole. Nevertheless, digital literacy at different levels of education is still not sufficiently implemented due to deficient resources, knowledge and skills. The study analyses pedagogical digital competence as a basis for successful acquisition of digital literacy

in teacher education, supporting and improving teachers' skills to organize a technology enhanced learning process. The aim of the research is to study pedagogical digital competence and its acquisition plan in the teacher education programme, looking for answers to the questions: (1) what are the components of pedagogical digital competence that a teacher needs in their work and (2) how is the acquisition of pedagogical digital competence in the teacher education programme planned?

As a result of the literature review, it was concluded that there is a consensus among researchers that the solution to successful digital literacy implementation in teacher education is an integrated approach. In this study digital literacy was used as a cross-cutting competence in the acquisition of pedagogical competence. As a result of the literature review a concept model of pedagogical digital competence was developed, which characterises the development of pedagogical digital competence in 4 stages:

1) Generic pedagogical and digital competence based on the identification of one's existing experience in pedagogical situations and the use of digital technologies, as well as on the acquisition of personally relevant knowledge on pedagogical topics and digital technologies.

2) Didactic digital competence related to the acquisition and processing of knowledge, acquiring a base of facts, theories and tools that help to implement the teacher's pedagogical vision in the creation of a technology-enhanced learning environment.

3) Professional digital competence is related to the application of a teacher's theoretical knowledge in various social situations, participation in the organisation of students' learning activities and continuation of their professional development in both the digital and school environment.

5) Pedagogical digital competence describes a teacher who is able to independently organise teaching work, evaluate the implementation technology-rich learning in his/her classroom and school, make suggestions and improve own and school's professional work, as well as develop new teaching materials (both analogue and digital) for students to improve the learning environment.

In the empirical study, carrying out the analysis of seven teacher education sub-programmes and compulsory courses, it was concluded that the overall study course planning in different study sub-programmes differs both in pedagogical digital competence stages and in its levels. The pedagogical digital competence acquisition planning in the analysed study programme mainly varies between different sub-programmes due to contrasting digital literacy acquisition planning. The digital literacy plan is based on acquiring general knowledge about the daily use of digital technologies. However, in most study sub-programmes expected for students to acquire the use of

educational technologies in the organisation of the teaching-learning process, learning to use certain digital tools and develop digital teaching materials. In the context of both pedagogical competence and digital literacy, generic digital and pedagogical competence is the least disclosed stage of pedagogical digital competence, therefore the attention to teachers' previous knowledge and experience before the acquisition of new knowledge and skills is not fully overseen. In the implementation of pedagogical competence in all study sub-programmes, great attention is paid to the subject content knowledge, which suppresses the planned acquisition of pedagogical knowledge and skills. The promotion of teachers' cooperation skills is insufficiently planned, since students should cooperate not only with study members, but also by gaining experience and skills cooperating with professional teachers, students, their parents and the school management team.

Although it was concluded that the implementation of pedagogical digital competence in the analysed study programme is not fully implemented, adjustments were made in the concept model of pedagogical digital competence based on the tendencies observed in analysed study course descriptions. Primarily, the proportional distribution of pedagogical digital competence stages was adjusted according to the planned amount of study content reflected in each stage, and secondly, the concept model reflects a more detailed aspect of pedagogical competence, including (1) subject content knowledge relevant to the last three pedagogical digital competence stages, (2) aspects of educational management that are relevant in the last two stages of pedagogical digital competence acquisition, (3) highlighting the ratio between the amount of pedagogical competence (two thirds of the study content) and digital literacy (one third of the study content) acquisition.

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# THE DIGITAL TRANSFORMATION OF ASSESSMENT: CHALLENGES AND OPPORTUNITIES

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**ABSTRACT**

In the education sector, the digitization of the learning process has been a topical issue for several decades. It includes various components of the learning process, including assessment, which is an integral part of the learning. Innovative educators have been using technology in assessment for several years, but since March 2020, all educators have been forced to use it. Some educators started using technology without sufficient skills and adequate training, so the forced transformation was not always successful. In most cases, educators learn by doing, as well as developing skills and finding the best technologies for assessment. The aim of this research is to identify opportunities and challenges in the application of technologies in assessment. To achieve this goal, the results of a survey of educators (n = 181) and interviews, both individual and group (26 respondents), were evaluated. The main results are related to the findings of new ideas in assessment, and an exploration of the possibility of providing more frequent and timely feedback. At the same time, there is the challenge of developing needed technological skills, as well as coping with an increase in the amount of work and time required to adequately prepare for the assignments. Having knowledge concerning digital assessment can complement an educator's practice. It gives an insight into a wider study – the post-doctoral research project "Models of Assessment in the Digital Learning Environment (MADLE)".

*Keywords: feedback, formative assessment, remote teaching and learning, summative assessment, technologies in assessment.*

## Introduction

Different types of technologies have been gradually entering the educational process. In short, initially it was the preparation of materials using a computer, then the possibility of posting materials and tests on the Internet that led to online and blended learning developed. From this, applications were created for mobile devices (Farell & Rushbay, 2016; Milakovich & Wise, 2019; Kazmi & Riaz, 2020; Marek & Wu, 2020). In education, a new learning enhanced by virtual reality technology, which

makes learning interactive to the highest extent (Roman & Racek, 2019; Dreimane, 2020). Opportunities to apply different types of technology continue to develop. The digitalization of the educational process, using various technologies for teaching, learning and assessment, has been going on for quite a long time, but so far quite slowly. Technology is not new in education, it has helped to improve existing teaching, learning and assessment methods, as well as being incorporated into administrative support systems (Visvidzi & Daniela, 2020). Until March 2020, generally, only innovative educators provided technology- enhanced learning. The benefits of such learning have been known for a long time, but it was difficult to encourage educators to use technology, in order to vary instructional methods and tools (Visvidzi & Daniela, 2019).

Since the spring of 2020, the educational process in most countries has changed significantly because of the forced transition to remote learning. The online opportunities currently being used can provide a dynamic teaching and learning environment, unfortunately, the transformation of the learning process took place without sufficient preparation. At the moment, the priority is for safe, fast and lasting access to teaching materials and support, not the reconstruction of a modern education ecosystem. It is therefore important to distinguish emergency remote teaching and learning from online learning concepts (Mohmmed & Khidhir, 2020). For educators as well as learners, the acquisition of new technologies has mostly taken place through learning by doing. Nowadays, the importance of ICT skills has significantly increased, and it is important that they be developed by both educators and learners (Williamson & Eynon, 2020). Researchers also highlight a number of different competencies that are relevant to educators in emergency remote teaching: excellent domain knowledge, proficient computer knowledge, communication skills, clarity of expression, and the ability to emotionally connect with the students (Mishra & Gupta, 2020). This is, of course, linked to higher workloads and time consumption, however, research also indicates that some educators have experienced a creative flourishing during the pandemic. For example in Finland the assignments for the learners have been versatile, technological solutions have been used in various ways. Educators there have reported positive experiences (Iivari & Sharma, 2020).

Of course, the provision of emergency remote teaching and learning is associated with various challenges. The transition is quite challenging, as online learning is not always an active process. It is sometimes asynchronous, making it more difficult to implement pedagogical strategies that involve active learner involvement (Kiernan, 2020). Internet access, difficulties in obtaining and using ICT, socio-economic conditions, demotivation and the impact of the home environment are the main factors

determining the continuity and effectiveness of remote learning (Souza et al., 2020). Research has concluded that there are risks for learners who might not understand the tasks, who might face technical difficulties, as well as situations where student attention might be diverted from learning to other activities (Shim, 2020). Another study lists the main challenges learners face: self-regulation (including procrastination; online help-seeking); technological literacy and competency; students' isolation; technological sufficiency; technological complexity. The main challenges for educators have also been identified: teachers' technological literacy and competency; online video; technological operational; teachers' belief. Two main challenges for educational institutions are identified: technological provision and teacher training challenges. The authors point out that the technological challenges for educators can also be influenced by a reluctance to learn and work with the latest technologies (Rasheed et al., 2020). Studies have also mentioned reduced student-teacher engagement: when learners are less involved in discussions and sometimes do not even answer questions. Mental health is also a challenge, as sudden changes can cause anxiety. Learners who cannot cope with home problems may experience apathy and depression (Oyedotun, 2020). Some researchers point to an increase in the workload of educators, such as the preparation of handouts, videos, differentiation of teaching, and preparing descriptions and explanations. The overall result being that planning one lesson took much longer than a regular training course (Iivari et al., 2020; Mishra et al., 2020). Researchers also point to the risks for students posed by insufficient support from parents or others around them. Younger learners in particular may have difficulty getting up and preparing for work, and difficulty avoiding the temptation to do other activities that interfere with learning (Angelico, 2020; Iivari et al., 2020). Another important, challenging aspect is the issue of academic integrity: educators are not always sure who the author of the work submitted is. In a stressful situation, learners may make poor choices regarding academic ethics. Sometimes cheating in asynchronous, objective and online ratings is unacceptably high. Various options for the restriction of cheating are indicated: question and answer randomization, continuous question development, multiple examination versions, open book options, time stamps, and diversity in question formats, sequences, types, and frequency (Butler-Henderson & Crawford, 2020; Eaton, 2020). Some of these identified challenges open up new topics for the professional development of educators.

What follows is a brief insight concerning research into the use of technology in assessment and feedback. Information about learning outcomes is identified, collected and interpreted in the assessment process, so it can become an integral part of the teaching and learning experiences. As already

mentioned, the technology is currently being used in assessment. Research indicates that the application of technologies to assessment can significantly change and enhance learning (Farell & Rushbay, 2016). In formative assessment, it is important to provide learners with the resources to monitor and adjust their own learning, thus avoiding reliance only on educators' feedback alone. For educators, the key is not just to respond to learning through assessment, but also to direct learning. Feedback from the analysis of formative assessments by educators provides the learner with a new, broader learning experience that can be further included in the learning process (Heritage 2010). Peer-assessment is also being evaluated as an effective didactic strategy for evaluating the answers to open-ended questions related to the development of problem-solving skills. Digital technologies allow a large number of learners to be involved in this process, but they are also useful for supporting small communities of learning (Marsico & Sciarrone, 2019). The increasing importance of blended and online learning in education, including problem-based and inquiry-based approaches, calls for digital of technologies that can effectively provide formative assessment of informative feedback (Spector & Ifenthaler, 2016). Educators and learners are able to collaborate through both social and technological resources to control the learning experience and to provide a formative effect from assessment (Daly & Pachler, 2010). Shute and Kim define e-assessment as the methods and practices that highlight information technologies' role in measuring students' learning (Shute & Kim, 2011).

Diverse feedback is now available through digital technology. Researchers point out that those involved in the learning process (learners, educators, administrators) must learn to manage the information provided by these various sources and to reduce the tensions arising from inconsistencies. Providing access to a data collection and processing model, not just for final data, is crucial in the development of feedback systems related to an essential aspect of assessment literacy (Webb & Prasse, 2018). Assessment literacy is described as an adaptive competence with the ability to apply knowledge and skills flexibly in different contexts. Researchers define assessment literacy as an interlinked group of knowledge, skills and positioning that educators can apply to the design and implementation of assessment in different contexts (Pastore & Andrade, 2019). In order for administrative, curriculum and assessment innovations to be aligned with the requirements of the 21st century, it is essential to support educators in learning and changing assessment practices. Educators with developed assessment competence purposefully link assessment results with appropriate assessment practices (Leong, 2015). The Assessment Competencies Framework was developed several years ago, it includes new and improved assessment practices for the training of educators, as well as clearly defined

skills educators need to develop their own authentic and adequate assessment practices (Leong, 2015).

Experiences gained during emergency remote teaching can also be applied to the traditional learning process (Iivari & Sharma, 2020; Angelico, 2020; Oyedotun, 2020). As a result, technologies in the assessment of learners' performance and learning outcomes could be used in the future, making it very important to carefully evaluate the challenges and opportunities of digital assessment. This approach can complement educators' future practice in technology-enhanced assessment.

## Method

Since this paper is only part of a broader study, two methods were used for data collection. First, it included a survey of educators ($n = 181$). Second, semi-structured interviews were held, both individual and group, with – 26 individual respondents from seven educational institutions. In both cases, educators from different levels of the Latvian education system participated, as well as from different regions of Latvia. The heads of educational institutions were invited to involve teachers in the study, but participation was entirely voluntary. The collection and processing of data respected all ethical aspects.

As this publication is part of a larger study, only those units that were relevant to the challenges and opportunities were selected. The basic method for data analysis was content analysis (Pipere, 2016), as open-ended questions were most important in the survey. After coding, the answers were grouped into categories. For interviews, data from transcripts were coded and grouped according to a category matrix using a deductive approach.

Data collection and analysis were limited by different understandings of pedagogical terminology. These differences basically relate to the understanding of the concept of feedback. The second limiting aspect was the focus of educators on the remote learning process as a whole, making it difficult to examine assessment separately.

## Results and Discussion

As mentioned above, in the context of the purpose of this study, the answers to some of the questions of the survey were analyzed, including, changes in assessment, new ideas in assessment and feedback, as well as the difficulties in these processes. From the theoretical framework of the research, three main categories were created: "Feedback and formative assessment" "Summative assessment" and "Technologies". During the

coding of the data, the subcategories shown in Table 1 and the additional category "Assessment in general" (without subcategories) were created for these initially defined categories. To highlight the most important aspects, the data were quantified by adding up the responses in each subcategory. Table 1 provides examples of some of the most insightful responses.

**Table 1.** Data from the survey

| Subcategories (frequency) | Examples |
|---|---|
| Category "Feedback and formative assessment" | |
| Investment of time and amount of workload (79) | "There was more asynchronous individual feedback than usual in comment forums, including for written assignments. Of course, it also took more time than usual." |
| Change of the format (62) | "The form for the feedback had to be changed to adapt to the new situation"<br>"Feedback come through group discussions, individual conversations, group games, etc."<br>"I created a lot of self-assessment tests (automated feedback)" |
| Category "Summative assessment" | |
| Criteria (56) | "Had to revise the criteria"<br>"Changed the weight / importance of the criteria in the overall assessment"<br>"The criteria need to be reformulated so that students could understand them" |
| Authorship, plagiarism (42) | "many thoughts about replacing text writing to avoid plagiarism"<br>"In order for students not to be able to submit work done by someone else in their place, had to think about the conditions of the task, and the form" |
| Category "Technologies" | |
| ICT skills development (68) | "I learned the interactive task environment"<br>"I use audio recording capabilities"<br>"I learned about various apps and websites that I didn't know about or had only heard of before" |
| Barriers (29) | "Some students had difficulty with technology when trying to complete the assignments"<br>"Internet access is not always sufficient"<br>"not everyone has access to new technologies" |
| Category "Assessment in general" | |
| Assessment in general (17) | "Learners were late in completing their tasks"<br>"Each type of assessment had to be specifically adapted and this posed a really big challenge"<br>"I created far more tasks for both formative and summative assessment to motivate students to engage responsibly in remote learning" |

Some of the responses covered a broad area, thus covering aspects belonging to different categories, so the frequency of responses is not comparable to the number of respondents. The data was then interpreted according to the concepts of 'challenges' and 'opportunities', which are further developed in the discussion below.

In the semi-structured interviews, the concepts of 'challenge' and 'opportunity' were already included in the basic questions; nine categories were created after data processing and coding. In addition, the answers to the other questions as well as the comments were reviewed, as some included statements related to the challenges and opportunities.

Five categories were identified for the concept 'challenges':

1. Investment of time and workload (16 statements), for example, "very much invested work and time" "students sometimes send work in the evenings, it's hard for me to do everything, I need more time" "I have to work harder to prepare the questions myself, not always enough time".

2. Technology (skills and accessibility) (12 statements), for example, "if the child does not understand technology, then I explain patiently, the phone against the screen, here do it, here do that. As long as he understands" "students make videos with poetry readings, put subtitles in another language of their choice" "if the student does not have access to any technology, then think of an alternative".

3. Illegal help (10 statements), for example, "sometimes there is a feeling that the parents have done it there" "you can never be sure who wrote those words".

4. Regular feedback (19 statements), for example, "feedback, whether you progress and understand, otherwise you won't understand anything further" "at the end of each week, they received a comment from me – this and that you did, you did well there, but you still have to look at this".

5. Development of appropriate assignments (15 statements), for example, "when taking exams – questions are prepared in such a way that one cannot manage to find anything on the Internet, the more on thinking to comprehension" "all tasks and formulations must be thought through very carefully so that the information can be conveyed to the student in such an understandable way".

Four categories were identified for the concept 'opportunities':

1. Acquisition of new technologies (16 statements), for example, "both teachers and students learned new technologies" "It is important that what we teachers practice what we have learned from technology, so that it does not disappear in our daily work".

2. Materials on the Internet (13 statements), for example, "I use *uzdevumi.lv* (*assignments.lv*) and similar sites much more often, especially if you can change something there" "I have found so many good materials".

3. The opportunity for learners to make mistakes (8 statements), for example, "in self-assessment tests, they immediately see their mistakes, see an explanation, can learn from it" "in simulations, the task can only be completed when it is completely correct".

4. Automated assessment (7 statements), for example, "there was less discussion about assessment and marks when the system scored points in the test" "you can get results and automated feedback faster".

Some claims are applicable to learners: "the biggest challenge for the students was time management, being able to do and submitting on time" "it was very interesting for students, they like technology".

By summarizing and evaluating the respondents' answers from both data sources, the most significant challenges of digital transformation of assessment can be highlighted. More challenging is the establishment of the adequate assignments (Butler-Henderson & Crawford, 2020; Eaton, 2020). Two aspects are relevant here: making assignment criteria clear to the learner, and having confidence in the authorship of the submission. Certainly, this is very important for summative assessment, when the grading is of more consequence. Consequently, the additional challenge is to eliminate unwanted help "from the sidelines": cheating, copying, or help from relatives and friends. A greater challenge is to formulate questions that show understanding, not just a reproduction of information. In this context, the next challenge is an investment of work and time in preparing assignments (Mohmmed & Khidhir, 2020; Eaton, 2020; Mishra & Gupta, 2020) with wording that everyone can understand and with clear criteria, as well as choosing the types of assignment where cheating is not possible. The challenges are also related to the availability of and skill with digital technology. It is very important that a lack of technological skill does not limit the assessment of the topic (Mishra, & Gupta, 2020). Attention also must be paid to an availability of computers, smartphones or other resources, including the internet. The next challenge is related to regular and multi-directional feedback (Spector & Ifenthaler, 2016; Webb & Prasse, 2018) – establishing regular mid-term reviews for formative assessments.

The research data has also highlighted the most important opportunities provided by the digital transformation of assessment. First, in the digital assessment process, educators and learners acquire new and new technological skills (Williamson & Eynon, 2020). For educators it is not only about learning new technologies, but also about experiencing some professional

development. Second, with digital assessment, educators and learners are more aware of the importance of feedback and therefore pay more attention to it (Spector & Ifenthaler, 2016; Mohmmed & Khidhir, 2020). Using this approach educators look for and find new technological opportunities for feedback, while learners learn to accept and apply feedback information. The next opportunity is due to the rapid transition to emergency remote teaching (Mohmmed & Khidhir, 2020). Educators acknowledge that this prompted the search for materials available on the Internet with opportunity to customizing and reusing them. For learners, the possibility to making mistakes and trying again, and thus learning from mistakes was highlighted. The automation of assessment processes, especially regarding to automated feedback has been stressed as an important opportunity for technology-enriched learning processes.

Differences in the prevalence of responses at different levels of the education system are not considered significant, but there are some specific findings related to professional and higher education. First, at these levels of the education system, the use of virtual reality technology is increasing (Dreimane, 2020), so it is important to emphasize that the virtual environment accepts only the right solution. Learners must improve their initial assignment or performance until they have a correct result. Next – in cases when competence is being assessed, a complex assignment is created and assessed by two independent educators. Conversations with the learner in an online conference format is an integral component of such assessment. Finally, the results of work-based learning must be assessed in a real-life location – the work environment in most cases is only face-to-face, therefore, technology cannot be involved.

## Conclusions

This research, like the studies published earlier, shows that the technologies and techniques learned in a crisis situation may have entered the learning process permanently. The following summation is provided to create an awareness of the challenges and opportunities in the digital transformation of assessments:

- because learning outcomes can be limited by the socio-economic situations, specifically a lack of computer hardware, software, and the internet; it is still important to find solutions to compensate for this situation;
- educators have more opportunities for creativity: first, creative solutions to problem situations, and second, what is found on the Internet can inspire educators to create their own materials and assignments;

- when assessment in a digital environment, the assignment instructions must be understandable, with clear assessment criteria that allow a demonstration of deep understanding, as well as preventing the possibility of including non-qualified knowledge.

Solutions to the aforementioned challenges in this research can result in improved assessment practices, as well as an improved learning environment in general. It is important to realize that the digital transformation of assessment does not mean mechanical replacement of current techniques, but rather the development of new techniques based on proven pedagogy, which will provide better educational outcomes.

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# INFLUENCE OF FACTORS PROMOTING FINANCIAL LITERACY ON THE ACHIEVEMENTS OF FINANCIAL LITERACY OF STUDENTS IN LATVIA

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**ABSTRACT**

The literature suggests that financial literacy depends on factors such as socioeconomic status/sociodemographic status, psychosocial and psychological factors, experience, and access to financial education, language skills, mathematical literacy and other factors. The aim of this study was to identify the factors that influence the financial literacy achievements of students from Latvia, focusing on the possibility to improve these achievements.

The data analysis was performed with PISA 2018 Latvian data, which there were selected 25% of the participating students whose financial literacy performance was lower than the mean performance in mathematical and reading literacy and 25% of students whose financial literacy performance was considerably higher than the mean performance in mathematical literacy and reading literacy. Differences between these two groups showed factors that impact financial literacy achievements, excluding the possibility that the financial literacy performance of these students was high due to the mathematical and reading literacy.

It was concluded that the financial achievements of students in Latvia are positively influenced by such factors as the socioeconomic status/sociodemographic status, psychosocial factors, and psychological factors (students with higher financial literacy achievements have a more negative attitude towards school but a more positive attitude towards life, less fear of failure and more a positive attitude towards competition, and clear plans for the future), accessibility of the financial education, time devoted to financial education, an accessible wide range of financial topics in education, experience in the financial environment, parents' involvement, feedback from teachers in reading lessons.

*Keywords: Achievements of financial literacy, Financial Literacy, Mathematic literacy, OECD PISA 2018, Reading literacy.*

## Introduction

Financial literacy is important for promoting well-being for whole society and for each individual. Actuality of development of financial literacy

is undeniable considering previous financial crises in all over the world and Latvia too. Also the current epidemiological crisis clearly noted, how important is financial literacy. Each of us should know how to accumulate wealth and take care of well-being in order to be safe in unpredictable situations. Financial management should be learned in school, just as students learn other skills needed in adult life. Youngsters should understand the financial environment before they start to work and live on their own, in order to understand the need for taxes, accumulate wealth, and analyze financial choices to find those most suitable.

Policy-makers should to know what factors influence the development of financial literacy. It could help them to better understand how to decrease and increase the influence of factors, in order to arrange the education processes.

The definition of financial literacy underlines that financial literacy is formed by knowledge, skills, and the motivation to apply this knowledge. After analyzing the literature, it was found that the following factors influence the development of financial literacy:

- Socioeconomic status/sociodemographic status (Shults, 2012; Kaiser and Menkhoff, 2017; Põder et al., 2020; Firli, 2017; Vijay and Nardeep, 2018; Bashir et al., 2013; Atkinson and Messy, 2012; Jeyaram and Mustapha, 2015; Gangwar and Singh, 2018; Vig, 2017; Vyvyan et al., 2014).
- Psycho-social factors and psychological factors (Murphy, 2013; Vijay and Nardeep, 2018; Bashir et al., 2013; Bhargav and Mittal, 2017; Vyvyan et al., 2014; Venkataraman and Venkatesan, 2018).
- Accessibility of financial education (Venkataraman and Venkatesan, 2018; Firli, 2017; Bhargav and Mittal, 2017; Bruhn et al., 2016; Kaiser and Menkhoff, 2017; Tang and Peter, 2015; Moreno-Herrero et al., 2018).
- The time devoted to financial education (Kaiser and Menkhoff, 2017).
- Accessibility of wide range of financial topics in education (O'Neill et al., 2010).
- Teachers' knowledge (Põder et al., 2020).
- Mathematical literacy (Willis, 2008; Bhargav and Mittal, 2017; Jappelli and Padula, 2013; Barua et al., 2012).
- Language skills (Põder et al., 2020; Riitsalu and Põder, 2016).
- Analytical skills (Bhargav and Mittal, 2017).
- Experience in the financial environment (Hilgert et al., 2003; Lyons et al., 2006b; Kindle, 2013; Tang and Peter, 2015; Moreno-Herrero et al., 2018; Shults, 2012; Bhargav and Mittal, 2017).
- Parents' involvement (Hilgert et al., 2003; Lyons et al., 2006a; Cole et al., 2016; Moreno-Herrero et al., 2018; Tang and Peter, 2015; Sabri et al., 2010; Venkataraman and Venkatesan, 2018).
- Liquidity (Bhargav and Mittal, 2017).

Various factors affected financial literacy, it is important to understand the impact of these factors on students' financial achievements. To understand the extent to which these factors affect the financial literacy achievement of students from Latvia, it is important to discover which opportunities promote the development of financial literacy. The aim of this study was to identify the factors that influence the financial literacy achievements of students from Latvia, focusing on the possibility to improve these achievements.

## Method

The data analysis was performed with PISA 2018 Latvian data of which there were selected 25% of the participating students whose financial literacy performance was lower than the mean performance in mathematical and reading literacy (Group 1) and 25% of students whose financial literacy performance was considerably higher than the mean performance in mathematical literacy and reading literacy (Group 2). The Target Population for PISA are students between 15 years and 3 (completed) months and 16 years and 2 (completed) months at the beginning of the testing period, attending educational institutions located within the country, and in grade 7 or higher. Differences in various indices were sought between these groups in order to find out which factors could influence students' financial literacy performance, excluding the possibility that the financial literacy performance of these students was high due to mathematical and reading literacy. Hereafter, only those indices are discussed where the difference between these two groups is statistically significant with 95% reliability.

**Table 1.** Comparison of indices between students whose financial literacy performance was lower than the mean performance in mathematical and reading literacy and students whose financial literacy performance was considerably higher than the mean performance in mathematical literacy and reading literacy.

| Index | | Group 1 (MRA > FA) | Group 2 (FA > MRA) | Difference | Questions |
|---|---|---|---|---|---|
| Economic, social, and cultural status (ESCS) | Mean | 0.11 | -0.14 | 0.24 | Parents' highest level of education. Parents' highest occupational status. Home possessions (a proxy measure for family wealth) |
| | SE | 0.05 | 0.05 | | |
| | mnxdiff_t | 4.61 | | | |

| Index | | Group 1 (MRA > FA) | Group 2 (FA > MRA) | Difference | Questions |
|---|---|---|---|---|---|
| Value of school | Mean | -0.22 | -0.48 | 0.26 | Trying hard at school will help me get a good job. Trying hard at school will help me get into a good university. Trying hard at school is important. |
| | SE | 0.05 | 0.05 | | |
| | mnxdiff_t | 5.02 | | | |
| Positive feelings | Mean | -0.10 | 0.12 | -0.22 | Happy Joyful Cheerful |
| | SE | 0.06 | 0.06 | | |
| | mnxdiff_t | 3.85 | | | |
| Meaning in life | Mean | -0.17 | -0.03 | -0.14 | My life has clear meaning or purpose. I have discovered a satisfactory meaning in life. I have a clear sense of what gives meaning to my life. |
| | SE | 0.05 | 0.05 | | |
| | mnxdiff_t | 2.99 | | | |
| Fear of failure | Mean | 0.04 | -0.19 | 0.23 | When I am failing, I worry about what others think of me. When I am failing, I am afraid that I might not have enough talent. When I am failing, this makes me doubt my plans for the future. |
| | SE | 0.05 | 0.05 | | |
| | mnxdiff_t | 4.47 | | | |
| Student competition | Mean | -0.09 | 0.03 | -0.13 | Students seem to value competition. It seems that students are competing with each other. Students seem to share the feeling that competing with each other is important. |
| | SE | 0.06 | 0.06 | | |
| | mnxdiff_t | 2.18 | | | |
| Attitudes towards competition | Mean | -0.09 | 0.06 | -0.15 | I enjoy working in situations involving competition with others. It is important for me to perform better than other people on a task. I try harder when I'm in competition with other people. |
| | SE | 0.05 | 0.05 | | |
| | mnxdiff_t | 2.74 | | | |
| Teacher support | Mean | 0.08 | -0.04 | 0.12 | The teacher shows an interest in every student's learning. The teacher gives extra help when students need it. The teacher helps students with their learning. The teacher continues teaching until the students understand. |
| | SE | 0.04 | 0.04 | | |
| | mnxdiff_t | 2.70 | | | |

| Index | | Group 1 (MRA > FA) | Group 2 (FA > MRA) | Difference | Questions |
|---|---|---|---|---|---|
| Teacher feedback | Mean | 0.07 | 0.22 | -0.15 | The teacher gives me feedback on my strengths in this subject. The teacher tells me in which areas I can still improve. The teacher tells me how I can improve my performance. |
| | SE | 0.05 | 0.05 | | |
| | mnxdiff_t | 2.84 | | | |
| Index of confidence in dealing with money matters. | Mean | -0.10 | 0.23 | -0.34 | How confident you feel performing the following tasks when using digital or electronic devices outside of a bank:<br>• making a money transfer (e. g. paying a bill)<br>• filling in forms at the bank<br>• understanding bank statements<br>• understanding a sales contract<br>• keeping track of [their] account balance<br>• planning [their] spending in consideration of [their] current financial situation. |
| | SE | 0.06 | 0.06 | | |
| | mnxdiff_t | 5.35 | | | |
| Index of confidence in using digital financial services | Mean | -0.18 | 0.12 | -0.30 | How confident you feel performing the following tasks when using digital or electronic devices outside of a bank:<br>• transferring money<br>• keeping track of their balance<br>• paying with a debit card instead of using cash<br>• paying with a mobile device (e. g. mobile phone or tablet) instead of using cash<br>• ensuring the safety of sensitive information when making an electronic payment or using online banking. |
| | SE | 0.05 | 0.05 | | |
| | mnxdiff_t | 5.73 | | | |
| Index of financial education in school lessons | Mean | -0.09 | 0.12 | -0.21 | Students were asked about the frequency (never, sometimes or often) with which they had encountered six personal finance-related tasks in school lessons over the previous 12 months:<br>• describing the purpose and uses of money<br>• exploring the difference between spending money on needs and wants |
| | SE | 0.05 | 0.05 | | |
| | mnxdiff_t | 3.99 | | | |

| Index | | Group 1 (MRA > FA) | Group 2 (FA > MRA) | Difference | Questions |
|---|---|---|---|---|---|
| | | | | | • exploring ways of planning to pay an expense<br>• discussing the rights of consumers when dealing with financial institutions<br>• discussing the ways in which money invested in the stock market changes value over time<br>• analysing advertisements to understand how they encourage people to buy things. |

MRA – mathematics literacy and reading literacy achievement
FA – finance literacy achievements
SE – standard erro

## Results

Table 1 summarizes only those indices where the difference between these two groups is statistically significant with 95% reliability. Indices are formed by using student answers to specific questions. A positive value of the index means that a particular country has a more positive attitude towards a particular issue than the OECD average. The individual is given the opportunity to examine some of the factors influencing financial literacy.

## Discussion

Families who are better off financially are expected to be able to manage their finances better and children are also better educated in finance and have a better understanding of cash flow. However, the data show that ESCS has a greater impact on students' achievement in mathematics literacy and reading literacy than on financial literacy achievement. The difference in the ESCS index is 0.24. Although, an increase in ESCS could also lead to higher financial literacy achievements, but the impact will not be so great. ESCS is one of the most mentioned factors that has influenced financial literacy (Shults, 2012; Kaiser and Menkhoff, 2017; Põder et al., 2020; Firli, 2017; Luksander et al., 2014).

Among the analyzed groups, students with higher financial literacy are much more positive compared to the OECD average, and these students have

a much better understanding of the meaning and significance of life and have already found their purpose in life. Probably that is the reason why these students have a more positive attitude towards life and everything that is going on around it. Bhargav and Mittal (2017) claim something similar, if a student knows what he wants to do in the future, then it influences financial literacy level.

It is also not surprising that these students are less afraid of failure, they are not afraid of making mistakes, which is essential for promoting financial literacy when thinking about risks and future plans. These students feel competition much more and they claim that the competition has a positive effect on them. They like to compete with others, which is the driving force of the financial world to achieve higher results.

Students with higher levels of financial literacy were more confident with their money management skills, such as making payments, filling out bank forms, reading bank statements, reading purchase agreements, keeping track of their account balance, and planning their expenses according to their current situation. Vyvyan et al. (2014) and Venkataraman and Venkatesan (2018) found that confidence in self-financial skills largely determines financial literacy. Also these students feel more confident with using the services of digital financial instruments such as money transfers, checking account balances, using a payment card, using a digital device to make payments, and taking care of their safety when using these devices. Probably it is because students use these tools more on a daily basis and have access to them. A bank account, a payment card/debit card and a mobile application are used more by students with higher levels of financial literacy than in mathematics and reading. This proves that the use of financial tools improves students financial literacy, and increases understanding of the financial environment.

Students with higher levels of financial literacy do not have such a positive attitude towards school. Students from Latvia believe that a school plays an important role in getting a better-paid job or entering a university and it is less than the OECD average. Overall, this index is negative for both groups. In contrast, this is the case in Estonia and Finland, where attitudes towards school are more positive than the OECD average (OECD, 2019a). This negative index demonstrates the prevailing views in Latvian society. Riga Distance Learning Secondary School in cooperation with the Market and Public Opinion Research Center SKDS implemented a study. In this study was found that almost half of the Latvian population expressed the opinion that education in Latvia is at a medium level and 21% thought that the quality of education is currently low in Latvia. Those who have children assessed the quality of education as the lowest (Leta, 2019). Therefore, it is not surprising that students think that school is not important for their

future. Students' attitudes towards school have more impact on their mathematics and reading literacy achievements than financial literacy achievements. Countries with higher achievement showed a more positive attitude towards school than the OECD average in every study field. There could be more than one reason why students' attitude towards school has less impact on the students' financial literacy achievement:

- Most of the students with high financial literacy achievements claimed that they have not studied finance at school.
- They learned about finance in extracurricular activities and looked for information themselves.
- Currently the financial topic is compulsory only in the social science subject.

However, those students who learned about finance at school have higher financial literacy achievements than mathematics and reading literacy achievements. The difference in the index of financial education in school lessons is 0.21 points. This means that these students more often have encountered the following types of tasks or activities in school lessons like describing the purpose and uses of money, exploring the difference between spending money on needs and wants, exploring ways of planning to pay an expense, discussing the rights of consumers when dealing with financial institutions, discussing the ways in which money invested in the stock market changes value over time, and analyzing advertisements to understand how they encourage people to buy things. Obviously, this positively affected their financial literacy and let them achieve higher scores in the assessment of financial literacy.

The Hungarian National Audience Office has also found that students who have attended fewer lectures show higher levels of financial literacy, although those who have attended specialized courses related to economics have still higher levels of financial literacy (Luksander et al., 2014). Therefore, it is important that students talk about finance at school in order to improve the financial literacy achievements.

The teacher is important to develop financial literacy. Teachers who teach students about finance must be appropriately educated. However, not only these teachers but also other teachers influence the students' financial literacy achievements. For example, in PISA 2018 the main area was reading, so students were asked questions about reading lessons and teachers' activities in them. If we look at the index "Teacher Support" which consisted of questions that show how much the teacher is involved and interested in the student's ability to understand what is being taught and to identify and eliminate problems, teacher's support in reading lessons has a much greater impact on mathematics literacy and reading literacy achievements. For students with higher financial literacy achievements, this

index is negative. These students are more independent and they feel that they can do much more by themselves, and such large teachers' involvement is not necessary.

In contrast, the index "Teacher Feedback" is higher for students with higher financial literacy achievements. This means that these students more often receive feedback from teachers about their work. The teachers point out areas which students should work on, so that students have a better understanding of how to improve their work. Financial literacy achievements are largely determined by the ability to express an opinion. Data showed that students reach higher achievements when teachers more often express an opinion, offer criticism, and teach that mistakes mean learning. Feedback from teachers is necessary although it is a test language lesson. During these lessons, students read, express their opinion about what they have read, write various augmented essays and similar things, which are also necessary for financial literacy.

The frequency with which parents talk about finance with their children, such as children's spending, savings, including a family budget, expenses, and news related to economics or finance also have an impact on financial literacy achievements. However, this difference between the two groups is not statistically significant. Parental involvement is important in fostering children's financial literacy. Especially, if the school does not have a full-fledged subject, where students learn about finance that is important for their daily lives to promote an understanding of the financial world and the ability to succeed in the future. This all works only if the parents themselves are sufficiently competent in finance.

In the literature, experience in the financial environment is mentioned as an important factor in promoting financial literacy. When students manage their own money (pocket money, donated or self-earned) it forms students' experience in the financial environment (Shults, 2012; Bhargav un Mittal, 2017; Moreno-Herrero et al., 2018).

Students who have a payment card, account, or mobile application have higher levels of financial literacy. They have experience and knowledge of how these tools work. They are also able to apply their knowledge in order to solve various tasks related to finance.

The OECD also points out that digital financial services are becoming increasingly popular and play an important role in everyday life. Young people can be supported through the formal school curriculum: wherever this includes financial education, its content should be enhanced with financial education for DFS (Digital Financial Services), even more so in the light of the use of digital tools and the preference for digital experiences of the younger generations, which may outweigh those of their parents (OECD, 2018).

In order to find factors the researcher used PISA student questionnaire; there was not an opinion to get extra information that could be useful. The second limitation of the research is that PISA in Latvia did not use questionnaires for teachers, so it was not possible to find out there opinions about the learning process. PISA did not find out teachers' knowledge in financial literacy, so the researcher was not able to find out how teachers' knowledge could have influenced student financial literacy.

## Conclusions

Financial literacy achievements for students from Latvia are related to factors like:

- The socioeconomic/sociodemographic status, which affect students' literacy in mathematics, reading and also in finance, however, the impact on financial literacy is not so great;
- Psychosocial factors and psychological factors, students with higher financial literacy achievements have a more negative attitude towards school but a more positive attitude towards life, less fear of failure and more positive attitude towards competition, and clear plans for the future.
- Accessibility of financial education, time deveroted to financial education, a wide range of financial topics accessible in education;
- Experience in the financial environment. Those students who use financial instruments, such as a bank account, payment card and mobile applications, are not only convinced of their financial instrument management skills, but they also show the highest level of financial achievements.
- Parents' involvement: Parental involvement is important in fostering children's financial literacy. That works if the parents themselves are sufficiently competent in finance.
- Feedback from teachers. Students with higher financial literacy achievements feel less support from teachers in reading lessons. It does not affect their financial literacy achievements. The feedback provided by teachers is very important for these students, which is also an important cornerstone of the new educational standards.

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# SELF-REGULATED LEARNING IN REMOTE EDUCATIONAL CONTEXT

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**ABSTRACT**

Year 2020 has introduced massive changes in the teaching and learning in traditional classroom settings all around the world as due to the abrupt outbreak of COVID-19 pandemic, schools had to introduce remote learning systems and the amount of students' independent workload increased exponentially. Self-regulated learning plays a crucial role in the learning process, and it is even more significant in remote learning as external regulation is low.

The aim of this research was to study students' self-evaluation on self-regulation processes during remote learning caused by the second wave of COVID-19 pandemic in autumn 2020. This paper presents results of a case study at a secondary school in Latvia. Over a period of two months regular surveys were carried out to investigate students' opinion on their metacognitive, motivational and behavioural processes during remote learning. Results were analysed to determine the overall situation, changes over time and differences between distinctive students' groups.

Results reveal that 10–12th grade students are more self-rigorous when evaluating their performance than 7–9th graders. It is also evident that girls have better self-regulation skills than boys but seem to neglect their own needs more than boys. These and other results point to the need for customized support to different student groups during remote learning in order to provide all students with an appropriate learning environment.

**Keywords:** *COVID-19, remote learning, self-evaluation, self-regulated learning, self-regulation processes.*

## Introduction

Still recently, work of the state educational establishments (kindergartens, schools and colleges) in Latvia was based on the traditional face-to-face learning. The situation changed dramatically in spring 2020 when COVID-19 spread all around the world and, due to the quarantine, schools were forced to go on remote teaching and learning and deliver all or part of the lessons online. In contrast to planned, well-ahead organized and designed online learning, schools had to face emergency remote teaching

(Hodges et al., 2020) as it served as the only panacea during the crisis caused by COVID-19 (Dhawan, 2020), and schools had to provide the possibility to give instructions to students, conduct the classes online and secure the communication with the students and their families.

The remote teaching and learning process forced educators to be able to adapt to the situation highlighting their level of flexibility and ability to adjust their teaching style. Initially a lot of teachers hoped that this would only be a temporary inconvenience and were reluctant to shift their teaching style and methods. Nevertheless, this period demanded teachers to change and acquire the use of new information communication technologies and different platforms. In the survey carried out by the Ministry of Education and Science of Latvia and Edurio at the end of the school year in May 2020, 55% of teachers mentioned the improvement of their IT skills as one of the main benefits, however, there still remained some teachers who had not conducted a single online class (End of semester surveys about remote learning, 2020).

When the second wave of COVID-19 hit Latvia in October 2020, schools already foresaw that remote learning would set in as an inevitable process. Due to this reason, notwithstanding the participation in the large scale survey organised by the Ministry of Education and Science of Latvia and Edurio (End of semester surveys about remote learning, 2020), which highlighted general tendencies, schools considered the necessity for ongoing surveys that are tailored to the needs of each school. To monitor the quality of the remote teaching and learning process, a lot of educational establishments worked out their own questionnaires identifying students and teachers' needs in order to support them in the remote learning process. Questionnaires for parents were also applied to collect their opinion about the learning process and the results of the surveys have already been presented (Daniela, Rubene, Rūdolfa, 2021; Martinsone, Stokenberga, 2021).

The aim of this research was to analyse the data collected by a survey at a secondary school in Latvia in November and December 2020. The questions related to students' ability of self-regulation were researched to determine students' opinion on their metacognitive, motivational and behavioural processes during remote learning caused by the second wave of COVID-19 pandemic in autumn 2020.

## Self-regulated learning

Self-regulated learning competence plays a very important role, as its acquisition significantly contributes to the achievement of other goals in the learning process and further education (Kizilcec, Pérez-Sanagustín & Maldonado, 2017). Currently, the new competence-based learning content and approach is introduced in the system of education in Latvia, which

develops value-based knowledge, skills and attitudes, and self-regulated learning is included in the new developed curriculum as one of the six transversal skills and is an important purpose of education (Skola 2030, 2019).

In traditional face-to face learning environments, students who can effectively self-regulate their learning process are considered as more effective learners by educators and researchers (Boekaerts, 1999) and it has been proved that they tend to achieve better and have more positive developmental outcomes (Zimmerman & Cleary, 2009). Self-regulated learning appears even more essential in the online learning environments as the learners' autonomy is high and the teachers' presence is low (Lehmann, Hahnlein, & Ifenthaler, 2014) and not all learners are able to manage their learning process with minimal guidance (Wong, Baars, Davis, Zee, Houben & Paas, 2019), but if students have well developed self-regulated learning skills they are more motivated to learn also when there are web based instructions used (Chang, 2005) which confirms the importance of self-regulated learning.

According to Barry Zimmerman (1986) self-regulated students are viewed as "metacognitively, motivationally, and behaviorally active participants in their own learning process" (p. 308). They are able to initiate and direct their learning and, instead of relying on teachers or parents, they know how to use self-learning strategies, have developed self-efficacy and are committed to academic goals (Zimmerman, 1989).

In accordance with Bandura's (1986) proposed triadic reciprocality, students learning not only is influenced by personal processes, but there is also a causational reciprocality among personal, environmental and behavioral processes. Based on this theory Zimmerman (1989) developed the first model of self-regulated learning.

Self-regulated learning includes cognitive, metacognitive, behavioural, motivational and emotional aspects of learning and a vast variety of variables and strategies that influence them, and it has been widely researched by educational psychology. Several self-regulated learning models were developed by Zimmerman; Boekaerts; Winne and Hadwin; Pintrich; Efklides; and Hadwin, and all of them were thoroughly researched and analyzed by Panadero (2017) stating that although the SRL models differ, all the authors agree that self-regulation consists of various processes (e. g., goal setting, monitoring, etc.) and that self-regulation is based on a cyclic approach, as the performance is analysed and the provided feedback suggests further improvements.

Bandura (1986) points out three essential subprocesses in self-regulation: self-observation, self-judgement, and self-reaction as performance-related subprocesses which are interrelated in a reciprocal way and Zimmerman

(2000) develops a cyclic model with three phases of self-regulated learning: (1) forethought, (2) performance and (3) self-reaction, where forethought means pre-task activities, for example, goal setting and entering the task with self-efficacy for learning, performance or volitional control that occurs through self-control and self observation during the task completion, and self-reflection or posttask activities that involve self-evaluation, self-judgement and and self-reaction.

Zimmerman (1989) states that self-regulated learning can happen when a student can use personal processes in order to regulate behaviour and create an appropriate learning environment. Newman (2012) defines willingness to seek help as one the key motivational variables that directly affects self-regulation as it is intentional and goal-directed activity that students need to be able to apply to complete the task successfully in case of academic difficulties.

This research analysed the data collected by the school on students' self-evaluation on their, firstly, **metacognitive processes** (e. g., planning and organizing their learning process, self-monitoring and self-evaluating, etc.), secondly, **motivational processes** (e. g., self-efficacy, help-seeking skills, etc.) and, thirdly, **behavioural processes** (e. g., selecting, creating learning environment, etc.).

Taking into consideration the important role of self-regulation in the learning process and specific circumstances when all the learning is organized remotely the research question is put: how students evaluate their self-regulated learning skills during remote learning process, and how the self-evaluations differ among several student groups.

## Method

This case study was carried out in a secondary school in Latvia where regular surveying was introduced for all students studying remotely during the period of data collection in November and December 2020 for students from grades 4–12. Surveys contained 1 open-ended question where students could suggest improvements for remote learning process at school, 2 closed-ended questions about their emotional well-being and learning success which students had to evaluate using Likert scale from 1–10 and 8 statements about learning which students had to consider, using Likert scale with 7 levels – from fully agreeing to fully disagreeing. There was a possibility to comment on each part of the survey and the statements were chosen, taking into consideration conclusions about the main challenges in remote learning from the statewide surveying organized by the Ministry of Education and Science of Latvia after the first remote learning period during the spring 2020 (End of semester surveys

about remote learning, 2020). The chosen statements were linked with self-regulated learning processes:

1. Metacognitive processes (e. g., planning and organizing their learning process, self-monitoring and self-evaluating, etc.) – 4 statements.
    1.1. It was clear what to do and when.
    1.2. I completed the planned tasks.
    1.3. I learned the planned content.
    1.4. Learning was diverse.
2. Behavioural processes (e. g., selecting and creating a learning environment, etc.) – 3 statements.
    2.1 Help from teachers was available.
    2.2. There was an opportunity to collaborate with other students to learn.
    2.3. I took care of my well-being – exercised, rested my eyes, ventilated the room, drank enough water, ate healthily and had a good night's sleep.
3. Motivational processes (e. g., self-efficacy, help-seeking skills, etc.) – 1 statement.
    3.1. It was exciting to learn.

Surveys were not anonymous as the collected data was used at an institutional level to determine and offer the necessary support for each student and alternative mechanisms, like individual conversations with class teachers and school support staff, were available. Students were informed about the purpose of data collection and had an option not to take the survey. Students' parents were informed about the school's work system during remote learning, including data collection through surveys and had an option to object and prevent their children from taking part in any surveying proposed by the schools during the remote learning. For the purposes of this research, both the school and the collected data was anonymized. Full information about particular students was given only to teachers and support personnel to provide needed support. School personnel, who were granted permission to access students' data, were informed about their responsibility to ensure data protection and compliance with ethical standards. Permission was granted by the school board to analyze the anonymized data in this research.

Surveying was organized after the lessons by class teachers 1–5 times a week according to the needs of each class. The class teachers met the students every morning before the lessons for 10-40 minutes during the class lesson and in the afternoons after studies, when the class teachers considered it to be necessary. Results of the surveys were used by class teachers during class lessons as well as in individual communications with

students, offering additional support to students who experienced any difficulties, and help from a social pedagogue and school psychologist was also available.

Altogether 3044 unique responses were collected. For the purposes of this research it was decided to use responses gathered from grades 7–12, because these students spent the longest time learning remotely, therefore, 719 responses from students grades 4–6 were excluded from the analysis and summarising of the results discussed in this paper. 349 responses from the rest were automatically removed as duplicates. Authors of 7 responses could not have been identified, therefore, they were removed and 10 responses were handed in after the planned survey period and were not analysed. Remaining 1958 responses from 319 unique students were used in data analysis.

Surveys were created with Google Forms, data was collected and further handled in Google Spreadsheets and built-in automated features for data organizing, analysis and visualisation were used.

## Results and discussion

To determine the overall situation concerning self-regulated learning aspects all collected answers were analysed (Fig. 1).
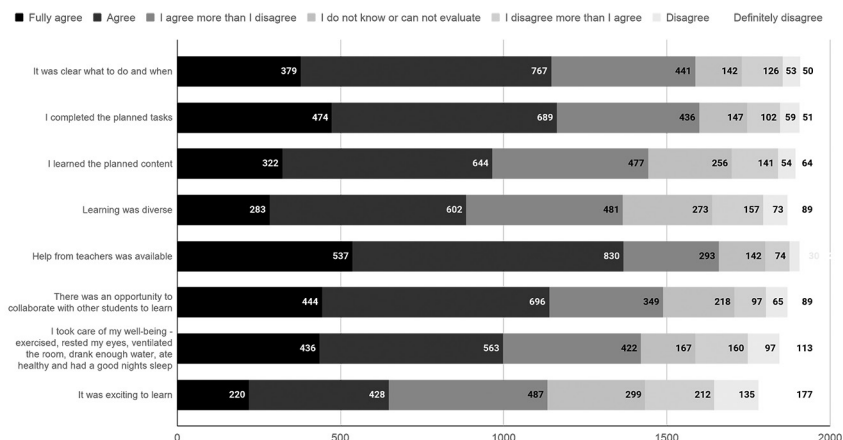


**Figure 1.** Students' self-evaluation of self-regulated learning aspects during remote learning

The highest self-evaluation is for the behavioural aspect of self-regulated learning and students consider that the necessary help from teachers is available. Followed by metacognitive aspects of self-regulated learning,

students state that it was clear for them what and when they had to do and they managed to complete the planned tasks. The lowest self-evaluation is for the motivational aspect of self-regulated learning as many students do not feel that it is exciting to learn. Although students' overall average self-evaluation on their emotional well-being and learning success is high – 7.3 and 7.4 from 10 respectively (where 1 is very bad and 10 is very good), it is seen that both indicators decreased over time (Fig. 2). This is consistent with other researches revealing that remote learning has additional negative effects over longer periods of time (Dhawan, 2020, Gottschalk, 2019, Iivari et al., 2020, Karalis, 2020, Reimer & Schleiche, 2020, Rogers & Shwetlena, 2020). However, it is crucial to keep in mind that we are examining widespread remote learning caused by pandemic, therefore, it is possible that the decrease in emotional well-being is caused not only by the remote learning process itself, but rather by a cluster of factors connected to pandemic (Hodges et al., 2020, Gottschalk, 2019), for example, students were not allowed to meet after school, and considering the important role of socialization in human development, this factor might have had a strong negative impact on students' well-being. A longitudinal study by Huckins and colleagues reveals that, compared to prior academic terms, students feel more sedentary, anxious and depressed. In addition, a wide variety of behaviours, including increased phone usage, decreased physical activity and fewer locations visited, are associated with fluctuations in COVID-19 news reporting (Huckins et al., 2020).
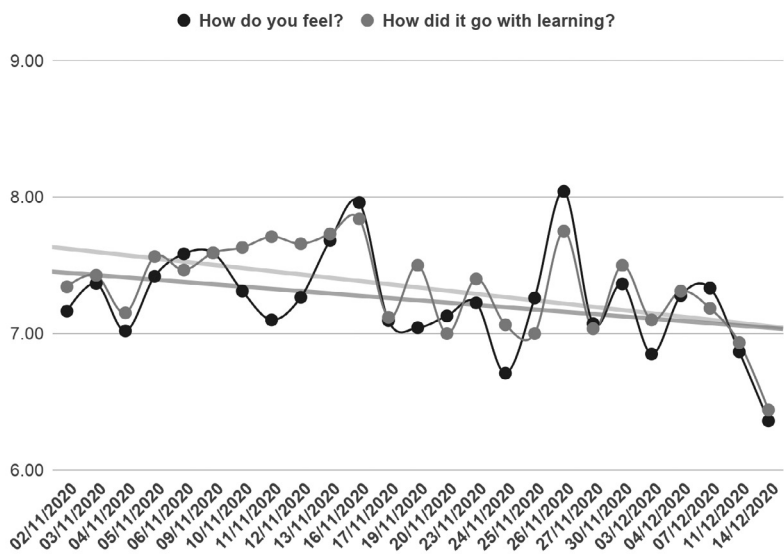


**Figure 2.** Students' average self-evaluation over time during remote learning

It is also important to take into consideration that the data was collected during November and December. December in Latvia is the end of the first school semester, therefore, additional stress might have been caused by the final testing and marking, which could have had a negative impact on students' emotions and, consequently, self-evaluation.

Student groups with highest and lowest overall self-evaluation were also compared (Fig. 3). Students with lower overall self-evaluation had least problems with behavioural aspects of self-regulated learning. Most problems for this student group occurred with the motivational and metacognitive aspects of self-regulated learning as many of them did not find learning exciting, did not feel that learning was diverse or they had learned the planned content. This could be explained by students having less understanding of the learning process and learning strategies and, therefore, being less able to organize their own learning process in a way that is productive for them (Lee & Choi, 2017). Not being able to direct themselves successfully, further decreased their willingness to learn, hence creating a downward spiral as they were not motivated to learn, consequently, they were not able to do it successfully, which in turn decreased their motivation even more (Deci & Ryan, 1985, 2002a, 2002b; Wigfield et al., 2007).

Fluctuation of self-evaluation of self-regulated learning for students with highest overall self-evaluation results was lower. This student group had the highest evaluation for availability of help from teachers, which could indicate both better relationships with teachers and being able to use the offered help. Taking care of their well-being is one of the lowest evaluated aspects of self-regulated learning for this student group. It is possible that this aspect of self-regulated learning has been activated less than others before the pandemic, as in the traditional learning environment teachers planned and organised students' learning process, physical activities and lunches, taking into consideration proper lighting and ventilation of the classrooms. Therefore, this is an entirely new set of tasks that students have to master in order to learn successfully. Other researches have shown that balancing learning and private life is one of the main challenges students face in e-learning (Parkes et al., 2014; Wang et al., 2020).

Although the evaluation is high with 81% of students agreeing or definitely agreeing that it was exciting for them to learn, the motivational aspect is the lowest evaluated of self-regulated learning aspects for the student group with the highest overall self-evaluation as well. Considering that learning motivation is based on both intrinsic and extrinsic factors (Wigfield et al., 2007), additional support from teachers might be needed for students to fully engage in learning.
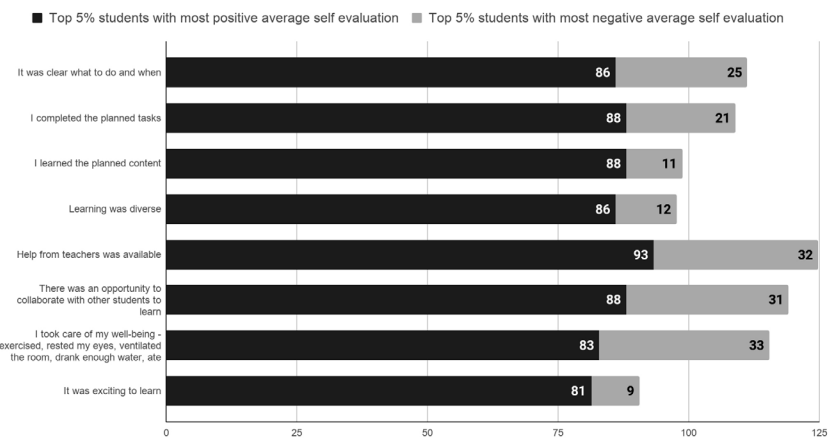
**Figure 3.** Percentage of students with overall highest and lowest self-evaluation with positive self- evaluation in each self-regulated learning aspect

Fig. 4 depicts that 7–9th grade students have a better self-evaluation in all self-regulated learning aspects, except for collaboration with other students, where 10–12th grades evaluate themselves higher and for the availability of help from teachers, where evaluation is the same. It is possible that for older students the learning content becomes more complex, which could cause issues with understanding and completion of the assigned tasks while working remotely, thus creating the difference in self-evaluations. 10–12th grade students also have lower self-evaluation for the motivational aspect of self-regulated learning as only 31% of them agree or strongly agree that learning is exciting for them, compared to 37% in the younger students' group. This is strongly linked to higher dropout risks for older students and is consistent with other research (Reimer & Schleiche, 2020; Rogers & Shwetlena, 2020). It might also be possible that older students evaluate themselves more rigorously than younger students because they have developed overall more complex self-evaluation and critical thinking skills.

As seen in Fig. 5, girls evaluate themselves higher in all self-regulated learning aspects, except for taking care of themselves, where boys evaluate themselves higher, and for learning being exciting both groups have equal evaluation. It has been shown in other research that girls have better self-regulation skills than boys (Duckworth & Seligman, 2006; Lummis & Stevenson, 1990; OECD, 2015). Data from this research show that girls collaborate more with teachers and amongst classmates and are more successful with completing the planned tasks. However, this diligence could come at a cost of their well-being, since girls evaluate themselves considerably

lower at taking care of themselves – only 48% positive evaluations, whereas boys have 55% positive evaluations respectively. Previous research shows that girls' efforts to work up to their fullest might also cause a lot of stress and disappointment when the highest results are not achieved (Pomerantz, Altermatt & Saxon, 2002).
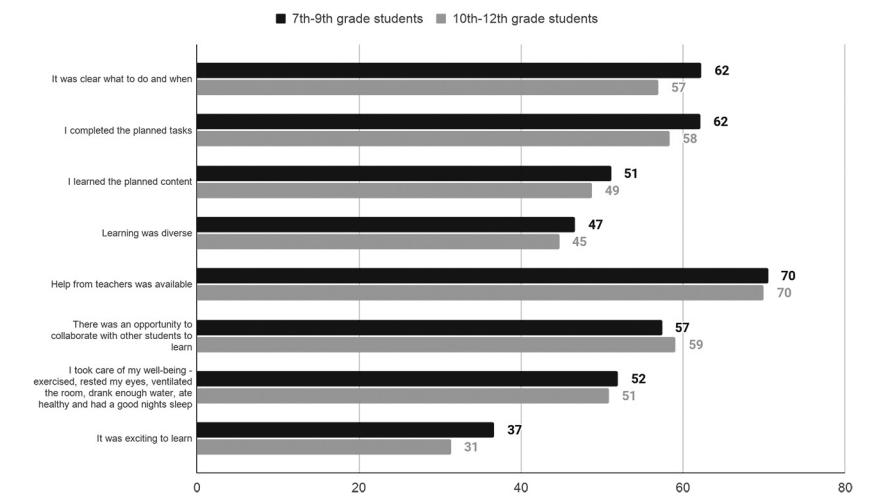


**Figure 4.** Percentage of students from grades 7–9 and grades 10–12 with positive self evaluation in each self-regulated learning aspect
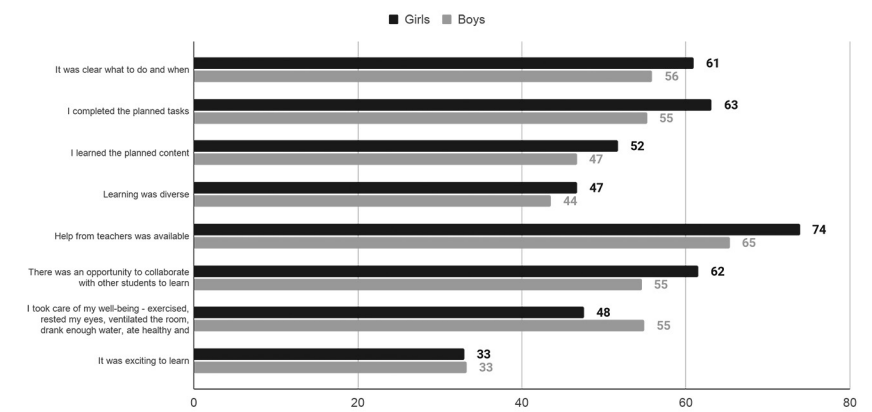


**Figure 5.** Percentage of boys and girls with positive self evaluation in each self-regulated learning aspect

## Conclusions

The aim of this research was to study students' self-evaluation on self-regulation processes during remote learning caused by the second wave of COVID-19 pandemic in autumn 2020 and analyse how their self-evaluations differ among distinctive students' groups.

It can be concluded that students with lower self-evaluation need additional support to improve the metacognitive aspect of self-regulated learning. Mastering new learning strategies might help improve results.

10–12th grade students might be more self-rigorous in evaluating their performance, and thus it is important to ensure they do not get discouraged by it. Helping students set ambitious but realistic collective and individual learning goals might help.

Similar to the previous research (OECD, 2015), this research shows that girls have better self-regulation skills and are more diligent learners. As a result, girls could neglect their own needs more than boys, which could lead to negative consequences, especially in the long term. Implementing self-care topics in learning content, ensuring that students take care of their learning environment and practice healthy habits, could be beneficial for all students.

The research shows that additional support is needed to ensure students' well-being, and consequently, ability to learn during remote learning. Class teachers, as well as school support staff, might help students who feel overwhelmed.

It is crucial to help students find ways to motivate themselves to learn during remote learning. Lack of social activities is one of the main concerns and, therefore, implementing more collaborative learning activities like discussions, group work and peer-review might help.

More research is needed to clarify the differences between self-regulated learning skills in distinctive student groups (age, gender, higher and lower achieving students), this could help provide students with more individualised support. It would also be beneficial to further research the impact of self-regulated learning processes on students' academic achievement during remote learning, this could help provide students with an appropriate learning environment.

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# TOWARDS THE EQUALITY OF PEOPLE WITH DISABILITIES IN THE HEALTH SYSTEM: THE PREPAREDNESS OF HEALTH WORKERS TO WORK WITH PEOPLE WITH HEARING, VISUAL, MOVEMENT AND MENTAL DISABILITIES

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**ABSTRACT**

Even though the recent decades have witnessed extensive attempts around the world to ensure the equality of people with disabilities in the health system, it has not been achieved yet. To some extent, the problem is related to the education of health workers to work with people with disabilities. In order to gain more understanding in this regard, this paper focuses on the preparedness of health workers to work with people with hearing, visual, movement and mental disabilities: Is there a link between the studies of the health care workers in higher schools and their preparedness to deal with the specific problems that arise when working with people with hearing, visual, movement and mental disabilities? How does a specific subject / module on working with people with disabilities relate to the preparedness of health workers to address these specific issues? How is it related to the integrated preparation during the study years to work with people with disabilities? A survey of 664 health workers (doctors, nurses, kinesiotherapists, and social workers) working in Lithuania has been conducted. The research revealed that a number of health workers were not properly prepared in higher schools to work with people with hearing, visual, movement and mental disabilities. The research has also revealed that while studying a specific subject / module about working with people with disabilities or studying it in an integrated way across a variety of study activities, health professionals become better prepared to deal with the specific problems of working with people with hearing, visual, movement and mental disabilities. The results of the study suggest the necessity to pay more attention to the particularity of working with people with disabilities in health workers education, so that they are more prepared to work with people with hearing, visual, movement and mental disabilities and ensure more equality and non-discrimination in the healthcare system.

*Keywords:* *Health worker education, preparedness to work with people with disabilities, hearing disability, visual disability, movement disability, mental disability, people with disabilities, health system.*

## Introduction

Equality is one of the fundamental values of the contemporary society. Global and European strategic documents declare equal rights for every human being to life, freedom, inviolability, citizenship, etc. (e. g., *The Universal Declaration of Human Rights*, 1948; *The United Nations Charter*, 1945; *The European Convention for the Protection of Human Rights and Fundamental Freedoms*, 1950; *The European Social Charter*, 1996; *The Charter of Fundamental Rights of the European Union*, 2000).

As regards specifically the equality of people with disabilities, *The Universal Declaration of Human Rights* (1948) stipulates that no person can be discriminated on the basis of his or her disability. There are constant attempts in the world to establish equality for people with disabilities before the law, i. e. the human rights to the same protection of the law and to the opportunities provided by law, thus ensuring the same rights as other people have and no exposure to discrimination (*Monitoring Report of 2018 on the Results of the Social Integration of Persons with Disabilities and the United Nations Convention on the Rights of Persons with Disabilities and its Optional Protocol,* 2019). Despite the global and European Union policies in this regard, The Council of Europe Strategy on the Rights of Persons with Disabilities for 2017–2023 *Human Rights: A Reality for All* (2017) recognizes that the European Union has so far failed to tackle disability discrimination – people with disabilities face multiple forms of discrimination and therefore cannot achieve "full and equal enjoyment of all human rights and fundamental freedoms" (ibid., 50). In order to change this unsatisfactory situation, the goal is to apply the principle of non-discrimination in all priority areas in the European Union by 2023, and thus achieve the equality of people with disabilities and their dignified life (ibid.).

The recent abandonment of a purely medical approach to disability and the establishment of a biopsychosocial approach, on the basis of which disability is perceived as a result of the interaction of environmental factors and personal characteristics, which can manifest itself on three levels due to the impairment of body functions and structure, activity limitation and participation barriers (World Health Organisation, 2012a), the problem of equality of people with disabilities in the health system has received increasingly more attention (Rupšienė, Ratkevičienė, Saveljeva, 2021). People with disabilities make up a large part of the society. According to the statistics, about 15 per cent of the world's population has a disability of one kind or another (World Health Organization, 2015), there are about 80 million people in the European Union (one in six) with disabilities (The Academic Network of European Disability Expert, 2019), it is likely that at one time or another in their lives, the majority of people have

experienced, are experiencing, or will experience a short-term or long-term disability (World Health Organization, 2011). Taking this into consideration, there is a growing understanding that disability is a human condition and that almost every one of us can temporarily or permanently lose some powers or abilities to perform one function or another at some point in our lives, and will inevitably face increasing challenges in everyday life related to the advancement of old age (Council of Europe, 2017).

However, despite the increased focus on the rights of people with disabilities in the health system, equality and non-discrimination have not been achieved yet. There are attempts made to identify reasons for this in the education of health workers as well. Even though, and as it has already been mentioned before, the purely medical approach to disability is gradually abandoned, the education of health workers is still mostly based on the medical model and ignores the social and legal aspects of participation of people with disabilities in the health system (Ruškus, 2017; Whitehead, Kathard, Lorenzo, 2019; Baranauskiene, 2020). At the same time, there are many research studies suggesting that the focus on the work with people with disabilities during the study process can be linked to a better situation of people with disabilities in the health system. For example, the inclusion of health-focused subjects in the studies of health workers has been found to have a positive effect on student attitudes, making it easier for them to interact with people with disabilities (Tracy & Iacono, 2008; Miller, 2015; Sarmiento et al., 2016; Ioerger et al., 2019; Kirshblum et al., 2020). It is also revealed that there is a direct link between the knowledge and negative attitudes towards people with disabilities expressed by the health professionals, and that negative health worker attitudes also have a negative effect on the quality and accessibility of health services for people with disabilities (Sabharwal, 2001; Symons, McGuigan, Akl, 2009; Hearn & Hearn, 2020). As it becomes evident from the aforementioned and other studies, there lies great potential in the preparedness of health professionals to work with people with disabilities, which should be addressed as a scientific problem in order to find ways to ensure equality and banish the discrimination of people with disabilities in the health system.

This article focuses on several issues stemming from the aforementioned scientific and practical problems: Is there a link between the studies of the health workers in higher schools and their preparedness to deal with the specific problems that arise when practically working with people with hearing, visual, movement and mental disabilities? How does a specific subject/module on working with people with disabilities relate to the preparedness of health workers to address these specific issues? How is it related to the integrated preparation to work with people with disabilities? It is hypothesized that those health workers who have learned about

working with people with disabilities during their higher education are more prepared to deal with the specific problems faced by health workers when working with people with hearing, visual, movement and mental disabilities, and that it is valuable to study a special subject/module related to the work with people with disabilities during the study process or to study it in an integrated way through various study subjects/modules.

The answers to these questions are sought by analyzing the case of Lithuania, which according to the trends of the problem analyzed, is a quite typical case. In Lithuania, as in other European Union countries, the aim is to ensure equality of people with disabilities in all areas of life, including the health care system, in accordance with *The Universal Declaration of Human Rights* (1948), *The United Nations Charter* (1945) and *The European Convention for the Protection of Human Rights and Fundamental Freedoms* (1950), *The European Social Charter* (1996), *The Charter of Fundamental Rights of the European Union* (2000) and other strategic documents of the world and of the European Union. However, despite the legal framework and international obligations, there is still a number of problems in Lithuania, as in the rest of the world, ensuring equal opportunities for people with disabilities in the health system. For example, a research study conducted in Lithuania shows that people with disabilities are not guaranteed the freedom of choice in the health system, their will and wishes are ignored, and they are often forced to use paid services that are too expensive for them (Baranauskienė, 2020). There are also a lot of issues with the services provided at the care facilities (Čiapaitė, Vaitkevičienė, 2020), doctors lack communication competencies necessary when communicating with people with disabilities (Baranauskienė, 2020), and employees providing social services in the health system often hurt these patients, violate ethics, behave irresponsibly, tactlessly, are insensitive and rude (Čiapaitė, Vaitkevičienė, 2020).

With regard to the education of health workers in Lithuania, it should be noted that the legislation regulating studies focused on the health services in the health system does not specify the obligation to supplement the studies with knowledge about people with disabilities or this obligation is very minimal and present only in case of certain studies (e. g. in the case of medicine, nursing and rehabilitation studies) (Ratkevičienė, 2020). Nevertheless, in reality, the study process does involve some preparation for work with people with disabilities: 21.2% of health workers claim that they have studied a special subject/module about working with people with disabilities, 41.4% indicate that although they have not studied a special subject/module, such education was still integrated through various study subjects/modules, and only 9.9% noted that they were not prepared to work with people with disabilities throughout the entire study period at all

(Rupšienė, Ratkevičienė, Saveljeva, 2021). In Lithuania, there are sporadic research studies on the successful cases of health worker education to work with people with disabilities: for example, the potential of drama therapy as a method of education occupational therapists to work with people with complex disabilities (Burneikaitė, Šertvytienė, Stasiulis, 2015); the impact of the communication skills development program on the effectiveness of communication of oncology health workers with oncology patients and how it is related to the quality of cancer treatment (Bulotienė & Jagelavičiūtė, 2016). Nevertheless, these and other studies raise concerns that the education of health workers does not pay enough attention to people with disabilities, thus preventing them from their right to equal access to health care. Therefore, in Lithuania, as in other countries of the European Union and the world, it is important to analyse the education of health workers to work with people with disabilities, and to initiate changes on the basis of such research, ensuring equality for people with disabilities in the health system.

## Method

### Sample

In search of the answers to the research questions, a survey was conducted in 2019, in which 664 health workers from all over Lithuania were selected via convenience sampling: 6.1 % ($N = 107$) doctors, 12.4% ($N = 218$) nurses, 5.9% ($N = 103$) kinesiotherapists, and 13.4 ($N = 236$) social workers. The majority of respondents were women: 69.2% ($N = 74$) in the group of doctors, 95.9% ($N = 209$) in the group of nurses, 80.6% ($N = 83$) in the group of physiotherapists and 94.1% in the group of social workers ($N = 222$). The average age of the respondents was 42 years (min $= 20$, max $= 73$), distribution by education: 15.5% have incomplete university of applied sciences/university education; 32% have education in the university of applied sciences; 21.5% have the first cycle university education (bachelor's degree); 28% have the second cycle university education (master's degree); 2.9% have the third cycle university degree (doctoral degree).

### Instrument

The evaluation of the organization of studies to prepare future health workers to work with people with disabilities has been established on the basis of answers to three dichotomous questions: 1) respondents studied a special subject / module about working with people with disabilities; 2) learning about working with people with disabilities was integrated into various study subjects / modules; 3) the studies did not include any

information about working with people with disabilities. The preparedness to address the specific problems encountered when working with hearing, vision, movement, and mental disabilities was addressed by answering four questions. The answers of the respondents were evaluated on the 3-point scale: 1 – feel unprepared, 2 – moderately ready, 3 – very ready.

### Data analysis

Data analysis was performed using SPSS.22. Chi square test was carried out to evaluate whether there is a significant association between the preparedness of health worker groups to work with people with disabilities. Standardized residuals (z-score) were used as a post-hoc analysis for Chi-square test. Cramer's V was used to measure the strength of association between the organization of studies and the preparedness of health workers to address specific problems encountered when working with people with disabilities.

## Results

The Chi square test showed that there is a link between the organization of studies in higher education and the readiness of health professionals to deal with specific problems encountered when working with people with hearing, visual, movement and mental disabilities (Table 1).

**Table 1.** The link between the organization of studies and the preparedness of health professionals to deal with specific problems arising from working with people with disabilities

| | Health workers feel prepared to address the specific challenges of working with people with disabilities | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | Hearing | | | Visual | | | Mental | | | Movement | | |
| | $\chi^2$ | $p$ | 5 | $\chi^2$ | $p$ | 5 | $\chi^2$ | $p$ | 5 | $\chi^2$ | $p$ | 5 |
| 1* | 6.045 | 0.049 | 0.115 | 10.638 | 0.005 | 0.163 | 8.863 | 0.012 | 0.131 | 13.665 | 0.001 | 0.157 |
| 2* | 18.958 | 0.000 | 0.203 | 14.566 | 0.001 | 0.190 | 24.943 | 0.001 | 0.220 | 34.650 | 0.000 | 0.250 |
| 3* | 18.614 | 0.000 | 0.201 | 24.307 | 0.000 | 0.246 | 38.847 | 0.000 | 0.274 | 35.065 | 0.000 | 0.251 |

* 1 – Had a special module / subject in the study process; 2 – Such preparation was integrated in the study process by studying various modules / subjects; 3 – Did not study it during studies; ** In all cases df = 2.

This relationship reveals a general tendency that those health workers who studied a special subject/module about working with people with disabilities during their studies or that such module was integrated into other study subjects/modules and activities, a little more often than not, feel more prepared to deal with specific problems they face when working with

people with hearing, visual, movement and mental disabilities. Cramer's V-factors are low, indicating that this trend is week.

According to the standardised residual (Table 2), there is a difference between the health workers who studied a special subject/module on working with people with disabilities – they were clearly less likely to mention that they were not prepared to deal with the specific problems they currently face when working with people with hearing impairments (28.7% vs. 42.2%), visual impairment (20.4% vs. 37.9%), mental disability (16.5% vs. 30.4%) and movement impairment (14% vs. 30.2%).

**Table 2.** A link between the special subject/module studies with readiness to solve specific problems arising when working with people with disabilities

| | | Healthcare workers feel prepared to address the specific challenges of working with people with disabilities | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Hearing | | | Visual | | | Mental | | | Movement | | |
| | | 1* | 2* | 3* | 1* | 2* | 3* | 1* | 2* | 3* | 1* | 2* | 3* |
| No | % | 42.2 | 19.7 | 38.1 | 37.9 | 25.6 | 36.6 | 30.4 | 26.2 | 43.4 | 30.2 | 21.0 | 48.8 |
| | Standardised residuals | 0.9 | -0.5 | -0.6 | 1.2 | -0.9 | -0.4 | 1.2 | -0.3 | -0.7 | 1.4 | -0.1 | -1.0 |
| Yes | % | 28.7 | 24.8 | 46.5 | 20.4 | 37.6 | 41.9 | 16.5 | 29.6 | 53.9 | 14.0 | 21.5 | 64.5 |
| | Standardised residuals | -1.7 | 0.9 | 1.1 | -2.2 | 1.7 | 0.6 | -2.2 | 0.5 | 1.3 | -2.7 | 0.1 | 1.9 |

\* The answers of respondents indicate how, during their studies, health workers feel ready to solve specific problems when working with people with disabilities:
1 – unprepared, 2 – moderately ready, 3 – very ready.

**Table 3.** The link between integrated studies on working with people with disabilities and preparedness to deal with the specific problems that arise when working with them

| | | Health workers feel prepared to address the specific challenges of working with people with disabilities | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Hearing | | | Visual | | | Mental | | | Movement | | |
| | | 1* | 2* | 3* | 1* | 2* | 3* | 1* | 2* | 3* | 1* | 2* | 3* |
| No | % | 47 | 20.1 | 32.7 | 41.0 | 28.2 | 30.8 | 35.9 | 25.4 | 38.7 | 35.8 | 21.4 | 42.8 |
| | Standardised residuals | 2.1 | -0.3 | -1.9 | 1.8 | 0.0 | -1.7 | 2.8 | -0.5 | -1.8 | 3.1 | 0.1 | -2.3 |
| Yes | % | 28.1 | 21.9 | 50.0 | 24.6 | 28.6 | 46.9 | 16.6 | 28.8 | 54.6 | 14.9 | 20.7 | 64.5 |
| | Standardised residuals | -2.5 | 0.3 | 2.2 | -2.1 | 0.1 | 1.9 | -3.1 | 0.5 | 2.0 | -3.6 | -0.1 | 2.6 |

\* The answers of respondents indicate how, during their studies, health workers feel ready to solve specific problems when working with people with disabilities:
1 – unprepared, 2 – moderately ready, 3 – very ready.

The data presented in Table 3 show how the preparedness to address the specific problems that arise when working with people with disabilities is related to the integration of this topic into the study process. Those health workers who were getting ready to work with people with disabilities studying various subjects/modules mentioned evidently less often that they were not prepared to address the specific problems they face when working with people with hearing impairments (28.1% vs. 47%) visual disability (24.6% vs. 41%), mental disability (16.6% vs. 35.9%), and movement disability (14.9% vs. 35.8%). They also mentioned significantly more often that they have become well prepared to work with people with hearing (50% vs. 32.7%), vision (46.9% vs. 30.8%), mental (54.6% vs. 38.7%), and movement disability (64.5% vs 42.8%).

The data presented in Table 4 shows how the preparedness to address the specific problems of working with people with disabilities is generally related to studies. Those health workers who did not study anything at all about working with people with disabilities during their studies, were significantly more likely to mention that they were not prepared to address the specific problems they face when working with people with the hearing impairment (68.9% vs. 36.1%), visual disability (69.2% vs. 30%), mental disability (64.6% vs. 23.5%) and movement disability (57.9% vs. 23.1%). Moreover, they mentioned significantly less often that they have become very prepared to work with people with hearing (17.8% vs. 42.3%), vision (15.4% vs. 40.2%), mental (14.6% vs. 48.9%), and movement disability (21.1% vs 55.8%).

**Table 4.** The link between any studies on working with people with disabilities and preparedness to deal with the specific problems that arise when working with people with disabilities

| | | Health workers feel prepared to address the specific challenges of working with people with disabilities | | | | | | | | | | |
| | | Hearing | | | Visual | | | Mental | | | Movement | | |
| | | 1* | 2* | 3* | 1* | 2* | 3* | 1* | 2* | 3* | 1* | 2* | 3* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| No | % | 36.1 | 21.6 | 42.3 | 30.0 | 29.8 | 40.2 | 23.5 | 27.6 | 48.9 | 23.1 | 21.1 | 55.8 |
| | Standardised residuals | -1.0 | 0.4 | 0.8 | -1.2 | 0.5 | 0.7 | -1.6 | 0.3 | 1.0 | -1.5 | 0.0 | 1.1 |
| Yes | % | 68.9 | 13.3 | 17.8 | 69.2 | 15.4 | 15.4 | 64.6 | 20.8 | 14.6 | 57.9 | 21.1 | 21.1 |
| | Standardised residuals | 3.2 | -1.1 | -2.4 | 3.8 | -1.5 | -2.3 | 4.9 | -0.8 | -3.2 | 4.6 | 0.0 | -3.3 |

* The answers of respondents indicate how, during their studies, health workers feel ready to solve specific problems when working with people with disabilities:
1 – unprepared, 2 – moderately ready, 3 – very ready.

## Discussion

The research study has revealed the importance of the preparedness of health workers to work with people with disabilities throughout their study process. This can be indicated by some of the trends identified – they feel more prepared to deal with the specific problems that arise when working with people with hearing, visual, movement and mental disabilities, those health workers who are prepared for work with people with disabilities in some way and form during the study years, had a special study subject/module or studied it in an integrated way through several study subjects/modules and other activities. Thus, the hypothesis raised at the beginning of the investigation could not be falsified. At the same time, there is further evidence of the benefits of including a special subject/module on people with disabilities in the study program for people with disabilities in the health system identified by other researchers (e. g., Tracy & Iacono, 2008; Miller, 2015; Sarmiento et al. 2016; Ioerger et al., 2019; Kirshblum et al., 2020). Taking this into consideration, in order to improve the situation of people with disabilities in the health system and ensure their equal rights, it is appropriate to supplement education programs for health workers with activities that bring focus on the work with people with disabilities.

On the other hand, it is still noteworthy that some health workers who were somehow involved in preparing to work with people with disabilities during their studies feel unprepared to deal with the specific problems that arise when working with people with hearing, visual, movement and mental disabilities. This idea suggests that the very fact that future health workers are trained to work with people with disabilities does not guarantee their proper preparation to work in practice. Other researchers also analyse the problems of the inability to transfer the theoretical knowledge into practice. For example, Kuper and D'Eon (2011) note that despite strong theoretical preparation and available knowledge, a large proportion of nurses, especially those who have started work, are unable to properly apply the available theoretical knowledge in practice, and Teagle et al. (2017) highlight the same problem, sensitive among graduating and beginning physicians, who also have a low ability to apply theoretical knowledge in practice. According to this, it is necessary to further investigate this problem in order to find factors for the future education of health workers to work with people with disabilities that ensure their more effective preparation for work.

In addition, it has become clear that some health workers who have not been specifically prepared to work with people with disabilities during their studies still feel very well prepared to deal with the specific problems of working with people with hearing, visual, movement and mental

disabilities. This seems rather paradoxical and could be linked to research findings that provide evidence that some health professionals overestimate some of their professional competencies. E. g. Kee et al. (2018) suggest that physicians tend to overestimate their relationships with patients, i. e., health professionals rate their relationships and interactions with patients better than patients do on their side. In general, Cucchetti et al. (2020) has noted that there is a problem of self-overestimation of physicians, which is directly related to the work experience and their age – physicians tend to overestimate themselves and their knowledge in diagnosing diseases and making predictions. Still, it is unclear how health professionals can be prepared to deal with the specific problems that arise when working with people with hearing, visual, movement and mental disabilities if they have not studied this during their studies at all. This ambiguity can be addressed by new research.

The research study, despite considerable efforts, failed to ensure the randomness of the sample, and which is considered to be the main limitation of the study. In further research, it would be worthwhile to purposefully select subpopulations of health workers, to perform random selection in them and to examine in detail the focus of studies on working with people with disabilities.

## Conclusion

Studies in higher education that include the work with people with disabilities into consideration, prepare health workers to work with people with hearing, visual, movement, and mental disabilities better. This in turn leads to a better situation for people with disabilities in the health system, ensuring their equality and non-discrimination on the grounds of disability.

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# HOW COVID-19 HAVE ENFORCED SOCIAL INEQUALITIES – EXPERIENCE OF ESTONIAN TEACHERS

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**ABSTRACT**

Students across the world have missed face-to-face instruction due to COVID-19 for many months. While schools have made valiant efforts to continue the provision of learning for students, the success of those efforts has varied, and has often been hindered by limited access to technologies and high-speed broadband available in the homes of teachers and students. The changes have enforced existing social inequalities because of insufficient skills, resources, time or health to assist children with remote learning. Closing schools disrupted the education of all children, but some will have coped better than others. Children are differentially advantaged, reflecting their background and circumstances.

The aim of this article is to explore how Estonian teachers have experienced the teaching and learning remotely during the first lockdown period in 2020 and what are the possible consequences for vulnerable student' groups.

The paper draws on a qualitative method study based on recent interviews with teachers (*n* = 20) in ten schools. It turned out from the study that there are positive attitudes towards using digital tools in the learning process, but it has not clear impact on the development of digital skills. The results indicated that there is a fragmentation and wide variety of approaches practiced in Estonian general education schools and not all students benefited from the best practices of distance learning. One of the main threats to students with special educational needs (SEN) was the interruption of their study routine, including support services and creating a new daily structure for activities. The involvement of parents and the opportunity to contribute to supporting their children's home learning played a major role.

*Keywords: COVID-19, inequality, remote learning, teacher's skills, vulnerable learners.*

## Introduction

Countries around the world have undergone an unprecedented change in 2020/21 due to the pandemic; a change that is likely to have a potentially far-reaching, long-term impact on children. Existing evidence indicates that countries around the Europe varied in how they adapted their education systems to online learning during COVID-19 (Mohan et al., 2020;

Rannastu-Avalos & Siiman, 2020; Sharp et al., 2020). While schools have made valiant efforts to continue the provision of learning for students, the success of those efforts has varied, and has often been hindered by limited access to resources available in the homes and lack of parental support. The changes have enforced existing social inequalities as not all families have had sufficient skills, resources, time or health to assist children with remote learning. The level or resources in the schools and teachers information and communication technology (ICT) skills also vary. The COVID-19 crisis affected the schools in many ways, depending on students socio-economic background, school type and size, language of instruction etc., however pandemic has not necessarily created new inequalities, but has certainly made existing ones more recognisable (Sahlberg, 2020). Closing the schools affected 1.5 billion students globally (UNESCO, 2020) and raised a question – how vulnerable student groups are socially and educationally impacted by remote learning.

Social and economic conditions where students live and learn are social determinants of health and educational disadvantage. Young people who have been exposed to more disadvantage than their peers, are described in terms of vulnerability. Social vulnerability refers to "resilience of communities when confronted be external stressors such as complex and cascading effects from COVID-19 disruption" (Drane et al., 2020, p. 3).

Based on previous research, children's access to resources is the key factor to drive educational inequalities in general and expected to do so particularly at the time of lockdown. One of the key factors for learning success during periods of remote learning is parental support. During normal times parents with higher socio-economic status tend to be more involved in activities that positively influence children's learning outcomes. It is also important to mention, that during pandemic, higher educated parents were more likely to be working from home, and therefore more able to balance work commitments and children's homeschooling needs. In contrast, lower educated parents were either more likely to continue working at their workplace or in some cases to lose their jobs (Educational inequalities in Europe, 2020). Children who lack support were already lower performers before the crisis but in situation of COVID-19, educational inequality has been increased because of family related factors. In addition to family related factors, there are important school related factors, including teachers' skills and available resources. According to TALIS (OECD, 2019) 74% Estonian teachers mentioned "development of ICT skills" as a most crucial training topic but only half of teachers in Estonia who have graduated university in the last five years feel prepared to use ICT tools to teach their subject and are able to support their students through digital technology. Obviously, in schools where digital learning platforms and tools were used

before COVID-19 and teachers were prepared to cope with distance learning (technological and pedagogical) and work-related stress, the transition to remote learning was easier (Lepp et al., 2020).

The results of studies related to school closure due COVID-19 in many countries demonstrate a dramatic increase of teachers workload. According to Kaden (2020), online education can support learning only in case if it ia carefully designed and individualized to not deepen inequality and social divides. In the same time "The forced move to online learning may have been the catalyst to create a new, more effective hybrid model of educating students in the future….and virtual learning cannot be seen as a cheap fix for the ongoing financial crisis in funding education" (Kaden, 2020, p. 1).

Despite the fact that Estonia has built an advanced digital society long before pandemic, crisis very clearly affected our schools. Even the online teaching and learning tools, including electronic textbooks were already in use, the schools had to address many challenges. This study is focusing on first lockdown period (March, 16 – May, 18 2020) and exit since mid-May when students were able to go to school in small groups. In Estonia it was mainly arranged to help the students who had not participated in remote learning during the lockdown period.

## Method

The aim of this article is to explore how Estonian teachers have experienced the teaching and learning remotely during the first lockdown period in 2020 and what are the possible consequences for vulnerable student' groups.

The study explores the following questions:

1) What digital sources were available for students to support learning based on teachers' explanations?
2) How teachers coped with remote learning of socially and educationally disadvantaged students and what challenges were faced?

The paper draws on a qualitative method, based on interviews with teachers ($n = 20$) in 10 case study schools. The case study schools were selected to represent dimensions of variation in school composition and organisation on the basis of criteria: rural/urban area, language of instruction, variety of student population (socio-economic background, students with special needs). The participants consisted of 16 female and 4 male basic school teachers, representing disciplines: Estonian langugage, foreign language, math and science, art and technology. Respondents experience varied from two to fifteen years of experience in teacher position.

Data were collected from individual in-depth interviews based of predefined questions. The interview questions were formulated based

on Beaunoyer et al. (2020) theory on impacts of the COVID-19 crisis on digital inequalities. According to them, "beside purely quantitative large-scale investigations, there is a critical need to consider and document individuals' experiences of the crisis" (Beaunoyer et al., 2020, p. 7). The semi-structured interview questions included open-ended questions about digital sources available for remote learning and how vulnerable student learning was perceived, including encountered challenges. The respondents were informed about aim and content of the study and were asked to give permission for anonymous use of the research data.

Recorded interviews were transcribed using automatic transcription programme of Tallinn Technical University. Transcripts were uploaded into a QCAmap to facilitate organization and analysis (QCAmap). The thematic analysis method was chosen for analysing the data. In order to maximise the reliability of the study, re-encoding and researcher triangulation was used. For reporting, codes were combined into the following categories to focus on answering the research questions: (a) digital sources, (b) coping and challenges, (c) availability of support services.

## Results

### Sources available to support distance learning

Teachers described variety of available web based tools: e-School and Studium; portal for digital learning materials: E-Schoolbag and Opiq, FB groups. During the distance learning teachers saw a considerable increase in the use of mentioned platforms and tools. In particular, emphasis was placed on experiential counseling and sharing information:

> As a teacher I was really happy about FB group Homeschooling using techology. They share advice and experience on how to conduct learning using technology. It also helps students and parents to learn and to teach (Secondary teacher in urban school).

The teachers highlighted particular value of the SEN website (Innove, s.a.) which offers study materials suitable for pupils who study under the simplified curriculum or for students with coping difficulties. In "regular times" teachers used to have those materials for adaptive teaching, now their necessity became apparent for facilitating remote learning. Teacher of SEN students reported:

> Practically overnight I started to adapt these materials for distance learning. I can't imagine my work as a teacher of SEN students without such a repository (Basic school teacher).

In addition, regional services providing counselling to pupils with special education needs (SEN) promptly responded to remote learning. Network of

Pathfinder Centres switched to remote services, including phone or video counselling for families.

Teachers in multilingual schools (mainly in Russian-speaking regions) perceived the complexity of language learning and the decline in students' motivation. Widely popular immersion programs had to find new and an effective ways to conduct bilingual education. Teachers emphasized importance of ongoing support for language learning and vocabulary building, therefore they also found help from the Innove (s.a.) website. The popularity of language learning e-platforms increased significantly, but at the same time it required independent and self-directed learning skills, which proved to be a limitation for vulnerable target groups.

From the choice of online environments teachers appreciated highly "Head Matters" – the online consultation platform to promote mental health and facilitate access to different services and early intervention (Peaasi, s. a.). As the team consists of qualified mental health specialists, youth workers and ICT specialists, they have developed interactive information materials and training tools on mental health and disorders. User friendly and engaging website with videos and animations was perfect tool not only for youngster but also for teachers and parents. During the lockdown period the online consulting service played a vital role.

### Coping with remote learning of disadvantaged students and faced challenges

#### *Coping and challenges*

Respondents highlighted that learning cap increased during lockdown period. Study time reduced by about half: low-achievers reduced learning time significantly more than high-achievers. During the pandemic, parents with higher education were more able to balance the work and home responsibilities to support children homeschooling. Lower educated parents as a rule worked on the "front line" which led to gaps in learning and declining of social skills. Issues affected SEN pupils engagement like the shock to everyday routine and wellbeing were mentioned. As remote learning was not suitable for some students with SEN, alternative solutions had to be found. Pupils with SEN faced behaviour problems and also fear of communication via the screen:

> *I have a student who doesn't even talk to his family members via Skype...*
> *I only got in touch with him late at night when his mother came home*
> *from work* (Primary teacher in urban school)

Teachers also mentioned that the lack of technological means will create stratification, not everyone can study at home. Lack of resources (computers, laptops, a high-speed internet connection, quiet study room, parents

involvement and limited opportunities to provide homeschooling support) were indicated as barriers to remote learning:

> *My student, who is from a large family of 10, was able to use the computer a maximum of once a week when the older siblings had done their school work* (Primary teacher in rural school)

There were difficulties in organizing remote learning for (Russian speaking) immersion students in a situation where the language skills of both children and parents were not sufficient to study independently and support learning.

Some interviewees described cases where the shift to remote learning was a positive experience for both – students and parents. Remote learning was preferred by students who have experienced anxiety around school. In those cases school refusers with special education needs and mental health issues reengaged after the shift to remote learning.

### Availability of support services

Although online consulting services were in place, there was interruption of some specific support services for children with SEN:

> *Many support workers temporarily stopped working because they were at risk due to their age* (Special education teacher in urban school)

Therapies that required physical contact were also discontinued. At the same time new support measures emerged. For example, teacher education universities provided *ad hoc* consultation to teachers and other school staff members. Teacher students took the role of assistant teacher in many schools where help was required.

## Discussion

Literature on educational inequalities widely acknowledges that differences in home environments and parental support are important for explaining lower school performance of disadvantaged students (Educational inequalities 2019, p. 1). For many students with special educational needs the impact of lockdown was strongly negative, cutting them off from vital school-based supports while also bringing new pressures to bear on them (Mohan et al., 2020, p.69). Students from families in which the parents were frontline workers were in a more vulnerable position in terms of home support as they often had no parental assistance (Mägi, 2021). In Estonia more than a fifth (22%) of parents admitted that their children needed constant assistance from parents (Lauristin et al., 2020).

Results of this study revealed that teachers faced many challanges in coping with remote learning of disadvantaged students. In situation of COVID-19 educational inequality has been increased because of family

related factors – unequal conditions and availability to parental assistance. Issues affected SEN pupils engagement like loss of daily routine and well-being were mentioned. In some cases the shift to remote learning impacted negatively on disadvantaged students' social- and selfregulation skills.

Estonia had key tools and sources available to support remote learning already before pandemic. During the remote learning teachers saw a considerable increase in the use of platforms and tools like e-School, Studium; E-Schoolbag, Opiq, etc. Results from the Children's Advisory Panel's survey of 10–18 year-olds indicated that students in Estonia had "an above-average level of satisfaction with home learning compared to the other seven countries participating in the survey. Estonia also had the highest share of students who reported that during school closures, they had good access to the internet (73%) and to school systems (69%)" (OECD, 2020, p. 4). In the same time, based on survey, done in Estonia in summer 2020, there were 10% of students who did not cope at all during the first remote learning period (as teachers used to say: "disappeared from the picture"). This is a significant number of students who may be at risk of dropping out in the future (Lauristin et al., 2020).

As teachers faced insufficient knowledge and skills how to support learners with disadvantaged background, more attention should be paid to specific methods, how to adapt learning materials, support alternative learning options and sustain engagement in remote learning of different vulnerable groups. This applies to learners with special needs but further targeted supports are required for Russian-speaking and immigrant students in order to ensure equity for all learners groups.

The results of this study are in line with research of Beilmann et al. (2020, p. 29) that existing socioeconomic inequalities may be reinforced in time of pandemic and "socioeconomic inequalities need extra attention in analysing teaching practices and learning outcomes in the field of digital skills development." The lesson learned from the first wave of the COVID-19 is that "predictability and stability in digital learning environments would help to spare all parties (teachers, students and families) from unnecessary confusion, communicative efforts and loss of time of" (Beilmann et al., 2020). The results can be used in teacher education, integrating teachers' digital skills with different subjects. The results are also applicable in schools and parental associations, forming partnerships to minimize social inequalities.

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# TECHNOLOGY-BASED DECISION MAKING IN INCLUSIVE EDUCATION

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**ABSTRACT**

Technology-based decisions in education are made on a daily basis. For some students, inclusive education is impossible without assistive and adaptive technologies. A study was conducted using the method "focus groups with one moderator". The discussions explore the decision-making process for technology-based learning and the advantages and disadvantages of technology-based learning. The method provides an opportunity for individual and group intellectual and praxeological reflection on the discussed issues. The reflexive processes in the respondents allow to deduce the levels of their digital competence. The qualitative research was conducted with 65 inclusive teachers from secondary school and high school. The teachers participating in the study were selected according to a basic criterion: to make technology-based decisions for the implementation of inclusive processes in school.

The main aspects for future analysis are mobility, accessibility, functionalities of technologies, application of the model of technology-based learning in inclusive education and factors that influence the decision-making process for choosing different spaces of technology-based learning. By making technology-based decisions the respondents create conditions for self-reflection about the application of technologies for the implementation of the processes of inclusive education. Reflexive analysis for technology-based decisions leads to increased intellectual, personal and praxeological reflection in the respondents. As a consequence of the increased manifestations of reflection in the respondents, conditions are created for personalized teaching and personalized learning in students, and personalized learning in turn paves the path of inclusive processes.

*Keywords: inclusive education, intellectual reflection, level of digital competence, technology-based decisions, praxeological reflection.*

## Introduction

Decision-making in education happens almost every hour. In the conditions of distance learning in an electronic environment, decision-making is mainly related to their technological nature. The question how teachers

make technological decisions for the implementation of inclusive education remains. The mechanism of making technology-based decisions for inclusive education may be different, but begins with identifying the problem and the desired end result, continues with identifying variations and alternatives according to existing conditions and factors of influence, making a choice of many alternatives and solutions is a fact. As Mescon (2016) notes: "decision-making as a process is characterized by being time-consuming and implemented in several stages. Stages of preparation, adoption and implementation of the decision are separated. The decision as an act of choice implies the choice of alternatives in operational mode. The decision as a result of a choice is a prescription for action" (p. 193).

Technology-based decisions for inclusive education can be considered in several aspects of elections:

- choice of technologies in the process of their purchase, for use in the educational process, and in the administration of the academic status of the students;
- choosing certain technologies for teaching certain learning content in an accessible way for all students;
- selection of certain learning technologies according to the individual profiling of the students and the personalized learning.

The existence of choices is not enough to implement a technology-based decisions. Asaul, Knyaz and Korotaeva (2007) note that "practice shows that even well-designed decisions often turn out to be unfulfilled due to an unsettled control system" (p.5) and the implementation of the decision. The specificity of technology-based decision-making is related to the knowledge and mastery of the functionalities of technological devices and electronic resources, and their effective use for the implementation of inclusive processes and for supporting the various educational needs. Technology-based education decisions intertwine the corporate level of decision-making on the necessary and effective technologies for administration and training of students / including assistive and adaptive technologies / on the one hand and on the other hand, the individual level of the teacher for decision making according to personal preferences and competencies, his teaching style and the learning styles of his students, risk-taking and responsibility for the use of certain technologies in the learning process.

In this context, according to Ribeiro (2016), when making scientifically validated technology-based decisions, the total cost of ownership of technology of the school organization, the organizational vision of the school, effective funding, the academic impact of technology on student learning should be taken into account. Technology-based decision making is related to data-driven decision-making. In this context, technology-based decision-making should be timely, accessible, and have capacity.

In recent years, research specifically on data-driven decision-making for inclusive education has predominated in the scientific literature (Mandinach et al., 2006; Datnow and Hubbard, 2016; Filderman and Toste, 2017; Schildkamp, 2019; Pagan, Magner & Thibedeau, 2019; Mandinach & Schildkamp, 2020; Wilcox et al., 2021), but there is relatively little research on technology-based decisions for inclusive education and technology-based decisions based on or related to data-driven decision-making. But, as Mandinach and Schildkamp (2020) note: "In no way is the use of data a panacea or the sole source of information to inform practice. Educator experience and professional judgement count, but must be used in conjunction with data, especially now that understanding students has become more complex. This means that the data use field needs to move from neo-behaviorism and cognitivist perspective on data use to a more social-cultural paradigm. The focus should be continuously adapting instruction in the classroom and beyond, to facilitate and optimize students' learning processes, taking into account learners' needs and individual characteristics" (p. 7).

At the same time, there are many scientific studies related to the separate use of individual assistive or adaptive technologies mainly for students with special educational needs (SEN), and with the development of technology increases the opportunities for their application in the educational process for inclusion of all students.

The success of inclusive education, especially in a pandemic, depends on the technology-based decisions of teachers and parents, as well as the students themselves. For some students, inclusive education is impossible without assistive and adaptive technologies, even in terms of attendance training in the university. In the necessary conditions to conduct distance education, every teacher faces making technology-based decisions, especially for the realization of the process of inclusive education.

According Harteis et al., (2008), Earl and Louis (2013), Vanlommel, Gasse and Petegem (2017) a significant "part of teachers' decisions have an effect on pupils' educational trajectories, yet we know little about how teachers make decisions" (p. 81). The conceptual framework for the present study is study the process of making technology-based decisions in the process of inclusive education. At the same time, technology-based decisions about inclusive education are based on the amount of data that teachers have about different technologies, their functionalities and the opportunities they provide to students for their achievements and progress. The focus is on the following aspects of research:
- what technology-based decisions teachers make about inclusive education?;
- how to make technology-based decisions for inclusive education – rational, emotional, intuition and experience, with what reflection?

## Method

For the purposes of the scientific research, the "focus group" method has been applied. It is applied to focus groups of teachers implementing inclusive processes, examining the process of making technology – based decisions for inclusive education, determinants of different types of technology-based decisions for inclusive education, and analysis of the challenges and benefits of technology-based decisions making for inclusive education.

The model of "focus groups with one moderator" is selected. The method provides an opportunity for individual and group intellectual and praxeological reflection on the discussed issues.

### Period of conducting

The research is conducted in the period 22.11.2020 – 22.01.2021.

### Participants in the study

Participants in the study are 65 teachers: 35 from secondary school and 30 from high school stage of education. The selection of the participants in the research was made according to three criteria: application of inclusive processes in the educational process, making technology-based decisions with inclusive character in the educational process and critical analysis of the implemented technology-based decisions for inclusion by teachersSince the participation of the respondents is on a voluntary basis, but in compliance with the specified selection criteria, the two groups / from secondary school and from high school stage of education / are counterbalanced by the number of participants. The age of the respondents varies from 28 years – 53 years for participants from secondary school and 32 years – 62 years for participants from high school. However, these age parameters reflect the demographic picture of the teaching profession in Bulgaria. In secondary school, teachers are younger than high school teachers.

The study was conducted in a distance format via an electronic platform Google meet in the virtual classrooms. A preliminary survey was conducted for recruiting respondents with questions about age, professional experience in inclusive education, using technologies in the educational process and making technology-based decisions about inclusive processes in school.

The activity in the focus groups follows the standard stages: preparatory, informational, contact, discussion, concluding. The duration varies from 1.30 hours to 2.30 hours in the individual focus groups. The same scenario is worked in all groups. 5 main topics were discussed:
  • what digital devices teachers and their students use?
  • what are the functionalities of the digital platform through which they work?

- how they make decisions about the choice of learning resources and what decisions they make?
- what decisions they make to work with students from the focus groups of inclusive education?
- what decisions they make to assess students' school performance?

In the course of the focus group's work, additional questions are asked, parrying the deviation from the main topics. Basically each focus group chose the methods of decision making "brainstorming" and/or the "Delphi" method.

## Results

The data from the preliminary recruitment of the respondents is shown in Table 1.

**Table 1.**  Data from recruiting respondents

|  | Age of the respondents | Professional experience in inclusive education | Use of technology in the learning process | Making technology-based decisions for inclusive learning processes |
|---|---|---|---|---|
| 1. Teachers from the lower secondary stage of education | 28 years – 53 years | from 3 years to 31 years | yes – 100% | yes – 100% |
| 2. High school teachers | 32 years – 62 years | from 3 years to 40 years | yes – 100% | yes – 100% |

As it can be seen from Table 1. the determination of the respondents meets the criteria for forming focus groups, namely criteria for professional experience in the process of inclusive education, for using educational technologies and for making technology-based decisions for inclusive learning processes.

Based on the data from the recruitment, 6 focus groups have been separated, as 3 of the focus groups are from teachers from the lower secondary stage of education, and 3 from the focus they are from teachers from high school. The structuring of the focus groups is realized according to a leading criteria: age of the respondents: 28–35 years – 2 focus groups; 35–45 years – 2 focus groups; 45–62 years – 2 focus groups. The age of the respondents was chosen as the leading criteria for structuring the groups, because the lower age of the respondents implies a higher interest in technology, higher digital literacy and higher digital competence.

Secondary school teachers were more active in the discussions. They identified the following as key factors for technology-based decision making: mobility, accessibility, functionalities of technologies for inclusive education.

High school teachers pointed out the following factors: student motivation, interactive and innovative methods in the virtual classroom for inclusive education.

The determining factors differ probably because in the high school stage, the work of students in a virtual environment does not encounter any difficulties. Even sometimes students have more knowledge about the functionality of digital platforms than some teachers.

Undoubtedly, student motivation, interactive and innovative methods in the virtual classroom also influence decision-making in secondary school teachers.

Technology-based decisions in both groups of teachers find it difficult to develop different learning resources with digital technologies and different models of teamwork.

In the course of work of the focus groups, each group made an analysis of situations for technology-based decisions regarding defining the purpose of making technology-based decisions, deriving criteria for making technology-based decisions, information provision of making technology-based decisions, elaboration of variants for making technology-based decisions and evaluation of the developed variants. Each group analise foundation for making technology-based decisions, their impact on inclusive processes in the inclusive educational environment. Respondents from both groups find it most difficult to define criteria for assessing technological decision-making for inclusive education..

During discussions on the 5 basic questions, the respondents presented answers, summarized in several spaces for technology-based decision making: criteria, way of decision making and implementation of decisions in action / in implementation/.

Respondents from both groups mainly use the digital platforms that the school has chosen, ie. technology-based decision-making is corporate, not personal. Focus groups aged 28-35 mainly use other digitalplatforms, and the use of mobile applications by the respondents is shown in Figure 1., as the data are summarized for the individual focus groups.

All respondents say that they know all the functionalities of the digital platforms they use. Focus group respondents, who use other digital platforms besides the one chosen by the school where they teach, note that due to disapproval of certain functionalities they also use other digital platforms.
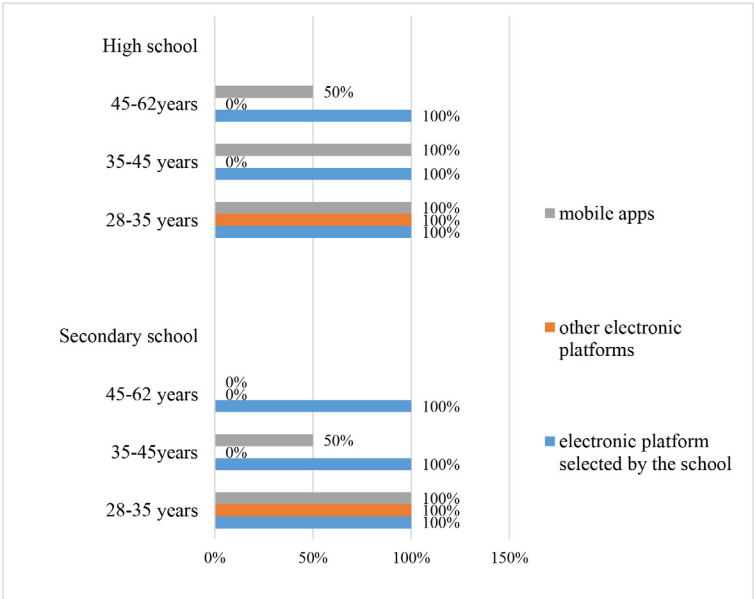
**Figure 1.** Using mobile apps and digital platforms

Focus group respondents who use mobile applications noted that they made these choices because:
- their students prefer to use mainly smartphones from the digital devices and so the teachers adjust the learning process to the technological preferences of the students.;
- they themselves prefer to use smartphones;
- mobile applications offer different functionalities than those of electronic platforms.;
- they have learned from colleagues about mobile applications that are attractive and interactive for the learning process;
- they can customize the learning process.

Respondents from the six focus groups shared in the discussions that they make technology-based decisions about learning resources after testing the learning resource. Usually, 50% of the respondents from the focus groups receive information from their own searches, 83.33% of the respondents from the focus groups receive information from colleagues, from parents /50% of the respondents from the focus groups/ or from students /33.33% of the respondents/.. In the discussions, the respondents note that for students with low school achievements or for students with SEN effective technological solutions and actions are related to:
- the use of digital worksheets /100% of respondents from the focus groups from the lower secondary stage of education/;

- educational games /100% of respondents from the focus groups from the secondary school stage of education and 33.33% of respondents from the focus groups from the high school stage of education/;
- work in a group with peers / 100% of respondents from the focus groups /.

In the discussions, respondents from all focus groups analyze and share technology-based decisions, followed by effective application in the learning process to comply with accessibility requirements when creating digital resources. Accessibility is displayed in the direction of size and line spacing of text; the color background of presentations; clear and consistent structuring of the learning content; inclusion of pictures, charts, diagrams to the text for a higher level of visualization of educational content.

All respondents from all focus groups /100% of respondents/ derive experience from technology-based decisions and actions related to active learning of students using the functionalities of digital platforms.

Respondents from all focus groups use the forms for questionnaires and quizzes, for surveys and text assignments and thus implement a formative assessment for different students according to their individual profile. These technology-based decisions are crucial for inclusive education because they are related to the needs but also to the strengths of the students.

A special focus in the discussions is the making of technology-based decisions for the use of adaptive and assistive technologies in the learning process. In four of the focus groups, respondents noted that they had to make similar decisions due to the needs of students with SEN. Respondents say that students use adaptive devices and therefore in the teaching process it was necessary to make technology-based decisions and implement them to change the availability of digital resources. An example is a change in the design of the taught curriculum to provide access to digital resources, as well as interactive communication with students. In three of the focus groups, specific models of delivery of e-learning content with separate worksheets / developed together with a resource teacher / and joint teaching with a resource teacher are indicated. In the other focus groups, there was no need for new inclusive practices in distance learning in an digital environment, but shared technology-based decisions implemented for created learning designs in digital format and simplified user interface. Digital learning designs are very easy to manipulate and transform according to the needs of the individual student, even when using an digital device with additional adaptive devices.

In the course of the focus groups, each group made an analysis of the situation for technology-based learning, defining the purpose of the technology-based decisions, deriving criteria for technology-based decisions, information provision of the solutions, elaboration of variants for solutions and evaluation of the developed variants.

## Discussion

The focus group method worked best for the respondents – teachers aged 28-35, who make frequent daily technology-based decisions not only for the educational process, but also for their daily functioning. These two focus groups bring out the most shared, aware and interpreted information about different digital platforms, digital devices and digital resources, which take into account the preferences, interests and strengths of their students. In fact, these two focus groups not only implement technology-based decisions, but also put decisions into action for inclusive education. They carry out activities based on technology-based decisions and in the context of a fair treatment of students' achievements in relation to their potential.

In the groups aged 45–62 years, answers and opinions are often found, which are evident to appear as a result of purposeful self-cognitive reflection at the time of the discussion in the focus group, but these opinions and answers were not realized before. Each respondent and each group carried out a reflective process by analyzing their personal technology-based decisions and representing them to the focus group in the context of inclusive education. In the focus groups of 35 to 45 years, there are both assessments of technology-based decisions in education and life, and a process of self-knowledge about these decisions through the prism of the information provided and discussions in the focus group.

In the process of conducting the focus groups, intellectual and praxiological reflection are realized, ie. each respondent and each group reflects and analyzes the technology-based decisions taken and the activities performed as a result of the decisions. An intellectual reflection or comprehension of the dichotomous connection of taken technology-based decisions and their application for inclusive processes in education is carried out. During the focus groups, praxiological reflection or internal dialogue is realized during the presentation of the implemented activities for inclusive education as a result of technology-based decisions with assessment of their effectiveness.

In reflective analysis, focus groups present the creation and use of digital resources refined according to the needs, culture, interests and strengths of each student in the classroom. The shared emphasis of technology-based decisions made by respondents to students' strengths rather than deficits sets out the fundamentals of inclusive education. The joint teaching and development of digital worksheets together with a resource teacher can definitely be defined as inclusive practices for students with SEN. Although these inclusive practices are shared in only one of the focus groups, the respondents present a praxiological reflection on the taken and implemented technology-based decisions in this context.

Technology-based decisions for inclusive education shared by respondents from all focus groups can be interpreted both quantitatively as the number of digital platforms, digital resources and digital devices, and qualitatively as educational, emotional and social relationships and reflective analysis, and subsequent behavior. Making technology-based decisions for inclusive education involves identifying problems and needs and conceptually choosing from possible alternatives. In this context, technology-based decision making can be attributed to area of competence 5.0. of the European Reference Framework and DigComp 2.1 for digital competence. Area 5.0 Problem solving includes solving technical problems, identifying needs and technological responses, creative use of digital technologies and identifying gaps in digital competence. According to the Common European Framework of Reference for Teachers – DigCompEdu (Redecker, 2017), the respondents in the study can be said to have mastered the first two stages – Newcomer (A1) and Explorer (A2), which absorb new information and basic digital practices are being developed; as well as the two stages – Integrator (B1) and Expert (B2), in which they apply, expand and reflect their digital practices. For all respondents, the survey did not provide enough data to claim that they are at the highest levels – Leader (C1) and Pioneer (C2), where they transfer their own knowledge, criticize existing practice and develop new practices. The implemented new inclusive practices in three of the focus groups for joint teaching with a resource teacher for students with SEN using the functionalities of an digital platform for a separate group of resource teacher – student with SEN have been implemented in technology-based decisions. It can definitely be argued that when it is necessary to make technology-based decisions by respondents to implement inclusive education, respondents based on their own experience, competencies and pedagogical intuition responsibly and timely make these decisions and apply them in the educational process. Rethinking and structuring new technology-based decisions according to students' needs is an intellectual reflection on their own knowledge and experience, a praxiological reflection on e-learning and a personal reflection on their own professional competence.

## Conclusions

Making technology-based decisions for inclusive education is a complex process that requires knowledge of both technology-based learning and the strengths and needs of students in the inclusive classroom. Important for making technology-based decisions are the pedagogical experience and pedagogical intuition of teachers, their professional and especially digital competence. The need for the implementation of technology-based decisions in the educational process provokes reflexive analysis in the respondents and

increase their intellectual, personal and praxiological reflection. In turn, the stimulated reflection on technology-based decisions applied to inclusive practices provokes the search for new inclusive technology-based decisions for students and to realize their own professional significance. In this context, technology-based decisions and their application in practice contribute to the implementation of inclusive education in an digital environment and personalized learning for each student according to his individual profile, which reflects individual preferences, interests, levels and potential for development and learning.

## Acknowledgements

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# GENDER INEQUALITY IN EDUCATION

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**ABSTRACT**

Education is a critical factor in achieving social equality, including gender equality. For this reason, ensuring equality in the provision of education should not only be a social priority but something natural and obvious. This topic was the subject of considerable debate among scholars for many decades. The beginnings of the struggle for equality of women are based primarily on the battle for access to education, which was essential in this regard. Therefore the gender education gap is decreasing, and nowadays, contemporary rarely persists in educated countries. As a result of the struggle of feminists, today, women around the Globe are more educated than at any point in history. Nevertheless, the phenomena such as "gender inequality" or "gender gap" understood more broadly than education, are still relevant problems. Thereby, men are still more educated and privileged. The problem is not only the degree of accessibility to education but also its content. Yet, current gender inequality is the result of super imposed stereotypical patterns, as well as prejudices and discriminations embodied in the system.

This article was written to introduce the issue of gender inequality in education. The given research problem in this study is as follows: where do gender inequalities in education become apparent? The aim of the study is to overview the current state of knowledge. Exploring this topic is crucial because this phenomenon has many negative consequences. This article aims to present the initial characteristics of the problem and draw attention to the issue. The method used is a literature review.

***Keywords:*** *education, gender discrimination, gender equality, gender gap, gender inequality.*

## Introduction

Gender inequality of education prevents girls and boys, women and men from ensuring the basic human right to education. This phenomenon is a serious problem, both locally, nationally and internationally. Moreover, it has been a major challenge over past years and the struggle connected with it continues nowadays. Its influence not only affects the lives of individuals but also inhibits the development of the whole society and thus harms economic growth. Depending on the place of occurrence, it can take various forms.

This topic is note worthy because it is a broad, complex and dynamic process. It consists of multiple levels. The first is access to education, which, despite the significant improvement, remains a considerable issue. This is confirmed by the latest UNESCO data, which shows that 132 million girls worldwide do not have access to schools (UNESCO, 2021). Causes include, but are not limited to, cultural norms and practices, school-related gender-based violence or even home to school distance.

This article aims to present the initial characteristics of the problem of gender inequality in education and draw attention to the social debate about it. The research subject of this study, which is gender inequality in education, is extremely important. The significance can be demonstrated at different levels. It is necessary to start with a broader concept which is gender equality. It leads to one of the fundamental legal principles – The right to equality and freedom from discrimination. It is an essential element of democracy and an imperative of social justice. It preaches that every human being has the inborn right to enjoy their human rights on an equal basis with other individuals and to lead a life free from discrimination.

The seriousness of the topic follows also the fact that gender equality allows providing equal opportunities for education and employment. From a social perspective gender inequality, as well as other types of equalities, harms the individuals as well as the commonality. It can stimulate economic growth, which is important, especially in countries with higher unemployment rates and fewer economic opportunities.

Moreover, Global Partnership for Education [GPE] understands achieving gender equality as delivering on three interlinked areas for girls: health, education and safety (Brief, 2019). This leads to the second of the discussed elements – education. It is a process of acquiring knowledge and pieces of information. The results are advantages such as good careers and social status. Also, it can influence self-confidence and a successful future. It is the main factor standing behind the success of developed countries (Al-Shuaibi, 2014). Therefore, educating generates great benefits not only for gender equality but also public health, economic prosperity and lasting peace and stability (UNESCO, 2021).The relationship between education and health was also examined. It has been documented that higher levels of education generally relate to better health, less psychological distress, and fewer depressive symptoms of those with less education (Ross & Mirowsky, 2006). They have also been presented studies that analyze the impact of education on the role of fertility (Nations & Fund, 2004).

The reason why access is important is shown by the data provided by GPE (2021). According to their research maternal deaths would decline by two-thirds, if every girl completed primary school. If every girl received 12 years of schooling, child marriage could plunge by two-thirds.

Furthermore, girls 'higher lifetime earnings would grow economies by as much as $ 30 trillion. For every additional year of schooling girls receive, their country's resilience to climate disasters improves and their earnings can increase by 10% to 20%. Women's Education also affects the fate of her family, for example, a child whose mother has the ability to read is 50% more likely to live past the age of 5. Furthermore, this child is twice as likely to go to school and 50% more likely to be immunized.

The combination of these two issues can be considered the third aspect of the links discussed above. It should be taken into consideration that it is a complex overlapping process. Gender equality brings about equality in education and education brings about gender equality.

## Method

The research subject of this work is the phenomenon of gender inequality in education. The method used in this article was a literature review. It allowed answering the given research problem, which reads as follows: where do gender inequalities in education become apparent? The study aims to overview the current state of knowledge.

The research was divided into stages. The first one was to specify the basic concepts and find their definitions. They include gender inequality in education, gender inequality, gender equality, gender discrimination, the gender gap in education.

After studying the concepts and their definitions, the focus was on the literature that characterizes this phenomenon. Size and symptoms were recognized. In the end, the literature that justifies the importance of the topic and how to prevent them were read. The following search engines were used: Google scholar, Springer, EBSCO, Mendeley.

## Results

Due to the enormous number of search results that were impossible to parse, it was necessary to narrow down the search area. To do so, as well as to ensure timeliness of the data, it was decided to narrow the position to the past 20 years. Nevertheless, one of the oldest of the analyzed items is from 2004. At the same time, in order to obtain objective and up-to-date data, numerous reports available on the organisation's websites were used. The following number of reports was included in the analysis: UNESCO – 2, Save the Children – 1, Global Partnership for Education – 3, World Bank – 1, UNICEF South Asia.- 1. Although it was decided to analyze current articles, at the same time articles focusing on the COVID-19 the amtics were consciously omitted. In addition, the analysis began with

four pieces, in the Polish literature, which were in the possession of the author, as well as with the encyclopedia of adolescence. As a result of the review, 1 item from the Springer search engines was analyzed, 1 item from Researchgate and one from SAGE. The rest of the works were found with EBSCO, Mendeley and Google Scholar. The analysis consisted of finding the most thematically related articles. The first stage was to select the pieces by referring to the titles of the articles. When the title seemed to be an adjunct, the key words were read, followed by the abstract. If any of these categories was consistent with the research topic, a reading was attempted followed by an analysis of the pieces.

The analysis showed that the problem of *gender inequality* in education was discussed in the literature empirically researched, nevertheless, few definitions are describing this phenomenon in the literature. It can be found on the websites and in the reports covering this issue. The European Institute for Gender Equality provides the following definition: *"Legal, social and cultural situation in which sex and/or gender determine different rights and dignity for women and men, which are reflected in their unequal access to oren-joyment of rights, as well as the assumption of stereotyped social and cultural roles."* (The European Institute for Gender Equality [EIGE], 2021). Another definition describes it as "*allowing people different opportunities due to per-ceive differences based solely on issues of gender. Gender discriminationis the prejudicial treatment of an individual or group due to gender. Gender inequality and discrimination are generally discussed as pertaining to women, but anyone can experience gender-based inequality or discrimination.*" (Parziale, 2008).

Each of these definitions refers directly or indirectly to the notion of discrimination, therefore it is of most importance to clarify its meaning. According to Article 1 Convention on the Elimination of all Forms of Discrimination Against Women,' of United Nations, 1979. Gender discrimination is understood as: *"Any distinction, exclusionor restriction made on the basis of sex which has the effector purpose of impair ingornullifying the recognition, enjoy mentor exercise by women, irrespective of their marital status, on the basis of equality of men and women, of human rights and fundamental freedoms in the political, economic, social, cultural, civiloranyother field"* (UNICEF, 2017). For a comparison of definitions, it is worth taking a closer look at the words of Salvini, who says that: "*gender discrimination refers to any situation where a person is denied an opportunity or misjudgedsolely on the basis of their sex. Gender discrimination is any unequal treatment based on gender and may also be referred to as sexism. Gender discrimination occurs when a person shows a prejudice to wards another that would not occur had they been the opposite sex.*" (Salvini, 2014).

The analyses of inequality in the context of education is an important area because it plays a major role in the life of every human being.

Sadly, inequality in this area has led to the gender gap, which according to UNESCO is defined as *"Disproportionate difference between men and women and boys and girls, particularly as reflected in attainment of development goals, access to resources and levels of participation. A gender gap indicates gender inequality."* (UNICEF, 2017).

UNESCO (2017) does not present the definition of gender inequality, nevertheless, there is much information about gender equality available. The concept is described as equal conditions, treatment and opportunities for realizing the full potential, human rights and dignity for both genders and sexes. Girls and boys should contribute, as well benefit from economic, social, cultural and political development. Therefore, this concept is understood as being full-fledged partners at home, in the community and society. Equality does not mean that women and men will become the same but that rights, their rights, responsibilities and opportunities will not depend on the gender roles they play.

The phenomenon of gender inequality is large-scaled and ubiquitous. Despite significant gains in recent years, education outcomes for girls in developing countries continue to lag behind those of boys. According to GPE in the year 2002, an estimated 129 million girls worldwide remain out of school (GPE). Similar data were presented in 2018 when these numbers reached 129.2 million girls (UNESCO, 2019). According to current UNESCO data, this number has risen to 132 million. This includes 34.3 million girls in primary school age, 30 million girls of lower-secondary school age, and 67.4 million of upper-secondary school age (The World Bank, 2021). All those girls face multiple barriers, which may have different backgrounds causes include, but are not limited to poverty, cultural norms and practices, traditional status role.

The girls are under pressure from social norms and cultural practices, which places new restrictions on them. It influences what they can do and who they are. As a result, adolescence is for many girls in developing countries, a time of extreme vulnerability. These girls are at risk of sexual violence, childmarriage, teenage pregnancy. The risk of HIV infection and AIDS, as well as nutritional deficiency also increases (Brief, 2019).

Lack of access to education is more frequent when the safety and security of the household are compromised (GPE, 2021) This shows the fact that in countries affected by conflict, there is a higher risk for girls to be out of school. It is twice as likely for girls living in non-affected countries (The World Bank, 2021).

Currently, the coronavirus pandemic situation in the world is not without significance. Current research shows that due to school closures and a lack of access to remote learning children lost an average of 74 schooldays, which equals more than one-third of education of the standard global

190-day school year (Save the Children, 2021). Moreover, as of March 2021, world wide almost half the world's students are out of school due to school closures (UNESCO, 2020).

Nowadays, you hear about the phenomenon of the reverse gender gap, which was commonly viewed as a lack of access to education for women. Nowadays, it is more and more often said that the situation has changed (Barone & Assirelli, 2020; Delaruelle et al., 2018; Klesment & Van Bavel, 2017). The origins of this phenomenon are not fully understood, for this reason, some studies contribute to a better understanding of the forces behind this reversal (Bossavie & Kanninen, 2018). This statement is especially true in higher education (Barone & Assirelli, 2020). The very phenomenon of reversing the gender gap, however, takes place in developed countries, where men's access to education is also very high. Interesting research in this area has been carried out by Evans with colleagues (2021). Examined were fifty years of data to identify key trends in girls education. Data from 1960 to 2010 and about 126 countries was used excluding "all (mostly high-income) countries that were founding members of the Organisation for Economic Co-operation and Development" (Evans et al., 2021)

Among the countries surveyed, only five adult women had one more year of education than adult men in the year 2010. Even though woman are more educated today than they did fifty years ago, women are still not as educated as men. In addition, it was noticed in the analysis that during this time access to education grew in countries where general access to education was increasing. They report that nowadays, the problem of gender gaps rarely persist in educated countries. Size able gender gap stend to be in those countries in which boys areals getting a low level of education. Unfortunately, despite the increases in female schooling, the reversal of the gender gap in education does not necessarily lead to a reversal of the gender earnings gap (Klesment & Van Bavel, 2017).

The gender gap is not only about quantity but also quality. Despite greater access to education, there are traces of inequality in classrooms. A gender-stereotypical approach is noticeable, from kindergarten to higher education (Zajączkowska, 2008). Sexual stereotyping involves associating girls and boys with separate and often opposing traits.

Stereotypes may result from cultural norms and be manifested in the teachers' behaviour and practices. They may also be included in textbooks and contain stories and images that reflect the stereotypical roles and activities (Łukasik, 2021). As a result, stereotypical lines of thought are validated, which may affect the assimilation and adaptation of children. This may affect children beliefs and attitudes toward achievements.

A good example is a division into girls and boys in physical education classes. Which often humiliates girls and affect their self-esteem

(Zajączkowska, 2008). Comparable is the practice of neglecting boys during language or art classes or having lower requirements for girls in physics or mathematics classes. Doing so leads to inadequate self-esteem and may not have profound consequences in the future.

Research shows that girls' and boys' academic performance is not very different. For example, the results show that girls had better reading scores in all participating countries, but that the gender differences in mathematics were much smaller. The smallest difference in reading was found in Argentina, Chile, China, Colombia, Costa Rica, Mexico, Panama, and Peru. while the greatest gaps were recorded in Finland, Jordan, the Republic of North Macedonia, Qatar, Saudi Arabia, and the United Arab Emirates (Clarke & Luna-Bazaldua, 2021). However, it should be said that not only gender affects learning outcomes, for example, but socioeconomic status is also a great factor in understanding academic achievement(Brown & Prinstein, 2011).

An example of such inequality can be Polish schools. Research shows that gender diversification is visible in Polish education (Zajączkowska, 2008). Equal access to education is also hindered by measures limiting the admission of candidates of a given gender to selected fields of study in some schools and high schools. Consequently, it has led to rejections in the recruitment process of girls. This has been reported in some prestigious high schools as well as police and military schools. There has been a case of higher military schools, did not recruit women at all.

However, there is an assumption that gender-related variations in the academic achievement of girls and boys are strongly related to the kinds of their future occupations, which may perpetuate the gender-specific division of labour in adulthood (Brown & Prinstein, 2011). Although women are strongly overrepresented in the humanities and the social sciences, they are continually underrepresented in STEM fields, such as engineering, computing, technology, physics or mathematic. Therefore, it is extremely important to introduce preventive methods. toward gender equality in the United States and other Western nations (Brown & Prinstein, 2011)

It can not be denied that education in modern societies is an important part of the problem of gender inequality. If we will not provide everyone with equal access to education, it's impossible to obtain equal access to particular professions, funds and prestige (Gromkowska-Melosik, 2011).

## Discussion

After analyzing the literature, it can be concluded that although the topic is often discussed in the literature, the definition of the phenomenon is rare. Defining is more often undertaken by institutions working in this

area. The definitions often follow other key concepts such as gender gap or gender discrimination. However, it was not possible to find a publication, which had analyzed the definitions.

This work responds to the research problem set at the outset, by showing that gender inequalities in education become especially apparent in the following situations. First of all, inequality is dramatic when it comes to access to education. This does not apply to all countries. As research shows, there is a phenomenon called the reverse gender gap. According to Evans with colleagues (2021) research, however, this is not as common a phenomenon as it might seem. It is also problematic that despite increased access to education, and sometimes better remuneration for boys, women still have a more difficult situation in the labour market and earn less than men.

Secondly, this phenomenon has negative consequences resulting from stereotypical treatment. They can even be psychological consequences such as lowered self-esteem. The study provides new insight into the relationship between gender and higher education. It shows that there is still discriminatory behaviour towards girls.

Furthermore, this research illustrates the large size of the problem, but also raises the question of the truescale. The intricacy and complexity of the phenomenon makes it difficult to provide data on the true size of the whole problem.

The limitations of this work result from the omission of the employment situation among teachers. Although there are publications that include the problem of the proportion of employment they have taught, this publication has deliberately omitted it. This issue was raised in the work of Zajączkowska (2008) and concerned the situation in Poland. Further research is required to establish whether gender discrimination among educators is a global issue and what are its connections with discrimination resulting from the stereotypical treatment of students and their interests.

The conclusion resulting from this work, which is worth remembering is the fact that gender inequality in education is not just a symptom, but also a cause of gender inequality.

## Conclusions

This literature review has found that gender inequality in education is still a relevant problem. It is known to be on a large scale and is a complex phenomenon. Due to its different calculations, it is difficult to quantify its size. Figures concerning the lack of access to education have been quoted, but the analysis carried out revealed that this phenomenon is not limited to this aspect.

Furthermore, this article has allowed us to answer where gender inequalities in education become apparent. It has demonstrated the fact that due to its complex character, therefore various forms are distinguished. The answer to the research question showed the diversity of the phenomenon. Regardless of the type, the most important thing to remember is that education is the most powerful protective factor. Moreover, it is the way to empower girls and boys. Giving children the opportunity of education can determine their destiny.

For this purpose, it is necessary not only to focus on the access of education it self but also it's quality. It is important to bring about an appropriate environment where schools respect both genders and lead to the equal valuing of the similarities and the differences. Some of the preventive recommendations should focus on neutralizing textbooks and content made available at school by sensitizing teachers' attention to their behaviour, lifting limits on schools and faculties, by convincing girls and boys to interdisciplinarity

Gender equality implies that the interests, needs and priorities of both women and men must be recognized and treated equally. Therefore, there is the need for in-depth exploration of the topic which is gender inequality in education and combating it. It is also crucial to develop precise preventive recommendations in the future.

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# CHALLENGES FOR INCLUSIVE HIGHER EDUCATION

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**ABSTRACT**

The development of the world wide web and of Education 2.0. to Education 3.0. and Education 4.0. pose new challenges to the inclusive paradigm of higher education (HE) A study was conducted with the method of content analysis for the processes of inclusion in HE in the conditions of the new challenges. The applied research method is – quantitative content analysis of language categories – words and expressions that have a specific coding in the field of inclusive higher education and are located in the World wide web. Language categories are selected as census units according to the indicators time and frequency of occurrence in the world wide web. The quantitative content analysis method is applied with several groups of census units or conceptual schemes for inclusive higher education. The variations of the census units in the dynamics and correlation of the specified indicators manifest the interest shown in the problems of inclusive higher education by society, scientific analysis and scientific terms of the inclusive higher education, and the application of the Internet of Things, artificial intelligence for realization of the process of inclusive education. Specific emphasis is placed on the development of inclusive higher education from Education 2.0 to Education 4.0. The results demonstrate a change in HE to inclusive processes through personalized and self-determined training of students with different abilities and different potential in inclusive HE 3.0 and initial development of inclusive HE 4.0.

***Keywords:*** *Education 2.0, Education 3.0, Education 4.0, inclusive higher education, world wide web.*

## Introduction

According to the European Commission of Education: "Making higher education systems inclusive and connected to society requires providing the right conditions for students of different backgrounds to succeed. This goes beyond the question of offering financial support to disadvantaged groups, although this is vital for those from low-income backgrounds." The implemented policy poses challenges for inclusive education in higher

educational institutions (HEIs). The current challenges include the implementation of inclusive processes in an digital environment.

The kaleidoscope of education, including inclusive education, changed as a result of the 4th Industrial Revolution (4th IR). As noted by Schwab (2016), Shahroom and Hussin (2018), the development of education is already "the stage in the development of knowledge in which the lines between physical, digital and biological spheres are being blurred" (p. 316).

The development of the world wide web in terms of distance learning in an digital environment inevitably affects the development of education. The development of the concepts of Education 2.0 to Education 3.0 and Education 4.0 brings new challenges to the inclusive paradigm of higher education. Conceptual schemes for the development of Education from 2.0 up to 4.0 are related to the application of technology in the educational process. According to Makrides and colleagues (2019), in Education 2.0 there is an invasion of technology in education; students have higher digital literacy and better internet browsing skills than some teachers; the virtual network provides a variety of digital resources that are used unsystematically. When Education 3.0 technologies are used everywhere in the educational process, learning is everywhere (anytime and anywhere), and students are self-learning. When Education 4.0 the technologies used in the educational process are innovative and easily accessible; there is personalized teaching and learning; flipped teaching is widely used; there is co-education (Schwab, 2016; Diwan, 2017; Makrides et al., 2019).

The development of Education 2.0 to Education 3.0 and to Education 4.0 follows the development of the world wide web from Web 2.0, through Web 3.0 and Web 4.0 to Web 5.0. Keser and Semerci (2019) note that Education 4.0, as a reflection of the era of Industry 4.0, refers to a period in which educational paradigms, approaches and technologies have changed. According to Halili (2019), "higher learning institutions are urge to revamp their education system and take initiatives to embrace the teaching and learning 4.0." (p. 63).

Changes in the educational process inevitably apply to inclusive processes in HEIs, especially during pandemic conditions or in situations of forced distance learning. Inclusive education in distance format in HEIs, during the COVID-19 pandemic:

- is already emerging from Web 2.0;
- is actively moving to Web 3.0;
- the transition to Web 4.0 is also underway;
- there is even a transition to Web 5.0;
- the development of Web 1.0. to Web 5.0., and future generations of the Web increase the knowledge and practices of and about inclusive education and inclusive society.

Technology-based training allows ubiquitous learning with unlimited access to information. The information itself is provided in an accessible and equal way for students with different possibilities for its perception, with different potential for understanding it and with different perspectives for its use for both educational and life purposes. "The usage of technological advancements in education 4.0 is expected to present significant role for higher learning institution" (Blaschke, 2012).

For students with diversity needs in HEIs, the transition from one type of education to another type of education is as difficult as the transition from one activity to another activity in everyday life. It is extremely difficult to create a new routine and move from one routine to another.

Undoubtedly, the paradigm shift for inclusive education in HEIs provokes the scientific idea of finding solutions for the implementation of inclusive education at a distance in an digital environment. Solutions that are important for both teachers and students to implement effective and flexible learning, interactive communication and positive pedagogical interactions in terms of equal and fair presentation of e-learning resources and learning achievements.

The article provides content and narrative analysis of notions, concepts and types of scientific articles on inclusive higher education in order to present contemporary challenges. The focus is on four groups of problems that excite the researchers regarding the processes of inclusive education in higher education institutions in the development of the global network.

## Methodology

The methodological reflection of the research is related to the establishment of the exploration of the dynamics of the processes of inclusive education in HEIs in the conditions of development of the world network. The method of quantitative content analysis is applied, in which the frequency presence of certain units in the text is interpreted. Its main feature is that it is considered and applied primarily as a technique for obtaining quantitative data about the direction, content, intention (latent or not) of the communication process, set in the analyzed texts (Ilcheva, 2006, p. 95).

**Objectivies:**
- definition of conceptual units for analysis;
- coding of predefined units of analysis;
- quantitative measurement of text arrays;
- empirical processing of the obtained data set;
- collecting data for phenomenography on the topic;
- quantitative and qualitative analysis of the obtained results.

**The research Methodology includes:**
- method of content analysis for the processes of inclusion in higher education in the conditions of the new challenges;
- phenomenography or the influence of the global network for the development of inclusive higher education.

The criteria and the conceptual thesaurus of the conceptual schemes for research are divided into four groups. Coding of predefined units of analysis:

1. Group, which includes the following concepts, expressions and scientific articles with their analysis:
   - inclusive education; inclusive education in HEIs; scientific articles for inclusive education in HEIs;
   - inclusive attitudes, values and practices in HEIs; scientific articles for inclusive attitudes, values and practices in HEIs.

2. Group, which includes the following concepts, expressions and scientific articles with their analysis:
   - inclusive attitudes in HEIs; scientific articles for inclusive attitudes in HEIs;
   - inclusive values in HEIs; scientific articles for inclusive values in HEIs;
   - inclusive practices in HEIs; scientific articles for inclusive practices in HEIs.

3. Group, which includes the following concepts, expressions and scientific articles with their analysis:
   - inclusion in European Higher Education Institutions; scientific article for inclusion in European Higher Education Institutions;
   - institutional responses for inclusive education; scientific article for institutional responses for inclusive education;
   - equity and inclusion in European Higher Education Institutions; scientific article for equity and inclusion in European Higher Education Institutions;
   - equity of inclusion in European Higher Education Institutions; scientific article for equity of inclusion in European Higher Education Institutions;
   - personalised education in HEIs; scientific article for personalised education in HEIs;
   - self-determination education in HEIs; scientific article for self-determination education in HEIs.

4. Group, which includes the following concepts, expressions and scientific articles with their analysis:
   - inclusive education 2.0; scientific article for inclusive education 2.0.;
   - inclusive education 3.0; scientific article for inclusive education 3.0;

- inclusive education 4.0; scientific article for inclusive education 4.0;
- inclusive education in HEIs 2.0; scientific article for inclusive education in HEIs 2.0;
- inclusive education in HEIs 3.0; scientific article for inclusive education in HEIs 3.0;
- inclusive education in HEIs 4.0; scientific article for inclusive education in HEIs 4.0.

5. A group of codes with tracking defined terms and keywords include the 25 most common concepts and keywords in research, using the method of phenomenography through the prism of research attitudes.

**Period of study**

For groups of codes from 1 to 4 the survey was conducted three times: 22.01.2021–23.01.2021; 03.02.2021–04.02.2021; 26.05.2021–27.05.2021, and for group of codes/number 5 the survey was conducted twice: 04.02.2021 and 27.05.2021.

## Results

The obtained results are followed through empirical processing of the obtained data set. The obtained results are presented in several tables. The tables are structured according to the coded words and expressions for analysis. The following algorithm is used for quantitative content analysis: selection of astronomical time for detection of the search of the pre-selected unit (term, expression, article title), within the selected time period, from half to one hour, for the individual groups registration is realized of the search in an interval of 3 minutes, the highest value of codified units of demand of all variations shall be selected and shall be marked as a value for the targeted time interval and time period.

**Table 1.**  First group of codes

| Concept | 22.01.2021 (14.00–14.30) | 04.02.2021 (14.00–14.30) | 27.05.2021 (14.00–14.30) |
|---|---|---|---|
| Inclusive Education | 462 000 000 results (0.53 seconds) | 501 000 000 results (0.49 seconds) | 476 000 000 results (0.58 seconds) |
| Inclusive education in HEIs | 434 000 results (0.58 seconds) | 474 000 results (0.52 seconds) | 1 040 000 results (0.64 seconds) |
| scientific article Inclusive education in HEIs | 15 800 results (0.08 seconds) | 15 800 results (0.08 seconds) | 17 900 results (0.06 seconds) |

The first group of codes is related to the issue of inclusive education in HEIs. As can be seen from the data obtained in Table 1, the publications in the world wide web are increasing.

While for the concept of "inclusive education" the increase of publications is smoother, for "Inclusive education in HEIs" the publications have an increase of 41.73% for a period of five months. Several explanatory models can be sought. While the issues of philosophy and concepts for inclusive education have been exploited for a much longer time, attention to inclusive education in HEIs has been focused in recent years. At the same time, in higher education there is a much larger palette of educational institutions (e. g. state, municipal, private, etc.), a very large fan of specialties and degrees (bachelor, master, PhD), and many more digital, adaptive and assistive devices and technologies are used, many more digtal platforms, mobile applications, MOOCs, ORC and others are used by both university professors, administration and students. Research and research articles on inclusive education in HEIs are also steadily increasing.

The second group of codes is related to relations and inclusive practices in HEIs. Without inclusive relations to which attitudes and values refer, inclusive practices in HEIs cannot be realized. Table 2 clearly shows a renewed increase in publishing activity, both in terms of general paradigms and concepts of inclusive education in HEIs, and in the scientific reflection on inclusive education in HEIs. The time for searching for concepts for inclusive attitudes, values and inclusive practices is decreasing, which is an indicator of the increased interest in the issue.

**Table 2.** Second group of codes

| Concept | 22.01.2021 (15.00–16.00) | 04.02.2021 (15.00–16.00) | 27.05.2021 (15.00–16.00) |
|---|---|---|---|
| **inclusive attitudes in HEIs** | 256 000 results (0.49 seconds) | 275 000 results (0.47 seconds) | 360 000 results (0.43 seconds) |
| **scientific articles inclusive attitudes in HEIs** | 8 200 results (0.08 seconds) | 9 140 results (0.09 seconds) | 11 500 results (0.05 seconds) |
| **inclusive values in HEIs** | 434 000 results (0.58 seconds) | 474 000 results (0.52 seconds) | 546 000 results (0.53 seconds) |
| **scientific articles inclusive values in HEIs** | 0 | 0 | 1 result |
| **inclusive practices in HEIs** | 520 000 results (0.52 seconds) | 524 000 results (0.52 seconds) | 397 000 results (0.54 seconds) |
| **scientific articles inclusive practices in HEIs** | 15 000 results (0.07 seconds) | 15 000 results (0.07 seconds) | 18 800 results (0.06 seconds) |

Table 3 shows the results of the third group of codes related to the topic of inclusive education in European HEIs; the social responsibility of HEIs for the implementation of inclusive processes, which is synergistically related to the social capital of different students and different teachers; and the connection of inclusion with its quality. The latter emphasis is an important scientific and social trend, because the understanding of inclusion has many faces, but the actual inclusion is related to its quality, and accordingly could be measured by certain indicators.

**Table 3.** Third group of codes

| Concept | 23.01.2021 (16.00–17.00) | 05.02.2021 (16.00–17.00) | 28.05.2021 (16.00–17.00) |
|---|---|---|---|
| **Inclusion in European Higher Education Institutions** | 278 000 000 results (0.60 seconds) | 347 000 000 results (0.68 seconds) | 364 000 000 $p$ results (0.74 seconds) |
| **scientific articles Inclusion in European Higher Education Institutions** | 1 890 000 results (0.11 seconds) | 1 890 000 results (0.07 seconds) | 2 100 000 results (0.14 seconds) |
| **Institutional responses for inclusive education** | 442 000 000 results (0.62 seconds) | 524 000 000 results (0.68 seconds) | 479 000 000 results (0.59 seconds) |
| **scientific articles Institutional responses for inclusive education** | 996 000 results (0.14 seconds) | 996 000 results (0.06 seconds) | 1 130 000 results (0.12 seconds) |
| **Equity and Inclusion in European Higher Education Institutions** | 52 000 000 results (0.52 seconds) | 55 900 000 results (0.73 seconds) | 66 300 000 results (0.68 seconds) |
| **scientific articles Equity and Inclusion in European Higher Education Institutions** | 15 000 results (0.07 seconds) | 324 000 results (0.19 seconds) | 68 600 results (0.09 seconds) |

Table 4 shows codes related to concepts and conceptual designations, which are a socio-economic reflection on the development of the World Wide Web. Just as the development of the World Wide Web in Web 2. models is evolving in the direction of Web 5. and reflects the development of education from Education 2.0 to Education 5.0, so education in the inclusive education cluster itself is evolving from Inclusive Education 2.0 to Inclusive Education 5.0 Undoubtedly, Web 5, Education 5.0. and

respectively Inclusive Education 5.0 are still in the initial phase and therefore are not commented on. Inclusive education from 2.0 to Inclusive education 5.0 develops in both secondary and higher education.

**Table 4.** Fourth group of codes

| Concept | 23.01.2021 (17.00–18.00) | 05.02.2021 (17.00–18.00) | 28.05.2021 (17.00–18.00) |
|---|---|---|---|
| **Inclusive education 2.0** | 32 700 000 results (0.77 seconds) | 37 800 000 results (0.71 seconds) | 37 100 000 results (0.60 seconds) |
| **scientific articles Inclusive education 2.0** | 195 000 results (0.16 seconds) | 195 000 results (0.11 seconds) | 221 000 results (0.11 seconds) |
| **Inclusive education 3.0** | 42 400 000 results (0.72 seconds) | 43 000 000 results (0.58 seconds) | 46 800 000 results (0.57 seconds) |
| **scientific articles Inclusive education 3.0** | 142 000 results (0.16 seconds) | 142 000 results (0.09 seconds) | 167 000 results (0.11 seconds) |
| **Inclusive education 4.0** | 54 900 000 results (0.77 seconds) | 53 500 000 results (0.80 seconds) | 70 100 000 results (0.58 seconds) |
| **scientific articles Inclusive education in HEIs 4.0** | 189 000 results (0.08 seconds) | 190 000 results (0.06 seconds) | 224 000 results (0.09 seconds) |
| **Inclusive education in HEIs 2.0** | 68 900 results (0.59 seconds) | 76 400 results (0.61 seconds) | 91 500 results (0.60 seconds) |
| **scientific articles Inclusive education in HEIs 2.0** | 1 930 results (0.08 seconds) | 1 930 results (0.05 seconds) | 2 360 results (**0.06** seconds) |
| **Inclusive education in HEIs 3.0** | 43 200 results (0.54 seconds) | 50 600 results (0.51 seconds) | 66 200 results (0.55 seconds) |
| **scientific articles Inclusive education in HEIs 3.0** | 1 330 results (0.07 seconds) | 1 330 results (0.04 seconds) | 1 530 results (0.08 seconds) |
| **Inclusive education in HEIs 4.0** | 71 900 results (0.59 seconds) | 94 200 results (0.46 seconds) | 66 700 results (0.67 seconds) |
| **scientific articles Inclusive education in HEIs 4.0** | 1 770 results (0.08 seconds) | 1 770 results (0.04 seconds) | 2 090 results (0.06 seconds) |

The development of inclusive education in HEIs also assembles the relevant innovative teaching methods, changes teaching styles and learning styles in the dynamics of inclusive education from 2.0 to inclusive education 4.0 in HEIs.

These dynamics are reflected in Table 5.

**Table 5.**   Innovative methods in inclusive education

| Concept | 04.02.2021 | 27.05.2021 |
|---|---|---|
| **Innovative methods in inclusive education in HEIs 2.0** | 802 000 results (0.71 seconds) | 971 000 results (0.65 seconds) |
| **scientific articles for Innovative methods in inclusive education in HEIs 2.0** | 18 000 results (0.11 seconds) | 17 900 results (0.12 seconds) |
| **Innovative methods in inclusive education in HEIs 3.0** | 594 000 results (0.64 seconds) | 597 000 results (0.59 seconds) |
| **scientific articles for Innovative methods in inclusive education in HEIs 3.0** | 20 600 results (0.12 seconds) | 20 100 results (0.13 seconds) |
| **Innovative methods in inclusive education in HEIs 4.0** | 634 000 results (0.64 seconds) | 636 000 results (0.69 seconds) |
| **scientific articles for Innovative methods in inclusive education in HEIs 4.0** | 20 600 results (0.10 seconds) | 20 700 results (0.13 seconds) |

Although most often phenomenography refers to the understanding of the learning content by students, as a research method it works well in the field of inclusive education in HEIs as an attitude to promising trends in the topic and as an organization of acquaintance with the topic, defined in the style of Marton, Hounsell and Entwistle (1984).

The data is shown in Table 6.

**Table 6.**   Phenomenography of the perspectives of Inclusive Education in HEIs

| | 04.02.2021 (17.00–18.00) | 28.05.2021 (17.00–18.00) |
|---|---|---|
| **IR 4.0 and Inclusive Education in HEIs** | 140 000 results (0.65 seconds) | 176 000 results (0.58 seconds) |
| **scientific articles for IR 4.0 and Inclusive Education in HEIs** | 18 200 results (0.16 seconds) | 18 300 results (0.12 seconds) |
| **Artificial Intelligence (AI) in Inclusive education in HEIs** | 420 000 results (0.64 seconds) | 591 000 results (0.63 seconds) |
| **scientific articles for AI in Inclusive education in HEIs** | 20 600 results (0.13 seconds) | 20 800 results (0.14 seconds) |
| **Internet of Things (IoT) in inclusive education in HEIs** | 223 000 results (0.69 seconds) | 439 000 results (0.65 seconds) |
| **scientific articles for IoT in inclusive education in HEIs** | 17 500 results (0.09 seconds) | 17 500 results (0.09 seconds) |

|  | 04.02.2021 (17.00–18.00) | 28.05.2021 (17.00–18.00) |
|---|---|---|
| **Virtual Reality (VR) and Augmented Reality (AR) in inclusive education in HEIs** | 68 900 results (0.71 seconds) | 424 000 results (0.65 seconds) |
| **scientific articles for VR and AR in inclusive education in HEIs** | 16 400 results (0.11 seconds) | 16 800 results (0.10 seconds) |
| **Intelligent robots in inclusive education in HEIs** | 556 000 results (0.83 seconds) | 853 000 results (0.68 seconds) |
| **scientific articles for Intelligent robots in inclusive education in HEIs** | 19 800 results (0.09 seconds) | 19 700 results (0.09 seconds) |

## Discussion

The issue of inclusive education in HEIs is in the process of searching, forming, and solving in action or in a project. Scientific research, explanatory models and inclusive practices are increasing. Inclusive education in HEIs is subject to serious scientific analysis. It is noteworthy that inclusive attitudes and practices enjoy increasing social and scientific interest. The scientific interest in inclusive practices in HEIs is higher than the scientific interest in inclusive attitudes in HEIs. An interesting fact is that inclusive values are not interpreted in the virtual network, unlike inclusive attitudes and practices. Only one result of the European Commission for Education was found in the last study, while in the previous two studies the result was zero. Presumably, values are implemented in inclusive attitudes and inclusive practices. A possible explanatory model is also the possible synergy of inclusive attitudes with the culture of the emerging pragmatism of inclusive practices. Although the two components appear dichotomous, they are in symbiosis.

An interesting fact, but easy to explain is that scientists' interest in "Inclusive education in HEIs 4.0" is higher than in "Inclusive education in HEIs 3.0". It is evident that there are more 440 articles. Public and scientific interest in innovative methods in inclusive education in HEIs is increasing. There is no reference to sentimental and old-fashioned categories, but the search for effective solutions through the virtual network and through innovative methods of teaching and administration.

On the web there is a connection between industrial revolution (IR 4.0) and Inclusive Education in HEIs. A serious connection is made between "IR 4.0 and Inclusive Education in HEIs" with a clear scientific interest. Of the various aspects of IR 4.0 and "Inclusive education in HEIs" the strongest demonstrated interest is in an "Intelligent robots in inclusive education in HEIs" follows an "Artificial Intelligence (AI)" and "Internet of Things (IoT)".

At the same time, it is noteworthy that the interests of scientists have a different sequence. Phenomenographic analysis demonstrates the highest degree of interest and trust in "Artificial Intelligence (AI) in Inclusive education in HEIs" then in an "Intelligent robots in inclusive education in HEIs" and "Internet of Things (IoT) in inclusive education in HEIs" and the lowest in a "Virtual Reality (VR) and Augmented Reality (AR) in inclusive education in HEIs". Obviously, inclusive education in HEIs focuses on promising and legitimate models that outline current challenges for inclusive education in HEIs, but also highlight markers for upcoming challenges in the field of technology-based problems and technology-based decisions and follow-up.

Inclusive education in higher education is possible to be inclusive education from a distance in an electronic environment. It is feasible, much more possible for higher education than for secondary education. Undoubtedly there are problems to solve, but there are also amazingly creative solutions.

According to the European Agency for Special Needs and Inclusive Education (2020): "Comprehensive policies that focus on equity and inclusion can improve the overall effectiveness of education systems and the individual outcomes of learners. Increasing the inclusion of the educational system can lead to success for all students."

Data from phenomenography or the influence of the global network for the development of inclusive higher education show that technology-based training can have a beneficial effect on the application of innovative teaching methods and on student achievement in inclusive higher education.

## Conclusions

A study was conducted with the method of quantitative analysis for the processes of inclusion in higher education in the conditions of the new challenges. It is clear from the research and analysis that the challenges facing inclusive higher education follow the snowball pattern – the more you study, the more challenges you find. At the same time, this effect is positive because it reveals specific and situational problems and solutions to them.

Technically based decisions and follow-up actions increase the opportunities for quality implementation of the process of inclusive education in HEIs. Rather technical innovation and IR 4.0 or IR 5.0 will lead Inclusive Education in HEIs in a clear path than changing inclusive attitudes and inclusive values in the HEIs. It is important that inclusive education in HEIs goes beyond the realm of diffusion, which is characterized by problems, ambiguity, unsolvable challenges and doubts about success. The challenges of inclusive education in HEIs only pave the way for confidence and stability.

The limits of this article can be deduced in the direction of the limited content analysis period.

The study of the issues of and inclusive education in HEIs is undergoing flexible dynamic changes and new challenges, but it definitely leads to the realization of inclusive education systems.

## Acknowledgements

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# BALTIC SOCIAL JUSTICE
# SCHOOL LEADERS

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**ABSTRACT**

Social justice school leadership as a concept, while familiar in the United Kingdom, Australia, New Zealand, Canada, and the United States school leadership literature, is not widely recognized in other parts of the world. Social justice school leadership appropriately differs from one culture to another and is always context-specific to a particular school setting, great organization structure or country. However, social justice is a necessary and fundamental assumption for all educators committed to combating ignorance and the promotion of student global citizenship as a central theme of school practices. The purpose of this study was to provide understandings of ways that selected social justice school leaders from three countries; Lithuania, Latvia, and Estonia conceive of and practice social justice in leading their schools.

The manuscript describes how six Baltic directors, identified by local educators on the basis of research conducted by the International School Leaders Development Network (ISLDN) as social justice school leaders, responded to interview questions related to their practice. Four directors were Latvian and one each from Lithuania and Estonia. Limitations to the study include basing conclusions upon a single (or in one case, several) interview(s) per subject and limitations on generalizability of qualitative exploratory case study. By definition, every case study is unique, limiting generalizability.

Interviews were thematically analyzed using the following definition: A social justice school leader is one who sees injustice in ways that others do not, and has the moral purpose, skills, and necessary relationships to combat injustice for the benefit of all students. Findings reveal strong application of values to identify problems based on well-being of all students and their families and to work collaboratively with other educators to find solution processes to complex issues related to social justice inequities. As social justice pioneers in their countries, these principals personify social justice school leadership in countries where the term social justice is not part of scholarly discourse.

*Keywords: democratic leadership, leadership values, moral leadership, qualitative case study, problem solving, social justice school leaders.*

## Introduction

The results of the study reported here relate stories of educational leaders from countries (Estonia, Latvia, Lithuania) where the term social justice is not part of educational discourse. None of the school leaders involved in the study, on the other hand, struggled to understand concepts related to identifying and resolving issues when students failed to learn. School leaders throughout the world have moral and political responsibilities to educate others into opportunities to better their lives (Bogatch, 2014). Education throughout the world promotes the welfare of civil society. Social justice, irrespective of whether or not practicing school leaders are familiar with the term, is defined by participants, in this case Baltic school leaders, and then validated by researchers (Bogatch, 2014).

This manuscript seeks to provide understandings of ways that social justice school leaders from three countries; Lithuania, Latvia, and Estonia conceive of and practice social justice in leading their schools. Findings are based upon interview research conducted in the spring 2018 through fall 2019. Interview data were analyzed and reported based upon one author's definition of social justice.

There are multiple definitions of social justice school leaders. The International School Leaders Development Network (ISLDN) defines a social justice school leader as a "principal (called director in Baltic countries) who is committed to reducing inequalities and makes this aim a high priority in leadership practice" (Angelle, 2017, p. 308). Muzaliwa & Gardiner, 2014 define social justice school leaders as "agents who are called to initiate change in classrooms, school buildings, and communities toward equity and inclusion." This manuscript analyzes and reports on Baltic social justice school leaders on the basis of this definition: "A social justice school leader is one who sees injustice in ways that others do not, and has the moral purpose, skill, and necessary relationships to combat injustice for the benefit of all students" (Tripses, 2021). The specific research question was "How do these six Baltic social justice school leaders describe ways they perceive and address injustice, act upon the basis of moral purpose, employ skills in their leadership role, and develop and maintain relationships with the intent to benefit all students?"

Social justice school leadership appropriately differs from one culture to another. As countries are called to deal with complex changes due to globalization, each of the 190 nations in the world is challenged to redefine educational quality for its citizens (Bogotch, 2014). "One cannot even begin to develop an educational system unless one has in mind the knowledge and skills that one values, and the kind of individuals one hopes to emerge at the end of the day" (Gardner, 2008, p. 14).

"Social justice cannot fall outside an educator's professional agenda or even reside at the margins; rather social justice is a necessary and fundamental assumption for all educators committed to combating ignorance and becoming more informed global citizens (Bogotch & Shields, 2014). Recognizing that social justice is always context-specific to a particular school setting, great organization structure or country, this research project sought to deepen understanding of ways social justice is defined, utilized, and enacted in Lithuania, Latvia, and Estonia.

## Conceptual Design – Social Justice School Leadership and Moral Purpose

The conceptual framework is grounded in a review of the literature on social justice school leadership, focusing specifically upon moral purpose. Connections between social justice school leadership and moral purpose in leadership are frequently drawn. Moral purpose is the foundation for all other social justice school leadership actions (Fullan, 2020, Sergiovanni, 1992, 1999). Moral purpose, when articulated in word or actions, appeals to the innate sense held by some (or many) individuals of what is right and what is worthwhile.

Moral purpose in school leadership is concerned with right and wrong (Furman, 2003), maintains a strong focus on the common good (Fullan, 2003), the development a common sense of purpose (Fullan, 2003; Furman, 2003; Sergiovanni, 1992, 1999) and the development of leadership potential in others (Fullan, 2003). Leaders with a strong moral purpose have the capacity to see beyond constraints in the environment that stem from bureaucratic policies, scarce resources, oppression, and societal issues reflected in the lives of students and their families (Lyman, Ashby, & Tripses, 2005; Tripses, 2019).

The essence of moral purpose is principled behavior connected to something greater than ourselves that relates to human and social development. Furman (2003) stated "Moral purpose is the focus of leadership studies as it ought to be, not just the ethics and values of leaders themselves, but how these values get translated into institutional change" (p. 1). Furman is referring to ways leadership works when confronting novel and difficult problems. Moral purpose requires actions by the leader and others that go far beyond compliance towards bureaucratic rules or authorities. Moral purpose involves leaders to thoughtfully consider the value, meaning, and purpose of schooling that results in subsequent actions to meet increasingly diverse and complex challenges in pluralistic societies (Lyman, Ashby, & Tripses, 2005; Tripses, 2019).

School leader's responsibility, whether their practice could be described as social justice leadership or not, always involves discretion related to

decisions in terms of how to handle (or not handle) a situation involving a need presented by a student or family whose requirements for learning don't fit neatly into the available program or way of doing things (Sergiovanni, 1999). School leaders who overlook conditions that impede some students' progress in school adopt positions used to justify status quo actions by educators towards a particular group or individual student. Explanations that blame the victim such as the student is lazy or that families don't care about them are just that, excuses. School leaders who persist in questioning the status quo and work with others to overcome negative consequences for students whose needs don't fit neatly into the regular school treatment are bucking the system. Such directors are social justice school leaders.

Social justice school leadership requires intention, skill, and constant attention. "Leadership for social justice investigates and poses solutions for issues that generate and reproduce societal inequities" (Dantley & Tillman, p. 20, 2010). Given the complexity and specificity of ways that societal inequities come into being and persist over time, actions must always be situation specific created through local problem analysis. Collective action to redress inequities and analysis designed to determine effectiveness of the application intended to create greater equity complete the cycle.

There is another aspect to social justice school leadership. All schools are bureaucratic in some form or another designed to educate a maximum number of students according to the cultural norms and history of a particular society. In the vast majority of cases the remedy which is the sum of what is called "education" adheres in some form or another to fixed division of labor, hierarchies, set of rules governing performance (Bolman & Deal, 2013). The issues that students and their families present at school can and often do, fail to fit neatly into the treatments prescribed by which a particular school bureaucracy is designed. The causes for the mismatch can stem from issues related to societal oppression, changing conditions that bring students with learning needs unfamiliar to the school bureaucracy such as an influx of immigrants into a community, or as happened in the 2020 pandemic when schools worldwide faced conditions where face to face school was considered unsafe for students and teachers.

Moral leadership or purpose expressed through values requires motivation beyond compliance towards bureaucratic rules or authorities (Tripses, 1998). Begley (1999) defines values as "those conceptions of the desirable which motivate individuals and collective groups to act in particular ways to achieve particular ends" (p. 237). Rokeach (1973, explains that a person's value system is a learned set of rules for making choices and for resolving conflicts (as cited in Leithwood & Steinbach,1995). Social justice school leaders develop the capacity to conceptualize and articulate

leadership that incorporates democratic community engagement, spirituality, emotion, caring, and connection. Over time, social justice school leaders develop congruence between values and practice, moving beyond philosophical rhetoric into more realistic hard-won social justice practice.

## Method

The research followed the prescribed International School Leaders Development Network ISLDN protocols to learn more about how social justice leaders **make sense** of 'social justice', how they **do** social justice leadership, factors that **help and hinder** the social justice leadership work, and finally how they **learn** to become social justice leaders (International School Leadership Development Network isldn.weebly.com). Collaboration with local university scholars in all three Baltic countries who were familiar with local schools was essential in order to conduct an interview following the prescribed ISLDN research protocols. The collaborative colleague identified an appropriate local school leader(s) using the "snowball technique" of participant identification, helped conduct the interview as needed, and assisted with the post-interview write up. Subjects were all employed as school leaders. Higher education background of the directors was not asked in the interview, but subjects volunteered that none received higher education preparation in school leadership. Four of the six began their careers as teachers and from there moved to school leadership. Two began in other careers (accounting and physics) and moved to school leadership later in their careers. All directors in the study had at least three years' experience in their school.

All subjects received a copy of the interview questions as well as a brief explanation of the research, in advance as part of the consent to participate process. A summary organized around ISLDN interview questions was sent to each subject and any colleagues who attended the interview to member check that the summary was an accurate representation of their stories (Creswell & Creswell, 2018). The analysis presented here is based upon interview transcripts, interview and field notes (Miles, Huberman, & Salada, 2020).

## Limitations

Limitations to this study include basing conclusions upon a single (or in one case, several) interview(s) per subject and limitations on generalizability of qualitative exploratory case study in general (Creswell and Creswell, 2018, Yin, 2009). By definition, every case study is unique, limiting generalizability.

Broad themes were identified from the initial interviews and those themes were analyzed (Miles, Huberman & Saldana, 2020) around ways subjects viewed social justice, practice based upon moral purpose, necessary skills, relationships with others, and focus on the well-being of all student (Bolman and Deal 2017; Fullan, 2020).

One author (American) was in Latvia as a Fulbright Scholar in the spring 2018 on a teaching/research grant on social justice school leaders. Her connections with ISLDN and social justice scholarship contributed to the project. The remaining authors (one Latvian, two Lithuanian and one Estonian) helped organize the interviews with the identified social justice school director, and reviewed the summary of the interview provided by Tripses. Each co-author contributed significantly to the validity of the interviews by providing additional insights into the culture of a particular school and/or the national educational organization. The two Lithuanian co-authors translated and transcribed the interview which was conducted in Lithuanian. Both co-authors were involved in the final analyses and writing of the Lithuanian Director's interview.

## Results

The six directors and their schools varied significantly. One school was in a rural area, two were located in a large urban city (population 692,000), one in a university town (population 100,00), and two in towns outside of Riga, Latvia. Four schools were Latvian and one each Lithuanian and Estonian. Two of the schools were private and in each of these cases, the director interviewed was the only school leader since the school's inception. The director's tenure at their present school ranged from three years to twenty-eight years. Three schools served students in grade school, one was a gymnasium for high school students intending to go to university and the other high school was a technical school where approximately half the students planned to go on to university. One school served students from preschool to high school. Four of the directors were trained as educators in university and two began in other fields (accounting and physics). The two who switched careers to school leadership later returned to university for advanced degrees in pedagogy. Two directors worked for a time in their county's ministry of education. Directors volunteered their age (they weren't asked) so it is known that their ages ranged from 37 to 77 at the time of the interview, significant given that this group represents a population of school leaders who experienced "Soviet times" and independence at different points in their lives.

The specific research question upon which this manuscript is based was "How do these six Baltic social justice school leaders describe ways they

perceive and address injustice, act upon the basis of moral purpose, employ skills in their leadership role, and develop and maintain relationships with the intent to benefit all students?"

All six directors were unanimous in describing injustice as situations that required all educators on site to problem solve for solutions. None were familiar with the term social justice, but each readily understood the concepts. Their descriptions of social justice included democratic leadership (2), inclusion (1), and development of the whole child in order to become confident in their abilities to use their strong academic skills (3). In the words of one director, "Education in a democratic society should be based on learning to find common agreements and living in such an environment." The directors interviewed were very clear about the need in their schools to engage others to find common solutions presented by students whose needs extend beyond the traditional program. Put another way, another director stated "I'm very sensitive towards any injustice towards children. I think adults have to be there for the children and protect them."

Leadership actions based upon moral purpose focused heavily on meeting the child's needs. The concept of unconditional acceptance of each child was frequently mentioned as a starting place for educators to begin the process of schooling. Another frequent theme was director's insistence that teachers, other educators, and in some cases, parents, problem solve together to find solutions for individual students. "We don't hide our problems, but rather solve them together" said one director. Students were also frequently involved in problem solving, sometimes through educator-created situations and other times as problems arose. Five of the six directors explicitly stated their conception of their leadership role was to intentionally teach students to problem-solve.

The leadership skills described by these directors all involved engaging others in decisions. Explanations for policy decisions that come from the ministries of education were cited (especially by the two directors with experience in ministries of education at the national level) as critical in order for teachers to understand their roles. Such conversations are heavily dependent upon the director's understanding of the issues and how they can be implemented locally. While each subject talked about working with teachers to resolve problems, one director talked specifically about the need to create and nurture the expectation that all teachers in the school support one another to work towards the common goals based upon student needs. One director stated, "I find democracy very important in education … democracy means more principles, more values … . We give considerable attention to working out collective agreements, even though they are often not very convenient for adults. … That's direct democracy; I like such things."

Relationships with students, teachers, parents, and the community at large were central to director responses related to their social justice leadership. When asked about what they regard as challenges related to social justice leadership, several directors talked about teachers who resisted efforts to meet the needs of all students. All but one director spoke of these challenges in the past tense and the one who indicated teacher resistance remained had only three years at the school. The previous director was in the position for over twenty years and had been very traditional in his practice. Some teachers at this school preferred traditional roles and failed to appreciate the need for time to work with other teachers on decision making processes. They preferred more traditional top-down decision-making processes. But this director stated confidently that these attitudes were shifting, however slowly. All directors talked about the importance of working with their leadership team whether that involved all teachers in smaller schools or several deputy directors in schools with larger enrollments. The difficulty of the work was described by one director, "I see teachers come. They become (name of school) teachers or leave in a year or two." Another put it this way, "Social justice requires great patience. … You can't feed every child in the morning, but you must take care of that (if a child arrives hungry)."

## Discussion

Despite broad diversity based upon nationality, size and type of school, and professional backgrounds of the social justice school leaders interviewed for this project, their responses indicate far more similarity than differences. Each comfortably described deep convictions related to providing equitable education to all students. Words used to describe values that inspire leadership actions, varied some, but intent was similar. Each demonstrated deep respect for other educators in the schools even when describing differences of opinion. Problems, whether they were changing demographics, historical factors, differing concepts related to pedagogical approaches, were described more as interesting puzzles than insurmountable obstacles.

This prevailing attitude on the part of the directors affirms problem-solving expertise as described by Leithwood and Steinbach (1995). In their study, American superintendents determined to be expert problem-solvers as compared to other school leaders, approached ill-structured problems by devoting more time to interpret the problem before attempting to a resolution stage. The six directors' descriptions of causes of social injustice were clearly articulated in the interviews. But included in their narratives was another characteristic of Leithwood & Steinbach's expert problem solvers.

These directors recognized and had strategies to deal with the constraints. Demonstrating another aspect of the definition of social justice school leaders used in this report, these directors described processes used to take problems to other educators or in some instances to students, parents, or community leaders, for resolution. Another characteristic of expert problem solvers involved basing solutions upon values, which are closely related to what is termed in leadership literature as moral leadership, discussed earlier in this manuscript. Leithwood & Steinbach reported (1995) that expert problem solvers are more aware of their values, use values more frequently in problem-solving, and use values as substitutes for knowledge when solving ill-structured problems. The final characteristic cited by Leithwood & Steinbach (1995), involves mood or confidence in their abilities to work with others to create solutions. Research notes affirm that each director exhibited confidence in outcomes when addressing ill-structured problems related to social justice school leadership.

The subjects in this study were aware of bureaucratic structures in their country's ministry of education that create complications arising when student needs do not match programmatic doctrines. The most prevalent obstacle resolved around funding for rural or country schools which is not always deemed adequate. These inequities did not affect all schools equally. Those directors whose schools were affected described the remedies as local problems for the educators and community leaders to resolve.

Recommendations from the United States used as part of school leader preparation include the use of equity audits (Furman, 2012; Skrla, Scheurich, Garcia, & Nolly, 2010), intentional instruction into the development of moral purpose in school leadership and most notably, experiences from Baltic school leaders who lead their schools from strong social justice perspectives. "Capacity building for social justice leaders requires a blending of theory, research, reflections on practice, tools for teaching and other interventions, strategies for engaging passion and emotion, and finally realistic engagement in real-world policy and practice" (Marshall & Olivia, p. 12, 2010).

## Conclusions

Social justice school leadership distinctly appeared in the interviews with the six Baltic directors using methods guidelines by ISLDN. Directors were focused on purpose of schooling, employing values or moral purpose in their leadership, working respectfully with other educators to resolve issues related to inequities, and strong pedagogical skills.

Further study is indicated into school leader preparation in the three Baltic countries to better understand the development of strong social

justice school leaders. More inquiry is needed into what directors meant about democratic methods as a means to enact social justice in their schools. Every country needs more school leaders like one of the directors interviewed who decided become a director of a small rural school in order to "break the myth that education in the rural territories is condemned." He sought to dispel the notion that family socioeconomic status creates situations that schools are powerless to overcome.

The hope is that as deeper understandings of Baltic social justice school leadership practices, preparation and support for practicing school leaders will create more school leaders willing and able to confront myths about students who fail to reach their potential in schools. The stories of these school directors clearly demonstrate strong social justice school leadership.

Returning to what was stated at the beginning of this manuscript school leaders from each country define social justice school leadership in their countries. The subjects of this study have fully accepted that responsibility.

## Acknowledgement

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# PROMOTING SOCIAL EQUALITY IN INCLUSIVE EDUCATION: MAPPING THE EXPERIENCE OF PARENTS OF CHILDREN WHO RELY ON AUGMENTATIVE AND ALTERNATIVE COMMUNICATION

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## ABSTRACT

Inclusive education aims for equal opportunities to be provided to all children regardless of their socioeconomic background, genre, or disability. There are various technological tools that can support the inclusive education of students with complex communication needs. Despite the fact that the parents' roles in supporting pupils with disabilities is vital, to date, there has been a lack of research investigating the roles of Cypriot parents of these children. The research aim was to explore the experiences of parents on the island who support students with complex communication needs, regarding how they perceive their roles as parents. In-depth interviews were conducted with six parents of children aged five to twelve years. Data were analysed based on thematic analysis. The findings show that parents of children with complex communication needs in Cyprus have a number of roles when it comes to supporting their children in communicating with others. They attend training sessions to acquire the necessary skills to communicate effectively with their children. They also act as communicating partners with friends, relatives and others. In addition, they act as advocates of their children both in the school, as well as in the wider community. It is vital that a number of online platforms are made openly available in order to increase knowledge and skills on issues related to AAC and inclusion. Of note is the MYHUB Inclusion Hub Platform (www.inclusion-hub.eu) which offers a one-stop-shop for inclusion practices, tools, resources and methods addressed to the pedagogical staff in formal and non-formal educational settings.

***Keywords:*** *augmentative and alternative communication, assistive technology, Cyprus, inclusive education, parents' experience, school collaboration.*

## Introduction

Since the 1990s, pupils with disabilities have had the right to be educated alongside their peers in mainstream schools to a much greater extent than previously. Inclusive education refers to the right of all people to education that is, guaranteeing the presence, participation, and progress of all students by providing equal opportunities ("Article 24 – Education United Nations Enable" 2021). Inclusion often involve reforms that require new curricula, new teaching methods and accessible materials (Sheehy et al., 2013). The different technological tools can support the inclusive education of pupils, in particular those who find it difficult or are unable communicate with their peers in classrooms through speech. The field of Augmentative and Alternative Communication (AAC hereafter) focuses on a variety of unaided (such as nodding, gestures, and sign language) and aided forms of communication such as talking products, tablets as well as Speech Generating Devices (SGD).

Several studies have emphasised the importance of the parental role when designing services provision for people with disabilities, such as through family centre intervention (An, Chan & Kaukenova, 2018); the need for creating parent professional partnerships (Dunst and Paget, 1991); and family support service plans (McBride et al., 1993. For the case of Cyprus, Phtiaka (2007) held that, for parental education to be effective it needs to be considered in terms of partnerships. This is because parents are partners in knowledge and skills as well as a valuable source of information. As the same author commented, by not considering parents in the process of supporting their child's communication skills, this will lead to inefficient intervention practices and this has negative effect on child progress, whilst also putting the family under a lot of stress. Addressing this issue in 2016, the Equality and Social Inclusion Through Positive Parenting (ESIPP) project explored the training needs that Cypriot, Croatian and Macedonian parents need in order to support their child who is on the autism spectrum (Preece et al., 2016). A series of modules was developed aimed at providing greater understanding of the autistic condition, and promoting a range of strategies that can be implemented to help in addressing some of the many needs these children and their families face. ("Parent Education Programme – ESIPP" 2021). To support their children effectively, parents need to undertake different roles such as taking decisions regarding the technological tools, development of different activities and providing recommendations to others (Light and McNaughton's, 1993). Estrella investigated the demands placed on a nursing student and a mother of two children with autism spectrum disorder, from which they proposed "a six-stage model designed to help also other

parents move from the sense of bewilderment that often follows a diagnosis of autism to a sense of empowerment" (Estrella, 2013).

Despite the fact that the parents' roles in supporting pupils with disabilities is vital, to date, there has been a lack of research investigating the roles of Cypriot parents of children with complex communication needs. Hence, the research aim was to explore the experiences of parents on the island who support students with limited or no functional speech, regarding how they perceive their roles as parents.

## Method

In order to explore in-depth the parents' experiences of children who use AAC a phenomenological approach was chosen as it focuses on peoples' lived experiences regarding a specific phenomenon (van Manen, 1990). Specifically, the phenomenology of van Manen (1990) was chosen as the context of this research was pedagogical; focusing on children who attend school. The participants were selected through purposive sampling.

*Participants:* Participants were selected via snowballing sampling. The selection criteria for participation were that they were the parents of individuals aged five to thirteen years old, who were AAC users. In total, six parents participated in the study, all of whom were mothers.

Table 1 shows the description of the children that these participants support and who use AAC methods to communicate with others. The decision to focus on data collection from a small sample was driven by the perspective under phenomenological research that, in order to be able to analyse in-depth peoples' lived experiences a small sample is warranted (van Manen, 1990; 2014).

**Table 1.** Description of the AAC users

| Cases | Case 01 | Case 02 | Case 03 | Case 04 | Case 05 | Case 06 |
|---|---|---|---|---|---|---|
| **Gender** | Boy | Boy | Boy | Boy | Girl | Boy |
| **Age (years)** | 13 | 6 | 13 | 5 | 8 | 5 |
| **Medical Diagnosis** | Moebius Syndrome | Inherited Metabolic Disease (IMDs) | Cerebral Palsy, Hearing deficiency | Micro-cephalia | Cerebral Palsy | Develop-mental Delay |
| **Education** | Primary school | Nursery school | Primary school | Nursery school | Primary school | Nursery school |
| **AAC System** | SPG device | Eye gaze system | Eye gaze system | SPG device | SPG device | Talking Pen |

## Data Collection and Analysis

The instrument used was semi-structured interviews. An aide-memoire was used in order to guide the topics for the interviews and participants were also encouraged to share their experiences on matters related to the research questions. Examples of the questions asked during the interviews were:

1. What roles did you need to undertake in order to support your child's communication needs?
2. Did you anticipate any challenges during this process and if yes, what were these?
3. How did you overcome those challenges? In order to collect in-depth understanding about participants' experiences two interviews occurred with each.

The first author kept a reflective journal in which she noted her pre-understandings about the topic, data collection and the subsequent data analysis. Thematic analysis was employed in order to identify the themes relating to parents' experiences in supporting AAC users (van Manen, 1990).

## Results

The findings show that parents of children with complex communication needs in Cyprus have a number of roles when it comes to supporting their children in communicating with others, which are discussed in the following paragraphs.

### AAC knowledge acquisition through training

The findings show that one of the parents' roles was to undertake several training courses in order to acquire the necessary skills to support their child. Training had been received from different sources, such as attending conferences, assistive technology workshops, participating in speech therapy sessions and engaging with suppliers in the assistive technology field. One of the mothers, Christina, commented that she goes everywhere with her husband: to training, conferences and generally, to any event where they can learn about AAC. As she commented, "whenever we find out that someone will come from abroad, such as a doctor, a psychologist, we go". She also added that in the past few years she has been receiving consultation services from AAC specialists, such as training on how to create symbolised resources on her son's AAC tablet. Kiki and Despina mentioned that, for them, receiving training on the eye-gaze system was important. More specifically, Kiki said, "I am going to attend training with my son's speech and language therapist on how to use his eye-gaze system and create materials on it". Despina commented that when she bought the

eye-gaze system for her child she paid the company to get extra training, as it was important for her to understand how to use it with her child.

Furthermore, participants expressed that having the necessary skills is important as they can transfer this knowledge to their child. As Georgia said, "I asked to receive training on AAC, on how to use the device, because as a parent I felt that I could be the link to transfer the knowledge to the child ... I got trained with the speech and language therapists who trained the child". As discussed in the literature, parents face many challenges related to learning AAC technology. In McNaughton and colleagues (2008) study, it was stated that parents who have good skills using personal computers report most successful experiences. Parents engage with different types of training in order to acquire the necessary skills to be able to support their child reliant on AAC. In Bruno and Dribbon's (1998) study, parents were trying to gain technology and interaction skills for working with their children who lacked verbal skills by attending a special camp. That camp's aim was to support them in improving their communication interactions with their children using AAC devices via different activities.

## Resources development

The findings show that parents took full responsibility for developing resources for their children's communication devices. As Christina stated, "I develop materials every week, depending on the programme of the school. For example, if they have winter as a subject, I will find the symbol for snow, the jacket, they will give us a list of words from school ... so my son can have these pictures and he would use them to show them and participate in the class". Similarly, Georgia had taken full responsibility for creating resources for her twelve-year-old son, who was attending mainstream classes three times per week. As she declared, "I need to prepare symbolised resources so he can communicate in class". The reason that parents were developing these resources was because the school staff did not see it as being their responsibility. As Georgia said "I had to take the part for AAC intervention as the school would not take on this role. So, I took this role, in order to support my child's progress". Another reason relates to the knowledge that school staff had on issues surrounding the AAC field. As Christina commented, "the teachers are really young without any experience, so they can't and neither have an idea on how to support the child and they ask for our speech and language therapist, from the private sector, to help regarding how to deal with my child". Pampoulou and colleagues (2018) found that AAC services provision by speech and language therapists working in the public Cypriot schools are constrained and that there is still much room for improvement.

## Discussion

The current study was aimed at exploring the parents' views on supporting their children who communicate via different AAC systems. The findings have revealed that they undertake training to acquire the necessary skills and knowledge needed to be able to support their children who are AAC users. These skills are mostly focused on developing AAC resources for the aided modes of communication of their children as they believe that school staff are not in the position to support students regarding this aspect of intervention. Pampoulou and colleagues (2018) found that AAC practices in Cyprus are still in their infant stages. It is also recommended that the different available academic programmes should place an emphasis on providing adequate training to specialists. It is also vital that a number of online platforms are made openly available in order to increase knowledge and skills on issues related to AAC and inclusion. The MYHUB Project (www.inclusion-hub.eu) with its Platform for inclusion practices, tools, resources and methods for the pedagogical staff in formal and non-formal educational settings. It aims to improve the knowledge, skills (including advocacy skills) and competences of the pedagogical staff, to promote implementation of inclusive learning practices based on the know-how provided from countries with greater experience in this regard. ("MyHub" 2021).

## Conclusions

In conclusion, this research highlights that a holistic approach is vital when designing interventions for AAC users in which all parties (e. g. parents, teachers, therapists, AAC users) involved play an important role. This will eventually lead to successful intervention outcomes. It is acknowledged that further research is necessary on this particular topic, not only from the perspective of the parents, but also, from all parties involved in order to identify all the essential elements for successful services provision to AAC users. Amongst others, this will also help to decide on the training needs of all parties involved so to increase their knowledge, skills with the ultimate goal of successful intervention outcomes.

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# TRAIT EMOTIONAL INTELLIGENCE OF TEACHERS WORKING IN SPECIAL EDUCATION SCHOOLS

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## ABSTRACT

Today's schools are constantly engaged by various new experiences, challenges, difficulties and opportunities. Nowadays it is well known that for a school to be successful in both academic and social development it must be opened to use new strategies and methods in order to adapt to these constantly upcoming challenges. It is known that students with special educational needs usually find it harder to function socially, academically, they also tend to undervalue their quality of life. In recent years it has been discovered that student emotions can play a huge part for one's development in the mentioned areas. In order to fully understand and dispose emotional powers one must be emotionally intelligent. In recent decades research has revealed that emotional intelligence can play a key role to increase the potential of students with special educational needs. These children usually struggle to socially adapt and communicate, to create new relationships, tend to be emotionally unstable, etc. It is also stated that in order to develop student's emotional intelligence teachers should be highly emotionally intelligent as well as emotional intelligence is developed through social interactions, and the control of social interactions in the emotional level. Thus, *the development of their emotional intelligence in a school environment is majorly important*, especially if this kind of development is being conducted by highly emotionally intelligent teachers. It is because of these statements the *aim of this study has been formulated – to evaluate the trait emotional intelligence of primary school teachers who work in special education schools.* In order to reach this goal *several research questions were raised:* what are the global EI and its factor scores of our sample, how do these scores distribute between themselves, how do they contribute for the development of EI? Also, several *research methods were used*. A sample of 66 primary education teachers who work in special education schools form Lithuania and Latvia were asked to answer the TEIQue-SF questionnaire. Their scores were evaluated according to the questionnaires scoring key. Their score validity was conducted by using Cronbach's alpha score and KMO factorial analysis scores all by using SPSS v23. Although the Cronhach's alpha and KMO scores show no significant research data *it has been partly discovered* that the teacher's from our sample global emotional intelligence score should be at a higher than intermediate-high level.

**Keywords:** *emotions, primary education, special education, special educational needs, trait emotional intelligence.*

## Introduction

In recent decades the concept of emotions and even more so the concept of emotional intelligence has been increasing in interest as a research object for various field researcher's (Humphrey et al., 2007; Parker et al., 2009; Keefer et al., 2018). Nowadays emotional intelligence and it's possible influence in various educational-based researches is becoming more and more popular and substantial (Gershon & Pelliteri, 2018; Petrides et al., 2018). As researchers Alam, Ahmad (2018), Valente, Lourenco (2020) suggest that teachers can play a key role in their students` emotional intelligence development, because highly emotionally intelligent teachers are more effective in classroom stress management, empathy engagement, relationships, etc. This importance is especially distinguished in special education. Children with special educational needs (SEN) tend to have lower emotional intelligence scores than their peers without SEN. Children with lower emotional intelligence powers find it hard to perceive their own and other people's emotions, focus during classes, effectively function during various social interactions, are less empathetic, etc. (Mavroveli and Sanchez-Ruiz, 2011; Kumar, 2013; Boily et al., 2017). These statements suggest that highly emotionally intelligent teachers should be effective emotional intelligence "developers" for such children. Emotional aspects in the teaching process influence overall student performance, which has been proved in many studies (Brackett et al., 2011; Li et al., 2018; Romano et al., 2020). This means that highly emotionally intelligent teachers throughout their relationships with such children could be highly beneficial not only in various educational contexts, but other life areas, the quality of life overall.

Despite this possible potential there is a significant gap in knowledge regarding teachers who work with children who have SEN emotional intelligence scores. Most researches are focused towards relationship and correlation analysis between emotional intelligence and other aspects that are important in such work (Poedubicky et al., 2006; Yahyazadeh-Jeloudar, Lotfi-Goodarzi, 2012; Lestari, Sawitri, 2017).

A simple emotional intelligence evaluation of such teachers could generate highly valuable recommendations and insights for their personal and professional development, their students emotional intelligence development potential.

### The concepts of emotional intelligence

It is worth to mention that because of the increase of these type of researches the increase in popularity of different emotional intelligence concepts emerges as well (Drigas, Papoutsi, 2018; Fiori, Vesely-Maillefer, 2018; Petrides et al., 2018). In order to fully understand what is emotional

intelligence and how can it be beneficial it is crucial to have a holistic understanding of various emotional intelligence concepts. As it is stated in scientific literature there are four main concepts (theories) of emotional intelligence: 1) D. Goleman's concept; 2) Bar-On's concept; 3) ability concept; 4) trait concept (Petrides & Furnham, 2001; Goleman, 1995; Salovey & Mayer, 1990; Bar-On, 2006). The later two concepts are considered the most widely used in order to conducted emotional intelligence related researches in educational contexts. Although these two concepts might seem similar, they define and measure emotional intelligence differently (Petrides, 2017). The ability emotional intelligence concept concerns emotion-related cognitive abilities. In other words, the ability concept operanalizes emotional intelligence as a constellation of abilities to fully use one's emotional powers in order to generate thoughts. Whilst the trait concept of emotional intelligence interprets emotional intelligence as an emotional self-efficacy. This means that the trait concept of emotional intelligence offers to understand emotions as experiences (Petrides, 2011). In a broad sense emotional intelligence can be defined as a constellation of traits to use one's emotional powers to the maximum potential. Both of these constructs are widely used in educational researchers, yet for this research the later concept was chosen for several main reasons (Siegling et al., 2015):

1) trait emotional intelligence has a more robust and refined research tool suitable for various samples (TEIQue, TEIQue-SF, TEIQue-360, etc.);
2) other similar research tools like the MCEIT does not prove to measure any type of intelligence rather separate abilities;
3) emotions are subjective and the TEIQue-SF offers a subjective evaluation of one's emotional traits. Note that this concept is to be considered and kept in mind when emotional intelligence is mentioned.

## The importance of emotional intelligence for children with special educational needs

Several researchers have revealed the benefits of development of emotional intelligence for early year scholars. Mavroveli and Sanchez-Ruiz (2011) discovered that scholars with higher scores of emotional intelligences are related to more peer nominations for prosocial behaviours, fewer for antisocial behaviours. Other researchers (Gershon & Pelliteri, 2018) found that the development of emotional intelligence in schools, especially in early years, can have a positive impact on scholar social skills, antisocial behaviour, substance abuse, positive self-image, academic achievement, mental health, prosocial behaviour, general well being overall. Although it is worth to mention that there is no difference between the trait emotional intelligence structure between children who have special educational

needs (SEN) and normally developing children. This means that all children can benefit from the development of emotional intelligence, but children with SEN can benefit more due to several reasons.

First of all, as several researches would suggest, children with SEN score significantly lower on emotional intelligence evaluation scores (Mavroveli and Sanchez-Ruiz, 2011; Kumar, 2013; Boily et al., 2017). Second of all, such students have difficulties functioning effectively during everyday tasks. Children with SEN tend to see and perceive their surroundings differently than normally developing children, they also are unable to sit still during classes, finish tasks, plan ahead or show a broader perspective of interest (Kumar, 2013). According to Kumar (2013) such development for children with SEN should help them understand their own emotions, take more responsibility for their life, respect the emotions of others more, to accept reality, choose consciously, avoid emotional hijackings, learn to create a state of "flow" improve their relationships, become more positive.

All in all, every single child and scholar can benefit from the development of one's emotional intelligence. Yet for several reasons mentioned earlier children with SEN might benefit from it significantly more.

## Teachers as emotional intelligence developers

It is no secret the scholars spend most of their time in schools and other educational organizations. This aspect alone forms a nearly perfect environment and opportunity to develop children with SEN emotional intelligence. Yet there are several guidelines to keep in mind.

Firstly, and perhaps most importantly, is that the teachers working with this object must be highly emotionally intelligent themselves. In current scientific literature there is a lack of research based on the relationship between teachers social-emotional, professional competence and difficulties experienced while working with students with SEN. Despite the various and different teaching challenges that teachers meet depending on the type and level of SEN teachers will surely need to find several strategies and methods on how to pass their knowledge for such students, adapt to their needs, learn to work with them effectively, etc. (Skura & Swiderska, 2021). In other words, teachers who work with such students must be able to find ways to communicate with them in a most effective manner. This statement suggests that a highly emotional teacher should be successful when dealing with such challenges. Researchers (Armour, 2012; Valente, Lourenço,, 2020) suggest that teachers who are less emotionally intelligent are also less likely to be successful in developing relationships with such students, maintaining classroom discipline, progressing as education specialists. This means that in order to effectively communicate and understand children with SEN teachers must be highly emotionally intelligent.

Secondly, Emotional intelligence can be developed through the (self-) educational process. As mentioned earlier in order for teachers to develop the emotional intelligence of children with SEN they must constantly communicate. This means that students and teachers will experience various emotions during a wide range of different social interactions. Therefore, proper student-teacher communication is of great importance for the manifestation and management of students' emotions (Grams, Jurowetzki, 2015). The aspects of a highly emotionally intelligent teacher and his abilities to control social interactions with students with SEN in order for them to learn and develop various traits creates a nearly perfect educational environment for the development of emotional intelligence (Mainhard, et al., 2018).

Based on these statements it is conducted that teachers themselves can be very effective partners, guides and even tools for students with SEN in order to develop their emotional intelligence. That is why it is crucial to evaluate such teacher emotional intelligence scores and perhaps generate some conclusions involving future teacher professional development dilemmas.

## Methodology

This quantitative study design consisting of 4 main stages; 2 data gathering methods, 3 data analysis methods, a sample of teachers who work in special education schools has been shaped in order to achieve this study's aim – to evaluate the trait emotional intelligence of primary school teachers who work in special education schools.

The study was conducted between 2021-02 and 2021-05. The first stage of the study was a scientific literature analysis stage. The main aim of this stage was to create a robust theoretical framework for the study design and theoretical validation. After this stage was completed the second stage or the sample generation phase took place. According to the analysis of scientific literature it was determined to consist a sample of teachers who work in special education schools (primary education teachers). After determining the sample needed for the study appropriate entries were invited to take part in the study, thus marking the beginning of data gathering stage. A virtual questionnaire was sent out to all the teachers who agreed to take part in the study. Lastly, after gathering all the necessary data the fourth and final stage took place. The data analysis phase consists all of the mathematical statistical methods that were necessary to reach the study goal and to answer the research questions.

Several methods were used to form the research design and to require all the necessary data. Methods that allowed to gather all the necessary data for the study:

1) A method of scientific literature analysis. This method was used to form the theoretical framework for the upcoming empirical work of this study.

2) A questionnaire developed by Petrides (2009) TEIQue-SF (https://www.psychometriclab.com/adminsdata/files/The%20TEIQue-SF%20v.%201.50.pdf) was used to gather the main empirical data regarding the sample's global emotional intelligence and it's factor scores. This 30-item form includes two items from each of the 15 facets of the TEIQue. Items were selected primarily on the basis of their correlations with the corresponding total facet scores, which ensured broad coverage of the sampling domain of the construct. The –SF can be used in research designs with limited experimental time or wherein trait EI is a peripheral variable.

After recoding the raw data fallowing the questionnaire's key guidelines several data analysis methods were used: 1) a mathematical method of statistical average scores (mean) was used to evaluate the sample's global EI score and it's factor scores. A mean between 1 (very low) and 7 (very high) was generated. 2) to validate the statistical internal consistency of these scores a Cronbach's alpha score was generated. This score was used to determine how reliable the data truly is, since the sample filled a questionnaire of a foreign language. 3) to identify if there are any underlying factors in the data factor a KMO factor analysis has been conducted. This score was used to determine if the factor analysis will be of any use for the study. These processes were conducted using a SPSS v.23 program.

The empirical part of this study firstly consisted of 89 primary education teachers from Lithuania and Latvia. These teachers were selected according the following criteria: they must be currently working with children with SEN, they are currently working in a primary education field, they are primary school and not single discipline teachers. Valid entries were asked to participate in the study by completing a trait emotional intelligence evaluation questionnaire TEIQue-SF (English version). 66 ($N = 13$ from Latvia, $N = 53$ from Lithuania) of 89 were considered as valid entries based on their TEIQue-SF answer quality (questionnaires with skipped, non-deferential, linear answer patterns, etc. were excluded).

The first sample of 89 teachers were introduced with this study's ethical parameters. The sample was informed that neither their names, surnames, any other personal data, workplace, etc., will be visible and used in the final manuscript of this study. They were also asked to participate in this study solely on their free will and granted the right to leave the study if

they wished to do so. No one from the sample decided to leave the research nor they informed the researcher of any ethical violations.

## Results

Table 1 represents the main and most important results of this research. The *average score (mean)* represents the level of participant global emotional score and it's factor score. These scores vary from 1 (meaning very low) to 7 (meaning very high). This table also specifies the maximum and minimum score obtained for each factor. These results specify that the global EI of the study sample can be described as above average. Also, several EI facets (well-being, emotionality) can be evaluated like-wise. The remaining facets are scored significantly lower, below average.

**Table 1.** Participant factor score distribution according based on descriptive analysis

| Factors | Number of participants | Minimum score (mean) | Maximum score (mean) | Average score (mean) | Std. Deviation |
|---------|------------------------|----------------------|----------------------|----------------------|----------------|
| Global EI | 66 | 4.10 | 6.30 | 5.14 | .56 |
| Well-being | | 4.33 | 7.00 | 5.73 | .65 |
| Emotionality | | 3.38 | 6.75 | 5.22 | .74 |
| Self-control | | 2.83 | 6.83 | 5.03 | .80 |
| Sociability | | 2.33 | 6.17 | 4.60 | .82 |

Table 2 is set to represent the validity and reliability of the scores that were obtained. Note that these scores cannot be considered neither reliable nor significant or valid hence the Cronbach's Alpha score with a sample of 66 should be around .9-1.0. Adjacently, results are met with the KMO factor score, which should be between .8-1.0.

**Table 2.** Factor score validity and reliability scores based on descriptive analysis

| | Cronbach's Alpha score | KMO factor analysis score |
|---|------------------------|---------------------------|
| Global EI score | .783 | .530 |
| Well-being score | .348 | .572 |
| Self-control score | .449 | .573 |
| Emotionality score | .523 | .599 |
| Sociability score | .450 | .509 |

These results suggest that the items that should be closely related to one another in order to forma single EI facets are not well grouped. This means that this set of data cannot be considered as trustworthy. Furthermore, the KMO factor is also low, signalling a poor value for a factor analysis. It is worth to mention that the global EI score has a Cronbach's alpha score of .78. considering that the global EI score is consisted of 30 items this score in order to be significant should be just above .8.

Table 3 represents the component distribution in each factor of the emotional intelligence traits.

**Table 3.** Factorial component distribution of trait EI factors

| Component | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | | Rotation Sums of Squared Loadings | | |
|---|---|---|---|---|---|---|---|---|---|
| | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| Global EI factor distribution | | | | | | | | | |
| 1 | 4.8 | 16.1 | 16.1 | 4.8 | 16.0 | 16.0 | 3.6 | 12.0 | 12.0 |
| 2 | 2.5 | 8.3 | 24.4 | 2.5 | 8.3 | 24.4 | 3.1 | 10.3 | 22.2 |
| 3 | 2.2 | 7.4 | 31.8 | 2.2 | 7.4 | 31.2 | 2.7 | 9.0 | 31.2 |
| 4 | 2.1 | 7.0 | 38.9 | 2.1 | 7.0 | 38.8 | 2.3 | 7.6 | 38.9 |
| Well-being factor distribution | | | | | | | | | |
| 1 | 1.8 | 29.2 | 29.2 | 1.8 | 29.2 | 29.2 | 1.8 | 29.1 | 29.1 |
| 2 | 1.4 | 23.1 | 52.3 | 1.4 | 23.1 | 52.3 | 1.4 | 23.1 | 52.3 |
| Self-control factor distribution | | | | | | | | | |
| 1 | 1.8 | 30.0 | 29.5 | 1.8 | 29.6 | 29.6 | 1.6 | 26.0 | 26.0 |
| 2 | 1.1 | 19.3 | 49.0 | 1.2 | 19.3 | 48.9 | 1.4 | 23.0 | 49.0 |
| 3 | 1.1 | 18.0 | 68.0 | 1.1 | 18.0 | 67.0 | 1.1 | 18.2 | 69.0 |
| Emotionality factor distribution | | | | | | | | | |
| 1 | 2.1 | 27.0 | 26.7 | 2.1 | 27.0 | 26.7 | 1.6 | 20.0 | 20.0 |
| 2 | 1.4 | 17.3 | 44.0 | 1.4 | 17.3 | 44.0 | 1.5 | 18.3 | 38.3 |
| 3 | 1.1 | 13.1 | 57.1 | 1.1 | 13.1 | 57.1 | 1.3 | 16.6 | 55.0 |
| 4 | 1.0 | 12.6 | 70.0 | 1.0 | 13.0 | 70.0 | 1.2 | 14.8 | 70.0 |
| Sociability factor distribution | | | | | | | | | |
| 1 | 1.7 | 28.3 | 28.3 | 1.7 | 28.3 | 28.3 | 1.7 | 28.2 | 28.2 |
| 2 | 1.4 | 23.5 | 52.0 | 1.4 | 23.5 | 52.0 | 1.4 | 23.7 | 52.0 |

Considering the structure and idea of trait emotional intelligence the global emotional factor should be a constellation of 4 components. All other factors should be considered as a single unit. As it is shown in table 3 only the global emotional intelligence factor meets this requirement as all other EI facets are consisted of 2–4 components. This means that the remaining facets can not be considered as single, robust facets, rather than a constellation of separate questionnaire items.

## Discussion

In the first part of the discussion separate emotional intelligence factors of highly emotional teachers and this study's sample teachers are being compared. Studies suggest that well-being is a crucial facet for teachers (Taxer, Frenzel, 2015). Such teachers remain positive, are able to boost their student's self-confidence and carry-out their job efficiently. Based on this study's results it can be determined that the well-being score of this sample is valuated slightly above average, but it is also the highest evaluated facet. This means that the teachers from this study's sample are capable of working while maintaining a positive, boosting and motivating state.

When it comes to emotionality, teachers with high emotionality scores are equipped with key skills to be empathetic, take their students' perspective (Mercer, 2016). These kinds of teachers should be able to fully understand their students, help them cope and adapt to various situations. The results of this study revealed that the sample's emotionality factor is evaluated as average. This could mean that the teachers from this sample might be less empathetic, with lesser skills to understand their students or to take their perspective.

A teacher with a high score of self-control puts the understanding of emotions and their consequences first before acting (De Costa et al., 2018). Based on the results of this study it has been revealed that the sample's teachers can be distinguished as having low self-control, hence their self-control score is evaluated below average.

Lastly, sociability for teachers during their job is described as their abilities to interact, control and enjoy various social interactions with their students (Dewaele et al., 2018). Sadly, this study's sample showed the lowest score of sociability. Meaning that the mentioned sample's teachers might not be engaging or effective when it comes to communicating with their students. As mentioned earlier social interactions are significantly important for EI development.

The second part of the discussions reveals how this study's findings correlate with similar research results. Firstly, it is important to mention

that these scores should be interpreted with caution due to low reliability and factor analysis scores. If, however, we would consider these results as primary or pilot then we could argue that we found similar results to other researchers. Some conducted researches suggest that not only such teachers have a higher emotional intelligence score than general teachers, but also have a higher level of empathy and self-motivation, emotional awareness, emotion management, self-motivation, emotion recognition (Sayko, 2013, Mustaffa, 2018). The analysis that took place during this study was focused towards a broader definition of EI facets. According to the trait emotional intelligence theory emotional intelligence is a constellation of 15 facets, which are merged to 4 major factors mentioned that were mentioned in this study (Petrides et al., 2018). These factors consist the facets that Sayko (2013), Mustaffa, (2018) researched. According to this study's results it is determined that there are several similarities between our findings and those of Savko (2013), Mustaffa, (2018). We found that our samples global EI score and it's factor emotionality (covers empathy and emotion management) scores could be valued at a higher than intermediate level, although the levels of sociability (covers emotion management) are significantly lower than average according to this study. This could mean that this study and the studies carried out by Savko (2013), Mustaffa, (2018) reveal that teachers who work with children who have SEN have higher than average global EI scores and emotionality scores. It is worth to mention that currently there is very little data that exist surrounding this research object, because most of the current research is focused on determine whether or not emotional intelligence scores correlate with other aspects such as job satisfaction, burnout, etc. (Tok, Morali, 2009; Fiorilli, et al., 2019).

These results would be promising if it was considered that the following unreliability of them was partly subjected to: the reseach sample misunderstanding some statements in the questionnaire due to it being written in a foreign language, misplaced or misperceived important notions while answering. After conducting a validity test using the Cronbach's Alpha, it has been clear that the scores are too low to be considered valid. That is why the decision to conduct a KMO factorial analysis has been made. Then it was discovered that only the global EI factor has the required (4) components (factors). According to the trait emotional intelligence theory and it's sampling domain the global EI factor should consist 4 factors, and these 4 factors should be considered as single units (Petrides & Furnham, 2001). It has been discovered that the 4 factors in this research are not perceived as single units rather than constellations of 2–4 items. It is highly possible that for these reasons this researches scores cannot be considered either valid or significant. They should be perceived as pilot or supportive for more accurate researches.

## Limitations

During this study there were several limitations. One of the most significant – there was no possibility for eye-to-eye contact during the COVID-19 pandemic. This means that the researcher was unable to fully and immediately answer to any questions related to the research. The second limitation was the language of the questionnaire. Both Lithuanian and Latvian teachers were asked to answer a foreign (English) language questionnaire, which may have led to some item misunderstandings, misinterpretations, etc. Lastly, due to limited time for the planned research a short form of the questionnaire was used. This can hardly count as a limitation, hence this form of the questionnaire is valid and widely used world-wide, but a full form questionnaire may have provided with more detailed insights and results.

## Recommendations

Regarding the experience of this research several improvements should be made. Firstly, the researcher should be more closely involved into the completion of the TEIQue. He should be able to answer all research related questions real time and explain with great detail the content of the questionnaire. Secondly, in order to acquire more accurate data several questionnaires should be used. For example, the TEIQue and the BEIS-10 could offer a broader perception of the research object, aim and research questions.

Although EI development skills were not valuated in this research, teachers who participated in this research are believed to be capable of developing the emotional intelligence of their scholars.

## Conclusions

1. The global emotional intelligence score of the research sample can be partly evaluated as high. The 4 factor scores can be partly evaluated as intermediate – higher than intermediate.
2. The trait emotional intelligence factors of the research sample distribute among themselves from most to least developed as follows: well-being, emotionality, self-control, sociability.
3. As scientific literature would suggest, that teachers who are emotionally more intelligent might be more successful in developing their student's emotional intelligence, hence they are able not only to prosper their own emotional powers, but to help others be more emotionally efficient.

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# PREVENTION OF LEARNING DISABILITIES IN PRE-SCHOOL CHILDREN

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**ABSTRACT**

The article is devoted to revealing the possibilities of preventing learning disabilities in pre-school children. Early intervention is crucial to manage school failure and loss of self-confidence in children. Research is **topical**, as the number of children with mixed developmental disabilities and later, at school age – learning disabilities – is increasing. Some pre-school children may have various developmental disabilities, including mixed developmental disabilities, which present a whole spectrum of different problems that cannot solve themselves. If they do not receive help, these children will be diagnosed with lasting learning disabilities by reaching school age, and that can lead to a number of hardships for the pupils. Lessening or resolving these hardships will require a lot more effort to not inflict damage on the child's self-confidence and future life quality.

The **aim** of the study is to determine the knowledge of teachers about children with mixed developmental disabilities, their difficulties, and possibilities of recognizing early signs of problems.

**Methodology**: the research was carried out using literature review and questionnaire for pre-school teachers.

**Results** were not surprising – many teachers are not aware of mixed developmental disabilities; these disabilities are diagnosed alongside speech and language problems, and the number of these is increasing. The results are significant, and it is a possibility for speech therapists and special education teachers to create a curriculum for teachers to deal with these children to lessen problems.

*Keywords: Learning disabilities, mixed developmental disabilities, preschool children, prevention, speech therapy.*

## Introduction

Preschool children turn into pupils imperceptibly. It does not happen in a single day. Even though competency-based learning offers children the possibility to develop on their own, the teacher needs to be very knowledgeable in order to support and, in a way, guide this process. The *Skola 2030* [School 2030] documents offer various suggestions for organizing the

education process in preschools. They offer a preschool education program (Miesniece, n. d.) which analyses the education process in three stages for a number of education areas – language, social, civic, and cultural understanding, the art of self-expression, natural sciences, mathematics, technologies, health, and physical activities. They also include a detailed plan for content and approach of teaching and give methodological advice for preschool teachers (Oliņa & Rolanda, n. d.). General recommendations for education for modern competencies (Namsone & Oliņa, n. d.) are given. Even though a preschool child's development can happen at an individual rate, the preschool teacher evaluates the child's accomplishments and observes his actions when acquiring transversal skills, habits, and basic skills of the previously mentioned education areas (Miesniece, n. d.). A huge emphasis is placed on the child's self-assessment and activity while inquiring about the world and learning at the same time. After finishing this level of education, the child has achieved the necessary development to start learning in school. There needs to be a specific level of readiness, also called school readiness. Not every child has the same level of success, and it is determined by his individual developmental characteristics, which speech therapists, special education teachers, and skillful preschool teachers can help with.

## Methodology

The research used a review of theoretical literature that helps to understand the problem and its topicality and justifies the necessity and importance of the research. Scientific articles were sourced from *Google Scholar* (keywords learning disabilities, prevention, early prevention, developmental delays were used); eight articles were analysed in theoretical findings. Various books on preschool children development and school readiness were also used. One of the survey methods used was a questionnaire of preschool teachers (54 respondents participated; random sample) in order to determine whether teachers know what mixed developmental disabilities are and whether they are ready to work with these children. The research questionnaire included multiple questions, but the article presents and analyses only those answers that describe their understanding of characteristics of mixed developmental disabilities and recognizing them. The data were anonymos and analysed in an aggregated manner.

## Results

The topic of children's school readiness has been addressed by several researchers and scientists, and they have focused on various developmental areas, determining what a child should know and be able to do when

starting school (Gavrina et al., 2006; Kaņepēja, 2003; 2012; Бабкина, 2006; Дубровина, 2001; Гуткина, 2000; 2007; Екжанова, 2007). Although they look at abilities in the areas of language, mathematics, social knowledge, physical development, and other areas, it does not differ in essence from the seven education areas for preschool that have been put forth in the latest research (Miesniece, n. d.). The difference lies in evaluation and definitions, but one thing is clear – the child needs to be ready to progress from play activities to learning activities, to begin a different kind of didactic communication, and to learn the abilities and knowledge provided in school.

However, sometimes this progression is not that simple (Bethere, 2013), and the child needs help to prepare for school (Craft, 2020; Kauce, 1971; Каше, 1985), as not everyone is capable of advancing on the path of learning by themselves. An important topic is the adjustment of children in first grade, what affects it, and how we can help (Āboltiņa, 2014; Князева, 2007; Костяк, 2008), because delayed development hinders the process of adjustment.

At school age, we can recognize learning disabilities which are represented by a specific heterogeneous group of children (Tūbele et al., 2013b; Turkington & Harris, 2006). They have difficulty following the school's education program without support (Tūbele, 2019). These children do not appear suddenly, the school's educational process is not the beginning of their hardships. It can often be noticed at preschool age, especially if the child has a speech or language disability. The number of these children is relatively big, and it has a tendency of increasing (Tomele, 2018). In more severe cases, when the problem concerns not only pronunciation, but also the process of learning a language and using it in everyday communication, children need regular, specially organized speech therapy sessions and constant support (Law et al., 2017; Tūbele et al., 2013a; Tūbele, 2019). This seemingly creates a contradiction, as the work is competency-based; however, it is important to understand that support measures allow these children to catch up with their peers in a relatively short time and become learners that are just as successful (Skorek, 2009). Without this kind of help, they will not be able to successfully develop by themselves. This support is also necessary for children with mixed developmental disabilities (F 83), when the problem concerns not just a single developmental area, but, alongside language disabilities, problems are present in preschool with learning arithmetic skills, the development of cognitive abilities is hindered, and there is a lack of planning of purposeful movement (Tūbele, 2019; Turkington & Harris, 2006). This also determines the formation of diagnoses – mixed specific developmental disorders (F83) (ICD-10, 2021); later on, at school age – mixed disorder of scholastic skills (F81.3) (ICD-10, 2021).

Mixed specific developmental disorders is a residual category for disorders in which there is some mixture of developmental disorders of speech and language, school skills, and motor functions; nevertheless, none of these is dominant enough to form a main diagnosis. This mixed category should only be used if there is an extensive overlap with all of these circumscribed developmental disorders. The disorders are usually associated with a certain degree of general impairment of cognitive functions; it should therefore be used if there are malfunctions that meet the criteria of two or more categories of F80; F81 and F82 (Tūbele et al., 2013a). It is very important to notice these impairments early on, at preschool age, and to start corrective developmental activities that could lessen the level and manifestations of the impairment (Fielding-Barsley, 2006; Rice et al., 2014). These would be preventive measures, and many researchers emphasize these and offer significant solutions (Batista & Pestun, 2019; Craft, 2020; Healy, 2009; Pesova, Sivevska, & Runceva, 2016). Early diagnostics by observing preschool children is one of the most important measures (Fielding-Barsley, 2006; Pesova et al., 2016). Speech therapists and special education teachers know of the possible measures, but the age when corrective activities are started is a little belated (in Latvia it is usually 5 years of age), when many undesirable and incorrect habits (for example, distorted pronunciation, substitution and mistaking of sounds, etc.) have already been fixated and are harder to correct. Gaps in education require more effort from the teacher, lowered interest or lack of interest in learning and unwillingness to make an effort to overcome hardships requires creativity and a special approach from the teacher. In order to achieve this, it is necessary to diagnose not just the deficiencies and weak points in a child's development; a crucial factor for success stories is the child's strong points and interests (Tūbele, 2019).

Well-organized support measures in preschool will be a basis for a more successful overall development. For specialists (speech therapist, special education teacher, psychologist), the question is not the child's hardships and problems; it is rather a question of finances – at which point they can begin work with a child who has a speech or language disability, or even mixed developmental disabilities.

The knowledge of preschool teachers about mixed developmental disabilities and ways of understanding them and helping children was researched in the master's thesis *Cooperation between special education teacher and preschool teacher in mixed developmental disorder reduction for 5–6-year-old children* by M. Osmane. 54 preschool teachers were interviewed, and among other questions, there was a question about mixed developmental disability characteristics in preschool children and whether those had been observed (Table 1).

**Table 1.** Knowledge of preschool teachers about the characteristics of mixed developmental disabilities

| Observed characteristics | Never | Rarely | Regularly |
|---|---|---|---|
| Speech and language impairments | 5 | 7 | 42 |
| Motor difficulties | 6 | 30 | 18 |
| Inhibited mental processes | 7 | 23 | 24 |
| Impaired learning ability | 4 | 22 | 28 |
| Impaired understanding of space, time, cause and effect | 11 | 30 | 13 |

The data presented in the table shows that 78% or 42 (out of 54) preschool teachers have regularly observed speech and language impairments (specific speech articulation impairments, expressive language impairments, receptive language impairments, and/or phonological development impairments) amongst their pupils. Out of 54 respondents, 52% or 28 have observed impaired learning ability (specific reading impairments, spelling impairments, and/or arithmetic ability impairments). Out of 54 respondents, 44% or 24 have observed inhibited mental processes (deviations in the development of emotions and perception, as well as memory, imagination, and understanding; inhibited development of emotions and will; slow work pace; difficulty concentrating; quick fatigue). Out of 54 preschool teachers, 33% or 18 have regularly observed motor difficulties (weak or underdeveloped fine and/or gross motor skills) amongst their pupils. Out of 54 preschool teachers, 24% or 13 have observed impaired understanding of space, time, cause and effect (difficulty with orientation in space, plane, time; difficulty separating the important and less important, determining the sequence of events) (Osmane, 2020).

Preschool teachers have observed various impairments in their pupils, and, although they seek advice from the available specialists, they would also benefit from the knowledge of how to help these children.

## Discussion

It would be beneficial to develop a corresponding further education program for preschool teachers in order to give them the opportunity to recognize possible disabilities early on and to create a further plan of action. In this way, together with a special education teacher and a speech therapist, they could support the child with mixed developmental disabilities and ensure probable successful development. It is advisable to include parents in the process of corrective developmental activities, especially in the stage of consolidating learned abilities, as this will not only further the child's

development, but also improve the bond and mutual understanding with the child. Teacher's knowledge of children with mixed developmental disabilities is superficial, early signs and difficulties of these children are not always seen.

## Conclusions

Language disorders are mainly recognized the number of which tends to increase. Teachers have difficulty linking various symptoms and different manifestations of problems and finding solutions to help.

Children with mixed developmental disabilities present with irregular development in several areas; overall development is also inhibited and does not correspond with the child's actual age.

In order to acquire new knowledge and abilities, children with mixed developmental disabilities need more time, demonstration methods, and repetitiveness.

These children easily accept and use the help of adults, and that is a good indicator and a factor that contributes to development.

Strong points are the basis of development for all children; therefore, it is important to determine and use them when planning and carrying out lessons.

Professional measures need to actively include a speech therapist and a special education teacher, as well as the collaboration of all included parties.

Analysis of theoretical literature allows for the conclusion that solutions to the problems are possible, but the results of the questionnaire show that preschool teachers have insufficient understanding and knowledge of mixed developmental disabilities.

Recognizing the problems and starting corrective developmental activities early on is an important preventive measure in order to ensure less manifested learning disabilities at school age.

It is necessary to further educate preschool teachers about recognizing mixed developmental disabilities and using corrective developmental methods in their daily work.

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# CHALLENGES OF EASY AND PLAIN LANGUAGE IN LATVIA

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## ABSTRACT

In the age of globalisation and digitalisation, the amount of information is constantly increasing. The society's responsibility is also increasing, as there is a large part of society that needs special support in order to make this information accessible. One way to do that is being able to communicate in easy or plain language. The aim of this article is to reveal easy and/or plain language as one of the measures for an inclusive society, and pinpoint the possibilities of expanding it in Latvia, where there has been little discussion about the different use and text creation methods of easy and plain language. Therefore, professor Dr. paed*.* Sarmīte Tūbele draws attention to the specifics of plain language target groups from a speech therapist's point of view and summarizes the diverse characteristics of learning disabilities. When discussing the possibilities of adjusting learning materials, she emphasises the importance of integrating quality illustrative elements into easy language texts in order to encourage the reader's perception and interest.

Dr. paed. Ieva Sproģe discusses methods of text creation/adaptation in the context of translatology and lists criteria for processing and creating texts, as well as suitable classic translation methods, emphasising the main goal of easy and plain language – improving the ability of perceiving a text by simplifying it, i. e., making it more understandable. Subsequently, a summary of suggestions for easy and plain language text requirements and using them with target groups is provided.

Methodology: The research was carried out using literature review and a study of easy language organisations, as well as events organised by them and their guidelines.

Results: The article provides a brief summary of easy language history and describes current international discussions about easy language, pointing out both positive development tendencies and problematic aspects; the most common classifications of easy language and its target groups are described, as well as the interpretations and possibilities of classification for the concept "easy to read"; conclusions are made about the possibilities of developing easy language text creation in Latvia.

Easy language is described in the context of translating/adapting and speech therapy by collecting suggestions for easy and plain language text requirements and adapting them for the target groups. This is the first time that an easy and plain language description in a scientific, multidisciplinary context has been provided in Latvia.

***Keywords:*** *easy language, inclusiveness, information understandability and accessibility, plain language, text adaptation/translation.*

## Introduction

The globalisation and digitalisation provide our society with more and more information, however, there is a large part of society that can access this information only with the help of special support. Society is aware of this, and in many aspects of life, the term 'inclusiveness' is frequently brought to attention. The means of communication and language is one of the most influential measures for creating an inclusive society which places an increasingly higher emphasis on communication via easy and/or plain language.

Although in Latvia there is little discussion of the scientific aspects of using easy and/or plain language, foreign linguists in collaboration with several institutions and representatives of target groups carry out nationally and internationally significant research both individually and in group projects. "Easy Access for Social Inclusion Training" else EASIT (EASIT, 2018, Sept. 1) could be noted as one of the most important latest projects, and one of the most noteworthy conferences – the International Easy Language Day (IELD) Conference which took place in Germersheim, Germany on May 27–28, 2021(IELD Conference, 2021). A significant number of scientific research and project descriptions in this field have been published abroad (Selkokeskus, 1983), and research is being carried out about texts that are characterized as "easy to read/plain language" or "selkokieli" which, translated from Finnish, means "clear and/or understandable". Sweden has been familiar with plain language for 40 years under the name of "lättläst". The list of research carried out in Europe and USA could be continued indefinitely, and this is proof that societal inclusiveness by adapting means of communication is becoming increasingly more important; at this point in time, Latvia has the opportunity to adopt the good practice and learn from others' mistakes. There are no guidelines for the Latvian language yet, but some groundwork has been laid for communicating with people with special needs; therefore, further action needs to be taken by carrying out scientific research and drawing conclusions.

## Methodology

During the creation of this article, the bibliographic research method was applied, conclusions about easy/plain language were gathered by analysing the information provided in several easy language organisation websites, as well as results of conferences on easy language and publications of research.

The selection criteria are the search for the keywords "easy language" "plain language" in various sources of information. The theoretical basis

for the conclusions on text production in easy language is the analysis of theoretical literature in this field as well as functional theory and psycholinguistic theory.

Professor Dr. paed. Sarmīte Tūbele draws attention to the specifics of easy language target groups from a speech therapist's point of view and summarizes the diverse characteristics of learning disabilities. When discussing the possibilities of adjusting learning materials, she emphasises the importance of integrating quality illustrative elements into easy language texts in order to encourage the reader's perception and interest.

Dr. paed. Ieva Sproǵe lists criteria for processing and creating texts and discusses methods of text creation/adaptation in the context of translatology, emphasising the main goal of easy and plain language – improving the ability of perceiving information by simplifying a text, i. e., making it more understandable.

## Results

The article provides a summary of suggestions for easy and plain language text requirements and using them with target groups; conclusions are made about the possibilities of developing easy/plain language in Latvia, as the first scientific and analytical reviews in this field, such as this article, have only now begun to appear. The authors explore the understandability and creation of easy/plain language texts in the context of speech therapy and translatology. This is the first time that an easy and plain language description in a scientific, multidisciplinary context has been provided in Latvia.

## Discussion

### 1. On easy/plain language. A review

By summarising the information published by organisations that represent easy/plain language and other sources (Kellermann, 2014), it is clear that the beginnings of easy language are connected with the organisation "People First" which was founded in 1974 and in 1996 developed the *Easy Read* idea, which was later joined by the German-speaking group "Mensch zuerst". Finland and Sweden are also trailblazers in this field. In both these countries, the name of easy language is connected to easy reading: "lättilät" in Swedish and "selkokieli" in Finnish, which means "clear and/or understandable" (Leskelä, 2015). In 1997, the first official network for people with learning disabilities was established in Germany, and the organisation "Mensch zuerst" which published two dictionaries in easy language, was founded in 2001. In 2006, the Easy Language Network was founded

in Germany, and in 2008 it already encompassed 30 associations, as well as individuals with and without learning disabilities; in 2013, this organisation had six member countries: Germany, Austria, Italy, Switzerland, Luxembourg, and Netherlands which created the Easy Language Union "Leichte Sprache" (Leichte Sprache, 2021) that translates texts into easy language, examines the understandability of texts, organises educational courses and lectures, creates easy language policy, and popularises easy language. The first easy language standard in German was developed in 1998 by the International League of Societies for Persons with Mental Handicaps (ILSMH). Due to the difficult name, it was later renamed as Inclusion Europe. Inclusion Europe is an umbrella organisation for several European parent organisations. One of its most notable projects is *Pathways*, started in 2009, which included people with learning disabilities and specialists from Finland, Scotland, France, Ireland, Germany, Portugal, Austria, and Lithuania. The title of the first easy language standards was "European guidelines for easy-to-read information".

A big catalyst for developing easier communication was the 2006 UN Convention on the Rights of Persons with Disabilities. It has been signed by all 27 EU member countries and 120 other countries from all around the world. The term "easy language" was not widely known at the time. In 2009, the previously mentioned international project *Pathways* published the next guidelines for using easily understandable language, which are commonly called the "European rules". Soon after that, various organisations were founded in Germany and other countries, and several standards were created. One of the easy language standards that are still popular in Germany are the guidelines *Leichte Sprache – ein Ratgeber*, which were published by Leichte Sprache with the support of Germany's Federal Ministry of Labour and Social Affairs (Bundesministerium für Arbeit und Soziales, 2014). In Austria, the international organisation Capito (Capito, 2014) was founded; it is a franchise system, and it classifies the use of easy language in levels. The vocabulary is adjusted accordingly to the common European language proficiency levels A1 to B1. Capito unites 20 organisations from Germany, Switzerland, and Austria and also has its own guidelines. Easy or plain language is widely used in the USA. In 2010, they passed the "Plain Writing Act of 2010" which also includes guidelines and a dictionary. Similar development can be seen in the United Kingdom, for example, in the guidelines developed by *Plain English Campaign* (Plain English Campaign, 1979).

The number of organisations that represent and support easy/plain language is constantly growing – they expand, become international, cooperate and participate in various projects, where one of the topics is optimising and adapting easy language for target groups. For example,

Inclusion Europe has 78 member organisations from 39 European countries (including Latvia and its organisation "Rūpju bērns" [Child of care]). As the number of organisations grows, guidelines and terminology concerning this simplified language are also expanding and improving. As a result, easy-to-read language in individual organisations or countries is classified in levels; some have separated easy and plain language; some use "easy language" or "easy to read" as an umbrella term; other terms concerning this field are also often used inconsistently.

## 2. Topical discussions about easy language in the international domain

### 2.1. Requirements and critique

The goal and tasks of easy language nowadays are generally viewed in the context of the UN Convention on the Rights of Persons with Disabilities. There is a general definition of "communication" which "includes languages, display of text, Braille, tactile communication, large print, accessible multimedia as well as written, audio, plain-language, human-reader and augmentative and alternative modes, means and formats of communication, including accessible information and communication technology; […]" and "4. Persons with disabilities shall be entitled, on an equal basis with others, to recognition and support of their specific cultural and linguistic identity, including sign languages and deaf culture" (ANO Konvencija, 2011).

There is still an overwhelming number of people who, for different reasons, are bad at reading. In Austria, Germany, and Switzerland approximately 24 million people cannot read properly (Capito, 2004); there is no such data for Latvia, however, these people are in Latvia, too (Zvirbulis, 2018). This means that most of the information provided by companies and government institutions is not understandable for them. Therefore, easily understandable language has a special meaning in the lives of these people. The fact that institutions provide increasingly comprehensive information in plain language in many fields is positive, but there is a growing amount of critique of the inconsistent usage of terms and creation of easy language texts that are sometimes low-quality or even incorrect. This is caused by a technical, formal observation of easy language guidelines which in turn creates split sentences which are hard to understand and sometimes are riddled with grammar mistakes. There are a lot of these complaints, and easy language experts and organisations try to refute them (Bock, 2019; Maaß, 2015; 2020, Lange & Bock, 2016; Oomen-Welke, 2015; Leichtfuss, 2017) with such explanations as:

• People with reading disabilities are not the only target group of easy language; they are more likely to be included in the target group for plain language. Easy language corresponds approximately to the A1

language proficiency level in accordance with the Common European Framework of Reference for Languages (CEF), but plain language – approximately to the B1 level.

- If an easy language text is not easily understandable or is even erroneous, it has not been created correctly (Bock, 2019, Maaß, 2020).
- Easy language is used more and more widely, but adults without mental developmental disabilities do not embrace standardized easy language texts with childish illustrations; they may feel discriminated. It is important to note that easy language is not meant for a wide range of readers (the target group for plain language), but for a specific target group (see before, see 2.3, etc.)

Even though there are differences in both the interpretation of terms and the guidelines developed by different organisations, the information provided in organisations' websites and research that are listed at the end of this article can be summarized in order to create a simplified classification.

### 2.2. Classification of easy language. Easy and plain language

When concerning easier reading/ easy-to-understand languages and the terms "easy language" and "easy to read" several names are used: Easy Language, Easy Language Plus, Plain Language, Easy to read.

**Target groups**

Easy language is meant for people with learning disabilities, including disabilities that used to be called intellectual development disorders. The target group for easy language is more specific.

Plain language is meant for people who know how to read but have difficulty understanding more complicated texts due to possibly temporary conditions. This is oriented towards a larger part of society.

**Illustrations**

Easy language is supplemented by simple illustrations in every paragraph.

Plain language texts are illustrated basically the same as standard texts – illustrations are often scarce or non-existent. Plain language may use diagrams and other infographics which are not used in easy language.

From a visual standpoint, which is especially important for printed texts, easy language takes up the most space due to text formatting and illustrations.

Plain language takes up a little more space than standard texts or source texts, if there are a lot of terms or abstract notions that need to be explained.

**Amount and density of information**

Easy language virtually does not convey complicated information; a lot of information, for example, numbers, is omitted or expressed in relation,

e. g., "a lot" "a little" and so on. The information usually includes only the most important content and is expressed in very short sentences.

Plain language can convey almost all information, provided that there is enough space for the text.

**Process of monitoring**

Easy language is monitored by people from the target group.

Plain language may not be monitored at all.

**Vocabulary and text formatting**

Plain language vocabulary is a lot larger than easy language vocabulary. Sentences may be more difficult. There are no set guidelines for text formatting.

**Translation/adaptation of the text**

Translations into easy language are almost always done by specialized text writers.

Plain language texts are oftentimes written by representatives of the company/field.

From a text creation method standpoint, plain language creation is more like editing than translating. The result is not an entirely new text, as it is with easy language, but a more or less adapted version.

**Visuals/content**

When looking at an easy language text, the difference from standard texts is clearly visible. They differ visually; generally, they use a larger font, more line spacing, various graphic elements and colours, images, or videos, they use short and understandable words and explain the complicated ones.

Plain language texts have no significant visual differences from standard language texts.

**A short description of plain language**

Plain language texts have shorter sentences and a simpler sentence structure. When using plain language, one should avoid foreign words, complicated figures of speech, for example, idioms or metaphors, as well as unusual expressions and hints.

Plain language texts allow a large part of society to access information or literature and ensure conformity to international accessibility and inclusiveness requirements. Plain language is not text creation for parts of society; plain language is adapting complicated texts for the reading abilities of a wide section of society.

The level of plain language can usually be observed in tabloids. When comparing plain language to learning a foreign language, it corresponds approximately to A2–B1 level in the CEFR.

Unlike easy language, plain language does not have set guidelines. The term "plain language" is not systematically used. "Plain language does

not mean simplifying the meaning or significantly shortening the text. Using plain language principles in a document make it easier to understand, but it is not the same as easy language. A text can be completely transformed by using plain language principles, and this will help a larger part of society to understand it better, but it will not help people with reading disabilities" (Veckalne, 2020).

**Combining plain and easy language**

There are attempts to create an easily understandable language as a third option and a compromise on the term. There are discussions on the subject, of whether it is necessary to combine the two notions and how much, or whether to further develop their classification.

### 2.3. Once more about target groups

Pupils with intellectual development disorders are the group that requires the most attention, as they have no use for learning materials that are in no way adapted. Intellectual disability is characterised as a condition where individuals show significant deficits in cognitive processes, adaptive functioning (conceptual, social, and practical). There are four stages of severity of intellectual disability – mild, moderate, severe, and profound (Girimaji & Pradeep, 2018), which differ significantly and require a special approach in the learning process. One of the main problems is disorder in all cognitive processes (Marrus & Hall, 2018), and limited capabilities to work, perceive, and understand things. Memorising is mechanical and very slow, and brighter stimuli are required; children with intellectual disabilities cannot concentrate their attention; the capacity of attention is small, and it is hard to capture the attention. There is no interest in the surrounding objects, environment; weak observation skills, as well as spatial and time perception (Shree & Shukla, 2016; Tūbele et al., 2013). This means that the presentation of the learning material requires small sections, larger letters, and engaging tasks. There are a lack of interest and understanding of images; poor emotions, will, and initiative; images are necessary but with as little extra details as possible, clear and understandable. Distinct problems are present with communication, speech development, and language acquisition in general – limited vocabulary and limitations in its use. As there are difficulties with using acquired knowledge in a new situation – repetition is necessary (Bornstein et al., 2018; Pruthi, 2013).

There are several common features that characterize children with intellectual disabilities, which depend on the stage of severity and their individual characteristics.

Cognitive dysfunction is comprehensive, and even both verbal and non-verbal tasks are difficult.

There are very weak generalization abilities, children are unable to model tasks, they can solve them only in specific situations.

There are correlations between intellectual disabilities and disabilities in behavioural, emotional, and volitional areas.

There is a very low cognitive interest and uncritical attitude towards oneself and towards the result of one's work.

Difficulties in predicting the consequences of actions, inability to think and plan, lack of focus that hinders development.

Poor curiosity (Bornstein et al., 2018; Pruthi, 2013; Shree & Shukla, 2016).

As a result, children with intellectual disabilities develop at a much slower rate and need support and assistance, especially in the language field. Children with moderate to severe intellectual disabilities have particular difficulties. They need constant help and support. The main task is to teach the skills and abilities needed in everyday life.

The next group is pupils with learning disabilities, a group that is heterogeneous and varying in its expressions and needs. These children have difficulty learning without help and support, particular difficulties present with learning a language and using it (Law et al., 2017; Tūbele, 2019). Learning disabilities are defined as a neurobiological problem where the individual's brain functions and is structured differently. This influences one or more base processes that are involved in the understanding and use of spoken or written language; it also influences math skills (Turkington & Harris, 2006). One of the main problems presenting with learning disabilities is difficulty learning to read, as well as difficulties in later stages, when reading is one of the main skills necessary to learn successfully (Tūbele, 2019). There are several areas of difficulty for learning disabilities, and individual pupils have different combinations of difficulties (language skills, attention, listening skills, math skills, memory, movement, difficulty organising oneself, reading, social skills, thinking, writing) (Turkington & Harris, 2006). This means that it is not possible to create a universal teaching aid that would provide support for all pupils in all cases of learning disabilities. Terms "developmental dyslexia" "dyscalculia" "dyspraxia" are also used, however, in the context of international disorder classification we use the concept of mixed disorder of scholastic skills (F81.3). This is a residual category for disorders in which there is some mixture of developmental disorders of speech and language, school skills, and motor functions; nevertheless, none of these is dominant enough to form a main diagnosis. This mixed category should only be used if there is an extensive overlap with all of these circumscribed developmental disorders. The disorders are usually associated with a certain degree of general impairment of cognitive functions; it should therefore be used if there are

malfunctions that meet the criteria of two or more categories of F80, F81 and F82 (Tūbele et al., 2013). These pupils need daily help and support; adapting learning materials would be an important step in implementing an inclusive approach.

Consequently, when preparing texts, the goal needs to be clear – for whom and why are these texts being prepared, for how large an audience, in what format will they be available.

### 2.4. Easy language text creation

In order to make daily communication and the texts used in it more understandable for a larger part of society, "we should formulate simpler sentences and explain professionalisms and foreign words. That would be the most important thing," was said in an interview on the subject of language accessibility by professor Silvia Hansen–Schirra, organiser of the 1st International Easy Language Day Conference, German translatologist, and easy language researcher (Hansen-Schirra, 2021).

Adapting a complicated text or translating it into plain language, i. e., making it easy to read, is truly not simple. This is the dilemma of creating such texts: if a fact needs to be represented in all its complexity by explaining complicated words and concepts, the text will become significantly longer. This means that the (possibly) inexperienced target group readers will receive almost twice the amount of text that was meant for source text readers. However, if the text is shortened, the translator/adaptor needs to coordinate the target text content with the client and decide which information is necessary for the reader and which is not. Both of these options are problematic and need to be carefully considered (Maaß, 2015). The most successful in this field will be professional translators who have studied translatology and translation theories, but the number of them in Latvia is still unfortunately very small. After all, in many countries it is translator and interpreter unions and institutes of linguistics/translatology that have initiated the scientific research of easy language and are uniting in organisations and shared projects. For example, in Germany, the biggest organisation of this kind is "*Bundesverband der Dolmetscher und Übersetzer* – BDÜ" [the Federal Association of Interpreters and Translators]. Almost all large easy language promotion organisations that develop easy language guidelines have translation and philology experts and their organisations as their members. Consequently, it is logical that easy language text creation is usually called translating. Adapting a text is an inseparable part of translation; no matter what text type (Reiß, 1993) is concerned, translation will require some form of adaptation, namely adjusting the text to the conventions of the reader's culture, including text conventions. This has been proven for decades in the context of translation theories – in

psycholinguistic translation theories and from the standpoint of functional translation; one of the most well-known, striking examples is the Skopos theory (Stolze, 2005).

Transforming a text from a source text into easy language is intralingual translation, and, as with any translation, the process requires translation methods that a translator who has studied translation theories will use purposefully and deliberately. In this situation, the most appropriate would be the pragmatic translation methods developed by translatologist Michael Schreiber (Schreiber, 1998), but, of course, every translator chooses their own theories that correspond to their linguistic understanding. "Different bodies of guidelines have been developed. They provide guidance but cannot exhaustively explain all questions that arise when writing, as each author has to decide again and again what would be best for the respective target audience and the respective text" (Bock, 2019).

## 3. Easy/plain language in Latvia

On March 1, 2010, Latvia ratified the United Nations Convention on the Rights of Persons with Disabilities, but Latvia's Easy Language Agency was founded ten years before that, in 2000, and the tenet they have chosen on their website reads, "We care that everyone can understand and integrate into the society around them" (Vieglās valodas aģentūra, 2021).

How is easy language prevalent in Latvia?

"Latvijas Radio 1" offers the possibility to listen to news in easy language every evening (https://www.lsm.lv/temas/zinasvieglaja-valoda/). In compliance with Cabinet Regulation No. 445 "Regulations Regarding Institutional Information Displayed Online" (Kārtība, kādā iestādes ievieto informāciju internetā, 2020), many government institutions' websites publish information in easy language.

There are no easy/plain language guidelines yet that are based in the linguistic structure of Latvian language, just as there is no scientific research, hence the approach to creating these texts has been varied. This has also been observed in other countries. However, there is research taking place in Latvia, and soon the results of an Erasmus+ project that was started in 2020 will be published. This project involves researchers from the University of Latvia and Latvia's Easy Language Agency, as well as representatives from Lithuanian, Czechoslovakian and Slovenian institutions. Up until now, several fiction works and educational materials have been adapted and courses for teachers are being organised in collaboration with the Latvian Language Agency.

The Easy Language Agency reports that, due to an initiative by the University of Helsinki and Tampere University, a handbook on easy language is expected to be published in 2021.

## Conclusions

### How to communicate in easy/plain language – needs and skills

Up until now, the notion of "easy language" in several countries has been closely tied to rules and standards: some elements of language are forbidden, others – allowed. The main reason for that is usually the text quality. In her latest research, Bettina Bock (Bock, 2019) names five criteria for creating a "good" text and concludes that "a set of rules is not enough for ensuring the quality of a text. That is why we keep raising this issue and suggesting alternative viewpoints and practical approaches. Our suggestion is to take a step back from viewing "easy language" in a rigid form, restrained by rules. Instead, we can define it according to needs and functions: easy language is used to create understandable communication between societal groups and remove language barriers that would exclude these groups from communication. That is what "easy language" is. Diminishing the importance of rules does not mean that previous/other rules could not be useful. However, they should be viewed more as suggestions, not set norms that need to be precisely observed in every situation." Hopefully, Latvia will not be "restrained by rules" on the path of scientific research but will learn from the good practice and mistakes of other countries. Latvian researchers could say the same about the field of easy language, as professor Christiane Maaß wrote in the foreword of her 2015 publication *Leichte Sprache ein Regelwerk* [Easy language: a set of rules], "When I encountered the phenomenon of "easy language" a few years ago, I almost could not believe my eyes: a whole new variety of the German language that has not yet been researched in the context of linguistics and that opens up unexpected ways of communication – that was a dream of mine as a linguist and translatologist. Soon enough, the full research scope was clear: what actually is easy language (a variety without speakers?)? Where is it leading? What is the target audience and how can we find out more about them and their specific needs?

And finally, what should easy language rules look like? What is the scientific research situation in other countries regarding simplified variations of standard language? What support measures should professional translators receive in the context of this scientific research?" (Maaß, 2015). Taking into account Maaß's conclusions and all the previous deductions, it is clear that answers to these questions can only be found through collaboration that is interdisciplinary– traditionally, these disciplines are education sciences (especially special education), linguistics, sociology, and medical sociology.

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# REMOTE LEARNING
# DURING THE COVID-19 PANDEMIC
# FOR STUDENTS WITH LEARNING DISABILITIES:
# CHALLENGES AND OPPORTUNITIES

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## ABSTRACT

The situation in general education in Latvia has changed since the spring semester of 2020. On the 13th of March 2020 Latvia temporarily introduced remote training at all stages of education. The government regularly monitored the spread of the COVID-19 virus and the number of infections, so restrictions in different areas have changed frequently. Educational institutions for students of 1st–12th grade (ages 6–17) in the 2020/2021 school year worked under fluctuating circumstances, and most of the learning process took place remotely. For most of the 2020/2021 school year, teaching and learning were thus largely based on technology and online teaching. The COVID-19 pandemic has had an impact on various aspects of life, such as the economy, education, and social life. This time has led to challenges as well as opportunities for students, teachers, and parents. It has also affected the learning process for students with learning disabilities.

For grades 1–12, the Individualised Education Plan (IEP) was developed in Latvia for students with learning disabilities. The IEP had to be adapted to the broader situation, and to work towards its betterment special education teachers participated in the preparation and organisation of the IEP.

The aim of this study is to explore the opinions of special education teachers and to examine what support measures are provided for students with learning disabilities during the COVID-19 pandemic. What are the challenges (barriers, obstacles) and what are the opportunities (benefits) of remote learning? Our research methods involved a literature analysis, a survey of special education teachers from Latvia, and a data collection effort and analysis. The study was conducted by distributing questionnaires via Google Forms. During this research, 70 special education teachers were surveyed.

***Keywords:*** *COVID-19 pandemic, remote learning, special educational teacher, students with learning disabilities.*

## Introduction

Closures of schools, institutions, and other learning spaces impacted more than 94% of the world's student population (Pokhrel & Chhetri, 2021). UNESCO has reported that 'Most governments around the world have temporarily closed educational institutions in an attempt to contain the spread of the COVID-19 pandemic. These nationwide closures are impacting over 60% of the world's student population. Several other countries have implemented localized closures impacting millions of additional learners'. Remote learning has transformed education, and the terminology involved describes many types of teaching situations (Qazi, 2021). Education can be imparted through multiple platforms such as traditional face-to-face delivery, e-education, and mixed methods. The COVID-19 Pandemic transformed the whole education process to be online, which translates into the form of e-learning in most schools worldwide. Remote learning integrates virtual technology in learning, which consequently allows for the continuation of the teaching and learning process throughout the pandemic (Saidi et al., 2021). The use of online platforms such as Google Classroom, Zoom, virtual learning environments, and social media, as well as various group forums such as Messenger, WhatsApp, and WeChat are explored and experimented with for teaching and learning opportunities for the sake of continuing education (Pokhrel & Chhetri, 2021). The existing studies emphasise that in many lower income countries, more than half of the population does not have access to the internet (Avanesian et al., 2021). However, remote learning can increase inequalities in the quality of knowledge acquired between different students, which consequences an increasing of the risk of dropping out, and contributing to declining learning outcomes (Azevedo et al., 2020; Kaffenberger & Pritchett, 2021). The COVID-19 pandemic has highlighted both challenges and opportunities in education. Students now need to learn how to work more independently, and teachers need to receive more training in the effective use of technological tools required for quality teaching. Furthermore, teachers have had difficulty in adapting to the use of information and communication technology (ICT) quickly (Ma et al., 2021).

Encouraging parental involvement in children's education should also be a priority (Brossard, 2020). A potential positive of online education is the idea that parents might become more familiar with their children's study habits, and might consequently be more able to play a positive role in their learning.

In Latvia, according to our survey data, 76% of respondents manage time well occasionally. The role of the state during the training is much more direct under these circumstances. 42% of people surveyed spend 3

hours or more per day, assisting their children in their education (The Ministry of Education and Science, EDURIO, 2020). Students with learning disabilities have special needs in the learning process, including unique classroom, behavioural, physical, and social matters, and hence require a need-based adaptation of classroom procedures for effective learning. Screen time can be distracting or impersonal for certain children, especially those with learning disabilities. Increased electronic device usage may also negatively impact physical well-being by increasing eye strain, unhealthy eating habits, and poor sleep hygiene (Sheen et al., 2020).

Learning difficulties are often due to pedagogical failures, social circumstances, or other conditions that interfere with learning and are not related to medical diagnosis. Learning disabilities, however, are of neurobiological origin and affect the brain's ability to understand, remember, or communicate information. Specialists also distinguish between specific learning disorders: dyslexia – reduced reading ability; dysgraphia – reduced writing ability; dyscalculia – problems with performing mathematical activities; as well as the lesser known dyspraxia – motor dysfunction. Individualized education plans are the key tools for special education professionals and can be life changing for students. An Individualised Education Plan (IEP) must be designed specifically for the needs of each student, which requires collaboration between special education teachers, associated services, general education teachers, and caregivers. Individual education plans must be child-centred, inclusive, holistic, collaborative, and accessible. This collaboration is even harder to achieve in today's new, pandemic driven, remote learning environments, wherein these vital relationships often have not been built in person and data/test results are updated less frequently. In many remote learning scenarios, many parents are worried that pre-pandemic IEP plans may leave children without direct support from schools.

## Results

This study was conducted in order to examine the opinions of special education teachers working with students (grade 1–12) with learning disabilities in general education institutions during the COVID-19 pandemic. The study was conducted by distributing questionnaires via Google Forms. During this research, 70 special education teachers were surveyed. The author designed a questionnaire as a data collection instrument to explore the opinions of 70 special education teachers in Latvia. All of the special education teachers were females. Teachers are randomly selected in order to ensure that participating teachers truly represent the variety of schooling available in the country. 7 questions were included in the survey. Survey questionnaires are voluntarily completed by respondents.

Research questions referred to alternative tools used by special education teachers (see Fig. 1). For instance, what kind of alternative communication and cooperation platforms or other e-learning were used during the school year?
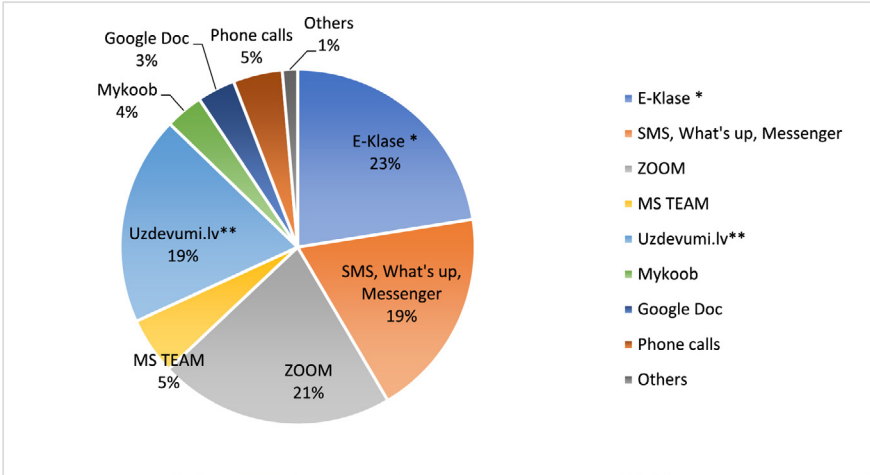


**Figure 1.** E-learning platforms

The special education teacher at the public school used mostly WhatsApp to connect with their students. WhatsApp, SMS, and Messenger (19%) were used to send and receive homework and other assigned tasks. The digital platform with the highest percentage of use was E-Klase* (E-class) – 23%. E-Klase is the most commonly used online learning management system in Latvia. E-Klase is used by more than 90% of Latvian educational institutions. Meanwhile, Uzdevumi.lv** – at 19% – has developed a digital learning platform that can be used in schools in the daily education and learning process. Uzdevumi.lv's platform includes theory, tasks, and tests for grade 1–12 students.

Collaboration platforms that support live-video communication mostly was Zoom, with a usage percentage of 21%, MS Team – only 5%. Less frequently collaborative document tool – Google Docs (3%) and learning managment system – Mykoob (4%) in online learning during COVID-19. Respondents also mentioned reported the use of other minor digital platforms; their uses total together at 1%.

In the survey, special education teachers mentioned that additional support measures were introduced in the learning process for all students with learning disabilities, not just for those with learning disabilities. Remote learning does present constraints to traditional instruction, and many mentioned that it took more time and work for students, parents, and teachers

(70% of respondents). During the COVID-19 pandemic, the individualised education plan was adapted for students with learning disabilities, but the survey concluded that it was not individualised towards students in all schools (see Fig. 2).
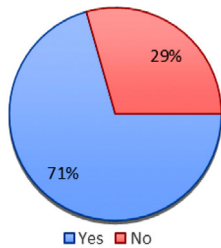


**Figure 2.** Adjustment of the individualised education plan

Yet this also presents teachers with alternatives to traditional education methods. In addition, the learning process was organised with the inclusion additional support methods (see Fig. 3). Some further benefits include:

- Individual lessons on Zoom platform with specialists (special education teacher, educational psychologist, speech and language therapist) and the subject teacher.
- Additional face-to-face consultations being provided, taking into account the relevant epidemiological safety measures.
- Reduced amounts of homework.
- Creating a structured weekly plan for students.
- Time extension for tasks.
- Revised and reduced curriculum.
- Tests are written individually or in small groups (2–4 pupils).
- The online lessons can be held with a special teacher.
- Digital reminders.
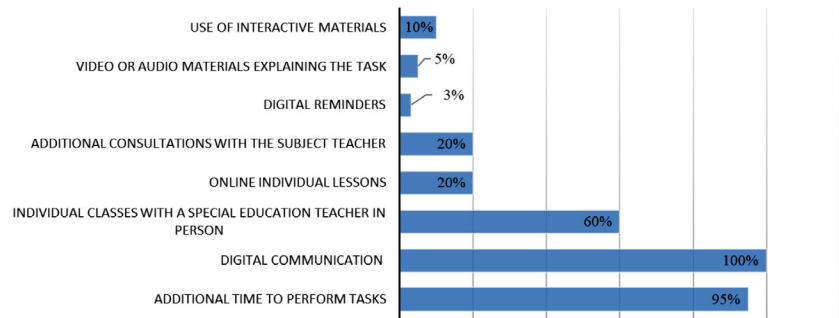


**Figure 3.** Additions to the individualised education plan

Although 71% of respondents indicated that the IEP was adapted, it can be seen (see Fig. 3) that most of these adaptations were in the form of additional individual classes with a teacher or special education teacher. Rather low in frequency were the use of digital indicators, interactive materials or video, and audio materials.

## Challenges

The main challenges for special education teachers are mentioned below:

- The transition of lessons to the Zoom platform.
- Lack of ICT (cameras not working, slow internet, no microphone, just a phone). Equipment was, at times, worn out, not powerful enough, or in some cases parents did not want to take responsibility for the tools offered by the school. Beyond this, computer skills were occasionally lacking, including the ability to work on digital documents (downloading, saving, sending). Sometimes difficulty was faced connecting to the online platform.
- Difficulty explaining tasks or task instructions online –- lack of face-to-face contact.
- Children with learning disabilities growing tired of working on a computer; concentration lapsing, difficulty switching from a computer screen to a notebook.
- No parental support (parents work or parents cannot help with computer work). Pupils lacked the motivation to do their jobs if there was no adult at home controlling the performance children.
- Lack of social interaction. In remote learning, students' personal contact with each other and with teachers is minimal. Therefore, this form of training is not suitable for developing communication skills, confidence, or teamwork skills.
- Emotional instability of pupils.
- Communication barriers between special education teacher and students.
- Inconvenient to use a webcam. Especially if the home conditions are not favourable.
- Atmosphere at home, (not everyone has their own workplace; noise, including TV sounds in the background, as well as adult conversations, children shouting).
- The ability to schedule.
- Difficulty in working independently, inability to focus, difficulty understanding what to read. Difficulty in understanding abstract concepts or in drawing conclusions; very, very strong need for recognition,

confirmation – 'you can, you will succeed, you have already managed it several times'; children need regular support.
- In remote learning scenarios, another trend has appeared to be more pronounced – some parents do their children's homework.

## Opportunities

The special education teachers' survey mentions the benefits of remote learning, which could be introduced in the future. Some special education teachers point out that remote learning for children with learning disabilities was a very positive experience, with students spending more time on tasks, and experiencing the benefits of individualised teacher feedback as well as receiving parental assistance.

Respondents mention in their responses the following benefits:
- Opportunities to improve your knowledge and skills in using ICT. Students gained an increased understanding of how ICT can be used in learning. The special education teachers believed that remote learning is beneficial and that helping students develop ICT skills is one of the most critical positive elements.
- Closer and more frequent cooperation with the family. The students' families also participated in individual classes; they thus grew to understand exactly what help the children needed. Cooperation was also more common between pupils, teachers, special education teachers, and family.
- Schools paid more attention to the possibility of providing pupils with learning disabilities with additional individual counselling. More focus was devoted to individual work.
- Pupils who were introverted became more open and expressed their views more easily when asked unclear questions.
- Children with learning disabilities were able to complete the assigned tasks at their own pace. They could study materials at a personal speed and intensity, without having to adjust to the pace of the average classroom.
- In remote learning, children with learning disabilities who also had behavioural disabilities improved their success. This is explained by the fact that it is much more difficult to focus on the specific task in regular class.
- Students learned to handle more autonomy, as well as gained the ability to plan for their studying, and were given more responsibility for the work itself. They could make an individual study schedule for themselves.

Overall, respondents had all mentioned not only the challenges, but also the positive benefits of remote learning; this data can easily be used for

work in the future. Notably, only one respondent believed that there were no benefits to the situation. One of the respondents also mentioned that remote learning helped with safety. By being at home, many students are able to get work done in a safe and relaxing environment. Four respondents noted that it was not necessary to spend time and finances to get to school or the workplace, and so it was convenient to arrange consultations at times convenient for everyone.

## Discussion

The results of the study show that special education teachers believed remote learning to hold benefits as well as challenges. However, directing one's view from challenges to opportunities — in what ways does this 'new normal' allow for making the curriculum more accessible to students with learning disabilities?

Policy makers and education stakeholders should place special focus on students with learning disabilities to help identify the best ways to design remote learning policies – for example, the well-organised management of virtual classrooms is essential to ensure productive learning. We still have teachers who prefer their traditional, practiced methods and are not receptive of this new and innovative technology. In general, however, the number of special education teachers working in the educational institutions of Latvia who supported the implementation of remote studies during the spread of COVID-19 has increased significantly.

## Conclusions

Public education's response to the coronavirus pandemic has changed teaching and learning in unprecedented ways. The closure of school buildings and the sudden transition to virtual learning last spring posed many challenges for school districts about how they may serve all students individually, including those with learning disabilities. In order to ensure that all pupils with learning disabilities have access to quality education, it is necessary to take into account their specific needs for accessible, special-tailored, and personalised education plans. Summing up the results obtained, special education teachers believe that children with learning disabilities faced personal, technical, logistical, and financial challenges during this time of the COVID-19 pandemic.

Students show a lack of purpose in completing work online, mainly due to low learning motivation, technology related problems, the remote from teachers and lack of time with them, and finally the lack of parental support. Information and communication technologies (ICTs) offer unique

educational and training opportunities which improve both teaching and learning. Remote learning allows students with learning disabilities to learn flexibly and in balance. The survey results were not mentioned as support for outdoor education for students with learning disabilities. In the future, it would be desirable to take into account the positive benefits of this concept and use them as support measures for special educators. Special education teachers should further improve their skills to use various digital tools (applications, video and audio recording of specific substances, digital explanations of tasks, interactive learning materials in Latvian, etc.). In the future, students with learning disabilities could be served in three learning formats: in-person, hybrid, and remote – however this learning path still requires investment into a range of equipment and infrastructure, including computers, webcams, and a stable internet connection. The author agrees that nowadays, the challenges to access online learning are fewer, because both learners and teachers have now experienced the excellent opportunity of interacting with educational technology tools such as mobile-based learning, computer-based learning, and web-based learning (Pellegrini et al., 2020).

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# SUPPORT FOR TEACHERS
# TO REDUCE EARLY SCHOOL LEAVING

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## ABSTRACT

The early school leaving is an important topic in many countries. High early school leaving rates have many costs to individuals and society as a whole (Andrei et al., 2011). State Education Quality Service in Latvia implements European Social Fund Project No. 8.3.4.0/16/I/001 "Support for reducing early school leaving" to reduce the number of children and young people leaving school. The project promotes the creation of a sustainable cooperation system between the municipality, school, educators and parents to identify children and young people at risk of early school leaving and provide them with personalized support.

Teacher has great influence on students' educational decisions (Dunn et al., 2004). The way teachers see themselves as professionals and how they compose their identities in schools is important factor in preventing early school leaving. In order for the teachers to feel confident in their contribution and possible positive solution to the problem, they must have knowledge of the problem and effective solutions. According to the Project teachers are given the opportunity to professionally develop and strengthen their skills for working with young people.

The aim of the study is to study the role of a teacher in reducing early school leaving and to reveal the necessary forms of support for the performance of pedagogical activity**.** Data for this study came from a survey and focus group discussion. 815 teachers participated in the study. Analysis of the data reveals that there are several dimensions in the role of the teacher in reducing early school leaving: creating a favorable and safe learning environment, promoting cooperation with parents and colleagues, improving one's pedagogical competence, helping students to identify and solve learning and interpersonal problems, and revealing their mental and physical potential. The research results show main areas of professional development of teachers: sharing experience with colleagues and learning from each other, learning student's individuality at a greater extent, diversification of teaching methods, promoting personal development.

**Keywords:** *early school leaving, learning environment, prevention, professional development of teacher, teacher efficacy.*

## Introduction

Reducing the high levels of early school leaving is one of the main challenges facing most of European education systems (European Commission, 2011). Latvia faces challenges in providing equal educational opportunities in all geographic areas, due to significant demographic changes in recent years, driven by substantial emigration and urbanisation. Evidence shows that resulting complications include providing enough places for early childhood education and care in urban areas, improving outcomes for rural students (who as a group have shown lower performance and higher early school leaving rates than their urban counterparts) and optimising the school network to align with the new demographic reality (OECD, 2017). The students' early school leaving is an important topic in many countries. High early school leaving rates have many costs to individuals and society as a whole (Andrei et al., 2011). Early school leaving is an issue that impacts more than just the student who makes this decision; it also affects his or her family, the community, and society as a whole (Christle et al., 2007). There is an overwhelming amount of research that explains the harsh realities of how early school leaving negatively impacts students for the rest of their life. For instance, students who drop out report higher levels of unemployment, lower wages, and greater health concerns later in life (Christle et al., 2007). In the school year 2017/2018, around 7.5% of students dropped out from upper secondary education, and 19% from upper secondary vocational education (Latvian Ministry of Economics, 2018).

State Education Quality Service in Latvia implements European Social Fund Project No. 8.3.4.0/16/I/001 "Support for reducing early school leaving" to reduce the number of children and young people leaving school and not completing school. It is planned to involve at least 80% of municipalities, covering 614 general and vocational education institutions. The project promotes the creation of a sustainable cooperation system between the municipality, school, educators and parents to identify children and young people at risk of early school leaving and provide them with personalized support. Teachers are given the opportunity to professionally develop and strengthen their skills for working with young people.

A wide variety of variables have been found to correlate with early school leaving, and identifying students as high risk has become a crucial topic in efforts to reduce the school leaving rate. A student's decision to leave the school is not a sudden act, but a slow process of disengagement over a period of years. With good research in recent years, it is clear that warning signs of early school leaving are apparent well before students actually leave school, signalling the gathering storm of trouble for some as

early as the elementary or initial middle grades. Research also shows that most students at risk of falling off track could graduate if they were provided with the appropriate supports early enough and those supports were sustained. School staff need to be prepared to prevent and deal with this issue and schools should take actions to intervene in early school leaving prevention.

## Effective Teacher

School as a system and teacher has great influence on students' educational decisions (Dunn et al., 2004). Teachers are looked upon as the individuals who can help to bring about positive changes in the lives of people. They are seen as natural leaders who can give advice on various affairs in the community. But the problem is that teachers do not see themselves as powerful. This suggests the importance of teachers believing in their effectiveness at helping their students persist in school, no matter what obstacles the students may be facing. If teachers who work with at-risk students on a daily basis do not realize the importance of their interactions with students and the positive effect they can have on student educational outcomes, schools' prevention efforts may be less effective.

The way teachers see themselves as professionals and how they compose their identities in schools is important factor in preventing early school leaving. The role of the teacher and its management style is highly important and essential for succeeding in educational objectives of students in proportion of today world. Many researches show (Göncz, 2017; Levine, 2017; Trapanese, 2017; Warren, 2016) that differences in teacher effectiveness have a profound impact on student learning and have been shown to effect student performance for several years. Teachers with low self-efficacy have a negative effect on student performance (Kilday et al., 2016). However, teachers with high self-efficacy positively influence student accomplishments (Mojavezi & Tamiz, 2012).

The concept of self-efficacy is founded in Bandura's social cognitive theory: it is a belief in one's capability to organize and execute the course of action required to produce given attainment (Bandura, 1977). Other scholars have also attempted to unfold its various aspects. Tschannen et al. (1998) discussed self-efficacy as the teachers' belief in their capacity to organize and execute the course of actions to accomplish a specific teaching task in a particular context. According to Maddux (2002), it is a perception of what can be done with one's skill.

William H. Kitchen (2014) gives a view of education as a process that liberayes through the guidance and leadership of authority. An essential task involved in effective teaching is the need for a teacher to establish and maintain authority over the organisation and management of pupils'

learning (Khany & Tarlani-Alibadi, 2016; Warren, 2016). A literature review on early school leaving in education identifies the need to update teachers' skills in order to improve their abilities in teaching and communicating (Cerda-Navarro et al., 2017). This could help teachers better understand the cultural and linguistic diversity of students and how diversity relates to early school leaving, as well as improve communication between teachers, students and families. Teachers are the key actors to motivate students to learn, therefore teachers shall be equipped and supported to increase their self-efficacy and professional commitment.

In order for the teachers to feel confident in their contribution and possible positive solution to the problem, they must have knowledge of the problem and effective solutions. Research shows that teacher education improves teachers' sense of self-efficacy and that they are more competent in dealing with problem situations related to early school leaving prevention and are confident in their co-responsibility, significantly less likely to experience burnout (Geissler, 2015). Teacher training is a highly emphasized component in the support system for teachers. Reyes et al. (2012) as mentioned in Geissler (2015) research does indicate that student outcomes in response to universal social and emotional learning programs is related to the quality of teachers as program implementers, and that teachers who attend more trainings were rated as higher quality implementers.

Reduction of early school leaving is the target of the prevention/intervention program in context of European Social Fund Project No. 8.3.4.0/ 16/I/001 "Support for reducing early school leaving" and teachers receive trainings in order to support students into the school curriculum. Teachers are provided with the opportunity to develop professionally and to strengthen their skills in working with learners. Methodological tools have been developed within the framework of the project.

## Method

This practical research has been completed within the framework of the European Social Fund Project No. 8.3.4.0/16/I/001 "Support for reducing early school leaving" implemented by the State Education Quality Service in Latvia. The teachers have been offered three programs for improving their professional competence:

1. "Supportive Learning Environment – Educational Resource" altogether 326 teachers participated.
2. "Teacher's Competence and Effectiveness in Modern Pedagogical Circumstances", altogether 441 teachers participated.
3. "Individual and Group Consulting – Professional Activity in Education" altogether 351 teachers participated.

Altogether 1118 teachers from all regions of Latvia participated in these three programs from June 2019 to December 2020, but altogether 815 teachers completed the survey and involved in the focus group discussions.

Research methods:

1. Teachers survey.
2. Focus group discussions.
3. Mathematically statistical data processing (the IBM® SPSS® software platform).

The focus group discussions were held within the program for professional development, but the surveys were completed at the end of the lessons. The surveys from June 2019 to March 2020 were completed in paper format. However, due to the Covid-19 restrictions as of March 2020 to December 2020, these surveys had been done electronically, and have been sent to the course manager's e-mail address as soon as the class has been finished. The educators of Latvian primary and secondary schools as well as vocational education institutions took part in these surveys. The number of the respondents, which is 815, has been made up by educators who participated in the courses and filled in the surveys as well as took part in the focus group discussion.

## Results

The practical research showed the functions of an educator in perspective of teachers regarding the reduction of early school leaving and the required supportive measures to be used by teachers in modern educational process.

During the focus group discussions, respondents, while analysing the skills, competences a teacher must have, and the role of a teacher on the whole, currently have highlighted that, particularly over the Covid-19 restrictions period, it was very essential to be able to share experience and learn from each other (see Figure 1).



**Figure 1.** The basic skills of a modern teacher in perspective of educators

This creates the sense of community and provides a potential for new solutions, especially in reducing early school leaving rate. The teachers pointed out that it was important to try new approaches to cooperation with both students and parents, and apply diverse teaching methods, including various games, to create an emotional connection with students, to inspire and support them as well as be able to assess achievements by students and provide feedback for them as well as trust them. The respondents said the teacher should be able to experience positive emotions, to learn on regular basis, to try to do their best, be flexible, and have digital skills.

Having been asked about the predominant problems identified by teachers in working with students, who form the risk group of early school leaving, altogether 31% respondents named the internal feeling of power-lessness caused to teachers, meanwhile, 26% respondents said this was the lack of motivation for students, 13% named the uninterested parents, and 11% respondents named different levels of students' knowledge and weak time management and self-regulation. 8% answered that this was students' material issues, which could be seen as the lack of computers, cameras, microphones and the lack of Internet connection (see Figure 2).
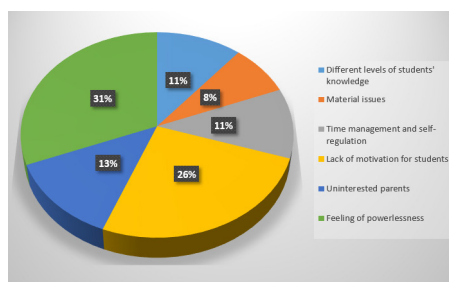


**Figure 2.** Predominant issues in teacher's work

During the focus group discussion, the teachers stressed the key functions of a teacher in pedagogical process both in face-to-face learning and distance-learning:

- Creating favorable and safe learning environment.
- Promoting cooperation between parents and colleagues.
- Improving one's pedagogical competence.
- Providing support for students to identify and solve learning and interpersonal problems, to reveal their mental and physical potential.
- Promotion of students' learning skills, including the improvement of digital skills.
- Career counselling and help in choosing their occupation.

In the survey for teachers, they were asked to indicate the areas and types of their professional development All the answers by the teachers can

be divided into four groups, which can be characterised by further professional development areas or dimensions: 1) sharing experience with colleagues, 2) studying student's individuality, 3) diversification of teaching methods, 4) promoting personal development. Each professional development area named by teachers includes definite subdivisions (see Figure 3).
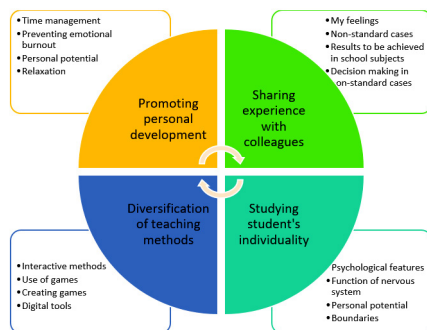


**Figure 3.** Areas of teachers' professional development

The respondents indicated that they would like to cooperate at a greater extent and learn from each other, speaking of their feelings, decision making in non-standard cases and an option to better achieve learning results. The teachers also pointed out that they wished to study their students' personality and individuality at a greater extent, by learning the nervous system function, the correlation of students' temperament, emotions, and cognitive processes with the learning achievements and learning peculiarities. The respondents wished to learn new teaching methods, especially in digital environment that would promote students' involvement in learning and achieving learning results. Also, the teachers would like to learn time management and manage and control their emotions as well as learn their mental potential and new relaxation techniques.

## Discussion

In order to reduce students' early school leaving, identify children and young people at risk of early school leaving and to provide them with personalized support, the personality of a teacher and their competences play a very important role. The results of this practical research showed that Latvian educators are able to define the key pedagogical issues, are aware of their professional needs, and understand the mechanism for preventing early school leaving risks – i. e., creating interprofessional teams involving colleagues, school staff, parents, and professionals of other industries in addressing various pedagogical issues and promoting their professional and

personal development. The above said facts are in line with the conclusions of the latest scientific studies (Muceniece, 2020), which outline the emotional involvement of both educators and parents, the development of supportive culture for communication, constructive, positive relations and providing psychological support.

The study results show that teachers have come to the conclusion that they have to learn on a regular basis and develop their personality, to improve their specific skills and competences, related to providing support for students who are at a risk of leaving school and forming a risk group (see Figure 3). In this regard, several issues arise, and the areas of the further research are identified, which are as follows:

How to identify students who are not forming a risk group yet, but there are certain signs related to their behavior, showing that these students might leave school early?

Which specific skills should a teacher have in order to identify these signs and provide targeted, timely support, involving parents, colleagues, and potential stakeholders?

How to encourage students to involve in distance-learning process?

During further research, it would be important to study signs of students behavior, showing that they might form a risk group of early school leaving as well as the types of professional development courses and training programs that might facilitate professional efficacy of teachers in the related area. Another important area of research is promoting students engagement in learning in digital environment related to the digital competences and personal traits of character of a teacher.

## Conclusions

- The functions of a teacher for reducing early school leaving are creating favorable and safe learning environment, promoting cooperation with parents and colleagues, improving their pedagogical competence, providing help for a student to identify and solve learning and interpersonal problems as well as reveal their mental and physical potential.
- The key skills of a modern teacher are the usage of a variety of methods for their work, sharing their professional experience, creativity as well as such traits of character as trust, responsibility, support, and inspiration.
- The research results show 4 main areas of professional development of teachers: 1) Sharing experience with colleagues and learning from each other. 2) Learning student's individuality at a greater extent. 3) Diversification of teaching methods. 4) Promoting personal development.

- The areas of the further research are related to the development of the teacher's skills to promote students' involvement in learning in digital environment and timely recognition of signs typical of early school leaving before a student has not come to the risk group.

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# LESSONS LEARNED FROM PANDEMICS IN THE CONTEXT OF DIGITAL TRANSFORMATION OF EDUCATION

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## ABSTRACT

2020 brought the world huge challenges in almost every field when the new COVID-19 virus began to spread rapidly. Digitalization made it possible to use innovative solutions to ensure access to various services, to continue working, and to learn from a distance, but it made the situation different from the one we all were familiar with and raised questions on how to ensure qualitative education for all. The situation where the whole world had to move education to the digital environment at the same time posed many challenges for teachers, students, and parents. The aim of the present research was to find out how the COVID-19 crisis contributed to the digital transformation of education. Several complementary research methods were used to obtain results, one of which was used to analyze the functionality and degree of interactivity of learning platforms, providing an educational perspective to this research. The second method was focus group discussions with experts in technology-enhanced learning to gather ideas for overcoming the crisis and to outline future directions for the digital transformation of education in the context of remote learning. The third method was a survey of teachers who work with students of compulsory education. This material provides an overview of methods used by the WP6 working group "Education System Transformation: Consequences of the COVID-19 Crisis and Possible Solutions" (VPP-COVID-2020/1-0013), part of the National Research Program project.

*Keywords: assessment of remote learning process, evaluation criteria, digital transformation, focus group discussions, learning platform, research methodology.*

## Introduction

The novelty of the research project was based on its orientation towards the creation of new knowledge, methodologies, guidelines, and recommendations for policy-makers in Latvia. The project is based on global research results as well as research done locally in Latvia related to transformative digital learning, changes in the field of education, and interaction between

young people and digital technologies, although there is no strong theoretical background on pedagogical approaches to remote learning (Alsaif & Masrai, 2019; Wardrip, 2020; Daniela, Rubene, & Rūdolfa, 2021; Daniela, Rūdolfa, & Rubene, 2021). For a comprehensive situation overview, the study used a mixed research design. Learning platforms used in Latvia were analyzed to understand what materials are available for remote learning. Three focus group discussions with experts in technology-enhanced learning were organized, and a survey related to the challenges of remote learning faced by teachers of compulsory education was also conducted. This paper provides insight into the methodology used in this research project and consists of three mutually connected research directions (see Fig. 1):

1. Evaluation of learning platforms
2. Focus group discussions with experts in technology-enhanced learning
3. Survey of teachers working with compulsory education level students
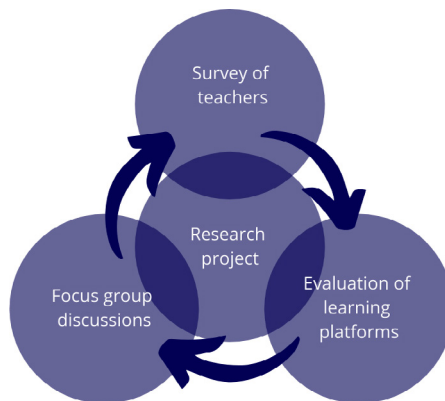


**Figure 1.** Research design

## Evaluation of learning platforms

Various digital solutions can be used to provide remote learning, which allows the organization of both synchronous and asynchronous learning processes (Statti, 2021) and allows learners to access knowledge without being in a specific place. Digital tools can be used to provide remote learning with an emphasis on increased knowledge, or on the way to access the knowledge, or on highlighting the acquisition of specific skills that can help to construct new knowledge. Digital solutions are also used to store a variety of learning materials and whose main function is to provide a place where these materials can be stored and from which they can be retrieved. There are solutions that have been designed to organize the learning process remotely and allow the provision of real-time communication (classroom,

group, individual) that can be used to work with students synchronously. During our evaluation of the learning platforms, we aimed to evaluate the functionality of the existing digital learning platforms available in Latvia, performing this evaluation from an educational perspective, and to circulate our findings in the academic community and among the wider public to help scientists as well as policy-makers and government authorities to develop efficient communication plans and reach broader audiences. We also worked on the development of recommendations for the implementation of digital learning platforms in order to provide technology-enhanced learning at a general education level, based on the research done in the project evaluating their functionality. For the purposes of the study, an evaluation tool (rubric) has been developed that includes 6 sets of criteria (see Fig. 2) for a functional evaluation of existing digital learning platforms as well as recommendations for the implementation of these platforms in order to provide a technology-enhanced learning process. Two of these sets of criteria have no additional criteria, and these are *level of interactivity of the digital learning tool* and its *usability for inclusive education.* In turn, the other 4 sets of criteria, divided sequentially into 19 subcriteria, can be evaluated at 3 levels. In total, 7 learning platforms and 6 digital learning materials with interactive learning content that are used in Latvia have been evaluated.
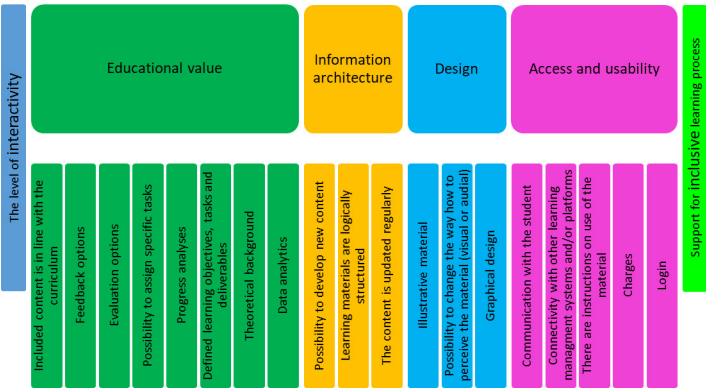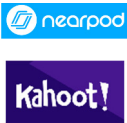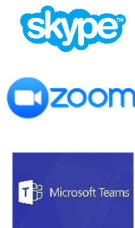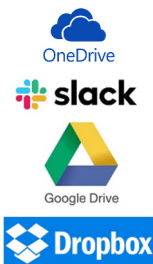


**Figure 2.** The evaluation structure (Daniela, Rūdolfa, Rubene, 2021)

As the research continued with practical work, and based on the results of this research, an expanded database was created to compile the teaching materials used in Latvia and the tools widely used in the world. All platforms, materials, and tools for the remote learning process were divided into seven categories (see Fig. 3 and Table 1), as each of them is designed and used in different ways and for different purposes.

**Table 1.** Categories of digital learning materials/tools

| No. | Category | Definition | The image only as a visual aid |
|---|---|---|---|
| 1 | **Learning platform with interactive learning content included** | The learning platform is a digital, interactive online learning and methodological tool that incorporates **both** the content necessary for the implementation of the educational program and the theoretical materials necessary for its acquisition, training assignments and tests, while also **providing instant feedback** to the **registered user.** |  |
| 2 | **Digital learning tool with inter-active learn-ing content included (with or without content creation capabilities)** | An interactive online learning tool, material or content that includes what is needed to implement the curriculum (exercises, schemes, worksheets, examples, etc.) and gives a limited degree of feedback. |  |
| 3 | **Electronic learning resources (without interactivity)** | Electronic learning resources that include the content necessary for the implementation of the educational program. These resources do not provide user feedback and are based on passive information perception (PowerPoint presentation, PDF document, audio or video format, etc.). |  |
| 4 | **Learning process management systems (with or without content creation capabilities)** | Learning process management systems provide the ability to manage and organize the learning process in a digital environment and provide the following options – creation of virtual classes or groups, exchange of documents, content posting and structuring, adding ratings or comments, setting deadlines for tasks, sending specific tasks to a class/group, chat functionality, progress analysis for classes or individuals. |  |
| 5 | **Tool platform for curriculum development** | A tool for creating digital interactive learning content, such as online presentations, tests, interactive videos, games, polls, and various tasks with feedback and engaging degrees of interactivity. |  |

| No. | Category | Definition | The image only as a visual aid |
|---|---|---|---|
| 6 | **Tool for communication and organization of remote learning** | A tool for distance communication between the teacher and students that provides the possibility of synchronous visual, audio, or textual communication in a real-time virtual learning process – video conferences, group work, individual video consultations, video recording, online conversations, chats, and screen sharing functionality. | |
| 7 | **Tool for storage and cooperation platform** | Widely available software used for learning educational content, collaboration, information acquisition and compilation, and the storage of materials for various practical tasks. | |

The criteria (see Fig. 3) for the seven above-mentioned categories have been developed at three levels:
1. Filter criteria (the same for all categories).
2. User experience criteria (the same for all categories).
3. Custom criteria (different for each category).
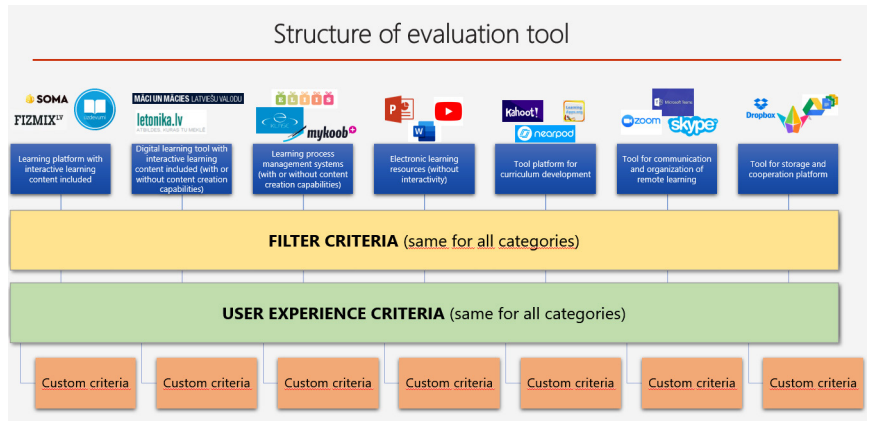


**Figure 3.** Structure of evaluation tool

At the end of the evaluation process, recommendations for the use of these platforms in the learning process have been provided to ensure remote learning in crisis conditions when learners cannot participate in face-to-face learning and instead learning platforms can be used to diversify the learning process, provide access to education, and facilitate self-directed learning for the post-crisis situation.

## Focus group discussions with experts in technology-enhanced learning

The Delphi method was chosen to gather the opinions of various experts in the field of technology-enhanced learning, to conceptualize the recommendations for policy-makers on the digital transformation of education, and to analyze the results and conclusions obtained in the research process. It is characterized as a method for structuring group communication processes, so it is effective in allowing a group of individuals to deal with complex problems. The Delphi method is often termed as the 'Delphi technique' because it provides a design for undertaking research that is underpinned by theoretical explanations. This makes it more than just a data collection mechanism (Cohen et al., 2007; Williamson, 2002). The Delphi method is often used as a method of systematic interactive prognosing which is based on expert opinion. Assessing the consequences of the COVID-19 crisis and conceptualizing guidelines for future education is a complex issue that requires the collaboration of experts from multiple fields to solve, so we considered the Delphi method to be appropriate for reaching this aim.

8–10 experts took part in each discussion. Among them were educators from preschool (2–3), school (2–3) and higher education (2–3), as well as school and high school management representatives of both state-funded and privately funded institutions and a representative of the business of education technology field. Focus group discussions were organized using the particular method mainly to reach a consensus on the possibilities and challenges of remote learning. Before the focus groups, participants were asked to answer a few questions about the topic to be discussed to allow them to focus their opinions and to start the discussion with summarized answers, and quotes from the answers were also included in discussion presentations. In the first step, participants were introduced to the results of the evaluation of learning platforms and the analysis of survey responses, and then a moderator organized discussions among them using both research results and survey analysis. All conversations were videotaped and transcribed for later analysis and the formation of the most important theses about each topic discussed. Discussions took place online and each discussion was 2 hours long, including presentations of research results and participant survey analyses. As a result of the focus group discussions, the

experts reached a consensus on proposals and recommendations for poli-cy-makers on how to organize a remote learning process.

## Survey of teachers working with compulsory education level students

The survey was conducted from August 25 to September 15, 2020 online, and 559 respondents answered questions anonymously. The respondents were teachers of compulsory education from all regions of Latvia, and they were asked to answer questions that were divided into 5 groups:
1) profile questions
2) assessment of the frequency of use of digital tools and learning platforms
3) assessment of statements about remote learning
4) self-assessment of the existence and necessity of digital competencies
5) open-ended questions on recommendations at a governmental level, at the level of school management, and at the level of each class and teacher

The quantitative data obtained in the teachers' survey were coded and processed in the program SPSS 25.0. The following methods were used for data analysis:
- Frequency test to identify statistical data
- One-way ANOVA test to identify differences depending on the pro-file of the respondents

The open questions were analyzed using content analysis. Using Raosoft's calculation, the number of respondents exceeds the minimum recommended size. In turn, the Cronbach's alpha coefficient ($\alpha$ = .955) indicates good inter-nal coherence of the questionnaire and stability of measurements over time.

## Results

Summarizing the results of the study, recommendations were prepared for the successful implementation of blended learning and remote learning after the end of the COVID-19 crisis:
1. It is important to distinguish between the crisis period, when it is not possible to organize face-to-face learning, and the post-crisis period, when it will be possible to choose which activities can be used in blended learning and distance learning, i. e. different technology-en-hanced learning solutions can be used to promote learning.
2. Emphasizing that face-to-face learning will again be considered a basic form of compulsory education after the end of the COVID-19 crisis, it was added that blended and remote learning can complement face-to-face learning and can be used to a certain extent and in situations where it is an effective solution to strengthen self-directed learning skills.

3. In the blended learning process and remote learning, it is particularly important to communicate clear learning objectives, such as the development of digital competencies, the promotion of self-directed learning, taking responsibility for one's own work, etc.

4. The analysis of international research shows that the implementation of fully remote learning for students under 12 is not considered suitable outside the crisis context because social learning is especially important for students of this age due to the need for care, teacher mediation in the learning process, potential risks to their cognitive development, etc. However, the gradual implementation of blended learning to a certain extent for students under the age of 12 promotes the development of self-directed learning and the development of digital skills, as well as the personalization of the learning process.

5. Remote learning can raise some challenges like the decline of skills such as social skills, relationship building, verbal communication, acceptance of different opinions, recognition of false news, etc. A separate group of risks is related to the psychological challenges caused by social isolation and loneliness.

6. In the process of implementing blended learning, especially remote learning, specific attention should be paid to the prevention of early school leaving for students who are older than 12, which is mentioned in international studies as the most significant risk for this age group.

7. Where objectively necessary, the school and/or parents of students should be able to choose blended learning to meet the needs of a particular student or group of students (for example, long-term illness or absence due to the student's or his/her parents' professional activity, homeschooling).

8. The successful implementation of remote learning requires the reduction of regional disparities.

9. At present, researchers in the world have not yet reached evidence-based conclusions and a common view on the proportion of blended learning for students of different ages, so the necessity for future research into the implementation of blended learning for students of different ages is emerging.

10. Support measures and materials for teachers are needed as it is not possible to develop high-quality remote learning solutions and implement remote learning at the same time while maintaining the existing workload.

## Acknowledgement

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# VIRTUE EDUCATION PROGRAMME E-TAP: INNOVATIVENESS AND THEMATIC FIT IN THE CONTEXT OF PRESCHOOL AND PRIMARY EDUCATION IN LATVIA

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## ABSTRACT

This study addresses the appropriateness ('fit') of the moral education programme e-TAP to the Latvian educational context from preschool till grade 3. Document analysis and a questionnaire were used for exploring two research questions: How do the topics of e-TAP fit the topics of the new competence-based curriculum Skola 2030? and what was the e-TAP fit the needs, expectations, and values of the educational context? The document base contained 20 Skola 2030 "Subject matter model programmes" (63 content-units in preschool and 174 topics in grades 1–3) and 64 e-TAP lesson plans (24 in preschool and 40 in grades 1–3). 138 teachers (78 form preschool and 60 from grades 1–3) piloted the e-TAP programme between February and April 2021 and filled 169 feedback questionnaires containing information about their interest in the programme, their motivations and satisfaction with the programme, and their suggestions for improving it. NVivo and MS Excel software were used for qualitative and quantitative data analysis. The results show the high thematic fit of e-TAP with Skola 2030: nearly half of the Skola 2030 topics had at least a thematic match with the e-TAP lesson plans, and 83% of e-TAP lesson plans match with at least one of the Skola 2030 topics. Almost all teachers agreed or rather agreed that the e-TAP programme fits to their needs, expectations, and values. The programme innovativeness, fit to teachers' needs and relation to Latvian traditions are discussed, and directions for programme development and future research are suggested.

*Keywords: fit analysis, innovation, preschool education, primary education, Skola 2030, traditions, virtue education.*

## Introduction

This study presents the analysis of an innovative programme for moral education in preschool and primary school settings in Latvia. The programme appropriateness ('fit') to the Latvian sociocultural context and to

the needs and expectations of the educational actors is explored. To situate the study, an introduction about the relations between "tradition" and "innovation" particularly in the field of moral education at school, may be useful.

Tradition is a pattern of notions and actions in a certain group of people that is handed down from generation to generation (Baldunčiks & Pokrotniece, 1999). The word "tradition" originates from the Latin word "tradere" – to transmit; to hand over (Kūle, 2005). Anthropologists and sociologists consider the tradition to be a deliberate choice of past actions honoured for a long time. Tradition usually associates with something ancient, while the present times – with the current events, and the future – with dreams, fantasies, and utopia. It is believed that the past is the basis for the current events (Kūle, 2005). The present world differs from the world of other ages: social interactions and conflicts, and constant cultural, economic and technological development, have transformed human life. Traditions are considered as one of the forming components of culture and an element of social expression (Alewov & Utemuratova, 2021). As social groups may subjectively perceive and interpret their traditions differently, observing a tradition through a unique prism can be quite limiting. Traditions are not easily available for radical changes, but traditional aspects can be blended into innovations quite easily. Traditions and established knowledge can be very useful for future generations and promote innovation processes (Ferreiro et al., 2019).

Every innovation has a certain continuity with tradition, which therefore cannot be strictly ignored or rejected as such, lest social and political harm happens (Mitchell, 2013). Taking into consideration the changing modern world, values and cultural artifacts that were relevant in the past may have lost part of their significance. Traditions should be alive: moving with the times, linked to innovations, and somehow adapting to modern tendencies. Most of innovations occur in the field of technologies: they are science-based and use research, production, and patenting processes (Hong et al., 2012). Natural science, mathematical and technology research differ from research in social sciences and humanities, but, as recent research has emphasized, in both fields, innovation is based on previous knowledge (Katila, 2002).

Innovations in pedagogy can be considered as new products implemented into educational practice, such as new educational contents, curricula, methods, tools, etc. (Serdyukov, 2017). In Latvia, the most recent educational innovation is the new competency-based learning approach, which started from September 2020 in pre-school, 1st, 4th, 6th, 10th grades (Skola 2030, 2020). The most important element in implementing innovation in education is the teacher. In the teacher's profession traditions are

highly valued, but also the adjustments innovations make in the educa-
tion process. Teachers are experts who use traditions and both established
and cutting-edge knowledge to inspire students to form an independent
and well-developed personality, and to become valuable members of soci-
ety, as stated in the Law of Education of Latvia (Latvijas Vēstnesis, 2020,
p. 224).

One of the most important goals of education is moral upbringing, and
currently in Latvia pupils' moral education is topical. The transfer of val-
ues and virtues through the education system was spotlighted in 2015 and
later in 2016, when the "Guidelines for pupils' upbringing" were adopted
(Latvijas Vēstnesis, 2016, p. 141). Through those guidelines, the learner is
encouraged to become a good person – a virtuous, morally capable, and
responsible personality in a society that is loyal to the State of Latvia and
the Constitution of the Republic of Latvia. In the guidelines of students'
education, it is stated that students are supposed to develop 12 main vir-
tues at school (Latvijas Vēstnesis, 2016, p. 141). Virtues are stable, inner
moral characteristics, e. g., justice, honesty, integrity, kindness (The Jubilee
Centre, 2017). These moral habits or dispositions are guided by values,
acquired through practice, and "produce specific moral emotions, inform
motivation and guide conduct" (The Jubilee Centre, 2017). Practicing vir-
tues (from Greek Ασκέιν (askēin) – to exercise, train, also to embellish or
refine a material) has always been an important part of European culture
since the ancient Greek philosophy. Without virtues, a person has no moral
strength to achieve the good (values) (Kiope, 2015). Virtues play a great
role not only in a student's educational process but also later in life, as
virtues give meaning to life and help maintain one's well-being (Lakota
et al., 2016). As moral feelings arise and develop during childhood, an
excellent way of strengthening virtues is to address them at early stages of
education.

Teachers play an important role in forming students' understanding
of virtues, because virtues develop by practice (Skola 2030, 2017) and
youngsters spend a lot of time at school. A recent research report about
the Latvian sociocultural context in the field of character education
(Fernández González, 2019), in which more than 2250 respondents from
different educational sectors were involved, argued that family-school
collaboration is crucial for effective moral education. In addition, in-ser-
vice teachers need methodological materials and guidelines in order to
comply with Latvian legislation and current reforms regarding moral edu-
cation (Pīgozne et al., 2020). The virtue education programme e-TAP,
which is analysed in this paper, was conceived as a response to this need.
Originally developed in the United Kingdom by the Jubilee Centre for
Character and Virtues of the University of Birmingham, it was adapted to

the Latvian education system in late 2020. The aim of this programme is to support character and virtue education at school among pupils from 5 till 15 years old (for a description of the e-TAP programme, see Fernández González et al., 2021).

Before implementing an education program, it is necessary to verify its alignment with the needs of the organization and the community (CMFR, 2020, p. 1). According to Eldridge and colleagues (2016), "fit research" looks at the appropriateness of a programme to a concrete cultural or institutional context. Programmes with a good 'fit' have a higher chance of reaching the intended outcomes with the target audience (CMFR, 2020, p. 4). The use of feedback evaluation questionnaires in fit research is quite frequent (e. g., Bumbarger, 2020; CMFR, 2020). Recent research about programme fit addressed questions such: "Does the program align with the culture and values of the community, stakeholders, and target population?" (CMFR, 2020, p. 2). Similarly, in the USA, recent research suggests addressing questions about how well the program's theory matches the identified needs and whether the program fits the culture and beliefs of the target population (Bumbarger, 2020, p. 3).

The problems addressed by this research are the lack of any similar programme in this field in Latvia, the high expectations of the education sector regarding materials for moral education, and the significant differences regarding the moral education traditions and systems between Latvia and England, from where the original programme was adapted. Therefore, it was particularly important to provide solid scientific evidence regarding whether the e-TAP programme had an appropriate fit to the sociocultural context of the country and to the needs of teachers, which is the purpose of this research.

For addressing these challenges, the programme e-TAP was piloted from February till April 2021 by more than 250 teachers in 96 educational institutions in Latvia. The research presented in this paper focuses on preschool and primary school teachers' views about the appropriateness (fit) and innovativeness of the e-TAP programme to the Latvian education system. In addition, given the importance of the new competence-based curriculum Skola 2030 at all levels of education, special attention was given to the correspondence of the e-TAP programme topics to the Skola 2030 programme topics. Therefore, the research questions guiding the research question (RQ) were formulated as follows:

RQ-1. How do the topics of the virtue education programme e-TAP fit the topics of the competence-based curriculum Skola 2030?

RQ-2. How did preschool and basic education teachers perceive the fit of the virtue education programme e-TAP to the needs, expectations, and values of the educational context?

## Method

The exploration of the first research question (thematic fit between e-TAP and Skola 2030) was based on document analysis of two document sets: the documents of the Skola 2030 curriculum called "Subject matter model programmes" from preschool till grade 3 (20 documents, see Table 1), were compared with the lesson plans of the e-TAP programme ($N = 118$). The basic education programme of Skola 2030 is structured in seven thematic areas, which are broken down into different subject matters addressing different topics, between 4 and 7 for each grade. Overall, there are 174 topics from grade 1 to 3. In preschool education, each thematic area is divided into "content units". Overall, there are 63 content units in preschool education. In its turn, the e-TAP curriculum contains 3–4 themes for each grade, from preschool (5 years) till grade 9. Each theme had 2 or 3 lesson plans with topics related to the theme. Overall, there are a total of 64 lesson plans from preschool (5 years) till grade 3.

For comparing the two document sets, first the Skola 2030 content units and topics were explored, looking for keywords corresponding to the topics of the e-TAP lesson plans. An initial list of 43 possible matches with preschool and 130 matches withing grades 1 to 3 was established. Then, ten experts (three researchers, three university teaching staff and four master and doctoral students) made a detailed content analysis based on the initial matching list for creating an "Inventory of matches" completing the initial matches when necessary and also rejecting some of them. This inventory was finally analysed, using frequency analysis of matches.

For the analysis of the second research question (e-TAP fit to Latvian educational context), several tools and criteria were used. First, all the teachers who participated in the e-TAP piloting filled a feedback questionnaire after piloting each lesson plan (950 questionnaires were received) and each whole theme (360 questionnaires). The "theme questionnaire" contained, among other sections, a set of six questions in a 4-point Likert scale and an open question regarding teachers' views about the programme fit to the Latvian sociocultural context, educational institution culture and values, their own value system and pupils' needs and interests (see Table 3). 169 theme questionnaires were analysed in this research: 75 from preschool teachers and 94 from teachers working in grades 1-3.

In addition, teachers' interest in the programme, their participation and retention level, their motivations and satisfaction, and their suggestions for improving it were also analysed. *Teachers' interest in the programme* was assessed through two indicators: the overall number of teachers' inscriptions, and their retention rate, which was calculated comparing initial sign-up and real participation figures. *Teachers' motivation to participate in the*

*programme* was specifically addressed in the inscription questionnaire (343 teachers). It was assumed that the kind of motivation mentioned pointed to aspects of the programme that fit teachers' needs. *Teachers' satisfaction with the participation* in the piloting was explored through the feedback "theme questionnaire" which also contained a question in a 4-point Likert scale and an open question about teachers' satisfaction with the participation. It was assumed that, at a time where teachers were going through a difficult professional period due to the pandemic situation (changes in their teaching habits, necessity of learning new tools for online teaching and of creating new virtual relationships with pupils, etc.), their voluntary participation pointed to the programme fit to their needs. Regarding *teachers' suggestion for improving the programme,* in addition to the 360 feedback questionnaires about the themes, 950 feedback questionnaires about the lesson plans were received by the end of the e-TAP piloting. The research team analysed all of them ($N = 1310$), looking for programme improvement suggestions. Overall, 195 suggestions were recorded: 46 of them were from preschool teachers and 35 from grades 1 to 3. NVivo software was used for coding all these aspects.

*Ethical considerations.* The research received the ethical approval of the Commission of ethics for research with participation of humans of the Department of Education, Psychology and Arts of the University of Latvia on February 4th, 2021, approval No. 30-47/7.

## Results

### RQ-1. Fit between the e-TAP and the Skola 2030 topics (preschool and grades 1 to 3)

To address this question, first the number of Skola 2030 topics/content units that presented a match with e-TAP lesson topics is presented (Table 1), and then the number of e-TAP topics that matched with Skola 2030 topics is described (Table 2).

The results show that a significant number of the Skola 2030 topics matched with e-TAP topics ($N = 116$ out of 261 topics; 44.4 %), which means that teachers would be able to use e-TAP materials in their subjects. Looking at the number of different topics matched (Table 1, column 2), the average of the 4 areas regarding social sciences and humanities (Cultural understanding, Social and civic education, Languages and Health and sports) was 54%, while the figure for the 3 other areas (Natural sciences, Mathematics and Technology) was 32%. In pre-school (phase 3), the area with the highest percentage of matches was "Cultural understanding and artistic self-expression": out of the 10 content units included in Skola 2030, seven (70%) had at least a match with e-TAP.

**Table 1.** School-2030 topics /content units matched with e-TAP topics

| | Number of School-2030 topics | Number of different topics matched | Total number of matches with e-TAP |
|---|---|---|---|
| **Natural sciences** | **22** | **8** | **10** |
| Preschool (3rd level) | 8 | 3 | 4 |
| Natural science (grades 1-3) | 14 | 5 | 6 |
| **Cultural understanding and artistic self-expression** | **43** | **20** | **51** |
| Preschool (3rd level) | 10 | 7 | 32 |
| Music (grades 1-3) | 15 | 3 | 4 |
| Theatre (grades 1-3) | 3 | 3 | 4 |
| Visual arts (grades 1-3) | 15 | 7 | 11 |
| **Mathematics** | **33** | **8** | **27** |
| Preschool (3rd level) | 9 | 4 | 12 |
| Math (grades 1-3) | 24 | 4 | 15 |
| **Social and civic education** | **25** | **13** | **29** |
| Preschool (3rd level) | 13 | 4 | 17 |
| Social sciences (grades 1-3) | 12 | 9 | 12 |
| **Technology** | **31** | **11** | **20** |
| Preschool (3rd level) | 6 | 2 | 7 |
| Computer science (grades 1-3) | 11 | 4 | 6 |
| Design and technologies (grades 1-3) | 14 | 5 | 7 |
| **Languages** | **91** | **45** | **73** |
| Preschool (3rd level) | 10 | 4 | 15 |
| First foreign language (grades 1-3) | 36 | 15 | 21 |
| Latvian language (grades 1-3) | 18 | 8 | 12 |
| Minority schools: Latvian language, literature (grades 1-3) | 15 | 12 | 18 |
| Minority (Russian) language (grades 1-3) | 12 | 6 | 7 |
| **Health and sports** | **16** | **11** | **36** |
| Preschool (3rd level) | 7 | 3 | 26 |
| Sport and health education (grades 1-3) | 9 | 8 | 10 |
| **Total** | **261** | **116** | **246** |

On the other hand, the lowest percentage of matches was in the field of "Social and civic education" (31%: 4 matches out of 13 content units). In grades 1 to 3, the highest percentage of different topics matched was in the subject "Theatre" (100%: 3 out of 3 topics matched), and the lowest was in "Mathematics" (17%: 4 matches out of 24 topics).

Looking at the total number of matches (Table 1, column 3), the data show that, in pre-school, the largest total number of matches were in the thematic areas "Cultural understanding and artistic self-expression" (32 matches) and "Health and sports" (26 matches, which is also the highest number of matches per content unit – almost 9, which indicates that teachers of this subject have a lot of possibilities of using e-TAP programme in their lessons); and the lowest overall number of matches was found in the area of "Natural sciences" (4 matches, which is also the lowest number of matches per content unit – 0.5, which indicates a limited number possibilities of using e-TAP programme in these lessons). In grades 1 to 3, the largest total number of matches were in the subject "Minority schools: Latvian language, literature" (18 matches), and the lowest was in the subject matters "Theatre" and "Music" (4 matches).

The number of lessons of the e-TAP program that matched with the Skola 2030 programme (and therefore could be used when implementing it) was also analysed (Table 2). The overall percent of e-TAP lessons matched was 83% (49 lessons matched out of 59; see Table 2, columns 1 and 2). Nearly all e-TAP topics in the preschool and in grades 1 and 2 were matched with the Skola 2030 programme, but in grade 3 only 6 out of 11 lessons were matched. The overall number of matches with Skola 2030 (Table 2, column 3) was high: each e-TAP lesson had in average 3.6 matches with Skola 2030 topics or content units.

**Table 2.** E-TAP lesson plans matched with Skola 2030 topics

|  | Overall number of e-TAP lesson plans | Number of different e-TAP lesson plans matched | **Overall number of matches with School-2030** |
|---|---|---|---|
| Preschool (5 years) | 12 | 12 | 52 |
| Preschool (6 years) | 12 | 11 | 45 |
| Grade 1 | 12 | 10 | 35 |
| Grade 2 | 12 | 10 | 29 |
| Grade 3 | 11 | 6 | 17 |
| **Total** | **59** | **49** | **178** |

## RQ-2. Fit of the e-TAP programme to the Latvian educational context

The Table 3 presents teachers' rating of e-TAP fit to the different levels of the Latvian socio-ecological system (country, school, teacher, and pupils).

**Table 3.** Teachers' ($N = 169$) opinion about e-TAP topic fit to contextual needs and values (%)

| | Yes | | Rather yes | | Rather no | | No | |
|---|---|---|---|---|---|---|---|---|
| | *n* | *%* | *n* | *%* | *n* | *%* | *n* | *%* |
| Is the theme topical in Latvian sociocultural context? | 133 | 79% | 35 | 21% | 0 | 0% | 1 | 1% |
| Does the theme fit the Latvian and international legislation? | 131 | 78% | 37 | 22% | 0 | 0% | 1 | 1% |
| Is the theme topical for your educational institution? | 141 | 83% | 27 | 16% | 1 | 1% | 0 | 0% |
| Does the theme fit your school culture and values? | 146 | 86% | 21 | 12% | 2 | 1% | 0 | 0% |
| Does the theme fit your own value system? | 153 | 91% | 15 | 9% | 1 | 1% | 0 | 0% |
| Does the theme fit pupils' age, development, interests? | 113 | 67% | 50 | 30% | 5 | 3% | 1 | 1% |

The results show that in teachers' opinions, the programme fits very well to the Latvian sociocultural context (99% agree or rather agree). The highest fit regards teachers' value system (91% agree), and the lowest complete agreement regarded the programme fit to pupils' needs and interests (67%). In their open answers, some teachers suggested some improvements to the programme fit to pupils' development stage, such as considering more carefully at what age it would be convenient to address the topics "harmful substances" and "peer pressure" where some examples about narcotics, alcohol, etc. are presented.

As explained in the methodology section, in addition to these direct indicators, this question also explored teachers' participation and retention level, their motivations and satisfaction for participating in the programme piloting, and their suggestion for improving it.

**Teachers' participation and retention level.** Overall, 343 teachers signed-up for the programme in January, and 167 of them were teachers working in the grades addressed by this research: 94 of them were

preschool teachers and 73 worked in grades 1 to 3. As regards the retention rate, at the end of the piloting, 78 teachers from preschool and 60 from grades 1–3 had actively participated ($N = 138$). Therefore, the retention rate was 82%, which is very high. Considering the pandemic situation and the voluntary character of participation, these high figures point clearly to the programme fit to teachers' needs and interests.

**Teachers' motivation to participate in the programme.** In the sign-up questionnaire, answering to the question "What was your motivation to sign-up for the piloting?" 65 occurrences were found mentioning that the themes and materials proposed were attractive. In particular, teachers were motivated by "the materials offered for the piloting, the importance of topics for the full development of children's personality" (respondent No 164 – literature and Latvian language teacher), as well as by the fact that "this year pupils in grade 1 are starting to work according to the Skola 2030 curriculum, in which the subject matter "Ethics" is no longer included. So, this project could complement the form time topics perfectly" (respondent No 186 – primary school and math teacher).

**Teachers' satisfaction with the participation in the programme.** 204 answers were received to the question "Are you satisfied with your participation in the piloting?" 79% of respondents ($N = 161$) answered "Yes" 20% ($N = 41$) – "Rather yes" and only 1% ($N = 2$) – "Rather not". Participants generated comments about the programme value at different places in the data set. 75 mentions to the necessity and timeliness of the materials proposed by the programme were found, which indicates that this aspect of the programme also fit their needs. A respondent (respondent No 132 – social educator), commenting on her satisfaction with the programme and its importance, wrote:

> *"Thank you for daring to create something like this, it is a good basis for teachers to have a ready-to-use program, where they can also add or adapt part of the lessons. Such a good stepping point! So far, the education guidelines defined the important virtues and values to be highlighted and educated, but how to do it was left to each teacher. This programme is a stepping point with concrete ideas and ready lesson plans".*

**Teachers' suggestion for improving the programme.** 114 teachers' suggestions for improving the programme in preschool and grades 1 to 3 were recorded. The main suggestions regarded the necessity of more time for each lesson and the convenience of elaborating some new materials (16 times each), to have a more active learning process (15 times), to simplify the language used (14 times) and to improve the visual presentation of the slides (12 times). There were also some references to the topic fit to the pupils' age, the video materials, and the logic succession of the lessons.

## Discussion

The findings of this study show that the e-TAP programme had a good thematic fit with Skola 2030 programme. In this context, an interesting point is that the field of the Natural science had one of the lowest numbers of thematic matches with the virtue education programme, which would make difficult to teachers of these subjects to use the materials provided by e-TAP in their teaching hours. The question arises whether it is possible at all to implement moral education across the curriculum in science subjects. Recent research has established that science learning can foster pupils' virtues such as credibility, responsibility, respect, care, citizenship, courage, aspiration and honesty (Rubini et al., 2018), because in science learning students are trained to describe the phenomena rigorously, to use the right research techniques, and to draw conclusions on the basis of evidence, which enable them to take reasonable, public-interest-sensitive, environmentally friendly and sustainable decisions (Logins et al., 2020). The materials provided by the project "Teaching Character Through Subjects" of the Jubilee Centre for Character and Virtues support this claim (see https://www.jubileecentre.ac.uk/1676/character-education/teacher-resources/teaching-character-through-subjects).

The results of this research also show the high fit of the e-TAP programme to the sociocultural context of Latvia. This result could seem surprising, given that the original programme was created in a different cultural setting (the UK). Recent research has addressed the transfer of educational interventions in new cultural settings (Leberman, & McDonald, 2016). The transfer of the e-TAP programme, done by qualified specialists in the field and through a rigorous research process, complies with the conditions of a successful cultural transfer as stated by Marsiglia & Booth (2015): "understanding of the deep theoretical structure of the original intervention, and rigorous evaluation" (p. 429).

Teachers play an important role in pupils' socio-emotional and moral education, and they need support for this task. Society expects educators to be moral exemplars of virtues and values through their professional work (Lumpkin, 2008). However, recent research argues that teachers often lack materials and knowledge to successfully implement moral education in practice (Schonert & Kimberly, 2017). This thesis is confirmed by the findings of this study: despite the fact that traditional values are solidly embedded in the Latvian mentality, teachers' answers point to the need for support in this field and suggest that the e-TAP programme could be the key to a high-quality transfer of moral values and virtues to children, since the lesson plans developed are not only useful for the educator, but also a tool to strengthen existing knowledge and beliefs so that they can be passed on to pupils.

How is the e-TAP program related to Latvian traditions? This relationship is mainly confirmed by the fact that 91 % of teachers ($N = 153$) claimed that they completely agree that this programme is consistent with their own value system (See Table 3, row 5). The e-TAP lesson plans at preschool and grades 1 to 3 also highlight virtues that permeate Latvian traditions and folk songs, such as kindness, honesty, dignity, courage, pleasure, care, love, love of work, etc. (Siliņa-Jasjukeviča et al., 2008). Updating these virtues at an early age would promote children's understanding of universal human values, Latvian lifestyle, cultural heritage, traditions, and their conservation (Latvijas Vēstnesis, 2016, 141). This programme therefore directly relates to the renewing and enlivenment of Latvian traditions, the understanding and interiorization of Latvian values, and the development of the Latvian cultural space today.

One of the limits of this study is the focus on preschool and grade 1 to 3. More research is necessary for testing the programme fit at higher levels of education. For future research, the programme fit to the upbringing themes proposed by the National Centre of Education of the Republic of Latvia (NCE, 2016) could be explored. In addition, the focus on the thematic fit should be enlarged also to other pedagogical aspect, in particular the didactic methods to use in online environment. Finally, the teachers' views presented in the study should be completed with those of parents and even children themselves for enhancing reliability.

## Conclusions

The main conclusions of this research are the following ones:
- The virtue education programme e-TAP has a good thematic fit with Skola 2030 programme: 44.4% of the Skola 2030 curriculum topics match with the topics of e-TAP.
- The social sciences and humanities areas has the highest number of matches with e-TAP, but the area of Natural sciences had the lowest number. It would be convenient to improve the e-TAP programme in this field.
- Mostly all of e-TAP lesson plans (83%) could be used when implementing the current Skola 2030 curriculum.
- Teachers participating in the research massively support the thesis that the e-TAP programme fits the Latvian educational context. They agree (91%) or rather agree (9%) that the programme correspond to their needs, expectations, and values.
- The high fit of the programme to the Latvian sociocultural context is also supported by teachers' high interest in participating in its piloting, and their satisfaction with the piloting process.

- According to the teachers' comments about the programme topics and materials, the e-TAP programme is a serious support for teachers to implement the moral education of pupils as foreseen in the Law of Education of the Republic of Latvia.
- The e-TAP programme can be considered as an innovation in the Latvian education system. It is a novel support for educators that is directly related to Latvian traditions and enhances the understanding and preservation of Latvian values and the development of the Latvian cultural space nowadays.

The e-TAP programme, with the ongoing improvements, is a serious research-based support to teachers in implementing moral education at school in Latvia. It highlights the relevance of traditions for virtue education and how they can be successfully combined with pedagogical innovations, while complying with the national guidelines of moral education.

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# SCHOOL STAFF AND PARENTS' BELIEFS ABOUT THE ROLE OF SCHOOL FOR PUPILS' CHARACTER EDUCATION IN LATVIA

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**ABSTRACT**

This paper presents a mixed-method research aimed at identifying how school and teachers' role for character education at school is understood in Latvia. The theoretical framework of the study is based on the principles of virtue ethics. The viewpoints of 1116 respondents (parents, teachers, and school leaders) from all five regions of Latvia were collected in 2018-2020, using two questionnaires containing closed and open questions. The results provided new insights into how parents and school staff perceived the role of the school and the teachers in pupils' value and virtue education in Latvia. Schools should promote pupils' character development alongside academic excellence, but, while teachers should encourage good morals and values in pupils, using both 'caught' and taught' strategies, the main responsibility for children moral growth is on parents and families, not on teachers and the school. The majority of both school staff and parents were favourable to a shared responsibility and collaboration between school and family to promote character education inside and outside of the classroom.

***Keywords:*** *character education, character growth, school role, teacher's role, virtue ethics.*

## Introduction

In a virtue ethics perspective, which is the theoretical framework of this paper, character is defined as "a set of personal traits or dispositions that produce specific moral emotions, inform motivation and guide conduct […]; character education includes all explicit and implicit educational activities that help young people develop positive personal strengths called virtues" (The Jubilee Centre for Character and Virtues, 2017, p. 2). Whilst parents are the primary educators of their children's character, "empirical research tells us that parents want all adults who have contact with their children to contribute to such education, especially their children's teachers" (The Jubilee Centre for Character and Virtues, 2017, p. 1). Besides parents, who should take the main role in their children's morality

development, teachers also play an important role in promoting students' moral growth (Gui et al., 2020; Harrison et al., 2018), shaping the new generation and transmitting cultural and moral values to students (Gui et al., 2020, Velea & Farca, 2013).

Character education at school can be implemented in different ways. The Character Education Evaluation Handbook for Schools (Harrison et al., 2015) conceptualises character education in terms of 'character caught' and 'character taught'. Caught approaches to character education emphasise the importance of teachers acting as positive role models for their students and the relevance of the school culture. Taught approaches are more explicit in developing students' character, for example, through discrete lessons focusing on character and virtues, or through embedding character education within subjects (Harrison et al., 2015, p. 11).

In Latvia, the Soviet heritage can still be felt in the way character education is implemented at school. During Communist character education, it was commonly accepted that "the ideology-driven political and moral upbringing at school […] should be concentrated in the hands of the principal" (Klēģeris, 1962, p. 59). After the falling of Soviet Union, school leaders' formal authority increased, and the school role as a place for pupils' moral upbringing continued to be accepted in society (Fernandez Gonzalez, 2020). Among teachers, a tendency to consider themselves as experts who look with some mistrust at parental involvement in school settings can still be perceived, and the school role in moral education is somehow reinforced by a social context in which more than half of children live in broken families and where most parents are too busy earning money due to the low wages.

This historical and cultural background makes even more urgent the exploration of how the school and teachers' role in pupils' moral education is understood by the main actors of the education system in Latvia, which is the aim of this research.

To address the research goal, the following research questions were put forward:

1. How parents, teachers, and school leaders perceive the role of teachers and school in character education? This question was split in two sub-questions: a) Should character education be reserved to the family or is it also part of teachers' role? and b) Should the school limit itself to academic content or should it engage in character education?

2. Assuming that the provision of character education is part of the school and teachers' role, what approach should be adopted? This question was also split in two sub-questions: a) Should the school and the teachers limit their action to 'caught' approaches, or should they engage in 'taught' character education? and b) Should the

school produce an official statement of the core character traits that it aims to develop in its pupils?

## Literature review

The scientific literature regarding school and teachers' roles for character education and the types of school-family relationships is very abundant. For example, within the study conducted by the Commonwealth of Australia (2006), a school role typology was developed; the types are gathered under two big groupings such as 'Traditional roles' types (e. g., fully fledged partners, culture-changers, engagers, seekers, governance-oriented) and the 'Social change' types (e. g., social capital builders, resilience builders). In the first group were schools where the focus of the partnership was on the traditional educational functions of schools and in the second were schools where the focus of the partnership was on responding to wider imperatives deriving from community need (Commonwealth of Australia, 2006).

In addition, multiple theoretical models of school-family relationships (Auerbach, 2010; Bryan & Henry, 2012; Cunningham & Davis, 1985; Dale, 1996; Deslandes, 2019; Hornby, 2011; Lueder, 2000; Swap, 1993) have been defined, based on different sets of assumptions regarding the goals of, and strategies and approaches for, establishing a school-family relationship, and also the understanding of school and teachers' roles (see Table 1).

Scientific literature has also addressed the role of teachers in moral education. Pantić and Wubbels (2012) operationalized 'paternalist', 'liberal' and 'social-relativist' conceptions of teachers' moral roles among teachers from Bosnia & Herzegovina and Serbia. And in a recent meta-analysis study based on published and unpublished studies in online data bases over 2009–2018 (Gui et al., 2020), seven roles of teachers in moral education were found: moral model, moral mentor, caregiver, moral value conveyer, facilitator, counsellor, and communicator.

Several associations around the world facilitate the school endeavour in the field of character education. In the UK, the Jubilee centre for Character and Virtues at the University of Birmingham, in its Character Education Evaluation Handbook for Schools, states that "Developing students' character is not new – it forms the time-honoured backbone of a school's and a teacher's role" (Harrison et al., 2015, p. 9). Under the section 'Whole school community', the Handbook offers a set of criteria for assessing the role of teachers for character education according to four indicators ('Behaviours', 'Teaching virtues', 'Using virtues to develop independence' and 'Continuous professional development') and four levels for each indicator ('Focusing', 'Developing', 'Establishing', and 'Enhancing'), including descriptors of achievement for each level.

**Table 1.** School and teachers' roles within theoretical models of school-family relationships

| Models of school-family relationships | Role of the school and the teacher within the model |
|---|---|
| The expert model (Cunningham & Davis, 1985). The model preventing partnerships (Auerbach, 2010). | Teachers are experts who maintain control over educational decisions. The school and the teachers know what is better for parents and their children. The school tells parents what to do. |
| The protective model (Swap, 1993). | The teachers' role is to educate children at school. |
| The transplant model (Cunningham & Davis, 1985). | The teacher knows what parents ought to be doing at home and what should be completed at school. |
| The school-to-home transmission model (Swap, 1993). | The school should identify the values and practices that contribute to success. |
| The consumer model (Cunningham & Davis, 1985). The nominal partnership model (Auerbach, 2010). | The school is service-oriented. The teachers' role is to provide their services to parents as service consumers. |
| The curriculum enrichment model (Swap, 1993). The negotiating model (Dale, 1996). | Teachers work together with parents to enrich the curriculum and to take advantage of parents' expertise. Both the teachers and the parents make valuable contributions to take the best decisions for children. |
| The traditional partnership model (Auerbach, 2010). | The school is more oriented on meeting family needs, listening to parents and bridging cultures as part of more responsive leadership roles and a more family-friendly school climate. |
| The partnership model (Swap, 1993). | Schools encourage an alliance between parents and teachers. They work together to accomplish the common mission of helping all children in the school to achieve success. |
| The authentic partnership model (Auerbach, 2010). | The school is more oriented to ideals of social justice, democracy, and cultural responsiveness through more specific aims, such as dialogue, parent advocacy, and community revitalization. |
| The self-renewing partnership model (Lueder, 2000). | The school role is to support families, to reach out and work with families using connecting, communicating, coordinating, and coaching strategies. |

In the United States, the "11 Principles of Effective Character Education" (Character.org, 2018) proposed by the association Character.org, which are intended to support schools in establishing a comprehensive character development initiative, include explicit mentions to teachers' role for character education under the key indicators of exemplary implementation of the Principle 4 ('The school creates a caring community') and the Principle 8 ('All staff share the responsibility for developing, implementing, and modelling ethical character'), stating that "teachers understand that part of their role is to intentionally build relationships between all students in their classrooms" (Character.org, 2018, p. 17) and that "staff members will specifically cite their role as a model for student work and behaviour" (ibid., p. 29).

The themes regarding school-family partnerships and the teachers' and school role for character education were useful for the conceptualization of the research tools and for the interpretation of the results of this study.

## Method

### Research tools, sampling, and data collection

Two questionnaires were used for collecting data (see details further, in Table 3). The Questionnaire A was based on a poll (Populus, 2013) elaborated for the Jubilee Centre for Character and Virtues from the UK, which was translated into Latvian and validated in 2018. It contained four closed-ended questions for parents and school staff (school leaders and teachers): one about teachers' role (QA-1), two about the approaches to character education (QA-2 and QA-3) and one about the school role, which was common with the Questionnaire B (JQ-1). This second questionnaire was intended for school staff only and contained also two original open questions about school staff self-perceived role for character education: "What do you think is your role as a school staff representative in the moral development of pupils?" and "Do you think that your personal moral stance, your values and virtues, influence the moral development of pupils? Why? (If yes) In what way?"

The 'Questionnaire A' was administrated online and in paper in two steps: 1) from March to May 2018 – to 353 respondents from Riga within the Erasmus+ project 'Arete Catalyst'; and from June till November 2018 – to 708 respondents from all Latvian regions within the first stage of the postdoctoral research 'Arete-school' (Fernández González, 2019). All respondents participated voluntarily. The 'Questionnaire B' was administrated in paper form in February-March 2020 to 55 in-service teachers ($n = 23$) and school leading staff ($n = 32$) from Riga and Riga surroundings who participate voluntarily in the second stage of the 'Arete-school'

postdoctoral study – a professional development course about character and virtue education (Fernández González, 2020).

This research used a sample of 1116 respondents: 461 parents, 496 in-service teachers and 159 school leading staff (see Table 2). Respondents were between 23 and 78 years old ($M = 45.37$, $SD = 9.74$), and 91.7% were females. The overall work experience of school leaders and teachers oscillated between 1 and 54 years ($M = 22.07$, $SD = 12.25$). All five planning regions of Latvia were represented in the research as follows: 37.5% from Riga city and Riga region, 13.5% from Latgale, 11.0% from Kurzeme, 12.1% from Vidzeme and 25.9% from Zemgale.

**Table 2.** Respondent groups

| Respondent group | Within Arete Catalyst Study 1 in Riga city | Within Arete-school Study 1 in five planning regions | Within Arete-school Study 2 in Riga region | Total |
|---|---|---|---|---|
| Parents | 190 | 271 | 0 | 461 |
| Teachers | 110 | 363 | 23 | 496 |
| School leaders | 53 | 74 | 32 | 159 |
| **Total** | **353** | **708** | **55** | **1116** |

## Organization of the data and data analysis methods

The data obtained were first organized according to the research questions. The data referring to the 1st research question were obtained from questions QA-1 and JQ-1, and those referring to the 2nd research question – from questions QA-2 and QA-3 (see Table 3). Processing and analysis of quantitative data were performed using IBM SPSS Statistics 26 software. Crosstabulation was used to display a breakdown of the quantitative data, to create contingency tables, which describe the interaction between two nominal variables (in our study – three respondent groups and their beliefs regarding teachers' and school role in character education). Via Crosstabs, Chi-square test of independence was performed to determine if there was a significant relationship between two nominal variables, Z-test was employed to compare column proportions and Bonferroni method was used to adjust the significance values. The answers to the open questions (Questionnaire B) were analysed using traditional content analysis (thematic coding and grouping categories), and they used for illustrating the quantitative findings.

## Results

Research results are presented by research questions. The first one ('*How parents, teachers, and school leaders perceive the role of teachers and school in character education?*') included two sub-questions:

*RQ1-a: Should character education be reserved to the family or is it also part of teachers' role?*

According to crosstab statistics (see Table 3, question QA-1), overall, 65.8 % of respondents ($N = 687$) agreed that it is part of a teacher's role to encourage good morals and values in pupils, 25.8% of respondents disagree, and 8.4 % did not have a clear opinion.

**Table 3.** School and teacher's role to encourage good morals and values in pupils

| Question / statement | Answer | Respondent group | | | Total |
|---|---|---|---|---|---|
| | | Parents | Teachers | School leaders | |
| | | % (*n*) | % (*n*) | % (*n*) | % (*N*) |
| QA-1: Do you think it is part of a teacher's role to encourage good morals and values in pupils? | Yes, it is a teacher's role | 54.9 (253)$_b$ | 73.1 (339)$_a$ | 74.8 (95)$_a$ | 65.8 (687) |
| | No, it is not a teacher's role | 34.9 (161)$_b$ | 16.8 (78)$_a$ | 23.6 (30)$_a$ | 25.8 (269) |
| | Don't know | 8.5 (39)$_a$ | 10.1 (47)$_a$ | 1.6 (2)$_b$ | 8.4 (88) |
| JQ-1: Schools should develop pupils' character and encourage good values in them. | Agree | 66.2 (300)$_a$ | 80.5 (392)$_b$ | 88.4 (137)$_b$ | 75.3 (829) |
| | Disagree | 33.8 (153)$_a$ | 19.5 (95)$_b$ | 11.6 (18)$_b$ | 24.7 (266) |
| QA-2: It is possible to teach a child values and shape pupil's character in a positive way at school, through lessons, team-building exercises or voluntary work | Agree | 92.3 (418)$_a$ | 91.6 (426)$_a$ | 89.0 (113)$_a$ | 91.6 (957) |
| | Disagree | 7.7 (35)$_a$ | 8.4 (39)$_a$ | 11.0 (14)$_a$ | 8.4 (88) |
| QA-3: Do you think that schools should have a statement of the core character traits that it aims to develop in its pupils? | Yes, they should | 31.8 (144)$_{a,b}$ | 26.9 (125)$_a$ | 38.6 (49)$_b$ | 30.4 (318) |
| | No, they shouldn't | 43.3 (196)$_a$ | 47.5 (221)$_a$ | 48.0 (61)$_a$ | 45.8 (478) |
| | Don't know | 24.9 (113)$_b$ | 25.6 (119)$_b$ | 13.4 (17)$_b$ | 23.8 (249) |

Even if positive answers were more frequent in all groups, there were some differences among them: Parents less likely than teachers and school leaders ascribed this role to teachers; and school leaders were group who answered more positively and with less hesitation. A Chi-square test of independence was performed to examine the statistical significance of the relation between each respondent group and its beliefs regarding the teacher's role. The relation between these variables was significant: $X^2$ (4, $N = 1044$) $= 52.252$, $p = .000$.

Note: Z-test & Bonferroni method were employed via Crosstabs to compare column proportions and to adjust p-values. Each subscript letter denotes a subset of respondent group categories (i. e., parents, teachers and school leaders) whose column proportions do not differ significantly from each other at the .05 level.

The open answers to the Questionnaire B illustrate these quantitative findings. Some teachers stressed that moral education is part of a teacher's role, but it is not the teacher's responsibility. As a school leader put it: *I believe it is really part of the role of teacher, but it is not just the responsibility of the teacher. The education of each child is, firstly, the responsibility of the family, secondly, the responsibility of society. Every adult who meets a child is a model of virtue and character* (School leader 1).

Regarding the way school leaders and teachers perceived their role in pupils' moral growth (51 utterances), 39.2% of respondents believe that they have an extremely important role. In 56.9% of the utterances (29 times) they perceived themselves as role models for pupils, colleagues and parents, as illustrated by these respondents' comments: *Both colleagues and pupils look at the school staff as a role model, and then they accept or do not accept what we say about values and behaviour* (School leader 2); *I consider myself as a role model for colleagues, pupils an parents* (School leader 3); *I may give both a positive and a negative example, and others learn from what they see* (Teacher 1). In addition, 17 utterances referred directly to their role of supporting, inspiring, and motivating pupils: *Pupils spend most of their day at school, and the teacher is precisely the person who can support, encourage, and teach them* (Teacher 2); and four utterances from school leaders referred to their leadership role at school level (giving official support to moral education, organising the curriculum and school events, creating a school atmosphere supportive of character education, etc.

Analysing school leaders' and teachers' answers to the question "Do you think that your personal moral stance, your values and virtues, influence the moral development of pupils? Why? (If yes) In what way?" 49 utterances were found: 34 utterances (69.4%) referred to the impact they can have through the example of their own virtues, in particular being coherent, as illustrated by these respondents' comments: *I am aware that my*

*behaviour impacts pupils who see it; this is why I deliberately use this influence at work, trying to do my best for demonstrating a high moral behaviour* (School leader 4); *I try to be a honest and authentic person, I think this helps students* (Teacher 3). And 15 utterances (30.6%) addressed the importance of mutual relationships: speaking with pupils, being open with them about one's feelings and values, giving them time and attention, adapting to their needs, and providing opportunities for mutual collaboration. As respondents put it: *I try not to impose my moral views and values, but I give pupils the opportunity to know how I think and to decide by themselves what they want to take from it* (Teacher 4); *I am always attentive to pupils' reactions and moods… and I try to help them. I also always tell them about my feelings and emotions…* (School leader 5).

**RQ1-b: Should the school limit itself to academic content or should it engage in character education?**

Overall, most respondents (75.7%, *N = 829*) agreed that schools should seek to develop pupils' character (see Table 3, question JQ-1), but there were remarkable differences among groups: While the overwhelming majority of school leaders and teachers agreed (88.4 % and 80.5 % respectively), only 66.2% of parents did so. These differences among groups were statistically significant ($X^2$ (2, *N = 1095*) = 41.761, *p* = .000).

In their open answers, one of the teachers commented, *I believe that teachers are already devoting a lot of their time to educating pupils morally … and I do not know any teacher who would teach children the opposite or who is indifferent to non-virtuous, unethical behaviour* (Teacher 5). A school leader also commented that *Academic education is not valuable when pupils have no understanding of virtues and lack of a strong character* (School leader 6). A parent abounded in this sense: *In primary education schools, the development of social skills (collaborative skills, communication skills, self-assertiveness skills and listening to others, tolerance and dignity, civic participation, skills to seek and verify information, etc.) is the key. The development of these skills now seems to be left to the parents alone. But children spend a lot of time at their educational institution (sometimes even more than with their family). It is therefore essential that the school is involved in raising children character* (Parent 1).

On the other side, one of the parents explained in the following way her concern about the school engaging too much in children's moral education: *I don't think it's the responsibility of the school. I don't expect it from school. Raising my children's character is primarily my responsibility as a parent. Only then comes role of the school, the teachers; and I assume they do it when appropriate. Thanks to them for that!* (Parent 2).

The second research question ('*Assuming that providing character education is part of the school and teachers' role, what approach should be adopted?*') was also split in two sub-questions:

*RQ2-a: Should the school and the teachers limit their action to 'caught' approaches, or should they engage in 'taught' character education?*

The overwhelming majority of respondents (91.6%, *N = 957*) agreed that it is possible to teach values through lessons and other character 'taught' activities (see Table 3, question QA-2), and there were not statistically significant differences among respondent groups ($X^2$ (2, *N = 1045*) = 1.400, *p = .497*). In their open answers, parents gave some examples about how this can happen: *Children with parents need to fill out a growth journal, including personality growth* (Parent 3); *There is a code of class behaviour, green/red badges about behaviour in a given week are given, kids learn to work on a team, to respond adequately to losses, particularly in sport, we talk about mutual relationships* (Parent 4). Other parents mentioned the contexts in which this 'taught' moral education happens: *The class teacher regularly addresses these topics in form time. She pays attention to moral values; she talks about and explains them to pupils* (Parent 5); *During form time, and in ethics and social science lessons, many topics that are relevant to children, family and society are examined and discussed* (Parent 6); *In history, literature, and philosophy lessons, there are lively conversations about the human condition and about actions based directly on character traits* (Parent 7).

*RQ2-b: Should the school produce an official statement of the core character traits that it aims to develop in its pupils?*

As shown in Table 3 (Question QA-3), overall, 45.8% of respondents (*N = 478*) disagreed and only 30.4 % agreed to that question, but almost 1/4 of respondents did not have a clear position about it (23.8%). In all groups the negative answer was more frequent. School leaders were much less hesitant in their opinion than the other groups (only 13.4% of them did not know how to answer, while the figure was 24.9% for teachers and even higher – 25.6% for parents). The majority of school leaders was against officially stating core character traits, but they were also the group who had the highest percent of positive answers to this question, while parents were the group that has the lowest percent of negative answers (43.3%). The relation between each respondent group and its opinion about the school statement of the core character traits was also statistically significant, $X^2$ (4, *N = 1045*) = 12.704, *p = .013*. In their open comments, some parents emphasized that *the school has its own value document, and you can also find a description of the values in the interior of the school* (Parent 8), and that *values are defined at school; the school has done value-defining work together with parents and is currently introducing them in different ways at school* (Parent 9).

## Discussion

This study showed that, in Latvia, a number of parents and school staff believe that (1) schools should seek to develop pupils' character and encourage good values in them alongside academic study, but it is not necessary that the school has an official statement of values and core character traits; (2) it is part of teachers' role to encourage good morals and values in pupils, but the main responsibility for this task should be put on parents and families, not on teachers and the school; and (3) it is possible to use 'taught' approaches to character education at school.

These results, found in Latvian context, could be compared with similar international research. A polling carried out by Populus (2013) for the Jubilee Centre for Character and Values found an even stronger support among parents in the UK for the promotion of character development alongside academic study at school: In the UK, 87% of parents felt that schools should focus both on character development and academic study, not simply on academic study alone, while in Latvia the figure was 66.2% for parents (and 84.4% of school staff). In the UK, 84% of parents believed that it is a teacher's role to encourage good morals and values in pupils, while in Latvia the figure was 54.9% of parents (and 73.9% of school staff). Regarding the possibility of adopting 'taught approaches' for transmitting values to children and shaping their character in a positive sense, the situation in UK and in Latvia is quite similar: 95% of parents in Populus study and 92.3% of Latvian parents (and 90.3% of school staff) agreed to it. The biggest difference between the two countries was in the opinion about the convenience of having an official core statement of values and core character traits that schools instilled/aimed to develop in their pupils: while in the UK 81% of parents agreed, in Latvia only 31.8% of parents (and 32.7% of school staff) were favourable to it.

The majority of school staff and parents participating in this study supported the idea of shared responsibility and collaboration between school, family, and society to promote character education. This finding is in line with the understanding of effective partnerships reported by scientific literature: effective partnerships are based on mutual trust, respect, and shared responsibility for children's learning and development (Auerbach, 2010; Barr & Saltmarsh, 2014; Bryan & Henry, 2012; Epstein et al., 2002; Lueder, 2000; The Family-School and Community Partnerships Bureau, 2008). This finding should be taken into account when considering how to elaborate effective school-family collaboration models to deliver character education because both "parents and teachers are the educators of their children's character, inside and outside of the classroom" (Harrison et al., 2018, p. 3). Other international research has also found that, in character education,

which is "not a slogan or a course but a mission that is embedded in the everyday school life" (Agboola & Tsai, 2012, p. 168), it is necessary to create effective school-family partnerships to encourage students to acquire good virtues and manifest good values in their lives (Agboola & Tsai, 2012; Berkowitz & Bier, 2006; Berkowitz et al., 2008, 2017; Epstein et al., 2002).

Recent approaches to character education had stressed that pupils' virtue growth can be achieved not only through the observation of role models (caught approaches) and character instruction (taught approaches), but also through pupils' autonomous reflection and reasoning (sought approaches) (Harrison et al., 2018, p. 7), which can be facilitated by personal engagement and individual conversations. Therefore, the main roles of teachers and parents in character education could be listed as follows: role models, instructors, mentors, and facilitators of pupils' reflection. School-family or teacher-parent partnership for character education should aim at activating and promoting a mechanism of self-directed character growth in each pupil to provide gradually a shift from school-family shared responsibility to a situation where the pupils themselves are personally aware and responsible for improving their own character, their moral stance and their behaviour, and for building their own value and virtue system; one that is internally accepted by and personally significant for them.

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# EXECUTIVE FUNCTIONS IN CONNECTION WITH THE DEVELOPMENT OF BILINGUAL SPEECH OF SENIOR PRE-SCHOOLERS

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## ABSTRACT

The paper analyzes the topical problems of bilingualism effects and its benefits in cognitive control of speech activity in two or more languages. In psychological science, there is insufficient research on the cognitive regulation of bilinguals in connection with speech development in the first and the second languages especially of children in the pre-school period that is characterized by a leap in speech development, functional restructuring, and expansion of regulatory resources. There is scarcity of works related to the specifics of cognitive control of speech activity of bilingual children with different levels of language proficiency and usage. The research aim was to examine the regulatory functions coordinative and subordinative preschool bilinguals in actualization of speech activity in their native and Russian languages. The study involved 65 bilingual children (Udmurt/Russian) aged 5.7 to 7.5 from preschool institutions of the Udmurt Republic: children with coordinative bilingualism ($n = 32$, 15 boys, 17 girls) equally speaking both languages and subordinative bilingualism with significant interference of the dominant language (mother tongue) while using the other ($n = 33$, 17 boys, 16 girls). Data collection materials were presented to the subjects in two versions: in the native and Russian languages. Theresearch techniques used in the study included: the Stroop Color and Word Test, "The Classification of Geometric Figures" "Verbal memory" "Visual Memory" "Verbal antonyms," "Verbal classifications," "Speech development (correction, restoration, completion of statements)" tests. The methods of mathematical statistics – descriptive statistics, the Mann-Whitney U-test, the Spearman correlation coefficient were used in data analysis. Based on the results of the empirical study, the fact of the absence of significant differences in the cognitive regulation of speech activity in the native language of preschoolers with coordinative and subordinative bilingualism was established. The obtained research results confirm astatement of Vygotsky's cultural-historical theory that speech development causes changes in the development of regulatory functions. The practical significance of the findings is reinforced by the escalation of emigration processes in most countries increasing the professional responsibility of educators in supporting diversity and preserving the uniqueness of the childhood as an important stage in the general development of a person.

**Keywords:** *cognitive flexibility, coordinative and subordinative bilingualism, executive functions, interference control, preschool age, speech development, udmurts, working memory.*

## Introduction

Scientific interest in the effects of bilingualism and multilingualism is constantly increasing and focuses on the issues of benefits in cognitive control of speech activity in two or more languages (Zhou & Krott, 2016). The widely used concept of "executive functions" is recently complemented by Russian scholars with such terminology as "control functions" associated with behavior change management (Nikolaeva & Vergunov, 2017) and "regulatory functions" providing targeted problem solving and adaptive behavior in modified circumstances (Veraksa et al., 2019). As a rule, regulatory functions that enhance cognitive processes include inhibitory control, working memory (verbal and non-verbal) and cognitive flexibility. Inhibitory control blocks and suppresses irrelevant verbal and non-verbal information (Bialystok et al., 2004). Cognitive flexibility ensures plasticity of cognitive activity in alignment with performance requirements and subject priorities (Nikolaeva & Vergunov, 2017). Working memory updates verbal and non-verbal information in the linguistic context of the target language (Samuel et al., 2018). Along with that, bilinguals demonstrate difficulties associated with cognitive linguistic processing: low fluency of speech, a low rate of lexical access, a smaller volume of passive vocabulary in both languages, etc. (Bialystok et al., 2014; Medvedeva et al., 2017; Kozhevnikova & Khotinets, 2021). In addition, some scholars found no differences between bilingual and monolingual subjects due to the wide age range of research samples (Bialystok, 2017; Dick et al., 2019).

The most important contribution to solving the above-mentioned problem is the research results that demonstrate the choice of strategies and ways to solve conflicting objectives in the absence of differences in performance between bilingual and monolingual children. A fundamental distinction is that bilingual children constantly demonstrate compromises between speed and accuracy while performing complicated competing tasks. It is argued that differences in cognitive problem-solving strategies are caused by using two (or more) language systems that affect cognitive processing (Struys et al., 2018). According to Bialystok and Craik (2010), the mechanism involved in resolving a potential conflict between two language systems and choosing a target language is general executive control. The need to resolve the conflict in language choice improves regulatory functions which, in turn, provides additional advantages in solving complex verbal and non-verbal tasks (Emmorey et al., 2008). At the same time, critics of bilingual advantages point out that many studies have serious methodological issues with internal and external validity, the inability to compare results due to the multi-determination of bilingual children's cognitive development that is determined by various combinations of sociocultural

variables (distance of cultures and similarity of languages), educational systems and models, educational space and conditions of socialization / individualization of the child in the linguistic environment, socio-economic status of the family, type of bilingualism of the child, etc. (Haft et al., 2019).

In modern psychology, the problem of correlation of speech and regulatory functions in preschool age is associated with solving the issue of the direction of their correlation. For the most part, it is empirically confirmed that the development of regulatory functions leads to progressive speech development. This result is consistent with the idea of gradual increase in the cognitive capabilities of children through the development of regulatory functions. Other studies conducted in the context of Vygotsky's cultural-historical theory demonstrate the opposite pattern: speech development causes changes in the development of regulatory functions as children with speech deficits have significantly lower results in the development of regulatory functions in comparison with normative children. Thus, the meta-analysis of studies shows the bidirectional correlation of speech development indicators with components of regulatory functions (Veraksa et al., 2019; Khotinets & Medvedeva, 2021). The problem of linguistic cognitive processing within interaction of two (or more) language systems and linguistic divergence of syntactic structures is also topical today. Bilingual children's cognitive regulation is explored in the context of the necessity to choose a language, the effectiveness a particular language system usage for cognitive activity implementation. Other important issue is the specifics of cognitive control of speech activity of bilingual children in the preschool period that is characterized by a leap in speech development, functional restructuring, and expansion of regulatory resources.

The **aim** of this study is to analyze the regulatory functions of preschool children with coordinative and subordinative bilingualism in speech activity in their native and Russian languages. The following **research tasks** are put forward and carried out:

1. To determine the significance of the indicators of regulatory functions in speech activity in native and Russian languages among preschool coordinative and subordinative bilinguals.
2. To identify the correlation of regulatory functions with the development of bilingual speech in groups of preschool coordinative and subordinative bilinguals.

## Method

### Sampling

The study involved 65 bilingual children (Udmurt and Russian) aged 5.7 to 7.5 years ($M = 6.53$, Med $= 6.5$) from preschool institutions of

the Udmurt Republic. There are children with coordinate bilingualism who equally speak both languages ($N = 32$, 15 boys, 17 girls) and subordinative bilingualism with significant interference of the dominant language (mother tongue) while using the other ($N = 33$, 17 boys, 16 girls). The fact that boys and girls in both samples did not differ in their regulatory functions confirms the results of several studies of asynchronous and heterochronous development of regulatory functions within the child population (Best et al., 2009). However, there are gender differences in speech development: girls in both groups demonstrated higher results than boys ($p \leq 0.05$) due to the accelerated rate of their maturation in the preschool period (Lynn, 1999).

Parents of bilingual preschoolers were informed about the means and methods of interaction with their children. The research subjects were homogeneously selected by socio-economic status of the family (middle average income, parents' education level (higher education in groups with coordinative bilingualism – 37%, subordinative bilingualism – 34%), housing conditions in accordance with established standards, parental involvement in the child's educational process, activity of interaction and cooperation with a preschool institution. Based on the results of a written survey of parents about the language situation in the family (Medvedeva et al., 2017), only bilingual children using mainly Udmurt language at home were included in the research sample. In a preschool institution, education process was conducted in a balanced manner in both Udmurt and Russian.

**Data collection**

At the stage of collecting empirical data, standardized methods were used in two formats: in native and Russian languages. To detect the level of interference control, the Stroop Color and Word Test was implemented (Holodnaya, 2004). When children were performing each of the three tasks the time was fixed. Then the difference between the time spent naming the color of the word (task 3) which does not correspond to its meaning and the time spent naming the color of the square (task 2) was calculated. The greater the time difference, the larger the interference effect and the lower the level of interference control development (control rigidity). To study cognitive flexibility, the research technique "The Classification of Geometric Figures" was used (Abramova, 1999). The main task was to classify cards in accordance with three distinguishing features. The next task was to independently solve a similar problem of classifying another set of figures according to three features in a verbal form. The technique allows to measure cognitive flexibility in the transition from one feature (form) to another (color) in the process of classifying.

To measure working memory (verbal and visual) and the level of speech development, a set of tasks developed by Yasyukova (2008) was used: "Verbal memory" "Visual Memory" "Verbal antonyms," "Verbal classifications," "Language Proficiency (correction, restoration, completion of statements)". Mathematical and statistical analysis of the data using the IBM SPSS Statistics 22.0 for Windows software package included: descriptive statistics (to calculate the main characteristics of data distribution), the Mann-Whitney U test (a nonparametric test to identify significant differences between indicators); the Spearman correlation coefficient (to detect correlations between variables).

## Results

The summarized results of the research are presented in the Tables 1–4. The specificity of regulatory functions of senior preschool coordinative and subordinative bilinguals was revealed based on statistical analysis of the research data using the Mann-Whitney U-test (Table 1 and Table 2).

**Table 1.** Descriptive Statistics and Statistical Assessment of Differences for Study Variables (preschool coordinative and subordinative bilinguals' speech activity in native language)

| Variable | Preschool children with coordinative bilingualism ($n = 32$) | | Preschool children with subordinative bilingualism ($n = 33$) | | U-test | The level of statistical significance ($p$-value) |
|---|---|---|---|---|---|---|
| | *M* | *SD* | *M* | *SD* | | |
| 1. Interference control | 0.835 | 0.584 | 0.854 | 0.601 | 485.6 | 0.772 |
| 2. Cognitive flexibility | 1.913 | 1.662 | 2.203 | 1.826 | 468.5 | 0.753 |
| 3. Working (verbal) memory | 5.648 | 1.117 | 5.324 | 1.385 | 458.5 | 0.664 |
| 4. Working (visual) memory | 9.221 | 2.581 | 8.957 | 2.637 | 472.0 | 0.719 |
| 5. Speech development | 13.002 | 2.435 | 13.112 | 3.926 | 463.3 | 0.678 |

**Table 2.** Descriptive Statistics and Statistical Assessment of Differences for Study Variables (preschool coordinative and subordinative bilinguals' speech activity in Russian language)

| Variable | Preschool children with coordinative bilingualism ($n = 32$) | | Preschool children with subordinative bilingualism ($n = 33$) | | U-test | The level of statistical significance ($p$-value) |
|---|---|---|---|---|---|---|
| | **M** | **SD** | **M** | **SD** | | |
| 1. Interference control | 0.841 | 0.590 | 2.395 | 0.685 | 323.3 | 0.012 |
| 2. Cognitive flexibility | 1.907 | 1.653 | 2.912 | 2.041 | 351.0 | 0.049 |
| 3. Working (verbal) memory | 5.623 | 1.338 | 4.924 | 1.462 | 323.5 | 0.013 |
| 4. Working (visual) memory | 9.155 | 2.450 | 9.086 | 2.557 | 482.0 | 0.733 |
| 5. Speech development | 13.537 | 2.698 | 8.372 | 3.8528 | 145.6 | 0.001 |

The interconnections of regulatory functions with development of bilingual speech in groups of preschool coordinative and subordinative bilinguals were determined by correlation analysis methodology (Table 3 and Table 4).

**Table 3.** Correlations for Study Variables (preschool coordinative and subordinative bilinguals' speech activity in native language)

| Variable | Bilingualism type | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|
| 1. Interference control | coordinative | 1 | 0.345 | 0.327 | 0.264 | -0.349* |
| | subordinative | 1 | 0.277 | 0.289 | 0.012 | -0.246 |
| 2. Cognitive flexibility | coordinative | 0.345 | 1 | -0.357* | -0.276 | -0.594** |
| | subordinative | 0.277 | 1 | -0.342 | 0.138 | -0.480** |
| 3. Working (verbal) memory | coordinative | 0.327 | -0.357* | 1 | 0.263 | 0.382* |
| | subordinative | 0.289 | -0.342 | 1 | 0.440* | 0.341* |
| 4. Working (visual) memory | coordinative | 0.264 | -0.276 | 0.263 | 1 | 0.249 |

Note. *$p < .05$. **$p < .01$

**Table 4.** *Correlations for Study Variables (preschool coordinative and subordinative bilinguals' speech activity in Russian language)*

| Variable | Bilingualism type | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|
| 1. Interference control | coordinative | 1 | 0.298 | 0.225 | 0.168 | -0.352* |
| | subordinative | 1 | -0.172 | -0.182 | 0.126 | 0.283 |
| 2. Cognitive flexibility | coordinative | 0.298 | 1 | -0.385* | -0.278 | -0.572** |
| | subordinative | -0.172 | 1 | -0.139 | 0.138 | -0.280 |
| 3. Working (verbal) memory | coordinative | 0.225 | -0.385* | 1 | 0.327 | 0.374* |
| | subordinative | -0.182 | -0.139 | 1 | 0.365* | 0.266 |
| 4. Working (visual) memory | coordinative | 0.168 | -0.278 | 0.327 | 1 | 0.251 |
| | subordinative | 0.126 | 0.138 | 0.365* | 1 | 0.250 |
| 5. Speech development | coordinative | -0.352* | -0.572** | 0.374* | 0.251 | 1 |
| | subordinative | 0.283 | -0.280 | 0.266 | 0.250 | 1 |

Note. $^*p < .05.$ $^{**}p < .01$

## Discussion

Research results showing the specificity of regulatory functions of preschool coordinative and subordinative bilinguals when performing tasks in their mother tongue (Table 1) demonstrated no significant differences between all study variables. It was also found that bilingual children's speech in the native (Udmurt) language is at a medium level of development. The results obtained through using Russian-language techniques (Table 2) represent statistically significant differences in the following variables: interference control ($U = 323.3$; $p = 0.012$), cognitive flexibility ($U = 351.0$; $p = 0.049$), verbal memory ($U = 323.5$; $p = 0.013$), speech development ($U = 145.6$; $p = 0.001$). These findings are in compliance with numerous empirical studies proving that the necessity for increased cognitive control of bilingual children is associated with the co-activation of both languages and the need for linguistic processing in a target language which is not required for those who mainly use one (dominant) language (Bialystok & Craik, 2010; Struys et al., 2018). Under equal operating conditions, to achieve rapid linguistic effectiveness, coordinative bilinguals are more demanding to the control system than those who prefer to speak one (native) language (Bialystok, 2017).

It should be specified that in the group of children with subordinative bilingualism, the mean value of speech development in Russian is in the low level when we speak about different types of interference: phonological

(transfer of pronunciation skills of the Udmurt language into Russian), lexical (mixing similar words in the two languages) and grammatical (violation or deviation of grammatical norms of the Russian language due to the transfer of grammatical skills of the native language), as well as limited active vocabulary. Thus, the findings are consistent with the researchers' dominant position on speech problems of children with heritage bilingualism in preschool age (Ardila, 2012; Medvedeva & Khotinets, 2018; Khotinets & Salnova, 2020).

According to the results of correlation analysis of study variables in the group of preschool coordinative bilinguals (Tables 3 and 4), close correlations between speech development both in the native and Russian languages and indicators of regulatory functions (interference control ($p < 0.05$), cognitive flexibility ($p < 0.001$), speech memory ($p < 0.05$)) were found. In the group of preschool subordinative bilinguals there were less intense and less close correlations of regulatory functions (cognitive flexibility ($p < 0.01$), speech memory ($p < 0.05$)) with speech development in their native language. In addition, there was a positive correlation between visual and verbal memory ($p < 0.05$) in the conditions of speech activity in Russian.

The results obtained in our empirical study can be explained through the idea that the need to simultaneously manage two active linguistic systems increases the cognitive load for regulating the interaction of these systems (Bialystok, 2017). From the point of view of modern network models of the mental lexicon, lexical access to languages in the network is activated automatically and simultaneously regardless of the language of communication. The emerging intra-and inter-lingual competition of nodes (structural elements of artificial neural networks) in the bilingual lexicon is carried out due to its resource capabilities (considering age, level of language proficiency, conditions of linguistic and cultural socialization) which ensure the regulation and execution of functioning processes (Li & Farkas, 2002; Li et al., 2007). If the mother tongue dominates in the absence of inter-language competition and interference effects when fragments of the first language are directly "embedded" in the field of the second language, the resource of regulatory control decreases. In addition, in case of linguistic divergence of the syntactic structures of the two languages and a low level of proficiency in the second language, the prospect of actualizing it in the future weakens.

The revealed correlation between visual and verbal memory in the group of subordinative bilinguals in the context of speech activity in the second language can be explained in the following way: the apparent difficulty of speech activity increases cognitive load, in particular, required working memory (Bialystok et al., 2004; Bialystok et al., 2008; Fernandes

et al., 2007; Just & Carpenter, 1992; Michael & Gollan, 2005; Rosen & Engle, 1997). Most likely, the accumulation of regulatory potential in the actualization of speech in the second language of subordinative bilinguals is accompanied by a "reconfiguration" of memory modalities (Schneider & Kozintseva, 2019).

## Conclusions

A theoretical analysis of the research problem showed the ambiguity of positions in understanding the effects of bilingualism on the cognitive development of children and the insufficiency of its studying in the pre-school period which is characterized by a leap in speech development, functional restructuring, and expansion of regulatory resources. Based on the results of the empirical study, the fact of the absence of significant differences in the cognitive regulation of speech activity in the native language of preschool coordinative and subordinative bilinguals was established. Moreover, the advantages of coordinative bilingualism in performing tasks requiring blocking and suppression of irrelevant verbal and non-verbal information (interference control), plasticity of cognitive activity in connection with changing performance requirements and subject priorities (cognitive flexibility), actualization of verbal and non-verbal information (working memory) in the context of speech activity using the means of the second language were revealed. At the same time, in the group of preschool coordinative bilinguals, close correlations between speech development both in the first and second languages and the indicators of regulatory functions were described. Preschool subordinative bilinguals demonstrate less intense and less close connections of regulatory functions with speech development in their native language. The obtained research results confirm a statement of Vygotsky's cultural-historical theory that speech development causes changes in the development of regulatory functions. Previous studies conducted by Russian scholars have proved that children with speech deficits show significantly lower results in the development of regulatory functions in comparison with normative children. However, in modern psychology, the problem of the connection of speech and regulatory functions in the aspect of solving the issue of the direction of their correlation remains unresolved.

As a perspective of further research, we consider the construction of a model for the development of regulatory functions considering various scenarios for the mastery of languages (first, second, third) by children of different ages: simultaneous, consecutive, early, later language education with the aim of constructing psychological and pedagogical technologies for the development and support of bilingual children at different

age periods. So, the problem of multi-determination of the development of cognitive structures of bilingual children in connection with contemporary socio-cultural changes pre-empts the choice of new methodological strategies in exploring individual resources of subjective regulation in the context of language socialization. The practical significance of the research results is reinforced by the escalation of emigration processes in most countries increasing the professional responsibility of educators in supporting diversity and preserving the uniqueness of the childhood as an important stage in the general development of a person.

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# PROMOTION OF CHILDREN'S COOPERATION AND PHYSICAL DEVELOPMENT IN THE PRE-SCHOOL OUTDOOR SPACE

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**ABSTRACT**

In order to follow advice of epidemiologists on measures for limiting the spread of COVID-19 in Latvia, employees of pre-school educational establishments are increasingly paying attention to ensuring the availability of a safe outdoor setting. Children's transferrable skills and a healthy lifestyle are a topical matter within educational reform and the competency approach in pre-school. Observations by teachers indicate that children's cooperation skills at the age of five and six years are insufficiently developed, and adults struggle to promote them, especially in the outdoor environment where it's often associated with new challenges, and the work of organizing activities is more involved. Teachers have difficulties ensuring the availability of materials necessary for children's cooperation and physical development and directing attention towards promoting dialogic speech and cognitive interests. To purposefully promote children's cooperation in various outdoors activities, improve dialogic speech, and make examples of pedagogical work experiences more widely available to teachers, it would be important to promote the points recognized in the project "Teaching learning spaces competence from early childhood education" [TELESPA] (2018-1-RO01_KA201_049545, PVS_ID_3910), which was done in collaboration between Riga 275th pre-school "Austrina" and the EU education, learning, youth and sports program ERASMUS. We discovered during research that children of the oldest pre-school age group tend to be interested in determining characteristic traits of objects, looking for causality, and doing practical work. However, their abilities to come to an agreement, justify intentions, think critically, and ask questions are insufficiently developed. We have noticed that good pronunciation of sounds, learning of grammar, and broadening of vocabulary improve children's relationships with peers and grown-ups, they also make it easier to enact cooperation and various physical education activities outdoors. Purposefully made sensory gardens in the pre-school outdoor setting, available thanks to the EU education, learning, youth and sports program ERASMUS+ project "TELESPA" achieving its goals, provide an opportunity to evaluate children's cooperation and opportunities for physical development

promotion, and determine teachers' experience in evaluating children's achievements. It is important to find out the given children's needs, interests, and abilities during the planning stage of pedagogical work – points recognized during this project's trial runs should help with this task.

## Introduction

Today, more and more educators are being called on to implement learning outside – in school courtyards or gardens, parks, forests, outdoor classes, and they are encouraging children to explore, creatively express and develop their ability to judge, but most importantly to use nature as a learning resource with authentic and meaningful content (Andrušaite & Langenfelde, 2010). A child learns the desired attitude towards their surroundings from adults. The child watches their behaviour, their reaction, listening carefully to their opinions. The adult's attitude becomes an example for imitation. Nowadays, increasingly more pedagogical activity is taking place outdoors, both with teachers and with parents, which creates the opportunity and necessity to learn from new and previously unexperienced locations and situations. Therefore, the choice of adults to spend more time with children in the outdoor environment and enjoy the opportunity to be in nature is so important. Interaction with the natural world offers meaningful experiences for pre-school age children. Playing outdoors provides good conditions for children's social, emotional, spiritual, physical, and cognitive development (Larimore, 2018). Despite many positive aspects, there are some difficulties. Pre-school teachers have difficulties ensuring the availability of materials necessary for children's cooperation and physical development, and directing attention towards promoting dialogic speech and cognitive interests. That's a reason to purposefully promote children's cooperation in various outdoors activities, improve dialogic speech, and make examples of pedagogical work experiences more widely available to teachers.

Outdoor pedagogy is a learning method where a child, supervised by an educator, gains knowledge and common experiences in nature. It is not only knowledge of nature that can be learned from the outdoor pedagogy, but other topics also. It opens up the possibility of communication – of creating a dialogue. Children of pre-school age are eager to find out the relationship between things, phenomena and events, they are eager to find out how things works and affect each other. They are happy to ask one "why" after another and are happy to gain undivided attention. Several things of interest are being studied insistently and playfully repeated with

joy. Such childhood behaviour should not be seen as annoying to the adult, but as a child's natural need. Children ask adults a lot of questions. They're waiting for an answer, they're trying to figure out, they're expressing doubt. Enduring an inquisitive child's attitude towards the world and nature depends on whether the adult promotes it positively or suppresses a child's initiative with perfunctory attitudes (Priede & Freiberga, 2007).

**The aim of the research** is to analyse the provision of outdoor environments for children's cooperation and physical development, outline suggestions for teachers and parents that would help with promoting physical development and transferrable skills – to encourage cooperation.

## Methodology

The research includes a theoretical method – analysis of scientific literature, and empirical methods. Three different survey forms were used in the study: Herms, Clifford, and Clyer environment assessment form for early childhood learning environments "Early Childhood Environment Rating Scale®, Revised (ECERS-R™)" (Herms, Clifford, Cryer, 1998), PK2 (Pre-Kindergarten, age level 2–3 years), Teacher Roles Observation Schedule (Alford, 2011) and an interview of pre-school teachers. An ECERS-R assessment was made in 15 pre-school classrooms and reflects on the environment's suitability to outdoor activities and interaction between children and staff. In the PK2 assessment, observations were made on teachers' classroom leadership methods and interactions with students. Teachers were observed with reference to interactions with students; the instructional setting in which the observed behaviour occurred; whether the instruction was of a direct, seatwork, or learner entered orientation; the nature of the interaction; the purpose of the interaction; instructional practices; and language used. In the teachers' interviews, 20 pre-school teachers answered questions about their experiences with outdoor education and encouraging cooperation skills among children. The teachers were asked to answer a semi-structured questionnaire. The data was analysed quantitatively and qualitatively. In order to respect the confidentiality of the study participants, it was not necessary to provide the name and surname of the study participants, as well as any other personal identification data, when filling in the questionnaire. Teachers were interviewed by the author at their pre-school in a room away from the children and at a time convenient to them.

## Results

The ECERS-R assessment shows that there is enough space for outdoor play and basic equipment for outdoor play in assessed pre-schools (Figure 1).

Section 8.1.1 is assessed differently, (very little gross motor equipment used for play) because, as the survey data showed, pre-school teachers avoid organizing these activities – 17 out of 20 teachers avoided this activity. They want this to be done by a sports teacher who works as a pre-school teacher with a specific group of children once a week. On other days of the week, it is the responsibility of the group teachers to carry out this work and receive advice from the sports teacher. The space for outdoor play and equipment is the base on which teachers plan their outdoor lessons and activities. And as it can be seen in teachers' surveys (ECERS), teachers regularly plan and organize outdoor lessons and activities for children.
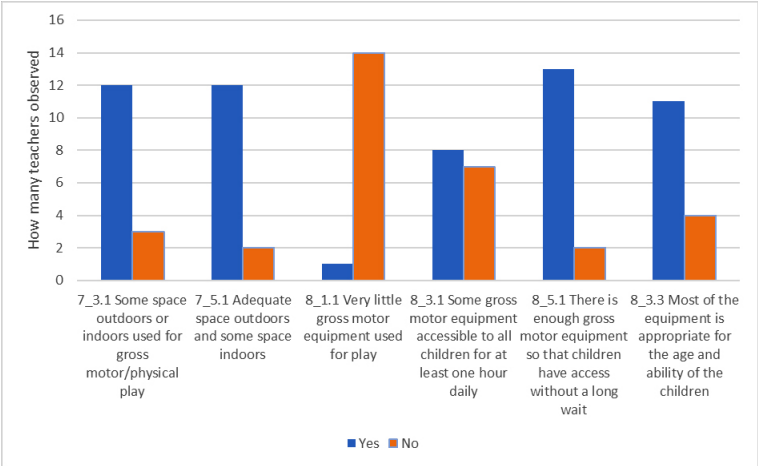


**Figure 1.** Adequate space and equipment for outdoor activities (in points)
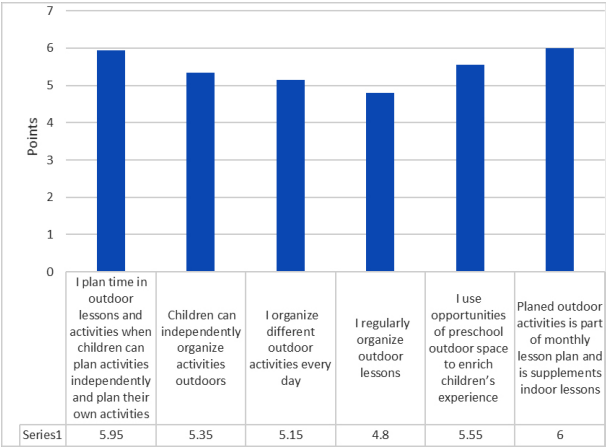


**Figure 2.** Teachers' opinions on outdoor lesson planning (in points)

Teachers were asked if they fully agree with the statement (6 points), agree with the statement (5 points), mostly agree with the statement (4 points) (Figure 2).

From 20 teachers interviewed, most teachers fully agree or agree with statements about outdoor lesson planning. That shows that if teachers have adequate outdoor space, they will use the outdoor space for lesson plans. In planning outdoor lessons, as stated in the aim of the study, it is important to encourage children's cooperative skills.
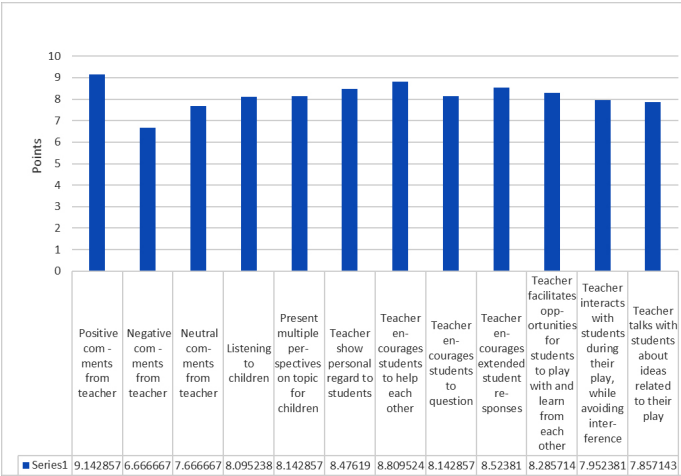


**Figure 3.** PK2 Teacher Roles Observation Schedule survey

The PK2 teachers survey distinguishes several aspects of a teacher's behaviour that can influence children's language development, problem solving and cooperation skills (Figure 3). The observations of lessons rated teachers' behaviours on a scale from 1 to 10. The highest results are obtained in the section "Nature of interaction. Positive commenting" which received 9 points. There is a similar assessment in the sections "Purpose of interaction encourage students to help each other" and "Purpose of interaction encourage extended students responses. Teachers generally gave high scores for all criteria, which means teachers pay attention to them in their daily work.

The greatest attention and, consequently, the highest marks in self-assessment are given by teachers in the following sections "I plan time in outdoor lessons and activities when children can plan activities independently and plan their own activities" "I teach children to be polite to other speakers" "I offer personal examples to children, how to listen to each other, by listening to children with undivided attention" "When organizing outdoor lessons I plan activities that promote children's independence and cooperation skills" (Figure 4).
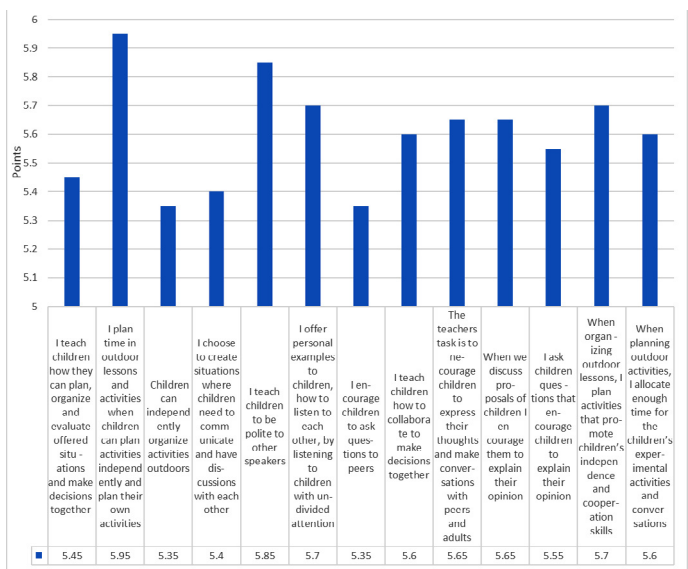
**Figure 4.** Teachers opinions on promoting childrens interaction

In turn, the lowest results are in the following sections "Children can independently organize activities outdoors" "I choose to create situations where children need to communicate and make discussions with each other" "I encourage children to ask questions to peers". As a good example for ensuring the high-quality use of the outdoor environment, 2 sensory gardens were created, with children also participating in their creation. Parents were provided with information about the cooperation between employees and parents in the creation of sensory gardens.

## Discussion

Development of social skills and cultural knowledge in the outdoor environment naturally prompt children to contact and cooperate with others – children, parents and educators. They promote cooperation and communication skills. Children learn about the surrounding society and our culture through walks. Emotional development – being in an outdoor environment gives children a variety of sensory experiences. It is a big, spacious, unlimited "room" for experiments, movement and play. It is food for our soul (Robertson, Miller, 2020). Within Early Learning and Childcare (ELC) establishments, it is expected that settings will provide a balance of provision between the indoor and outdoor spaces. Yet often, it is challenging for practitioners within the constraints of their work indoors to come up with a sufficient range of ideas and ways of achieving them. Outside there is space and height to experiment with scale and far more stimuli

than indoors (e. g., sounds). There is room to move and use the whole body. We can make the most of the outdoor space for experiences which couldn't happen inside. In the natural world, we can tune in to the sounds, rhythms and tunes provided by the movement and noise created by wind, plants, animals and the landscape. Think of the waves crashing on the shore, or the movement of pebbles being pulled back into the sea by waves and then re-deposited time and time again on a rocky shore. There is atimelessness to natural soundscapes. It is food for our souls (Robertson & Miller, 2020). Jorgensen indicates that outdoor learning spaces offer new experiences, facilitate children's curiosity and expands consciousness of the environment. This is a natural way of raising interest in their surroundings, and at the same time, facilitates children's physical and cognitive development (Jorgensen, 2016).

When a child talks, he/she develops his/her dialogue skills, wording his/her needs in questions and answers, his/her thoughts, as well as improving collaborative communication with a partner. It is important to acknowledge that dialogue is the most natural form of the child's conversation. There needs to be understanding between children in the form of joint talks (Dzintere, Stangaine, Augstkalne, 2014). If an adult does not show a willingness to answer a child's questions, interest diminishes and gets replaced by indifference. Luckily, children's interest and curiosity levels in the pre-school age are typically very high and resilient (Grava, 2012). An outdoor learning space is an integral part of the total learning environment. It is not only a playground. It is a place where children's learning is enhanced by the acquisition of knowledge and skills through experiences in a natural environment (Slater & Boulton, 2018). It is also important to consider that for successfully ensuring the physiological functions of a child of pre-school age, it is recommended that they spend at least 3–4 hours each day in an outdoor environment.

Outdoor learning space is a place where children are in close interaction with a teacher. Tonge and colleagues (2019) stress the significant influence on quality educator and child interactions in outdoor environments in their research. A teacher's knowledge about the benefits of an outdoor learning space is of crucial importance, and they provide the best opportunities for children's learning, development, health, and wellbeing (Tonge et al., 2019). The problem in the way of a successful implementation of an outdoor learning space sometimes is the teachers' preconceptions about difficulties in organizing an outdoor learning environment. These barriers can be reduced by teachers' professional development in outdoor education, and that would be the best solution to help with providing children positive experiences in making use of natural settings (Ernst, 2014). Of course, the role of parents is very big too. Parents' involvement and positive attitude

are important to successful outdoor learning. Some parents are concerned about children's safety and clothing when going outdoors. By listening to parents' concerns it is possible to find the best solutions to providing outdoor experiences for children of all ages (Adams, 2013).

The study clearly showed that in addition to the positive factors, there are also negative ones. According to the results from Simge (2016), although early childhood educators have positive thoughts and attitudes regarding the importance of outdoor activities on children's development and learning, they indicated that some factors, such as insufficient physical conditions, lack of safety at school gardens, crowded classes, inappropriate weather conditions, and lack of parental permission prevent them to practice such activities outdoors (Simge, 2016).

Amini (2015) notes that outdoor learning is an attempt to assist learners in achieving learning objectives, avoid boredom and the mindset that learning must be done inside the class, and that students who obtain outdoor learning will generally behave better than those who do not experience it (Amini, 2015). Practice shows that nature provides stimulation, relaxation and restoration. An outdoor learning space promotes children's physical and mental development. Children are interested in being involved in nature-related activities and projects, where learning is provided in all domains – physical, cognitive, social, and emotional (Torquaty et al., 2010).

## Conclusions

- The experience of the TELESPA project confirms the possibilities of a purposefully designed pre-school outdoor environment, in which it is possible to assess children's cooperation and opportunities to promote physical development, which is also determined by a teacher's experience in assessing the children's achievements.
- It is important to find out the given child's needs, interests, and abilities during the planning stage of pedagogical work – points recognized during this project's trial runs should help with the task.
- During outdoor activities, teachers should: observe children, support children's activities, find out children's opinions, invite children to explain their position and desired action, invite to choose game partners and communicate with them, invite to share their viewpoints, interests and emotions.
- In order to implement outdoor pedagogy more widely, parental support and interest is needed to provide children with weather-appropriate clothing, as well as greater parental understanding of the importance of the outdoor environment for the child's development.

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# PROMOTING SELF-REGULATORY SKILLS IN SELF-REGULATED LEARNING PRE-SCHOOL EDUCATION STAGE 3

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## ABSTRACT

The competence approach in pre-school education, which recommends the promotion of self-regulated learning, raises questions about its impact on the development of children's self-regulation. As a cross-cutting skill, self-regulated learning is essential for today's society. It provides for a person's ability to self-educate and develop effectively and successfully. The environment of the pre-school institution and the teacher, who equips and improves this environment, play an important role in promoting the child's self-regulated learning. In the third stage of pre-school education children have reached the age of 5 to 6 years old and are being prepared to start school. The aim of this study is to assess and analyse children's self-regulation skills in a pre-primary education environment in the third stage of self-regulated learning. Self-regulated learning is when a student is able to function and use cognitive, emotional processes and behavioural regulation tools to achieve learning goals. The following research tasks were included: 1) analyse the essence and development of self-regulation, and guidelines for organising a self-regulated learning process; and 2) carry out pedagogical observations of children's self-regulatory abilities within the framework of the self-regulated learning process.

The research methods included analysis of pedagogical and psychological literature and sources, pedagogical observation, and statistical analysis of data. The study involved 41 children who were 5 to 6 years old. The results of the study show that self-directed learning can significantly promote the development of self-regulation skills in 5 to 6-year-old children. To better develop the process of self-regulation for 5 to 6-year-old children, the self-regulated learning process must be easier to understand, with an emphasis on updating, understanding, and reflecting on the learned content, while also clearly articulating the expected outcomes and providing feedback.

***Keywords:*** *pre-school education, pre-school environment, self-regulation, self-regulatory skills, self-regulated learning, 5 to 6-year-old children.*

## Introduction

In 2019, starting with pre-school, there was a gradual change of approach throughout the general education system in Latvia. This entailed the development of competence-based learning content and approaches. In pre-school, this included creating a learning environment that encourages children to self-regulate their exploration of the world and developing children's self-regulated learning skills. Two years after the change of approach, it is important to study how the related goals are being achieved. Self-regulated learning is one of the six cross-cutting skill groups included in the advanced curriculum (Cabinet regulations, 2018 (716)). In the third stage of pre-school education, children have reached the age of 5 to 6 years old and are preparing to start school, so it is important to evaluate these children's self-regulation and self-regulated learning skills. Research shows that a successful transition from pre-school to school requires high self-regulatory skills (Blair, 2002).

The aim of this study is to assess and analyse children's self-regulation skills in a pre-primary education environment education in the third stage of self-regulated learning.

The following research tasks were included: 1) analyse the essence and development of self-regulation, and guidelines for organising a self-regulated learning process; and 2) carry out pedagogical observation of children's self-regulatory abilities within the framework of the self-regulated learning process.

The research methods included analysis of pedagogical and psychological literature and sources, pedagogical observation, and statistical analysis of data.

In recent decades, the concept of psychology has become increasingly important in the educational sciences. Psychological skills are now recognized as being important in the learning process and in achieving various goals, as they are associated with willpower, self-control, emotion regulation and self-management (Braaka et al., 2019; Murray et al., 2015; Posner & Rothbart, 2000; Rothbart & Bates, 2006; Zimmerman, 2005; Zimmerman & Schunk, 2011).

Self-regulation is defined as the process of managing thoughts and feelings so that a person can perform purposeful activities, such as organising behaviour, controlling impulses, and constructively solving problems. It is related to the ability to focus and change focus and could work towards goals (Rosanbalm & Murray, 2017). In the context of self-regulated learning, self-regulation is perceived as an active, constructive process in which students set their learning goals and then regulate and control their cognitive activity, motivation and behaviour (Pintrich, 2000).

Self-regulation involves three overlapping areas: the cognitive domain, the emotional domain, and behaviour. It should be borne in mind that the cognitive and emotional domains together are a key element of regulated behaviour or action. Although these areas are distinguished in theory, it is generally accepted that they are interconnected in complex ways and it is difficult to separate these areas when measuring children's self-regulation (Murray et al., 2015).

Cognitive self-regulation includes focused attention, action, goal setting, self-control, evaluation, problem solving and decision making, as well as the ability to think about action, make plans, and ignore (Braaka et al., 2019; Savina, 2021; Liman & Tepeli, 2019; Zimmerman & Schunk, 2011).

Emotional self-regulation involves the active management of strong and unpleasant feelings. It requires attention to and understanding of emotions, and includes the management of self-reassuring strategies, tolerance, and inner suffering. Emotional self-regulation also involves empathy and compassion for other people (Calkins, 2004; Murray et al., 2015).

The self-regulation of behaviour includes adaptation, perseverance, impulse control, conflict resolution, the use of active reconciliation and coping strategies, goal-oriented behaviour, and stopping inappropriate behaviour. A lack of self-regulation can lead to impulsivity, aggressive behaviour, difficulty concentrating, and involvement in risky activities (Liman & Tepeli, 2019; Murray et al., 2015).

Educational institutions set many requirements for students' self-regulation to adjust their behaviour in accordance with class regulations. Appropriate behaviour influences students' relationships with teachers and collaborative relationships promote learning. Studies show that the process of self-regulation correlates with early education skills and children with better self-regulation abilities are better prepared for learning (Braaka et al., 2019). Effective classroom management, creating environments with clear structures, and involving children in the planning and evaluation of activities increases students' self-regulation as well as their academic achievements (Braaka et al., 2019; Lonigan et al., 2017; Savina, 2021).

At the age of 5 or 6, children experience rapid growth that is directly related to self-regulation (Lonigan et al., 2017). Their intentional attention increases, they begin to use rules, strategies and planning to guide appropriate behaviour and language begins to control their emotional reactions and actions. When a child is excited, he or she begins to model the action, use self-calming strategies, and use words to express emotions (Murray et al., 2015). This age group is very suitable for adults to provide teaching and training on the skills needed to recognise emotions, problem solving, perspective acceptance, and calming strategies. These skills need to be repeated, encouraged, and practiced by children. It is also

important for adults who come into contact with children to apply these skills themselves, as children watch adults closely to learn how to behave (Rosanbalm & Murray, 2017).

The development of self-regulation is facilitated by the interaction of the child's personality with other people and the environment. Researchers point out that creating an environment in which children have many opportunities to practice self-regulatory skills is a very important condition for development (Blair, 2003; Braaka et al., 2019; McClelland & Cameron, 2012; Murray et al., 2015). The development of self-regulatory abilities in children requires a structured environment, supportive relationships, and direct instructions and training on the development of self-regulatory skills. It is recommended to use five to six institutional rules for completing tasks, relationships with others, and moving around the room as an external stimulus to guide students' behaviour. Daily routine also helps to predict future activities and tasks. Further, a structured environment entails a physically and emotionally safe environment with a consistent, predictable order according to the students' level of development (Rosanbalm & Murray, 2017). These are essential conditions for creating a pre-school environment to promote the development of children's self-regulatory skills.

The importance of self-regulated learning in early childhood has been emphasised by several studies (Becker et al., 2014; Braaka et al., 2019; Dörr & Perels, 2019; Liman & Tepeli, 2019). Theoretical concepts of self-regulated learning define it as a process in which individuals take initiative with or without the help of others, diagnose their learning needs, formulate learning objectives, identify the human and material resources needed for learning, select and implement appropriate learning strategies, and evaluate learning outcomes (Knowles, 1975; Pilling-Cormick & Garrison, 2007). Self-regulated learning is a process in which the student is able to operate and use thinking, emotional processes and behaviour regulation tools to systematically guide themselves through their personal learning, and later in life, through their work and other personal goals (Zimmerman & Schunk, 2011).

The general model of self-regulated learning is understood as a set of several cyclical activities, in each of which the student must try to act consciously through self-reflection. Most theoretical models of self-regulated learning distinguish three cyclical phases: planning, monitoring and evaluation (Boekaerts & Corno, 2005; Panadero & Järvelä, 2015; Pintrich, 2000; Zimmerman & Schunk, 2011).

Based on the importance of the development of self-regulation during childhood, self-regulated learning has been included in the Latvian pre-school curriculum. It is considered a pervasive skill necessary for general education, so that at the pre-school stage, "The child distinguishes emotions and identifies causes thereof, learns to control his or her behaviour, follows

a daily routine, is able to wait, is able to complete an activity, dresses and organises his or her things independently, learns to set an objective of his or her activity, to plan an activity in order to realise his or her idea, acts independently, overcomes difficulties with support, learns to carry out the assigned task, is proud of his or her achievements, looks at the failures and mistakes as a part of learning, evaluates his or her activities, activities of others and results thereof, explains his or her evaluation" (Cabinet regulations 2018(716)).;

Research on pre-school learning should take children's developmental performance into account. A 5 to 6-year-old child is able to set goals, adjust their thinking, take action to achieve their goals, plan problem solving, sufficiently focus on skills, and talk about their learning process (Jacoba et al., 2019).

Based on the analysed research and the goals of the Latvian pre-school education system, a study on the self-regulatory skills of 5 to 6-year-old children in the third stage of the self-regulated learning process was conducted.

## Method

The aim of this research is to assess and analyse children's self-regulatory skills in pre-school education in the third stage of self-regulated learning. The main research question is: How do children's self-regulation skills develop during the self-directed learning process in the third stage of pre-school education?

In order to assess children's self-regulatory skills, it is necessary to develop a procedure for measuring the self-regulatory skills of 5 to 6-year-old children.

Self-regulated learning is influenced by five groups of factors, namely, will and motivation, action, ability, behaviour, self-control and self-regulation, emotional characteristics, physiological characteristics, and intellectual activity (Murray et al., 2015; Pintrich, 2000; Zimmerman & Schunk, 2011).

This study uses criteria for researching children's will and motivation, which, based on the analysis of theoretical approaches, should be considered the most important for promoting children's self-regulatory skills. In accordance with the criteria children were observed in the pedagogical process and the obtained data were analysed.

The factors of desire and motivation involve awareness of one's desires and the actions required to achieve one's goals, the ability to considered paramount for and overcome any obstacles without losing patience, and endurance during the action process. The criteria also include the ability to manage one's emotions by controlling one's behaviour, as well as the ability to independently manage and organise one's activities.

Empirical research has been performed using pedagogical observation, collection and analysis of the obtained data.

The advantage of pedagogical observation is the identification of children's natural self-regulation skills during play activities organised and indirectly managed in the learning environment of the pre-school institution. In the pre-school environment, children work on four areas of study, which are languages, mathematics, science and technology. They are offered multi-level tasks, and activities take place both indoors and outdoors. There is a certain daily rhythm and activity plan, as well as group activities, subgroup tasks, and individual activities and games. Children work in groups, materials for children are freely available, and teachers regularly lead the students in reflecting on what has been accomplished.

This research was conducted in Latvia with two groups from pre-school educational institutions. The Microsoft Excel data processing program was used for processing and analysing the obtained data. The sample in this study consisted of 41 children aged 5 to 6 years old. All parents gave their written consent for the participation of their children in the study. Prior to the study there was an informative meeting held for pre-school teachers working with 5–6-year-old children. Teachers had been introduced to the self-regulation skills assessment criteria. The assessment of children's skills had been performed by pre-school teachers for one month in the daily pedagogical process; the results of the observation were recorded in the tables previously prepared by the researchers. The researchers then performed data collection and analysis.

Summarising the analysis in the theoretical framework, which characterises children's self-regulation skills, the study set out 25 criteria (see below) with the following corresponding indicators:

1) minimum intensity level
2) weak degree of intensity
3) medium intensity
4) pronounced intensity
5) maximum degree of intensity

In the study, the observation data were obtained using a standardised observation sheet, which included the following criteria: awareness of one's desires, awareness of why one wants to try to complete what has been started, ability to continue to work even if there is no desire, ability to persevere despite difficulties, ability to control one's emotions, ability to control one's behaviour, independent organisation of activities and actions, participation in the implementation of news and ideas, asking and answering questions about oneself and one's skills, cooperating with children, making decisions independently, choosing an activity independently, participating in group games, expressing his/her attitude towards what is

happening, evaluating his/her own actions and those of others, arranging his/her workplace, being able to organise work, completing work that has been started, listening and perceiving what is heard (i. e., answers questions, explains, recounts, portrays mimicry), independently choosing materials for creative activity, expressing his/her attitude towards creative work, considering themselves as part of a family and a group, and enjoying learning.

## Results

Data from a study averaging points on children's self-regulatory skills show that the criteria – continue to function even in the absence of desire or will, evaluate one's own actions and those of others, and control one's emotions (3 points). There was relatively low awareness of one's: wishes, ability to persevere in encountering difficulties, ability to control one's behaviour, ability to express one's attitude towards what is happening (3.2 points), independent organisation of actions, ability to ask and answer questions about oneself, skills, ability to organise work, ability to enjoy learning (3.3 points), ability to listen and perceive what is heard (i. e., answers questions, explains, tells), and ability to express his/her attitude towards creative work (3.4 points) –, which indicates moderate emotional and cognitive self-regulation among 5 to 6-year-old children. It can be concluded that children in the third stage of pre-school education need to promote self-control, assessment, expression of attitude, and organisation of their activities and learning activities.

Compared to the others, the highest indicator was *awareness of belonging to a family and group* (4.5 points), which confirms the importance of children having a sense of belonging to both peer and family groups during pre-school education. Children's self-regulation skills assessment of a relatively high-level results are the criteria – participates in group games (3.9 points), chooses activities independently (3.7 points) tends to advance what has been started to the end, participates in the implementation of news and ideas, independently makes decisions, arranges his/her workplace, completes the started work, independently chooses materials for creative activity (3.6 points), and cooperates with children (3.5 points) –, which in turn indicates the self-regulation of pronounced behaviour of 5 to 6-year-old children.

The study concluded that the majority of observed children (71%) are aware of belonging to a group, engage in group games, independently choose an occupation, are responsible for the duties assigned to them, and know how to organise a workplace and independently choose materials for their work.

When assessing each child individually, the intensity ratings differed greatly, because there were children who had high levels of intensity when it comes to the will and motivation factor (15%). However, since there were children with markedly low intensity levels (18%), the overall ratings were more in line with the average. The intensity level confirmed by the mean self-regulation index for children aged 5 to 6 years was 3.4 points in this study.

Based on the analysis of theoretical principles and the results of the research, in order to promote the self-regulation skills of 5 to 6-year-old children, it is recommended:

1) to plan multi-level tasks in play centres, taking into account different levels of children's abilities
2) to include, as a result, actions that promote children's will to overcome difficulties and become independent
3) that in the pedagogical process in pre-school, situations should be modelled in which the child can express his/her opinion and attitude, and learn to manage his/her emotions
4) to increase the child's self-control and self-assessment through feedback
5) to involve children in planning activities for joint activities
6) to offer a variety of tasks and flexible time to perform activities
7) to provide supportive feedback and an opportunity for the child to explain the course of activities as well as think about their learning and the achieved result

## Conclusions

Self-regulation in the process of self-regulated learning is related to the development of the child's cognitive, emotional, and regulated behaviour. In the research, will and motivation can be distinguished from several groups of factors.

The pedagogical observations conducted as part of this study conclude that the following self-regulation skills for children in the third stage of pre-school education are not yet sufficiently developed: to continue to work even if there is no will or desire, to values one's own actions and those of others, the ability to control one's emotions, awareness of one's wishes, the ability to persevere in case of difficulties, the ability to control one's behaviour, the ability to express his/her attitude towards what is happening, the independent organisation of activities and actions, the ability to ask and answer questions about oneself and one's skills, the ability to organise work, the ability to enjoy studying, the ability to listen and perceive what is heard (i. e., answers questions, explains, tells), and the ability to express one's attitude towards creative work.

In the self-regulated learning process, the teacher provides support, encouragement, motivation and praise, while the child learns to develop his/her self-regulation skills, which includes learning to think, do, find out, and look for answers within oneself.

In order to better develop the self-regulatory process for 5 to 6-year-old children, the self-regulated learning process should be easy to understand, with an emphasis on updating, understanding and reflecting on the learning content, as well as clearly articulating the results to be achieved and providing feedback.

Although the normative documents (Cabinet regulations, 2018 (716)) ations regarding the state pre-school education guidelines and samples of pre-school education programs, 2018) and pre-school curriculum emphasise self-regulated learning, as the results of this research show, it is necessary to strengthen self-regulated learning principles by implementing self-directed learning phases (i. e., planning, monitoring and assessment) together with children, and to promote children's thinking, emotional processes, and behavioural self-regulation.

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# EXPRESSION OF MULTIMODAL LEARNING TO READ AND WRITE IN THE CONTEXT OF PRE-PRIMARY EDUCATION

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## ABSTRACT

Multimodal learning to read and write emphasises the transition from the conception of direct teaching/learning (ability to decode printed text written on the paper) to spontaneous and child-initiated learning in the playful environment, which would originate from the child's wish to learn, experience and know. Thus, multimodal learning refers to the learning, which employs as many and as diverse ways of education as possible. They aim to promote children's learning, memorising and comprehension, which most frequently manifest in children's positive emotions, new experiences, improvement of learning process and its adaptation to creation of child-centred education system and its realisation in practice. The changing attitude towards learning to read and write obviously leads to strengthening of the tradition of multimodal learning in the Lithuanian kindergartens. The working methods and means applied by teachers, which allow creating educational environments taking into consideration individual needs of every child environments, have been undergoing changes. The conducted research revealed that pre-primary education groups provide children with favourable conditions for multimodal learning, which helps them not only to learn to read and write faster but also develop other skills: fine motor skills, thinking, creativity, social skills, etc.

***Keywords:*** *learning, literacy, multimodal, reading, writing.*

## Introduction

Recent research studies on reading and writing of early age and pre-primary children have focused on understanding and revealing why some children learn to read and write easier than the others as well as to discover what is most effective while teaching children to read and to write (McGuinness, 2005). Up to now most of the conducted research has been based on the assumption that the concept *reading* is related mainly to the ability to decode the text printed on the paper. However, a big number of researchers and teachers have acknowledged that the essence of literacy has been considerably changing lately (Kitsiou & Kondyli, 2020;

Kress et al., 2014; Bearne, 2009). The researchers (Hassett & Schieble, 2007) emphasise that a new level of text comprehension and meaning creation has been emerging in the process of learning. Theoretical insights allow for stating that in the process of child's learning to read and to write, the majority of teachers tend to focus on the direct teaching of children more (i. e., on ability to decode the printed text). However, spontaneous and child-initiated multimodal learning in the playful environment, which would derive from the child's wish to learn, experience and find out should be considered a more important objective.

Recently a variety of scientific approaches to the process of reading have been prevailing in Lithuania as well as in other countries all over the world. The understanding of reading skills development is modern and conceptually rich. Moreover, search for innovations, trends of diversity and renewal have been observed in the very practice of developing reading skills (Merkys et al., 2010). The changing attitude towards learning to read and to write obviously results in the traditions of multimodal learning in the Lithuanian kindergartens. The teaching methods and means applied by teachers have been undergoing changes. Teachers tend to establish stimulating environments taking into account individual needs of every child. Although the numbers of research studies on learning to read and write conducted in Lithuania (Baranova & Duoblienė, 2020; Merkys et al., 2010; Gedutienė, 2008; Martinkienė, 2004) have been growing, research on multimodal learning in early childhood and pre-primary education has been scarce. For this reason, the present research aims to reveal the expression of learning to read and to write in pre-primary education because this is the period, when the child's reading and writing skills undergo the most intensive development. The currently important research and practical problem can be formulated as the following problem question.

How do teachers understand and apply multimodal learning to read and to write in pre-primary children's education?

The research goal – to disclose the expression of multimodal learning to read and to write in the context of pre-primary education. The research objectives: following the scholarly literature to determine the concept and peculiarities of multimodal learning to read and to write; to reveal the experience of pre-primary teachers in clarifying the expression of multimodal learning to read and to write.

## Methodology

The research on multimodal learning to read and write was organised employing the qualitative research method, i. e., a semi-structured interview. The interview method allows identifying the informants' attitudes and

opinions regarding the evaluated questions. While conducting the research, attempts were made to clarify the opinion of teachers-experts working in an early childhood education institution about to what extent expression of multimodal learning to read and write is spread in Lithuanian pre-primary education institutions. The sample of experts: 22 experts. The teachers with at least 5 years of experience in pre-primary education groups and responsible for expression of the process of children education were interviewed. The informants were selected applying the target group method.

The research tool. The questionnaire survey consisted of 7 questions, which were constructed as three diagnostic blocks: 1) a block of questions to identify how a child learns during multimodal learning; 2) a block of questions to identify what strategies, methods and ways are used by pre-primary teachers; 3) a block of questions to reveal the impact and benefit of multimodal learning. Applying the method of semi-structured interview, the data is accumulated in a form of verbatim texts. The content analysis and open coding method were applied for qualitative data analysis, i. e., the responses of informants were read several times and divided into separate groups according to the content of responses.

## Results

According to Kress and colleagues (2014), during multimodal learning all the senses and experiences are engaged in the process of education seeking to increase activities of different parts of brains simultaneously. Thus, learners are provided with more ways to remember information and to retain it in their memory.

The respondents distinguished the most important learning components, which are reflected in the following four subcategories: senses, experience, exploration and play (Table 1).

**Table 1.** The components of multimodal learning

| Category | Subcategory | Justifying statements |
|---|---|---|
| Components | Senses | "Tracing over every letter, touching and groping". |
| | Experience | "< ... > experiences and then lives through it himself or herself". |
| | Exploration | "< ... > encourages curiosity, evokes their interest and wish to explore". |
| | Play | "< ... > play for children is huge attraction and during it they are free from tension". |

Martinkienė (2004) states that while learning to read and to write in pre-primary education the methods that promote communication and collaboration, active learning, critical thinking and creativity are most frequently applied.

During the survey interview it was particularly important to identify the methods that are most frequently applied in the process of multimodal education. As can be seen in Table 2, the methods of utmost importance are reflected in the following 5 categories: conversation, narrating a story, play, project, investigation, testing, experiment.

**Table 2.**   The methods of multimodal learning to read and to write

| Category | Subcategory | Justifying statements |
|----------|-------------|-----------------------|
| Methods | Conversation | "< ... > to enable a child to better understand all this, it is necessary talk with a child, to discuss what s/he has done or learnt and whether s/he has succeeded or not < ... >". |
| | Narrating a story | "there is a wish to mark the created story on the sheet of paper: to draw it, to mark symbolic signs and to tell it < ... >". |
| | Play | "< ... > it may appear from aside that we are only playing but playing also includes learning". |
| | Projects | "We implement projects: in smaller or bigger groups, including kindergarten community as well". |
| | Investigation, testing, experiment | "We are constantly engaged in investigation and experimenting in the group < ... >". |

The analysis of data accumulated during the interview with teachers allowed distinguishing the qualitative category: activities and the characteristic subcategories: activities initiated by the teacher, child's spontaneous activity, additional activities (Table 3).

It is written in the General Curriculum of Pre-primary Education (2014) that the educational environment has to contain various means that could be used by children to imitate writing, to copy letters or combination of letters, to draw ornaments, to colour, to cut (big sheets of paper, various writing and colouring means, crayons, etc.).

Therefore, during the research attempts were made to identify the means used by the teachers most frequently while teaching children to read and to write. The results are shown in Table 4.

**Table 3.** The activities, where children's multimodal learning to read and to write occur

| Category | Subcategory | Justifying statements |
|---|---|---|
| Activities | Activities of reading and writing initiated by the teachers | Agile games: "< ... > I hang some letters and children jumped trying to reach the letter of their name and say it". "< ... > we play hunting of letters". Play with sand, water, snow: "We make letters in the snow by foot and name them". Nature research: "We make attempts to envisage the contours of letters in the trees, recognise, name and create new words". Mind map: "Children in my group like mind maps very much". Artistic activities: "Colouring of letters, applications, decorations < ....". Activities with ICT: " < ...We frequently use an interactive board. We write letters, words, short sentences on the computer screen < ... >". |
| | Spontaneous child's activity of reading and writing | Constructive games: "They create towers of letters". Agile games: "< ... > throw a ball and think of words". Modelling: "Children like to mould letters from clay and play dough". Play with sand and waters: "< ... > children like to write with colourful foam on the water". Play with objects in the environment: "Looking at the contours of the letters in a certain object the child makes attempts to trace the letter with his/her finger and give the name to it". Activities with books and characters: "They "write" a letter, create advertisements < .... >". |
| | Additional activities | Club of ceramics: "< ... > they like to put the letters made from clay into combustion heater and then to colour and decorate it". |

**Table 4.** Educational means of multimodal learning to read and write

| Category | Subcategory | Justifying statements |
|---|---|---|
| Educational means | Traditional means of reading and writing | "To mould letters or their combinations from play dough or clay". "We cut letters from magazines, brochures and we make collages". |
| | Non-traditional means of reading and writing | Sensor boxes: "Children like to pour bulk materials into the dish of a form of certain letter and to name it". Interactive boards: "Some children in my group may not get distracted from the interactive board". "We use a lot of use national materials: pebbles, shells, walnuts, etc". "The means made by myself are the most popular in my work". |

During the research attempts were made to identify environments, where children's multimodal learning to read and to write occurs, this can be seen in Table 5.

**Table 5.** Educational environments of multimodal learning

| Category | Subcategory | Justifying statements |
|---|---|---|
| Educational environments | Stimulating | "< … > has to stimulate the main senses of children". |
| | Constantly changing | "The environment has to constantly undergo changes". <br> "< … > new activities have to be included all the time". |
| | Evoking curiosity | "< … > to evoke child's curiosity and to strengthen motivation to explore". |
| | Diverse | "< … > diverse and attractive environment to every child." <br> "Diverse environment, which contains a lot of educational means". |
| | Targeted | "I know exactly why these things are in my group". |

Multimodal learning to read and write essentially changes the old learning system, which is based on the direct teaching of children to decode the text on the paper and to learn to copy letters. Therefore, Table 6 represents a particularly important category: change in learning with the related characteristics: the process of learning: from uninteresting to interesting; motivation: from non-motivated to motivated; improvement of child's personal qualities: from closeness to full openness; emotion: from sad to joyful; faster learning: from slower to faster; free learning: from restricted to free; individualisation: from common to individual.

The content of the categories and subcategories distinguished in the previous tables shows that multimodal learning to read and write is a new way of learning, which brings a lot of benefit into the process of education. However, the survey of experts highlighted the difficulties most frequently encountered by teachers who use this way of learning. However, Koutsoupidou (2010) states that self-evaluation allows for objective defining of areas for growth and improvement. That is why, if the teacher has motivation, s/he is thought to acquire methodological knowledge.

During the expert survey, the teachers' preparations to work under conditions of multimodal learning were identified. As presented in Table 7, the following subcategories were distinguished: use of outdated and inappropriate methods; insufficient awareness of multimodal teaching; insufficient awareness of child's development; teacher's personal qualities.

**Table 6.** The change in multimodal learning to read and to write

| Category | Subcategory | Justifying statements |
|---|---|---|
| Change in learning | The process of learning: from uninteresting to interesting | "Learning < … > as play, exploration, testing rather than direct copying or reproduction". |
| | Motivation: from non-motivated to motivated | " < … > is able to concentrate for a longer period of time". "They just immerse in activities". |
| | Improvement of child's personal qualities: from closeness to full openness | "They become more independent". "Children are not afraid to experiment, to express own feelings and to share experiences". |
| | Emotion: from sad to joyful | " < … > the mood of children increases significantly, and it becomes elevated". |
| | Faster learning: from slower to faster | "The child learns to recognise letters without realising and with ease". |
| | Free learning: from restricted to free | "Decrease children's anxiety and tension". |
| | Individualisation: from collective to individual | "We used to do everything together in the exercise book. Now we try to make everyone work separately, although we do not forget group activities". |

**Table 7.** Preparation of teachers

| Category | Subcategory | Justifying statements |
|---|---|---|
| Preparation of teachers | Use of outdated and inappropriate methods | "Up to now they have been working following, according to them, proven methods, which turn out to be inefficient". |
| | Insufficient awareness of multimodal teaching | " < … > have to be aware of the very specifics of learning < … >". "First of all theoretical foundations for applying multimodal teaching are necessary". |
| | Insufficient awareness of child's development | " < … > have to understand that the child gets familiar with the surrounding world through independent exploration and involvement of his/her all senses". |
| | Teacher's personal qualities | "Firstly, teachers have to be inquisitive themselves and not to be lazy to search for something interesting". |

The expert survey disclosed that the teachers gave rather diverse evaluations of their ability. They know the areas they are good at (e. g., creativity, flexibility, collaboration, etc.), but there are areas, where they encounter difficulties (lack of knowledge, insufficient awareness of methodology, its targeted presentation in the process of education) Such an objective self-evaluation created possibilities of determining directions for growth and improvement. It can be concluded if a teacher is motivated, s/he is likely to acquire methodological knowledge as well.

## Discussion

The conducted research allowed disclosing the expression of multimodal learning in pre-primary education from various perspectives. Multimodal learning refers to learning that embraces senses and the child's personal experience and trials (Vasquez & Felderman, 2012). The acquired data of empiric research disclosed that teachers working with pre-primary children also distinguished senses as a significant element of this learning. It should also be noted that pre-primary teachers also emphasised experience, exploration and play as significant parts of such learning.

Pursuing success in multimodal learning, it is important to highlight the methods employed for learning this way. The opinion of Shanahan (2013), who states that it is important to include all the possible ways and methods that contribute to activating the learning process, is worth attention. The data of expert survey showed that in their activities teachers tend to apply discussion, narrative, play, project, exploration, trial and experiment most frequently. According to the experts, these methods help a child to discover the joy of learning through curiosity.

Martinkienė (2004) states that children learn faster when their activities are directed to their own understanding and thinking or when they have to think of activities themselves. Pre-primary teachers emphasise that spontaneous activity of children, where they become creators and implementers of education, dominate in the educational process. However, teachers also emphasised the teacher-initiated activity, where she or he becomes not a teacher, who directly teaches the child to decode the text in the paper, but rather a creator of educational situations and a nurturer of written environment.

During the expert survey, the teachers' preparation to work under conditions of multimodal learning was identified. The results showed that teachers gave a rather controversial evaluation of their abilities: they are aware of areas where they are successful (e. g. creativity, flexibility, collaboration) but there are fields, where they encounter challenges (insufficient knowledge, incompetence in methodology and difficulties in its targeted

application in the process of education). Carrington (2009) emphasises that self-assessment allows for identifying areas for growth and improvement. If a teacher possesses motivation, she or he is likely to obtain necessary methodological knowledge. Teachers have to discover their place and to understand their new role – to act as a mediator under changing conditions, to adapt knowledge to programmes of literacy development and to consider them in the discussion on abilities and principles of basic literacy.

## Conclusions

The changing attitude towards learning to read and write obviously leads to strengthening of the tradition of multimodal learning in the Lithuanian kindergartens.

The working methods and means applied by teachers, which allow creating educational environments taking into consideration individual needs of every child environments, have been undergoing changes.

The conducted research revealed that pre-primary education groups provide children with favourable conditions for multimodal learning, which helps them not only to learnt to read and write faster but also develop other skills: fine motor skills, thinking, creativity, social skills, etc.

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# THE IMPACT OF READING SELF-MADE PERSONALISED BOOKS ON TWO- TO FOUR-YEAR-OLD CHILDREN'S LINGUISTIC EXPRESSIONS WHEN SPEAKING ABOUT THEMSELVES

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**ABSTRACT**

This study aimed to analyse the impact of reading personalised books on the linguistic expression of two-to four-year-old children when speaking spontaneously about themselves during the sensitive period of self-identification. A natural experiment was carried out using self-made books, which consisted of personalised and non-personalised parts. The personal parts of the books, which reflected each child's home environment and what they liked, were specially designed for each child. Thirty-six children aged between two and four years who attended an early childhood education institution participated in the study. The study sessions were recorded. The data analysis was conducted by applying a case study method, and the collected data were analysed qualitatively by assessing the content of the children's speech, emotions and gestures. Five typical cases were identified and described. They substantiated that the personalised parts of the books consisting of pictures from each child's environment encouraged them to use more words when speaking about themselves, to use more varied and complex means of linguistic expression when talking about familiar things, to choose appropriate linguistic means when referring to the self in the first person and/or to speak about themselves from the perspective of the other. The influence of the personalised parts of the books was not observed until the children started identifying themselves as separate subjects.

**Keywords:** *early childhood, personalized education, linguistic expression, self-identification, personalised book*

## Introduction

Over the last decade, the influence of personalised education on various areas of children's education has been investigated extensively (Bray & McClaskey, 2016; Mavrič, 2020; Pariput & Kwangsawad, 2018; Walkington & Bernacki, 2020). Personalised learning is defined as the maximum

revelation of one's own potential, and it is used to customise learning content, methods and tempo and create a child-centred environment and learning aids (Lee et al., 2018; Kallick & Zmuda, 2017). A number of researchers have studied the impact of personalised books on the education of early age children. Personalised books contain children's data such as their name, age, gender, race, appearance and preferred games, food, environment and choices (Kucirkova & Mackey, 2020). According to Kucirkova (2018), the personalization is carried out through pictures, images, drawings, text, sound recordings.

In young children, reading personalised books leads to the stimulation of spontaneous speaking, an increase in the number of the children's utterances, the use of words and self-references, improvements in reading skills and text comprehension, motivation to read and learn new words, the location of the self and the creation of personalised stories in digital platforms and identity texts (Haiken & Furman, 2018; Kucirkova et al., 2014b; Kucirkova, 2018; Kucirkova & Mackey, 2020; Streelasky, 2020). Accordingly, it can be concluded that personalised books can become a mediator (a reflection of the 'self') in the process of young children's self-identification and thus encourage children to speak spontaneously about themselves. Kucirkova (2018, 3) argues 'Personalization offers children the opportunity to recognise themselves in the story, thus developing self-esteem and confidence'. The self is understood as a constantly evolving phenomenon, and the mediation processes in its constant formation signify a child's relationship with the surrounding world and various forms of self-representation (Audyn & De Boer, 2020). In the process of self-identification, the child's unique relationship with the surrounding world results in the formation of self-awareness, whereas reflections of adults and the child's peers leads to the building of their social identity (Ding et al., 2019; Gardner et al., 1989). Personalised books thus become a means of reflecting the child's self. The impact of 'reading' personalised books on young children's linguistic expression in the context of self-identification and self-representation is the focus of our study.

The aim of the study was therefore to determine the impact of reading personalised books on children's linguistic expression when speaking spontaneously about themselves in the sensitive period of self-identification.

## Methodology

The data were collected during a natural experiment with 36 children aged two to four years who attended an early education institution. Self-made books consisting of personalised and non-personalised parts were designed for the experiment (suggested by Kucirkova et al., 2014a). During

the study, which was conducted in an early childhood education institution, each child looked through or 'read' a two-part book with the researcher in a one-on-one session. On the first page of the personalised part of the book, the child saw their own photo, and other pages contained their pets and favourite toys, activities and food with or without the child's picture. The non-personalised part of the book had analogue images, but on the first page and two more pages, the child saw a picture of another child.

Four groups of children were randomly selected for the research: 2 groups each attended by eight children aged 24–36 months and 2 groups each attended by ten children aged 37–48 months. (The research was conducted during the COVID-19 pandemic, so about two thirds of children regularly attended groups of early childhood education they were assigned to). The consent regarding their children's participation in the research was received from all the parents but they themselves did not take part in the process of looking through and 'reading' books. A book was specially designed for each child who participated in the study. The information for the personalised books was collected from the child's parents using a questionnaire. They were also asked to supply a few photos of their child.

Each session was recorded. A case study method was applied, and the collected data were analysed qualitatively by assessing the content of the children's speech, emotions and gestures.

## Results

The analysis of every child's case allowed grouping their cases into five groups according to similar characteristics. The cases in one group slightly differed from each other only in quantitative (but not in qualitative) characteristics, e. g., number of used words. Therefore, it is convenient to present results providing one typical case in the group with the characteristics that are observed within this particular group of children. The presented tables contain a case of a specific child with all the peculiarities of linguistic and emotional expression characteristic of this child. Children's names are changed responding to confidentiality issues.

The five cases provided below show how the children's linguistic expressions changed when they spoke about themselves during the sensitive period of self-identification. The data revealed the impact that 'reading' personalised books had on the children's linguistic expression and self-identification.

Case 1 showed that a 28-month child, Mykolas, did not identify himself ('This is ...', 'This is ...') and did not possess a sense of self (Table 1).

Words, gestures and word sentences ('This ... [points to the object]') were used not to speak about himself but only to name things and actions

(Table 1). He named objects and actions by employing a short word, an onomatopoeic word or the beginning of a word. The personalised part of the book did not have any influence on the child's linguistic expression.

**Table 1.** Case 1: The Child Did Not Demonstrate Self-Awareness and Did Not Use Self-Referential Language

| No. | Mykolas, 28 months | Personalised | Non-personalised |
|---|---|---|---|
| 1 | Self-identification | Did not self-identify ('This is …', 'This is …') | – |
| 2 | Number of first-person sentences | Gestures and word sentences prevailed | Gestures and word sentences prevailed |
| 3 | Use of personal singular pronouns | – | – |
| 4 | Use of personal plural pronouns | – | – |
| 5 | Naming own actions using verbs in the singular | Gesture and word: digs | Gesture and word: digs |
| 6 | Naming own actions using verbs in the plural | – | – |
| 7 | Naming parts of own body using nouns | – | – |
| 8 | Naming own clothes and objects using nouns | Naming of objects: cat, tutuu [choo, choo] (train), trak [tract] (tractor), etc. | Naming of objects: cat, tutuu [choo, choo] (train), trak [tract] (tractor), etc. |
| 9 | Characterisation of self and own things using adjectives | – | – |

Case 2 characterised the children who had already demonstrated self-awareness but referred to themselves in the second and third person (Table 2). In the case of Goda (27 months), emotional reaction of the girl shows that she self-identified herself. Moreover, the personalised part of the book significantly encouraged self-referential language. She used 10 third-person sentences, two second-person sentences and three first-person sentences. Personal singular pronouns ('you', 'my', 'mine') for self-identification were used six times. However, when 'reading' a non-personalised book, she only articulated one first-person sentence with 'mine'. In the personalised part of the book, Goda named her actions with the help of 12 singular verbs (vs. one verb in the non-personalised part) and used eight nouns (vs. two nouns in the non-personalised part) to refer to her things. Thus, the personalised part of the book promoted the use of self-referential language and stimulated the use of more words when speaking of herself.

**Table 2.**  Case 2: The Children Demonstrated Self-Awareness but Spoke Only of Themselves in the Second and Third Person

| No. | Goda, 27 months | Personalised | Non-personalised |
|---|---|---|---|
| 1 | Self-identification | Self-identified (she becomes happy and says: 'Goda. This is you.') | 'This is Lelia.' |
| 2 | Total number of sentences (number of first-, second- and third-person sentences) | 21 (first person – 3, second person – 2, third person – 10) | 5 (third person – 1) |
| 3 | Use of personal singular pronouns | 6 (I – 1, you – 2, my/ mine – 3) | 1 (mine – 1) |
| 4 | Use of personal plural pronouns | – | – |
| 5 | Naming own actions using verbs in the singular | 12 ([she] combs, sings, goes, does, has etc., [I] play, have, dance) | 1 (has) |
| 6 | Naming own actions using verbs in the plural | – | – |
| 7 | Naming parts of own body using nouns | – | – |
| 8 | Naming own clothes and objects using nouns | 8 (apple, biscuits, bear, umbrella, cap, mom, etc.) | 2 (bear, Kakė Makė) |
| 9 | Characterisation of the self and own things using adjectives | – | – |

Case 3 characterised the children who demonstrated self-awareness, freely used self-referential language and thought and spoke about themselves from the perspective of the first person but employed only part of the analysed linguistic means (Table 3).

In the case of Šarūnas (29 months), the personalised part of the book stimulated the use of self-referential language more compared to the non-personalised part of the book. Moreover, the child was encouraged to apply adjectives to describe his own things and to actively use singular verbs to name his own actions and nouns to refer to things, clothes, people close to him, and phenomena related to him. The child's speaking was very passive when 'reading' the non-personalised part of the book. The personalised part of the book encouraged the child to speak of himself by employing more varied linguistic means and a wider vocabulary.

Case 4 described the children who with the help of language and emotions demonstrated self-awareness, employed rich self-referential language, thought and spoke about themselves from the perspective of the first person and used all the analysed linguistic means (Table 4).

**Table 3.** Case 3: The Children Used Self-Referential Language but Employs Only Part of the Analysed Linguistic Means

| No. | Šarūnas, 29 months | Personalised | Non-personalised |
|---|---|---|---|
| 1 | Self-identification | Self-identified (he laughs and says: 'I stand') | – |
| 2 | Total number of sentences (number of first-person sentences) | 23 (first person – 10) | 4 (first person – 1) |
| 3 | Use of personal singular pronouns | 6 (I – 3, my/mine – 3) | 2 (I – 1, my – 1) |
| 4 | Use of personal plural pronouns | – | – |
| 5 | Naming own actions using verbs in the singular | 8 ([I] stand, do, don't have, build, know, etc.) | – |
| 6 | Naming own actions using verbs in the plural | – | – |
| 7 | Naming parts of own body using nouns | – | – |
| 8 | Naming own clothes and things, people and phenomena using nouns | 12 (tower, ball, car, festival, mom, dad, puddle, water, etc.) | 3 (present, mom, cars) |
| 9 | Characterisation of self and own things using adjectives | 4 (such, big, these) | – |

**Table 4.** Case 4: The Children Used Self-Referential Language and All the Analysed Linguistic Means

| No. | Eliza, 48 months | Personalised | Non-personalised |
|---|---|---|---|
| 1 | Self-identification | Self-identified (she gets surprised: 'It's me!') | 'I don't know this doll.' |
| 2 | Total number of sentences (number of first-person sentences) | 33 (first person – 19) | 5 (first person – 5) |
| 3 | Use of personal singular pronouns | 17 (I – 13, my/mine – 4) | 5 (I – 3, my/mine – 2) |
| 4 | Use of personal plural pronouns | 1 (we) | – |
| 5 | Naming own actions using verbs in the singular | 17 ([I] run, am, like to go, go to bed, etc.) | 3 ([I] have, eat, do), |
| 6 | Naming own actions using verbs in the plural | 2 ([We] were, liked) | – |
| 7 | Naming parts of own body using nouns | 2 (legs, head) | – |
| 8 | Naming own clothes and things, people, phenomena and roles using nouns | 23 (with mom, circle, I am a fox) | 3 (small fish, paint, small book) |
| 9 | Characterisation of self and own things using adjectives | 4 ([I] nice, bare [feet], wet [hair], etc.) | – |

In the case of Eliza (48 months), the personalised part of the book stimulated her to speak about herself as a character in the book using the first person. Inspired by the personalised part of the book, she also 'read' the non-personalised part as a story about her, but her speaking in the second part was not as active as that in the first one. The personalised part of the book encouraged her to use personal singular and plural pronouns ('I', 'my', 'mine') and to identify herself with others ('we'). The application of more complex forms of present and past tense verbs to indicate her actions ('like to go', 'liked') and nouns to name the parts of her body, things, people close to her, and phenomena related to her ('circle') or her own roles ('I am a fox') was activated by personalised information. Thus, the personalised part of the book stimulated richer linguistic expressions when referring to the self and inspired her to continue speaking from a first-person perspective when 'reading' the non-personalised part of the book.

Case 5 referred to the children who demonstrated high self-awareness and were able to identify the self ('I') very well, used rich self-referential language and more complex linguistic means and spoke spontaneously about themselves while consciously switching the perspectives of the first and third person (Table 5).

In the case of Danielė (47 months), the child started creating a story with herself as the main character of the personalised part of the book. She told the story from a third-person perspective using her name but provided explanations to the researcher from a first-person perspective ('Danielė danced with the prince ... This was me and Tom dancing. I like this dress very much.'). She continued the story by 'reading' the non-personalised part of the book, but this story was shorter. The personalised part of the book encouraged the child to purposefully use personal singular and plural pronouns while switching from a first- to a third-person perspective, to choose more complex forms of verbs (the present, past and future tenses – 'I will show ...', the conditional mood – 'I would like ...') when referring to her actions from a personal perspective and the actions of the main character of the book and to use nouns when speaking about her own things and phenomena related to her ('performance', 'meeting', 'tickling') as well as adjectives to characterise herself, her things and related phenomena ('dance of joy').

Table 6 presents the data of all the 36 children related to the use of first-person sentences, words for self-characterisation and numbers while reading personalised and non-personalised parts of the book. It was convenient to use the average of sentences and words for one child as an indicator for comparison. The language of children aged 24-48 months is distinguished by significant development-predetermined and individual differences, but comparison of data of the same children on 'reading' personalised and non-personalised parts of the book allowed identifying essential differences.

**Table 5.** Case 5: The Children Identified the Self 'I' Well and Consciously Switched Between the Perspectives of the First and Third Person When Speaking About Themselves

| No. | Danielė, 47 months | Personalised | Non-personalised |
|---|---|---|---|
| 1 | Self-identification and naming the third person | Self-identified (Her eyes light up but she says calmly: "Danielė") | My Elžbieta (Elizabeth), smiles |
| 2 | Total number of sentences (number of first-person sentences) | 44 (first person – 16, third person – 10) | 15 (first person – 8) |
| 3 | Use of personal singular pronouns | 5 (I – 4, my/mine – 1) | 2 (my/mine – 2) |
| 4 | Use of personal plural pronouns | – | 1 (we) |
| 5 | Naming own actions using singular verbs in the present, past and future tenses and conditional mood | 23 ([I] was, went, [she] drinks, does, [I] will show, [I] would like, etc.) | 11 ([I] want, [I] will be happy, [I] would like, etc.) |
| 6 | Naming own actions using plural verbs of present, past and future tenses | 5 ([we] were, [we] will be able, [we] have, etc.) | 3 ([we] have, [we] will see) |
| 7 | Naming parts of own body using nouns | – | – |
| 8 | Naming own clothes and things, people and phenomena using nouns | 38 (with mom, performance, meeting, tickling, etc.) | 15 |
| 9 | Characterisation of self and own things using adjectives | 9 ([dance] of joy) | 4 (such beautiful) |

**Table 6.** The impact of "reading" personalised and non-personalised parts of book on children's speaking of themselves (the average of sentences and words for one child)

| Personalized | 10.00 | 7.41 | 12.66 | 16.50 | 3.08 |
|---|---|---|---|---|---|
| Part of book | First- person sentences | Personal singular pronouns | Verbs of naming own action | Nouns for naming parts of own body and things | Adjectives for naming parts of own body and features of things |
| Non-personalized | 3.41 | 3.00 | 4.00 | 5.41 | 1.00 |

The averages of the words and other linguistic means used by the children when 'reading' the personalised (P) and non-personalised (NP) parts of the book were as follows: first-person sentences – P = 10.00, NP = 3.41; personal singular pronouns – P = 7.41, NP = 3.00; verb to refer to own actions – P = 12.66, NP = 4.00; nouns to name own parts of body, things and phenomena – P = 16.50, NP = 5.41; adjectives to describe qualities of own body, things and phenomena – P = 3.08, NP = 1.00.

Thus, reading the personalised part of the book resulted in almost three times more intensive and richer use of linguistic means when the children spoke spontaneously about themselves.

## Discussion and Conclusions

Our study expands on the literature conducted by Kucirkova et al. (2014a) that analysed the linguistic means used by children in the context of self-identification. The researchers analysed children's utterances, the numbers of words used and self-references. We additionally analysed the linguistic means applied by the children in our study and distinguished between typical cases that characterised the impact of the personalised parts of the books on the children when speaking spontaneously about themselves and their use of linguistic means during the different self-identification periods.

The impact of the personalised parts of the books were not observed until the children identified the self 'I'. The personalised parts of the books encouraged clearer self-identification among the children, evoked self-referential speaking and stimulated the use of a larger number of words and more complex linguistic means. When speaking about familiar things, the children used more complex and diverse means of linguistic expression. The impact of the personalised parts of the books were not observed until the children identified themselves as separate subjects.

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# SELF-GUIDED LEARNING PROCESS IN PRESCHOOL: CHALLENGES OF THE PRACTICE

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## ABSTRACT

The mandatory teaching/learning content of the preschool lays emphasis on the child's most essential interests and needs, acquiring them in such a process that leads to the formation of literacy or competence. Self-guided learning in the teaching/learning process appears as the major method that helps the pre-schooler acquire the content of all domains. According to the preschool guidelines, values and morals, general or transversal skills, cognitive, emotional and social aspects of the child's actions that help to acquire knowledge, understanding and key skills for man's functioning in important spheres of life and these are the key skills in the domains of language, social and civic, understanding of culture and self-expression in art, science, mathematics, technology, health and physical activities that form the mandatory teaching/learning content of preschool education. When acquiring all the necessary skills and knowledge, the child has to reach the planned learning outcomes that are attained in a self-guided learning process.

Self-guided learning is one of the most essential modern competences or the individual's readiness to adjust and apply the knowledge, skills and attitudes when solving different situations. Are preschools ready for this, does this process take place and do preschool teachers understand the concept "self-guided learning process" – this is the topicality that definitely should be paid attention to relating it to teacher education, the development of the self-guided learning model and its piloting in the preschool environment.

A self-guided learning process should not be taken for granted because the child does not have such skills – to know / to feel how and what to do to start, for example, exploration. The child has not acquired these skills if the adult has not demonstrated how to do this. The child since young age should be gradually directed towards that – what and in which way to learn. The participation of the adult or teacher in this significant process is critical.

**Keywords:** *a preschool child, self-guided learning.*

## Introduction

An individual who is ready to live in the constantly changing conditions is the challenge of the modern education system also for the preschool education in Latvia. The ability to act and adjust to any situation

is a competence or the outcome of the teaching/learning process, and it should be acquired purposefully already during the preschool period. If previously education was viewed as teaching something definite then the 21st century education is considered as a continuous process during which we acquire all the necessary for the changing life conditions and personal advancement. To supervise, control, and guide one's thinking, emotions, behaviour, to accept, understand one's mistakes and failures are essential conditions for everyone to be able not only to set the goals but also to reach these goals.

Considering the topicality of the issue, not only educational documents are considered, but also theoretical literature is analyzed: Purēns (2017); Perels, Merget-Kullmann, Wende, Shcmitz, Buchbinder, (2009); Kostelnik, Rupiper, Soderman, Whiren (2014); Jacob, Benick, Dörrenbächer, Perels (2020).

Due to this particular reason, the project Skola 2030 [School 2030] was launched in the education system of Latvia in 2016, having the aim "to ensure the approbation of the content of general comprehensive education based on the competence approach according to the description of the compulsory content of general comprehensive education and the introduction of the teaching/learning content in preschool education, basic education and secondary education" (Skola 2030…, 2017), which envisages reconsidering all the current teaching/learning content of all the education institutions on all levels and renewing this content in accordance with the requirements of modern education. The aim of implementing the content of preschool education is "an inquisitive, creative and joyful child who lives healthily, safely and actively, works independently, with interest and joy gaining experience about oneself, others, the surrounding world and the mutual interaction in it" (Noteikumi par…, 2018).

The mandatory teaching/learning content of the preschool lays emphasis on the child's most essential interests and needs, and the teaching/learning domains acquiring them in such a process that leads to the formation of literacy or competence. Seeking the answer to the question what competence is, the difference between the concepts of the skill and competence should be pointed out. In distinction from skills, that include a simple understanding about the order or way how the concrete task should be performed, the competence incorporates not only skills but also knowledge and attitudes. Purēns mentions the concept competence as the description for "the necessary knowledge, professional experience, and understanding in the particular field, question and the skills to apply the knowledge and experience in the concrete action" (Purēns, 2017, 8). A broader explanation of the concept competence looking at it from different dimensions is presented in Fig. 1.
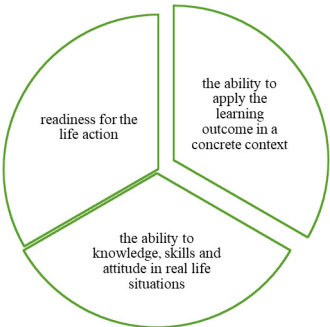
**Figure 1.** Explanation of the competence

Competence is the individual's feature that develops in action, self-experience. According to the guidelines, both the general skills for man's functioning in important spheres of life and these are the key skills in the domains of language, social and civic, understanding of culture and self-expression in art, science, mathematics, technology, health and physical activities and the values and morals as well as transversal skills (See Fig. 2) or competences that form the mandatory teaching/learning content of preschool education (Pirmsskolas mācību…, 2019, 7).
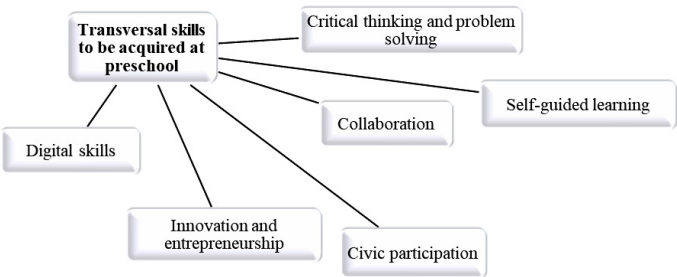


**Figure 2.** Transversal skills to be acquired at preschool

The attention from the point of view of theory in the present article will be paid to the transversal skill – self-guided learning and then how to promote its development in the pedagogical process in preschool because it is the determinant competence that the child needs to acquire as soon as possible. Besides, this is a new concept for preschool teachers because the previous Preschool education curriculum and preschool guidelines did not speak directly about such a competence.

## Methodology

The aim of the study is disclose theoretically self-guided learning as an important transversal skill and to establish a model for the possibility of its acquisition in the pedagogical process of the preschool. The study is a theoretical research – the analysis of literature and documents. The tasks of the research are to analyse scientific literature on self-guided learning in preschool. The research covers the analysis of preschool education guidelines (Noteikumi par…, 2018) developed by the National Centre for Education within the framework of the project "Competence-Based Approach to Curriculum," preschool curriculum (Pirmsskolas mācību…, 2019) and document Education for modern literacy: description of the teaching/learning content and approach (Skola 2030…, 2017) giving particular attention to self-guided learning to be acquired at preschool. Theoretical approaches are based on the following scientific findings about self-guided learning in preschool (Zimmerman, Moylan, 2009; Perels, Merget-Kullman,… 2009; Jacob, Benick… 2020). The research methods used in the article: 1) study, analysis, and evaluation of scientific literature on self-guided learning; 2) reflection of authors' pedagogical experience.

## Results

The development of the personality depends on the environment and the activity of the child (Vigotskis, 2002). The adult creates the environment (emotional, nature, things, and social environment), and when it is adequate, the child has the willingness to be engaged in it. The preschool child develops in action, in movement, observing what is happening around him. Observations are not only the child's passive participation – it is a very active process that takes a definite place in his life and action, performance. It should be emphasised that a preschool child has an explicitly intuitive ability to delve into the essence of human action. The child learns directly, imitating the adults, their actions. Thus, the adult transfers indirectly the information about his natural (unpretentious) actions to the child and this does not happen with tasks expressed in words. Therefore, the adult needs to offer the child diverse initiatives as well as the possibility to observe him in action. The representation of initiatives is closely connected with the first formation of the child's skills and the ability to implement one's intention. Figure 3 presents the advancement model of a self-guided action which has been developed based on the above-mentioned components.

The preschool teacher in the collaboration process, pedagogical observation explores the pre-schooler, his experience, skills, thus forming the idea about pre-schooler's self-experience. Based on the results of the

exploration, the teacher creates conditions (the environment of things, nat-ural environment, social environment, emotional environment, possibilities of enriching feelings) for the development of the pre-schooler's cognitive interests offering possibilities to observe, explore, experiment, and listen.
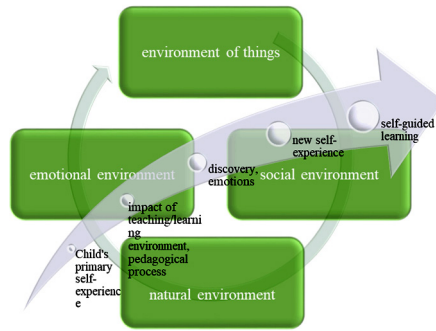


**Figure 3.** Advancement model of a self-guided action

During this activity the pre-schooler improves his skills (external expressions – behaviour, self-service skills, activities with objects); the pre-schooler forms the attitude (internal), habits and self-experience as self-reg-ulation – conscious management or self-guidance of one's own action. Evaluating the pre-schooler's activity, the teacher, based on the observa-tions, can successfully plan the pedagogical process in such a way that it is directed to the child's independent, exploratory, interested action cor-responding to the child's needs and considering the pre-schooler's need of self-expression. Thus, every child's action would turn into a self-stimulating process in which the child's self-initiative, self-analysis, self-assessment, self-expression, and self-development are realised.

The environment has a decisive role in a successful implementation, development of a self-guided learning process. This does not only mean preparing and diversifying of the material basis in good time but also the creation of a safe psychological environment for the child and adult's mutual relations because the relations between the child and the teacher are never neutral. Everything that is said has importance. It is not always important what is said but how it is said. The teacher, especially, has to take this condition into account. Self-guided learning can be successful, providing that a child who acquires this competence is motivated, is in the environment that incites thinking as well as there is an adult next to him who supports the child.

Self-guided learning is a special kind of self-regulation when learning takes place transforming the mental abilities into the academic knowledge.

R. Fisher draws attention to the fact that "the skill to learn can be developed best using the approach of "thinking skills" the aim of which is to show children not only what the child must learn but also how to learn (Fišers, 2005, 5). In order to implement successfully the developed model, the teacher needs not only to manage the phases of self-guided learning: planning, supervision and assessment, to understand how to support the child in the action he has chosen himself but also to apply self-guidance skills in his own action thus promoting self-guidance skills in children.

Based on the analysis of the Curriculum of Preschool education (2018), Skola 2030 materials (2017), and having explored the models of preschool children's learning developed by researchers Zimmermann, Moilen (2009), Jacob, Benick, Dörrenbächer, Perels (2020), the authors have created Table 1 which summarises and highlights not only the most important phases of self-guided learning but also summarises the questions by asking which the teacher not only supports the child but also helps him to master the skill to learn.

**Table 1.** Phases of self-guided learning

| Phases of self-guided learning | Description of the phase of self-guided learning | Child's action and the adult's support |
|---|---|---|
| Planning | **A plan is developed for achieving the aim, for performing the task.** Elements of the phase – setting the aim, making strategic decisions, self-efficiency and natural interest. | The child thinks about his aims, considers, and thinks out how and with which methods, strategies to reach them, makes the action plan, criteria that will serve as evidence that the plan is fulfilled. **What is my aim, task? Which information and strategies will I use? How much time will I need?** |
| Supervision (performance) | **The plan is implemented.** Elements of the phase – stability of the attention, maintaining internal demands, planning of the time, seeking the assistance and support if needed, self-assessment as well as self-developed system of consequences. | The child implements his plan, supervises his action, checks for the mistakes, seeks better solutions, and decides whether to change the plan or the steps of action. **What is the importance of the task? Did I reach my aim? Do I need to introduce changes?** |
| Assessment (self-reflection) | **The reflection on what has been done.** Elements of the phase – the feedback, the analysis of causes and consequences and adjustment. | The child assesses how successfully he has reached the aim applying the chosen strategies. **What helped me to reach the aim? What were the obstacles? What will I do differently next time?** |

The teacher will succeed in establishing a link with the child if instead of urging or criticising the child he will encourage him, will devote his attention to the child's thoughts, will take into account his interests, will listen carefully, will not interrupt, will treat him as an equal and will discuss what has been done (Fišers, 2005). This means that the teacher, talking with the child, asks questions both about the performed action and the planned action, and evaluates what has been done in order to help him guide (plan, supervise, assess) his learning. Thus, the child learns to reflect on the performed action, to think whether the way he thinks at the concrete moment means the best way how to reach the planned outcome. Besides, before the child engages in some action, activity the teacher should always ask himself – whether and for what purpose does the child need this? Before the process the teacher should also think about the child's possibilities, the broadness of freedom as well as the sequence of action so that it results in a meaningful situation in which the child acquires the transversal skill of self-guided learning which is so important in life, involving the emotional, thinking and behavioural processes.

## Discussion

Self-guided learning when the individual demonstrates the initiative either with or without the assistance of others to diagnose his learning needs, to formulate the aims of learning, to identify the materials and human resources for the learning needs, to choose the learning strategies and to assess what he has mastered from the transversal skill or competence that had to be acquired and which is considered as one of the most important for modern man.

In preschool, this competence is expressed as skills in which the child "differentiates emotions and determines their causes, learns to manage his behaviour, observes the daily routine, is able to wait, is able to complete the activity, dresses independently and puts in order his things, learns to set the aim for his action, to plan the action in order to fulfil his intention, works independently, overcomes difficulties with some support, learns to accomplish the delegated responsibility, is proud of his achievement, assesses the failure and mistakes as part of learning, assesses one's own action and that of the others and the outcome, and explains his assessment" (Noteikumi par…, 2018). It is important for preschool teachers in work with the child, promoting the development of this transversal skill, to know that it is based on social emotional learning and the learning to learn skill.

The social emotional development is closely connected with learning because emotions influence the acquisition of new knowledge, the desire

to learn and to explore something new. The experience which develops during learning is connected with emotions, if the learning event evokes positive memories, interest then the acquired is memorised, while negative emotions make it more difficult to remember. It can be said that social emotional learning improves the child's attitude to learning, this meaning motivation and engagement in the learning process, behaviour participating and forming habits in the learning process, performance, showing competences in the learning process. In preschool, the social emotional learning takes place both through acquiring the names of emotions and their modelling and playing out different situations in games. Teachers help the child to master social emotional skills not only teaching them in games, playing them out and referring to one of the discussed themes at the right moment but also showing the example, demonstrating their own social and cooperation skills as well as the capability to regulate one's emotions (Guelder, Feuerborn,...2020). The teacher establishes the environment which accepts and supports the different, the unusual, in which every child feels good because he is valuable as he is. The child learns empathy, generosity, the willingness to help other pre-schoolers in a real environment in which these emotions are part of everyday routine. The recommended strategies in work with the preschool child for promoting the social emotional development are summarised in Figure 4.
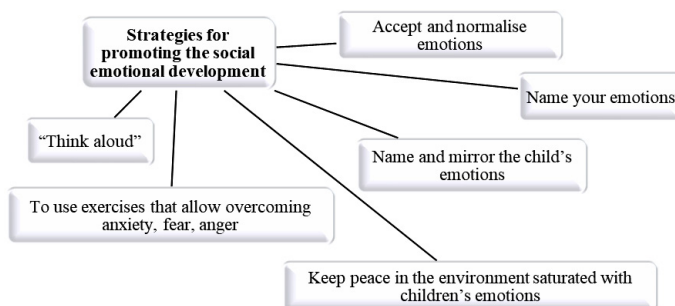


**Figure 4.** Strategies for promoting the social emotional development according to Kostelnik, Rupiper, Soderman, Whiren, 2014

Learning to learn is connected with the development of the metacognitive intellect which is the most important aspect of human intellect. This intellect helps to approach thoughts, emotions and helps to understand why we do what we do. "The development of metacognitive knowledge is the main factor that determines successful learning because it allows children to understand, plan, predict, remember and clarify" (Fišers, 2005, 22). Features of will (perseverance, determination), internal motivation, concentration skills, and self-control are important in the process of self-guided

learning. Self-control strategies that start developing in preschool age should be used. During the preschool age children are not able to fulfil properly the conditions of self-guided learning (Venitz, Perels, 2018). However, the research (Bronson, 2000; Perels, Merget–Kullmann, … 2009; Jacob, Benick, … 2020) shows that children of preschool age can and are able to learn to guide their learning, because already at this age there are those key skills that help to control and regulate one's own cognitive processes (Venitz, Perels, 2018). Thus, referring to the above-mentioned authors, it should be noted that the preschool age child can and is able to learn in a self-guided manner if he is able to apply the metacognitive processes. This means that the child has the ability to set the aim, to manage and supervise processes that help to implement the set aim, to improve and change the strategy, if necessary, as well as to evaluate what has been performed. Figure 5 presents the scheme of the child's self-guided action.



> **T - trying out**
> before the child acquires something new, it should be tried out. Learning is not possible without trying out and related risks
>
> **E - event**
> event emerges as a result of testing on the way to the aim
>
> **F - feedback**
> the answer to the child's performed testing and the experienced events that are perceived with all senses
>
> **T - testing**
> receiving the feedback, the child's brain registers the information that is immediately tested, compared with the performed trials and aim
>
> **A - adjustment**
> the child adjusts his action to his aim
>
> **S - success**
> he child has attained the aim

**Figure 5.** Child's self- guided action

It is important to indicate that the child needs motivation for the action because then he has the conviction that he is able to perform the necessary actions. Self-regulation of one's behaviour when the child controls his behaviour and attention for reaching the aim is also important (Daily, 2013). When the child is 5-6 years old, he more frequently displays the skills of grasping a bigger scope of information and understanding requirements of different tasks. His internal motivation is also developed which makes the learning process easier. The basic skill at this age is to supervise and implement one's own learning activities (Venitz, Perels, 2018). The child's own action, his motivation to do and the skill to do as well as the skill to make the decisions, to organise one's own work and not to be guided by another person confirms that the adult's role in preschool is invaluable in the acquisition of the above mentioned.

The child of the preschool age can think actively about facilitating and developing the self-guided learning skills and, undeniably, teachers have a significant role in this process. For this process to be continuous and improving, there should also be each child's motivation which depends not only on the child himself but also on the teacher's participation, on the environment in which the culture of thinking dominates. Learning to learn is not only the set of skills that the child acquires but also the teacher's disposition to what it means to think and learn (Harpaz, 2007).

The teacher's participation, the environment activates the preschool children if they have maximum possibilities of self-expression, to act freely and safely when implementing ideas fully corresponding to their intention.

## Conclusions

Self-guided learning is one of the most essential competences or the individual's readiness to adjust and use his knowledge, skills and attitudes solving different problems in today's changing conditions.

The process of self-guided learning in preschool is reciprocally important – both for the child improving his skills and the adult organising the pedagogical process. It is vital to notice, emphasise and accept the child's abilities to use thinking and emotional tools and tools regulating the behaviour in order to orient oneself to planning of the action, to setting aims as well as being able to assess the achievement.

The process of self-guided learning means that for planning, supervision and assessment of every child and a successful run of the process it is important to know the developmental regularities of the children's age and also to ensure the support necessary for the child arranging, fitting out and creating the environment suitable for active engagement.

The child's self-guided action at the preschool age is formed based on the environment (emotional, social, natural and things), the child's self-experience and a supportive preschool teacher.

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# SELF-ASSESSMENT OF ENGLISH READING SKILLS IN GRADE 6

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## ABSTRACT

One of topicalities in the field of education in the 21st century is a necessity to share responsibility. Namely, students should learn to be more responsible for how and what they learn, whereas teachers should learn to share the ownership of the learning process with students, letting them be more involved in it as decision-makers. One way how teachers can encourage students become more conscious of the learning process is to engage them in self-assessment of their learning and learning outcomes. One of self-assessment tools in language education is the European Language Portfolio (the ELP). Apart from different ELPs for adults, there is a portfolio for students in Latvia: My Language Portfolio – *The European Language Portfolio for young learners (age 7–12)* in the paperback and digital versions.

In the present study, the researchers explore how self-assessment can be incorporated in the English language lessons by offering self-assessment activities and the ELP to Grade 6 students to work on their reading skills. Reading skills make the basis for every person's literacy as reading does not only concern reading itself, it is also about being able to master general knowledge of any other school subject and the world knowledge in general. Thus, the aim of the research is to find out how self-assessment can be used to improve reading skills in English in Grade 6.

A case study was carried out for one month in one primary school in Riga, the research sample being two separate groups of Grade 6 students, in total – 26. The researchers analysed and interpreted data collected from assessment and self-assessment of reading activities, questionnaires filled out by students. The main findings of the research show that self-assessment can successfully be incorporated in lessons of English of Grade 6 students as it increases students' motivation to learn and their reading skills improve. That could be based on the fact that self-assessment allows students to take more ownership of their learning process and learning outcomes, that way making students become more responsible. However, overall progress is not immense and for students who are more competent in English, improvement of their reading skills can barely be traced. It has to be highlighted that students, whose confidence in their English reading skills is lower, benefit from self-assessment more. It could be explained by students' conscious work on particular problems with reading in English they discover while completing self-assessment activities.

*Keywords: English as a foreign language, English Language Portfolio, primary school students, self-assessment, reading skills.*

## Introduction

Learning a new language includes a person's work on multiple skills. Among four basic language skills there is reading as the basis of a person's literacy. Literacy in the 21st century and, more importantly, in the time of the COVID-19 pandemic has to be perceived as a skill to wisely deal with overload of information both in paper and online, to be able to distinguish between real facts and fake information (Organisation for Economic Co-operation and Development [OECD], 2021). Therefore it is of utmost importance that reading skills, including critical reading, are learnt at school, and not only in the native language lessons, but also in lessons of English as this is a global language. This is essential because reading as a skill serves two purposes. First of all, students learn to read, either in their native or a foreign language. Secondly, they use reading to learn (Littlejohn & Hicks, 1996), thus becoming more self-directed in their learning process. Furthermore, reading may be perceived as a tool that ensures intercultural communication in different fields, for example, social, professional, academic, and personal (Byram & Hu, 2003). However, learning to read in a foreign language is different from reading in a mother tongue. Teachers should pay attention to the fact that the amount of unknown words and language structures do not make students perceive reading as something boring and difficult (Farell, 2009; Harmer, 2007; Scrivener, 2005). To lessen the impact of possible challenges for students, teachers are advised to follow eight principles of reading instruction for the English language learners (Nation & McAlister, 2020; Farell, 2009; Harmer, 2007; Scrivener, 2005; Day & Bamford 2002):

1. Students are encouraged to reflect on what has been read;
2. Students are exposed to a variety of reading types (for example, reading aloud and silently, reading combined with listening to the text);
3. Students are taught different reading strategies (for example, skimming and scanning);
4. Students are taught to recognise various text types (for example, a fairy-tale, an interview, a fable, etc.);
5. Students are presented vocabulary building techniques;
6. Students are encouraged to engage in extensive reading activities (reading as a hobby);
7. Teachers learn to plan effective reading lessons;
8. Teachers invite students to participate in authentic reading assessment (besides technical comprehension check-up questions, there also has to be students' self-assessment of reading skills).

This supports the idea of a shift of learning paradigms in the 21st century, students becoming more autonomous and being more active participants of

their learning process by developing an ability to reflect on their work, including reading. Boud (2013) states that self-assessment means a person's ability to apply certain standards or criteria to one's work and to make judgements about the level one is at in meeting them. Everhard and Murphy (2015) present three stages of assessment and their link to the language and learning style development, emphasising that with each stage students take on more responsibility for their learning and become more self-reliant and autonomous. The three previously mentioned stages of assessment are as follows: 1) dependent stage with full dependence on external assessment, 2) co-operative stage with collaborative self- and external assessment, and 3) independent stage with full reliance on independent self-assessment. In the context of Latvia, the competence-based approach to the curriculum highlights a necessity for students to get to the second stage of assessment, which means mastering a skill of self-assessment of their learning and learning outcomes (Skola 2030, 2018). Self-assessment can help students develop a learning style in which they are more aware of their strengths and weaknesses, create more ownership of their learning, and stimulate motivation and involvement in the learning process (Afflerbach, 2014; Boud, 2013; Bullock, 2010; Gonzales, 2008).

Self-assessment in foreign language learning can be performed by the use of the European Language Portfolio, which aims at recording and reflecting one's language learning and intercultural experiences (Council of Europe [CoE], n. d.). The origins of the ELP date back to 2001, and since then most European countries have taken part in the initiative and besides portfolios for adults have created European Language Portfolios for learners at school in both in English and their native language, which allows students more flexible and individual way of working on their learning. Research on the use of ELP in the foreign language classroom, has also proven it to be a particularly useful tool to develop student learning autonomy (Gonzales, 2008). Murphy and Everhard (2015) point out that self-assessment creates a more balanced situation in the learning process as teachers and students then share mutual responsibility for students' learning process and learning outcomes.

As regards benefits of self-assessment on reading at school, Afflerbach (2014) argues that self-assessment develops the sense of a more self-driven learning process and increases students' reading confidence letting students perceive success in reading as something they can control. Self-assessment of learning, including reading, must be incorporated in the learning process as early as possible (Afflerbach, 2014; Boud, 2013; Boud 1991). Primary school students should be introduced to the use of checklists as they provide models of self-assessment thinking, and prompt students to ask self-assessment questions (Afflerbach, 2014). European Language Portfolio for students offers certain checklists in a form of 'can do' statements (CoE, n. d.).

To sum up, reading skills are crucial in the 21st century as people have to be able to deal with the overload of a variety of true and fake information. Self-assessment of one's reading skills can help a person take decisions about one's reading competence and set goals for further development. Consequently, the aim of the research is to find out how self-assessment can be used to improve reading skills in English in Grade 6 as it is suggested that self-assessment should be incorporated in the learning process as early as possible.

## Method

In order to reach the aim of the particular small scale research in education, a case study was chosen as a research method (Hamilton, 2018; Cropley, 2002). It lasted for a month, in November of 2020 in one primary school in Latvia. Appropriate for research in education, a non-probability convenience research sample (Cohen & Manion, 2007) was chosen – two different groups of Grade 6: 6a (14 students) and 6b (12 students). Reasons for choosing Grade 6 as a research sample were multiple. Firstly, Grade 6 students have already worked on reading skills but they have to continue their work to improve them. Secondly, self-assessment of the learning process and learning outcomes in Grade 6 is important in the situation of Latvia as Grade 6 students should be prepared for the work according to the new competence-based approach to education which the students will face in Grade 7, where self-assessment is an important aspect of the learning process (Skola 2030, 2018). Thirdly, considering the circumstances, it was chosen to work with Grade 6 as their learning process continued physically at school and was not interrupted by the pandemic at the time the case study was performed. The data collection methods were document analysis (the students' self-assessment and teacher's assessment of reading activities) and a questionnaire for the students. Triangulation of the data was performed (Hamilton, 2018; Cropley, 2002).

Both authors of the article were actively involved in the development of the research methodology and analysis of the results as their cooperation model was the one of a university lecturer and an in-service teacher participating in further education activities and at the time having a teaching practice envisaged by the study programme. The teaching and learning process itself was conducted by the second author of the article.

### The ELP

The case study began with encouraging the students fill out the European Language Portfolio. The students had to complete the ELP created by the Latvian Association of Teachers of English (LATE) and the Latvian Language

Agency: "My Language Portfolio, The European Language Portfolio for young learners (age 7–12)" (the Latvian version) (Latvian Association of Teachers of English [LATE] & Latvian Language Agency, 2007). The Latvian language was chosen to have an easier self-assessment process for the students. The whole portfolio was not used instead it was a small section of it focusing on the reading skills (p.23). The students were asked to complete the ELP can-do statements on the first and the last day of the case study to compare if there were changes in how students self-evaluate their reading skills having a month of reading and self-assessment tasks in between.

**Table 1.** Section from the ELP to be completed by the students at the beginning and end of the case study.

| | | I can do it well | I can partially do it | I cannot do it, yet |
|---|---|---|---|---|
| 1. | I can read and understand a short and simple text about familiar topics. | | | |
| 2. | I can read and understand simple messages and e-mail letters. | | | |
| 3. | I can read and understand simple private letters. | | | |
| 4. | I can find necessary information in simple texts. | | | |
| 5. | I understand words and phrases in simple daily directions and announcements. | | | |
| 6. | I understand certain information in simple everyday materials – advertisements, lists, menu, programmes, etc. | | | |
| 7. | I can also distinguish what type of text I am reading (interview, article, description, etc.). | | | |

## Reading activities, students' self-assessment and assessment by the teacher of the students' reading skills

During the case study the students worked on three main reading skills: 1) identifying the main idea of the text (skimming); 2) identifying the type of text; 3) finding information in text to answer questions (scanning). It was chosen to work on these three skills as they are included in the model programme of English as a first foreign language (Skola 2030, 2018,

pp. 58-65). All in all there were 12 reading assignments based on the reading skills mentioned in the ELP table (see Table 1) and they were on the topic *Animals* as it happened to be the topic that had to be covered at the time of the case study. Reading activities were presented using reading materials from the education sites *excellentesl4u.com; lingoda.com; twinkle. com; uzdevumi.lv.*

As the research also focused on self-assessment, after each reading task each student had to fill out an electronic self-assessment task created in Google forms. The self-assessment task was identical after each reading activity. All in all, there were 12 students' self-assessment tasks.

**Table 2.** Self-assessment task the students had to do after each reading activity

| | | I can do it well | I can partially do it | I cannot do it, yet |
|---|---|---|---|---|
| 1. | I understand the main idea of the text and I can talk about it (skimming) | | | |
| 2. | I can distinguish the type of text I am reading (for example: article, interview, film review) | | | |
| 3. | I can find specific information in the text to answer questions (scanning) | | | |

After every third reading activity, the teacher collected the students' responses on the reading activities as part of four teacher assessment sessions. In total, four students' reading activities were assessed by the teacher.

### Questionnaire for the students at the end of the research

At the end of the research students were given a questionnaire to reflect on the month-long reading process which was complemented by self-assessment. Students reflected on how they felt about their reading skills at the end of the case study and if self-assessment had helped them in the learning process. The Likert scale (from 1 to 5) was used to express the opinion on the following questions: 1) How much do you think your reading skills have improved over the past month? 2) How much do you think self-assessment helped to improve your reading skills? 3) Do you feel like a more confident reader in English?

## Results

The results of the research were analysed separately in Grade 6a and in Grade 6b. As the average scores in tests had been higher in Grade 6a than in Grade 6b, it was of interest to see if there was a difference in the development of students' reading skills as they were encouraged to participate in self-assessment activities.

### The Results of the ELP used in lessons of English

Seven ELP statements completed by the students at the beginning and the end of the case study are analysed using the percentage (Table 3 and Table 4).

When evaluating reading comprehension (Statement 1), students in both grades did not see a difference in improving their ability to read and understand a short, simple text about familiar topics at the beginning and the end of the study.

However, as regards their skill to understand simple messages, students showed an increase in their abilities (Statement 2). Both grades saw their results as improved. In Grade 6a, initially 67% of students admitted that they could read simple messages and e-mails, but by the end of the case study, all the students marked that they could read and understand simple messages and e-mails. In group 6b the proportion that could do this skill partially decreased (from 22 % to 7%) and in 93% of the students at the end admitted they could do that well.

In Statement 3 – reading and understanding a simple personal letter, some changes were seen in Grade 6a, but substantial changes there were for Grade 6b (from 38% to 81%) – students noting they could do that well at the end of the study.

The data in Statement 4 showed that finding specific information in a text as a skill had improved. Even though Grade 6a had better results at the beginning of the case study, both grades showed a similar trend with more students claiming to be able to perform the skill well.

Asked about their ability to understand words and phrases in simple everyday signs (Statement 5), the students in both grades provided different answers. While in Grade 6a at the end of the case study all the students admitted they could do that well, the students of Grade 6b saw a decrease in confidence (from 82% to 78%).

In Statement 6 there were no substantial changes in both grades. The same was true for Statement 7 in Grade 6a, but a noticeable change in Grade 6b (from 75% to 91%) – more students admitted that at the end of the case study they were able to distinguish different types of texts.

**Table 3.** Grade 6a students' opinions on their reading skills at the beginning and the end of the case study

| | 6a (14 students) | YES % | | PARTLY % | | NOT YET % | |
|---|---|---|---|---|---|---|---|
| | | Start | End | Start | End | Start | End |
| 1. | I can read and understand a short and simple text about familiar topics. | 100 | 100 | | | | |
| 2. | I can read and understand simple messages and e-mail letters. | 67 | 100 | 33 | | | |
| 3. | I can read and understand simple private letters. | 93 | 100 | 7 | | | |
| 4. | I can find necessary information in simple texts. | 61 | 93 | 39 | 7 | | |
| 5. | I understand words and phrases in simple daily directions and announcements. | 79 | 100 | 21 | | | |
| 6. | I understand certain information in simple everyday materials – advertisements, lists, menu, programmes, etc. | 82 | 82 | 18 | 18 | | |
| 7. | I can also distinguish what type of text I am reading (interview, article, description, etc.). | 100 | 100 | | | | |

**Table 4.** Grade 6b students' opinions on their reading skills at the beginning and the end of the case study

| | 6b (12 students) | YES % | | PARTLY % | | NOT YET % | |
|---|---|---|---|---|---|---|---|
| | | Start | End | Start | End | Start | End |
| 1. | I can read and understand a short and simple text about familiar topics. | 82 | 82 | 12 | 12 | | |
| 2. | I can read and understand simple messages and e-mail letters. | 78 | 93 | 22 | 7 | | |
| 3. | I can read and understand simple private letters. | 38 | 81 | 50 | 19 | 12 | |
| 4. | I can find necessary information in simple texts. | 67 | 90 | 23 | 10 | 10 | |
| 5. | I understand words and phrases in simple daily directions and announcements. | 82 | 78 | 18 | 22 | | |
| 6. | I understand certain information in simple everyday materials – advertisements, lists, menu, programmes, etc. | 82 | 91 | 9 | 9 | 9 | |
| 7. | I can also distinguish what type of text I am reading (interview, article, description, etc.). | 75 | 91 | 16 | 9 | 9 | |

## Results of the student self-assessment of reading skills

To analyse the students' self-assessment of their reading skills performed in the reading activities during the case study after having used a self-assessment task after each of them, analysis of separate students is used, mentioning the highest and lowest numbers of students having chosen the certain answers. It has to be noted that not all 12 self-assessment tasks were completed by all the students of both grades.

As regards Grade 6a, the tendency is positive all the time as the majority of students considered themselves to be able of performing all three reading skills. More complicated than other skills in this Grade turned out to be scanning. Whereas in Grade 6b not all the students were sure of their ability to perform all the reading skills, and for them the most complicated skill seemed to be skimming.

**Table 5.** Grade 6a students' opinion on their reading skills during the case study

| 6a (14 students) | YES students | PARTIALLY students | NOT YET students |
|---|---|---|---|
| I understand the main idea of the text and I can talk about it.(skimming) | 7–12 | 1–4 | |
| I can distinguish the type of text I am reading (for example: article, interview, film review). | 7–12 | 1–5 | |
| I can find specific information in the text to answer questions. (scanning) | 6–10 | 4–7 | |

**Table 6.** Grade 6b students' opinion on their reading skills during the case study

| 6b (12 students) | YES students | PARTIALLY students | NOT YET students |
|---|---|---|---|
| I understand the main idea of the text and I can talk about it.(skimming) | 5–9 | 3–6 | 1 |
| I can distinguish the type of text I am reading (for example: article, interview, film review). | 9–10 | 2 | 1 |
| I can find specific information in the text to answer questions. (scanning) | 7–9 | 1–4 | 1 |

## Results of the teacher assessment of the students' reading skills

The teacher's assessment of the students' reading skills based on the reading activities she had collected for four times during the case study, is shown using the percentage of students whose answers in the reading

activities were correct. In spite of the fact, that for one month it was intensive work on reading skills using self-assessment, the teacher's assessment results differ from the positive tendencies the students' self-assessment had shown. For example, the data showed that in both grades the students' text scanning skill had decreased. An issue might be the level of difficulty of the collected assignments.

**Table 7.** The teacher's assessment of the students' answers for the reading activities

| 6a | % of the students having correct answers in the reading assignments | |
|---|---|---|
| | **Start** | **End** |
| scanning | 87 | 69 |
| text type | 61 | 76 |
| skimming | 76 | 76 |

**Table 8.** The teacher's assessment of the students' answers for the reading activities

| 6b | % of the students having correct answers in the reading assignments | |
|---|---|---|
| | **Start** | **End** |
| scanning | 80 | 51 |
| text type | 31 | 79 |
| skimming | 61 | 61 |

## Results of the questionnaire for the students at the end of the research

As regards the first question, the students in both grades considered that their reading skills had improved just the difference was that the students of Grade 6b had felt it more which might be because of their lower general English knowledge scores at the beginning of the case study. Even though self-assessment as a useful tool was acknowledged in both grades, in Grade 6b there were two students who had not seen it as too useful. That could be because of the students' low scores both at the beginning and the end of the case study. The third question about the reader's confidence – the majority of students of both grades admitted to having increased their confidence. However, in both grades there also were students who had not witnessed increase in their confidence as readers.

**Table 9.** Students' opinion on the help of self-assessment of the development of their reading skills

| 6a | Likert scale (1 – not at all; 5 – yes, very much); the number of students | | | | |
|---|---|---|---|---|---|
| | **1** | **2** | **3** | **4** | **5** |
| reading skills | 0 | 4 | 2 | 5 | 2 |
| help of self-assessment | 0 | 0 | 4 | 7 | 2 |
| reader's confidence | 0 | 1 | 2 | 8 | 2 |

**Table 10.** Students' opinion on the help of self-assessment of the development of their reading skills

| 6b | Likert scale (1 – not at all; 5 – yes, very much); the number of students | | | | |
|---|---|---|---|---|---|
| | **1** | **2** | **3** | **4** | **5** |
| reading skills | 0 | 1 | 0 | 6 | 5 |
| help of self-assessment | 0 | 2 | 1 | 6 | 3 |
| reader's confidence | 0 | 0 | 2 | 4 | 6 |

## Discussion

Even though on the whole the results of the study allow the researchers conclude that self-assessment tasks, including completion of the ELP, can be incorporated in the lessons of English in Grade 6 to improve students' reading skills, the certain details should be discussed.

First of all, the data shows that the students, who started the case study with lower scores in English, had the most noticeable progress after a month of additional reading activities and self-assessment tasks (Grade 6b). These students were engaged and motivated during the case study. Despite the fact that they had to spend more time to complete reading activities, they did not give up. That showed their motivation to work on their reading skills trying hard to self-assess their performance appropriately. It means that higher-achieving students need to be provided more complex reading activities and more detailed reading self-assessment criteria to be able to notice their progress (Grade 6a). One more aspect here might be the idea that low-achieving students tended to overrate their performance in general. However, self-assessment tasks helped them to become aware of the reality and pay attention to specific reading issues in next activities. The ELP statements can help the teacher and the students to spot reading skills which are important for students and areas that should be improved.

Secondly, the topic *Animals* the reading material was on, might be a matter of taking a personal liking or disliking to it, thus leaving impact on the devotion of energy to the reading activities and self-assessment tasks. Moreover, it could also be the complexity of the reading activities – they might seem easy or difficult for the certain students.

Thirdly, it has to be noted that over the course of the month, the students' motivation to participate in the learning process did not decrease– the majority of them were ready to read, to do the reading activities and complete the self-assessment tasks, which might mean that reading activities accompanied by self-assessment tasks impacted students' of Grade 6 thinking about reading and self-assessment in a positive way.

The fourth issue is the role of the teacher's assessment of the students' performance of reading activities. Namely, in the given period of time, which was one month, it might not be valid for a teacher to assess the students' progress of reading skills as the students' learning achievements were changing, that way making the teacher's assessment give a false impression of the state of art.

## Conclusions

Self-assessment, including the ELP can-do statements, can be incorporated in the lessons of English in Grade 6 to improve students' reading skills if teachers apply relevant reading material and reading activities in lessons and design self-assessment tasks accordingly. More knowledgeable students should work not only with more challenging reading material, but their self-assessment tasks should be more challenging as well so that they can spot the progress and be interested to continue the development of their reading skills. If students feel too self-confident, self-assessment is a good tool to help these learners become aware of the reality, at the same time keeping their motivation not to give up. The most debatable issue is a teacher's assessment and its comparison with students' self-assessment of their reading skills if the teacher wants students to improve both in reading and self-assessing. Therefore, teachers should be careful with how they present their assessment scores to students so that students do not feel intimidated seeing that their self-assessment is higher in comparison with the teacher's assessment. All in all, students' perception of their self-assessment objectivity of their reading skills is of importance to maintain their motivation to participate both in reading activities and self-assessment tasks.

It has to be noted that the aforementioned conclusions are made based on the results of a small scale research in which the limited number of participants and duration of the study may be considered as its shortcomings.

Nevertheless, the use of carefully selected and methodologically grounded research procedure makes it appropriate for being implemented in other pedagogical environments should the improvement of students' reading skills with the help of self-assessment be studied.

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# STUDENTS' MOTIVATION IN NATURAL SCIENCE CLASSES

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**ABSTRACT**

The paper discusses motivation as an integral part of the learning process. It presents the interdependence of motivation, emotions, self-regulated learning, cognition, metacognition, critical and creative thinking, learning strategies, and teacher in the process of learning within the natural science field. We describe the characteristics of internal and external motivation significant for improving engagement in the natural science learning activities that leads to better learning achievements. A review of relevant research on the specifics of teaching natural science subjects is discussed in the context of motivation, i. e. the paper discusses the factors that motivate students for studying and succeeding in natural science subjects. Students' interest in natural science subjects depends largely on the teacher, but also on a positive, supportive, and engaging learning environment. Due to teachers' importance and numerous interrelationships in the entire learning process, they have a responsibility to motivate students, but also to motivate themselves for professional development in which they will improve their knowledge of factors that motivate students. The paper analyses which factors motivate students for optimal achievements in classes, for effective and active participation in the teaching process of natural science subjects, but also for developing a positive attitude towards the natural sciences.

*Keywords:* learning activities, natural science subjects, student motivation, success, teacher.

## Introduction

Motivation is an internal force that activates and guides our thoughts, feelings, and actions (Mubeen, Reid, 2014) and it is indispensable in the discussion on contributing to the quality of learning, better achievements, and improvement of the educational process in general and in science education. It is becoming an increasing challenge for teachers to motivate students to learn. For teachers to be successful in this endeavor, they themselves must be motivated to motivate students, and targeted self-evaluation of their teaching helps in identifying needs and opportunities to motivate students.

Motivation is an essential part of learning. Given that in natural science subjects, there is a decline in students' interest in the subject, lack of deep understanding, inability to use the acquired knowledge, and overall apathy for learning (Fűz, 2018), this paper is focused on motivation in studying and teaching natural science subjects. This paper intends to show the interdependence of motivation, emotions, self-regulated learning, cognition, metacognition, critical and creative thinking, learning strategies, and external factors in the process of studying natural science subjects. The aim of studying in natural science subjects is not simply to learn the contents set by the curricular outcomes but also to educate students in natural science and sciences in general. The key for succeeding is stimulating and fostering intrinsic motivation for learning natural science, i. e., to increase students' interest in learning natural science and present it as valuable, meaningful, and useful to them.

## Internal and external motivation

Taylor (2012) attributes intrinsic motivation to students who show real interest in the learning process and seek to increase their knowledge of the content, while extrinsic motivation is attributed to students who show interest in participating in a task due to an external cause, such as flaunting their abilities, competing with others, or certain external gain such as achieving good grades, recognition or reward. Even though intrinsic and extrinsic motivation are often analyzed as mutually exclusive in such a way that an individual with high internal motivation shows a low level of external motivation (Hayenga, Corpus, 2010), the reality is somewhat different, i. e. majority of students are motivated by both internal and external factors, which mainly depends on the task (Clinkenbeard, 2012).

Enabling students to make choices (related to teaching materials, tasks they do, peers they work with, etc.) could enhance their engagement and motivation, allow them to make the most of their strengths, and meet individual learning needs (Parker et al., 2017). Froiland, Worrell (2016) equate intrinsic motivation with enjoyment in the learning process and associate it with a variety of elements including long-term achievements, conceptual understanding, giftedness, less anxiety during homework, persistence in educational tasks, and lower dropout rates. A lack of student engagement in a particular activity does not indicate the lack of motivation in students, rather that they are motivated for something else at that point (Perks, Middleton, 2014).

## Methodology

The paper provides literature review about students' motivation in natural science classes.

The goal was to study the different ways of students' motivation in natural science classes and it's effect their learning outcomes. In addition, we analyzed the role of teachers' contribution in students' motivation.

The following research questions are put forward:

1. What motivates students in natural science classes?
2. How teachers effect on students interest and motivation in natural science classes?

In order to answer the research questions, we searched the following scientific databases: EBSCOhost, ERIC, Google Scholar, J-Store, SAGE and ScienceDirect. Initial key words were identified from the researchers' knowledge of the field. These included *student motivation, natural science subjects, teacher, intrinsic motivation, extrinsic motivation, learning environments*. The free Zotero application (https://www.zotero.org/) was used to store the chosen list of references. All three authors independently chose the relevant list of references. Eligibility of review was assessed using the following inclusion criteria for the studies included in their samples: a) Publication year covered the period from 2007 to 2018; b) Research methodologies: quantitative, qualitative, mixed-method and review articles; c) Studies that were school-based.

## Discussion

In this section, we critically discuss the literature based on students' motivation in natural science classes. The review provides a concise summary of the most important factors influencing students enjoyment of natural science classes and relevant description of the students' motivation topic as well as its overall perspective, argument, or purpose.

Motivation is a crucial factor in any effective learning. It is difficult to generate the motivation necessary to complete the task and it is almost impossible to perform the task well without the positive attitude towards the learning task (Mubeen, Reid, 2014). It is highly important that the rapport of the teacher towards a student is warm, respectful, and compassionate. The results of the research (Pitzer, Skinner, 2017) confirm the importance of teachers in the dynamics of teaching and indicate that the increase in the level of motivation in students is related to the amount of teacher support that students receive during the school year. Research shows that student motivation is strongly predicted by self-confidence and moderately predicted by the teacher's emotional support that

is positively associated with student self-assessment and motivational responses (Skaalvik et al., 2015).

Grades are one of the biggest obstacles to motivation. For students who make less progress in learning, grades can significantly stifle self-confidence, self-esteem, and reduce motivation for future learning (Mubeen, Reid, 2014). In other words, students who cannot improve effective learning skills are not able to motivate themselves to learn, plan their learning processes and evaluate these processes in case of improving grades (Demir et al., 2012). To reduce the negative effect of grading on motivation, it is very important to approach formative evaluation and self-evaluation as a fundamental concept of self-regulated learning that improves motivation and learning autonomy (Brown, Harris, 2013).

Teacher knowledge and motivation are two key characteristics of successful education (Mahler et al., 2018). This is also indicated by the results of the research by the mentioned authors, which suggest that teacher training should not only focus on acquiring knowledge, but also on improving motivational orientation. Students feel most motivated by teachers who demonstrate new skills, provide support and encouragement, and help them learn from their mistakes (Cushman, 2014). The teacher facilitates teaching by motivating students to explore new ideas, pose interesting questions (Beuermann et al., 2013), and to apply their knowledge in novel situations. Continuous teacher training is necessary so that the teacher is able to innovate in classes, stimulate students' motivation and interest by applying theory and practice, so that students better assimilate the content, relating it to their everyday lives (Soares et al., 2016).

Planning motivational procedures is an indispensable part of any lesson planning. Horvat (2018) emphasizes that motivation, as a complex and long-lasting process, should not be observed only during the initial part of the lesson which aims to raise students' interest in a particular unit, but the approach needs to be broader and start in the curriculum planning. This is because motivation cannot fulfill its purpose in an individual lesson, but on a more general level in the context of the overall relationship of students with natural science subjects. Still, it is very important to begin each lesson with a well-designed and implemented motivation that affects student activity throughout the lesson, but also in subsequent learning.

A series of activities need to be carried out in the classroom with the aim of strengthening motivation and learning life skills such as creative problem solving, critical and divergent thinking, logical connection, and quite importantly, encouraging students' independence in learning and practical tasks. It is of great importance to raise awareness in natural science teachers that experiment arouses students' interest at different levels of learning because experiment increases learning ability by including

students in topics covered during the educational process (Soares et al., 2016). According to a report to the European Commission (Rocard et al., 2007), research-based learning holds great benefits and has been shown to increase student interest and educational accomplishments at primary and secondary levels, while having a positive effect on teacher motivation. Varieties of research-based strategies have proven successful in increasing students' motivation, especially research related to real-world problems. The incentive to observe nature and one's environment as the cornerstone and beginning of the research and learning process also enhances learning motivation (Madden, 2011).

O'Shea (2017) argues that using video materials in the teaching process can be a great way for teachers to encourage enthusiasm and motivate students to learn. Furthermore, Alsied, Pathan (2013) believe that computer technology increases the level of motivation in students and makes the learning process more enjoyable. In this regard, Letina (2015) in numerous studies finds that the implementation of computer technology in natural science teaching increases students' interest and motivation for science and their participation in teaching activities, while also enabling active, constructive, contextual, self-regulated, and collaborative learning.

Learning outside of the classroom could be a very effective factor in the enhancement of natural science education if thoroughly and carefully planned and carried out by actively involving students in the learning process. Teaching in different locations, due to changes in the everyday school environment, in both buildings and natural environments, i. e. places suitable for learning methods and active participation of students (e. g. museums, laboratories, zoos, botanical gardens, national parks, forests, science centers…) lead to an increase in students' motivation to learn (Fűz, 2018). Creating a student-centered environment that enables research instead of traditional teaching, argumentative discussion, analysis, etc., creates an environment where students become more responsible for their learning, and thus are more motivated and engaged and can act at a higher cognitive level (Kazempour, Amirshokoohi, 2014).

## Conclusion

The predictors of any successful learning are motivation and positive attitude towards learning. Studying natural science subjects is important not only because of the acquisition of specific competencies but also because the foundation of studying natural science subjects is based on the use of scientific methodology, i. e., studying is also aimed at the science literacy of students. Seeing that the learning competence supports the development of other competencies, it is necessary to observe motivation

as a part of natural science competence and know which factors influence its development, i. e., to deeply understand the interrelationships.

Teachers face a great challenge because they need to focus their teaching on the development of competencies, and at the same time motivate students to learn in an environment that encourages such development. An additional aggravating factor is a fact that motivation is complex and interdependent with numerous other factors. Given that motivation varies depending on the task and context, motivating students in natural science classes often requires a combination of perceptual components such as setting clear goals, providing support to students, adequate feedback, learning environment and use of practical activities.

A stimulating and quality learning environment that enables student choice and autonomy whenever possible and the use of tasks of higher cognitive levels are some of the indicators of increased students' motivation and engagement in the teaching of the natural science subjects. Students are more motivated by teachers who show empathy. While internal motivation is characterized by the active participation of students, without having to be rewarded, external is characterized by the focus on grades, awards, and recognitions. Enabling students to participate in research activities and argumentative discussions, encouraging critical thinking, problem-solving, logical reasoning, connecting content with everyday life, and developing divergent thinking can improve students' natural science skills and improve their attitudes about the natural sciences.

Finally, student motivation is not constant and unchanging and can be positively or negatively influenced by teachers, the class environment, and parents (family). However, the students' motivation and engagement depend on the personal experiences of the individual and the understanding of their abilities, which is why students must have a clear vision of personal goals and learning goals, which is the basis of lifelong learning.

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# SCHOOL GARDENING: WHAT IS CURRENT TREND ABOUT?

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**ABSTRACT**

There is plenty of research on school gardening practices reflecting the positive effects of garden-based learning on the development of elementary school students, which are mainly based on short-term gardening program implementation and assessment. However, theoretical research of school gardening is still not shaped well, as the distribution of research activities is unequal and the concept itself is still considered being innovative. A review of scientific literature and documents has been done to define what the school gardening concept really means and what are the spatial and functional domains of it.

The review has touched on historical aspects of the school gardening movement's rise at the beginning of the 20th century in the U.S., as the country considered being at the frontiers of the current trend. Differences in defining school gardening priorities were identified, pointing out the variety of functional domains of school gardening activities developed during the century. Currently, school gardening is characterized by its role in improving students' learning and achievements, environmental attitudes, health and food behaviours, intrapersonal skills and emotional wellbeing, and social bonds. Also, as the term "school gardening" itself refers to a specific place-based setting, its spatial domain was inspected and redefined according to the variety of current garden-based learning practices.

The review allowed to define school gardening as a school-run and community-supported tool for student engagement with school curriculum, civic activism, healthy lifestyle, and development of intrapersonal and social skills through experiential, experimental, transdisciplinary, collaborative, and self-directed learning.

*Keywords: Elementary schools, garden-based learning, learning spaces, school gardening, student engagement.*

## Introduction

School gardening initiatives and programmes have been in focus of international research communities during the last three decades. The most intensive research work is done by the U.S. research institutes thanks to a well-developed school garden network and infrastructure that is overtaken from Europeans and rooted back in the last decade of the 19th century. The

first decade of the 20th century has been significant for the rise of children agricultural activities in rural schools and research on them. Interestingly, the American literature refers to the positive influence of European school gardening practices, especially Austro-Hungarian, Prussian, French, southern- and central-Russian, and Swedish, as examples to follow (Clapp, 1898; Miller, 1904). Pointing out progressive and highly beneficial European school gardening initiatives, Miller (1904) has expressed that "when the importance of school gardens as a factor in the training of children is considered, and their efficiency has been so thoroughly demonstrated by European countries, it seems almost incredible that their establishment in the United States should have been so long delayed".

Within a century, the situation has changed to completely opposite. School gardening in the U.S. has large state support for implementation, covering school garden' setup, preparing teaching staff, aligning gardening activities to each state's education standards and establishing a food curriculum for the school system (Passy, 2014) and research, while school gardening for educational purposes in European countries is highly fragmented, with several exceptions in UK, Denmark, Sweden, Slovenia. Also, the purpose of school gardening has changed with the time and socio-economic conditions in Europe and U.S. Developed from the pedagogic trend towards teaching science through nature-based inquiry in the second half of the 19th century (Rockwell, 2020), now school gardening is recognized as a pedagogical tool for multi-purpose learning.

Despite more than a century-long research of educational activities in gardens, there is no commonly accepted term and definition of gardening activities for learning purposes. The terms used most often in relation to pedagogy are school gardening (Passy, 2014; Baker et al., 2015), garden-based learning (Ruiz-Gallardo et al., 2013), children's gardening (Lekies, Sheavly, 2007), kitchen garden programmes (Wallace, 2019; Block et al., 2011) and garden-based education (Murakami et al., 2018; Kim et al., 2020). School gardening seems to be the most appropriate term to use in further explorations, based on the explicit experience of American practitioners and researchers of school gardening.

Although there are plenty of researches explaining gardening effects on children in education during the last decades, none of them really defines what school gardening really is. As Johnson (2012) has pointed out, there is little recent research into the theoretical basis for gardening and the capacity of schools to incorporate such. Since then little has changed. On the one hand, the concept has been explicitly described in the scientific literature at the beginning of the 20th century. On the other hand, new pedagogical methods and concepts have been developed and new models and roles of school gardening have been discovered. Additionally, researches conducted

in distinct countries and settings allow concluding on the variety of school gardening practices, settings and collaborative models. The objective of the review is to define the school gardening concept and review its current spatial and functional domains.

## Methodology

Electronic search and snowball sampling methods have determined the results of this review of scientific literature and documents. Mainly Taylor & Francis Online database (with several exceptions found through Researchgate and Google search) was facilitated to research the topic, using the key words such as 'school gardening', 'urban garden', 'community garden', 'kitchen garden', 'garden', and others. In total, more than 60 scientific articles and pedagogy-related literature in English and Russian were reviewed to select 45 for further exploration. The selection was determined by the content explaining particular gains from practicing gardening for educational purposes. Mainly the articles of the last decade were reviewed with some exceptions of earlier articles explaining the origins of the school gardening concept and scientifically well-recognized authors. The majority of reviewed articles were based on quasi-experimental, mixed research designs or scoping reviews from U.S., Europe, Asia, and Australia. Reviewed scientific articles had diverse purposes, from measuring school gardening programmes to assessing specific influences of school gardening activities on nutrition habits or self-perception of students. This specific study has applied gathered knowledge to determine the main components of school gardening definition to be applied in further research actions.

## Results

If at the beginning of the school gardening movement in Europe and consequently in the U.S. the emphasis was put on rural schools equipping them with gardening tools for maintaining by children, the World War I has demonstrated that gardens can be set in the urban environments specifically for food production purposes (by both children and adults). Since then, plenty of research has been conducted in the area of urban wellbeing, where the urban garden is viewed as a centre for community interaction, healthy lifestyle promotion, ecology, and recreation (Bell et al., 2016; Ernwein, 2014). During the last decades, in school settings effects of gardening practices are mainly researched in the scope of food behaviours and science knowledge improvement (Cairns, 2017; Kim et al., 2020; Wells et al., 2015; Skelton et al., 2020; Blair, 2009) as the major reason for implementing school gardening. However, the potential of gardening

programmes is much broader, as the latest qualitative studies have discovered gardening activities being a powerful tool for initiating an interest and motivation, developing transversal skills and developing agency of the learners (Murakami et al., 2018; Holmes et al., 2020; Christodoulou, Korfiatis, 2019; Barnick, 2014). It makes the concept of school gardening perceived differently than a century ago.

At the beginning of the school gardening movement in the U.S., the American research community defined the school garden as "a place where children are taught to care for flowers and/or vegetables, by one who can, while teaching the life history of the plants, and of their friends and enemies, instil [sic] in the children a love for outdoor work and such knowledge of natural forces and their laws as shall develop character and efficiency" (Greene, 1910). Moreover, as stated by Schwab and Mann (1879) even prior the first school garden establishment in the U.S., the school garden is a "place where children are happiest" as they are not locked in a school classroom or home while doing the homework for the school. Miller (1904) have pointed out that school garden serves two types of children – those who live in urban settings and have little opportunities to interact with "the things of the country" and those who live in rural settings but are still ignorant to nature they are in contact with. School gardening in the pedagogy of that time was mainly driven by the need to familiarize children with nature and labour, cultivating skills that can be used for the rest of their lives. Later on, it turned to be highly practical, when the central purpose of school gardening was food production for the support of civilians and armed forces during the World Wars. United States School Garden Army was designed by the Federal Bureau of Education during World War I, calling for "A garden for every child. Every child in a garden" (United States Department of Agriculture Poster Collection, 1914).

Nowadays Food and Agriculture Organization of the United Nations (2004) defines school gardens as "cultivated areas around or near to primary and/or secondary schools, which can be used mainly for learning purposes but could also generate some food and income for the school." According to Bice and others (2017), school garden can be classified as a type of community gardens (along with Leisure gardens and Private (or Entrepreneurial) gardens) and defined as "community gardens, owned and run by schools or educational facilities, are most often found directly onsite and are paired with varieties of classroom instruction that expand traditional learning spaces to promote not only academic success but also fruit and vegetable consumption, physical activity, and the development of social and leadership skills" (Bice et al., 2017). At the same time, regardless of long history of gardening practices in education, California School Garden Network (2006) calls school garden "a living laboratory" and "an

innovative teaching tool and strategy" enabling engagement of students through incorporating hands-on activities in a diversity of interdisciplinary, standards-based lessons, dynamic environment observation, discoveries, experimentations, nurturing and learning science, practical horticultural and life skills. Verification was done by comparing the data to the garden-based practices in another scientific culture, Russia. Galkina and Ishkova (2014) similarly define school garden as a basis for experimental work that takes a significant role in the study of living nature by students, develops cognitive interest and creativity in conducting experimental and natural science research. Moreover, with a strong emphasis on developing practical labour and research skills of students, school gardening is called "a required open-air laboratory" for familiarizing students with various species of plants, biodiversity, growing techniques (Smirnova, 2013).

There are two elements of the term that have to be analysed – "school" and "gardening" revealing the spatial and functional meaning.

## Spatial domain

According to Collins dictionary (2020), "school" – is "a place where children are educated" describing the location of the action. One of the distinguishing elements of school gardening is the outdoor environment and access to nature, providing an opportunity to relax and support cognitive functions (Chang et al., 2016). However, it is important to note that outdoor school-by-setting is not strictly determining criteria for defining school gardening, as innovative practices include various in-class, lab- or farm-based activities too as part of the formal educational curriculum. For instance, gardening programmes can include systems of hydroponics and aquaponics that can be maintained indoors (Schneller et al., 2015) or animal and plant farms located on a distance from school (Malberg Dyg, Wistoft, 2018).

Also, spatial meaning can be characterized by target groups of garden-based activities. The research activities around school gardening are mainly focused on students and their teachers engaged in gardening activities, however the presence of larger stakeholder groups need to be admitted: teachers, students, support staff, parents, school principals, volunteers, specialist staff, etc. The research practice of the last century confirms that school gardening is not equally implemented (and consequently – researched) in relation to all age groups of learners. The majority of scientific authors reflect the effects of gardening activities on elementary school students (Christodoulou, Korfiatis, 2019; Sarti et al., 2017, Wells et al., 2015, Swank, Shin, 2015; Blair, 2009), as elementary school grades are recognized as a time of special significance in the development of interest (disinterests) in science (Klemmer et al., 2005). Kindergarten-age children

in pre-schooling settings are the second most popular object of the research (Baker, Waliczek & Zajicek, 2015). Less gardening effects are measured in relation to adolescents in high schools, however, the social, emotional and academic effects of gardening on at-risk-adolescents is also one of the focus areas of research (Wang et al., 2004; Ruiz-Gallardo et al., 2013). Another direction in school gardening research focuses specifically on teachers and their abilities to deliver garden-based curriculums, as well as involvement of other stakeholder groups (e. g. parents, school principals, local entrepreneurs, etc.

There are various school gardening implementation models that include different parties supporting teachers and learners. For instance, in the U.S., where school gardening solutions have been national programme-driven for more than a decade (Passy, 2014), school gardens are mainly attached to each particular school, being an object of pride, the reason for improved sense of belonging and ownership of a space. In Russia, school gardens are defined as a part of school territory, as it allows to save time for efficient outdoor experimentation and hands-on learning (Galkina, Ishkova, 2014). In general schools with own gardens are capable of gathering own community of stakeholders, providing the space for intergenerational learning, community events, involving volunteers (parents, grandparents), fundraising, attracting local entrepreneurs, etc. (Passy, 2014; Block et al., 2011, Holmes et al., 2020). In Denmark, where the school gardening concept is still new, school gardens are mainly located on farms, nature centres and other out-of-school settings (Malberg Dyg, Wistoft, 2018), demonstrating a project-based approach and adequate management of gardening and environmental programmes in urban and rural schools. In result, urban children have equal access to the natural environment and larger social actors' group (farmers, NGOs) is involved in educational content implementation. In such cases school is still considered as an agent of gardening-based activities, mainly educational.

## Functional domains

The second part of the term – "gardening" – describes specific context and functional meaning of "school gardening". According to Collins dictionary (2020), gardening is defined as "**planning** and **cultivation** of a garden" (in British English), which clearly characterizes gardening as a place-based activity. In pedagogical studies, gardening is viewed broader in a context of knowledge and skills development.

**Learning and science achievement.** The most common reason for launching the gardening programme in the school is a necessity or will to improve interest and academic performance, particularly in the area of science (Blair, 2009, Block et al., 2011). The need is based on UNESCO's

(2015) definition of science as critical in reaching Sustainable Development Goals and experts' concern about inadequate interest in science, technology, engineering, and math (STEM) careers among children and young people. Although the lack of interest is often associated with the complexity of the studied areas, achievement difficulties and learners' disconnectedness from nature; primary low interest relies on the lack of curiosity, enjoyment and following participation in scientific activities of respective areas (Dabney et al., 2011).

Hands-on, experiential and interdisciplinary approaches of school gardening programmes make learning relevant, practical and exciting for children, consequently contributing to the engagement of learners with less academic aptitude and better understanding of learning purpose (Passy, 2014; Malberg Dyg, 2015; Klemmer et al., 2005; Skinner, Chi, 2011). Moreover, science-related topics can include various other disciplines, such as language studies, mathematics, entrepreneurship and economics, health and hygiene, geography, and many more, designing a clear understanding of the possible application of knowledge. According to Block and others (2011), such experiential learning practices are particularly useful for "kids who don't shine in academia". The workflow of school gardening activities allows for immediate reflection on what has been learned, what skills are mastered and how this relates to other subjects in school (Block et al., 2011, Malberg Dyg, 2015).

**Environmental awareness.** According to Wallace (2019), building knowledge and understanding of the environment is the basis for building connection and empathy with living things and developing deeper understanding (or eco-literacy). These connections can be only made when observing and interacting with nature, therefore outdoor activities and observations are critical for empathetic behaviours development. According to Ohly and colleagues (2016), the facilitation of deeper understanding and appreciation of natural world in childhood develops broader perceptions of wellbeing and environmental responsibility in adulthood. These findings have led to the understanding that the use of school gardens as learning spaces in elementary schools can provide a conduit for reconnecting children to nature, offering hope for more eco-literate citizens and a sustainable future.

**Health and food behaviours.** One of the most important functional meanings of school gardening is learning about healthy nutrition, especially in relation to children from families with low socioeconomic status and poor fresh food eating habits (Sarti et al., 2017). It is considered that food growing and preparation skills acquired through hands-on gardening activities allow developing healthy and sustainable living in further life (Malberg Dyg, 2015), however, longer observations are necessary to

depict the evidence of healthier living. From what is known from short-term research on student behaviours, it is noted, that school gardening activities positively enhance children to try new food – fruits and vegetables – the results of purposeful efforts in a garden – thanks to gardening routine, increased autonomy, agency, and decision-making (Ohly et al., 2016; Sarti et al., 2017). In his "I Eat the Vegetables because I Have Grown them with My Own Hands: Children's Perspectives on School Gardening and Vegetable Consumption" Sarti and colleagues (2017) reports more vegetables being eaten by Dutch children participating in the gardening programme. Moreover, gardening activities are closely linked to environmental behaviours, as they promote an understanding of the value of food and its relation to waste management problems (Sarti et al., 2017; Block et al., 2011). Other health-related issues practiced through purposeful school gardening activities are physical activity (Bice et al., 2017) and hygiene, which are parts of the modern school curriculum.

**Intrapersonal skills and emotional wellbeing.** Valuing the way how students learn over what should be learned (Johnson, 2012), researchers of school gardening programs have explored positive impacts on children's life-skills and transferable knowledge. Cultivating, observing, and cooking plants develops scientific curiosity, inquiry, perseverance, critical thinking, problem-solving skills, respect for evidence, teamwork, respect for order, and other characteristics and skills relevant for scientific attitudes and life-long learning (Kim et al., 2020; Holmes et al., 2020). These skills are taught through the routine that promotes questioning, examining, reasoning, proving, and making judgements about concrete experiences. Nature-nurturing activities turn to be a perfect environment for student-led learning (incl. learning from mistakes) and developing own experience. The development of intrapersonal skills is determined by the agency of the learner, which also allows development of creativity, abstract thinking, risk-taking, confidence, self-esteem, pride, responsibility, and sense of ownership (Miller, 2007; Block et al., 2011). Ruiz-Gallardo and colleagues (2013) in his research on disruptive and low-performance secondary school children has concluded that garden-based learning reduces disruptive episodes and improves academic performance by making students feel responsible for something "meaningful" (not just completing "random tasks"), achieving tangible personal results, being proud of own work, feeling self-perception and self-esteem. It is worth mentioning that school gardening experiences, supported by teachers, parents, and peers, have a high potential to positively influence the interpersonal growth, health, and emotional wellbeing of learners (Malberg Dyg, Wistoft, 2018; Ohly et al., 2016).

**Interpersonal relationships and behavioural patterns within a group.** According to Johnson (2012), students' garden-based activities

have civic and global dimensions among others. The beliefs and values of students are challenged through social interactions when gardening with their peers and stakeholders. Gardening activities develop a healthy environment within a class and promotes the development of interpersonal skills, such as cooperation, teamwork, leadership, conflict management, communicating desires, needs, ideas to others, sharing and negotiating, interacting and collaborating with adults and peers, making democratic decisions, organizing the setting and workload (Miller, 2007; Johnson, 2012; Holmes et al., 2020). Gardening as a goal-oriented activity carried out in a team helps to overcome social boundaries and elitism associated with traditional academic structures (Ohly et al., 2016), as well as empower more trustful relations among students, teachers, and family members engaged in intergenerational garden-based learning. Lifelong learning is empowered through learning from each other and sharing experiences and knowledge. In schools with ethnic and linguistic minorities, gardening provides additional social interaction opportunities for oral language skill development (Block et al., 2011) in a less stressful atmosphere than in a formal classroom. Through the implementation of planting and cooking activities in multicultural groups, cultural awareness and cohesion of learners are positively influenced (Ohly et al., 2016), especially in groups where interpersonal relations are not well managed.

## Discussion

It has become clear, that garden in a school is no more just a setting for learning new knowledge – it is a functional tool and a set of actions to respond to a broader spectrum of challenges, therefore can be implemented in a transdisciplinary manner. For instance, one of the stages for urban and school gardening development is based on the social, economic and political crisis in the 1970s, when "green activism" rediscovered agricultural activities (especially in cities) as a tool for sustainable living (Bell et al., 2016). Since then, environmental awareness is one of the functional domains for teaching and learning at school gardens, however not the only one. Other functional domains describing effects on school-aged children are learning and particularly science achievement, health and food behaviour, intrapersonal skills and emotional wellbeing, and interpersonal relationships.

The spatial domain, in turn, needs to be redefined due to technological advancements and social innovation, as the traditional view on gardening activities has been complemented by a variety of approaches, incl. indoor and outdoor schoolyard gardens, and distant stakeholder-designed community spaces (Schneller et al., 2015; Malberg Dyg, Wistoft, 2018). Variety,

in turn, is defined by climate, financial opportunities, and the capacity of teachers to undertake practical activities in a garden, especially among younger staff (Passy, 2014; Ohly et al., 2016). Also, approaches differ by the level of activity connectedness to the science and agency given to students by teachers and external educators, such as gardeners, chefs, nature guides, beekeepers, etc. (Malberg Dyg, 2015).

In the school, gardening can be integrated with the wider curriculum than just science- or environment-focused subject areas. The ideas of interdisciplinary and transdisciplinary learning have special significance within the context of overloaded curriculums. Hands-on, experiential, inquiry- and project-based gardening activities can be used for learning several themes at once, launching STEM area research with physical activities, literature, arts, history, information and communication (ICT) application, civic education, entrepreneurship, economics, history, culture, and even career guidance sessions. For instance, planting vegetables can include: planting, maintaining, and harvesting (horticulture) activities (biology, housekeeping, chemistry), knowledge about the soil and irrigation (geography, physics), construction of planting beds (mathematics, physics, economics), decorating school area (design, arts), presenting results of the gardening projects, copywriting and marketing for school website (ICT, literature), fundraising (entrepreneurship), planning tools and materials (entrepreneurship/ management), distributing tasks and sharing different roles (career planning), cooking meals and sharing with parents (community building, housekeeping, chemistry), waste management and circular economy knowledge (geography, biology), doing physical exercises outdoors (sports), researching the history of species and localities (history, geography) and many more. At the same time, these activities can be done in a highly social atmosphere (group work, experience exchange), by applying student agency and peer-learning, supported by teachers and/or other educators.

It is necessary to admit, that the research on school gardening is incomplete. One of the most common concerns expressed by the researchers is the lack or insufficiency of quantitative evidence of school gardening's positive effects. So far, the knowledge is mainly based on qualitative and short-term intervention studies. Surveys and tests are often applied in research with the action and control groups, however, these do not always show significant differences in relation to the perception of science/environmental studies, interest in gardening or study achievements. Long-term studies with a large sample and consistent evaluation methodology are necessary to assess strengths and limitations of school gardening programmes to be implemented on a larger scale. So far school gardens are distributed unequally and often lack competencies as require proper preparation of staff, therefore require social innovation to proceed.

## Conclusions

The majority of recent research on school gardening accessible in English are conducted in the U.S. and do not define the term "school gardening" itself, rather focusing on specific effects of garden-based activities on elementary school students or teacher competence in school gardening. This review has been focused on defining the school gardening concept and reviewing its current spatial and functional domains.

Based on review articles, modern school garden can be recognized as a functional tool rather than just a space for learning how to grow food and generate income from it. Except for poorly developed territories, where gardening primary serves as a tool for survival, school gardening can be defined as school-run and community-supported tool for student engagement with school curriculum, civic activism, healthy lifestyle and development of intrapersonal and social skills through experiential, experimental, transdisciplinary, collaborative and self-directed learning. School gardening activities can be implemented in a variety of settings, incl. those indoors or on a remote distance from the school territory.

Although the key stakeholders of garden-based learning still remain elementary school children and their teachers, successful school gardening programmes involves a much broader community, such as parents, public authorities, local farmers, volunteers and others. This supports the definition of school garden as a type of community garden that expands traditional learning spaces to promote not only academic success but also other abilities of students: eating habits, physical activity, development of social and other transversal skills.

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# STUDENTS' READINESS FOR STEM LEARNING WITHIN THE CONTEXT OF NATIONAL EDUCATION REFORM

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## ABSTRACT

STEM (science, technology, engineering, and mathematics) education nowadays becomes more and more topical; however, students' performance in these subjects is rather low and only a small part of them decide to study these sciences therefore it is important to rouse students' interest in these subjects already at school. It is important to acquire not only the knowledge of the subject but also the transversal skills, thus, the organization of the teaching/learning process becomes more significant. Schools of Latvia start implementing the teaching/learning content and approach that correspond to the new standards of basic and general secondary education, which incorporates four innovative aspects in the science domain: the promotion of the content acquisition through teachers' reciprocal collaboration; the use of ICT (Information Communication Technologies) as a platform for engineering technological solutions; learning through doing and engagement in discussions and other activities for making socially responsible decisions. The aim of the study is to find out students' readiness to learn STEM in the context of innovative approaches of the national education reform. To reach the aim, the research question was set – to what extent and in which way are students ready to learn STEM? Using the *QuestionPro* e-platform, 257 students of Latvian general comprehensive schools were surveyed and the meta-analysis of factors of thematically respective selected questions was performed. The obtained empirical results were compared with the four aspects of the innovative approach pertaining to the education reform in the science domain. The study resulted in isolating main four factors: the course of the teaching/learning process, the feedback, the use of ICT and technologies little used in the acquisition STEM. The found factors comprised all the innovations of the science domain put forward by the national education reform, which means that students already at the pre-reform stage are ready to acquire STEM subjects in an innovative way.

***Keywords:*** *innovation, national education reform, readiness, secondary school students, STEM learning.*

## Introduction

STEM education during the last decade has become the topic of international discussions (Kennedy & Odell, 2014). The appeal to improve STEM education continues also at the beginning of the twenty-first century (Ritz & Fan, 2015) and this, to a certain extent, is also connected with the impact of this century on the environment and society causing the urgency of improving STEM education in the world (Kelley & Knowles, 2016).

There are different reasons why STEM education attracts the attention. Many countries are involved in discussions and are experimenting with STEM education in different levels of education and with the focus on different subjects. There are countries that hope to find ways how to improve students' understanding about the content of STEM subjects so that they are able to acquire better this knowledge, other countries, in turn, place emphasis on teacher education with the intention of improving the teaching/learning methods of STEM to create a greater interest in students and to make students' acquisition of the knowledge easier. Other countries hope to increase students' performance in tests so that the country could rise above other countries in the international student assessment because students' low performance in STEM subjects is a problem. Yet, for other countries it is important to increase the number of students studying STEM in higher education institutions to ensure the future STEM workforce (Ritz & Fan, 2015). The changing global economics and the needs of the workforce describe this situation, which indicates that the world lacks well-qualified STEM experts and teachers (Kennedy & Odell, 2014) to meet the 21st century challenges where people are not only smart but also skilful.

Researchers of science education emphasise increasingly the importance of integrative, interdisciplinary STEM (science, technologies, engineering science and mathematics) education to urge students to get to know the natural world applying inquiry and problem solving experience (Asghar et al., 2012). This means that the importance of STEM education can be analysed from several aspects – from the point of view of the teaching/learning process and learning outcomes in the nearest and further perspective. Qualitative education of science, technology, engineering science and mathematics is important for students to gain success in future. Integrated STEM education is one of the ways how to make learning more attractive and appropriate for students (Stohlmann et al., 2012).

One of the issues in the context of the national education reform in Latvia to be faced during its implementation is students' readiness for learning STEM. As the readiness to learn correlates with learning outcomes, students' goal of learning is affected by the change in knowledge,

understanding, skills, habits, values and attitudes gaining new personal experience (Kearney & Garfield, 2019; Tiven et al., 2018; DiBenedetto & Myers, 2016). This means that it is important to acquire not only the subject knowledge but also transversal skills therefore the organization of the teaching/learning process at school becomes more significant. Schools of Latvia start implementing the teaching/learning content and approach that correspond to the new standards of basic and general secondary education, for students to gain knowledge, skills and attitudes necessary for life nowadays (Skola 2030, 2019).

At present, the implementation of STEM in Latvia employs two approaches – the old and the new. According to the old approach the schools with the humanitarian direction in Latvia teach the integrated science course but in general comprehensive schools each STEM subject is taught separately. There can be a situation in schools specializing in teaching science and mathematics that one or two STEM subjects are taught in-depth. According to the new Skola 2030 reform schools will choose the directions of teaching/learning domains and the chosen subjects will be taught in-depth. The new standard for general upper secondary education will offer three levels of curriculum (general level, basic level and advanced level). Approximately 70% of the time spent studying the curriculum will be spent on the compulsory content, while approximately 30% of the curriculum will be offered according to a future career path/educational pathway of the student (National Reforms..., 2020). The reform in the education of Latvia is substantiated by the fact that today's children must learn to live in the continuously changing world and in future they must be ready to create the economic, political, social and culture environment not experienced before. Students in the present stage of education do well the tasks that require remembering or acting in standard situations, however, they lack skills to delve into and process diverse data, to work in a team, to offer solutions to non-standard situations, to form connections between the theoretically acquired and the experienced in their life, to analyse what has been done and to set aims for further work (Skola 2030, 2019).

The national education reform is implemented to introduce innovations in the science domain in four aspects: (1) the promotion of the content acquisition through teachers' mutual collaboration in teaching interdisciplinary themes; (2) the use of ICT as a platform for problem solving, emphasizing the engineer technical thinking; (3) learning through doing, performing practical activities, exploring, experimenting, modelling and searching for regularities; (4) engagement in discussions and other activities for making socially responsible decisions (Andersone, 2020).

The present study adapted and supplemented the above mentioned aspects (Figure 1).
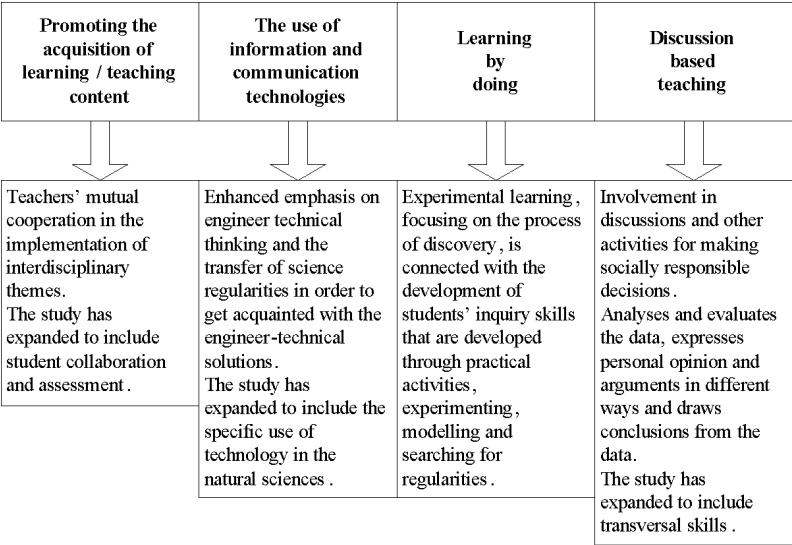
| Promoting the acquisition of learning / teaching content | The use of information and communication technologies | Learning by doing | Discussion based teaching |
|---|---|---|---|
| Teachers' mutual cooperation in the implementation of interdisciplinary themes. The study has expanded to include student collaboration and assessment. | Enhanced emphasis on engineer technical thinking and the transfer of science regularities in order to get acquainted with the engineer-technical solutions. The study has expanded to include the specific use of technology in the natural sciences. | Experimental learning, focusing on the process of discovery, is connected with the development of students' inquiry skills that are developed through practical activities, experimenting, modelling and searching for regularities. | Involvement in discussions and other activities for making socially responsible decisions. Analyses and evaluates the data, expresses personal opinion and arguments in different ways and draws conclusions from the data. The study has expanded to include transversal skills. |

**Figure 1.** The use of innovative aspects in the study (adapted from Andersone, 2020; Skola 2030, 2019)

Based on the innovative aspects of the national education reform, the aim of the study was defined – to find out students' readiness to learn STEM in the context of the national reform and the research question was set – to what extent and in which way students are ready to learn STEM.

## Method

The study is performed adapting the context of innovative aspects of the national education reform. Using the *QuestionPro* e-platform, students of Latvia's general comprehensive schools were surveyed. The selection of schools was carried out in accordance with the regions of the territory of Latvia – Riga, Vidzeme, Kurzeme, Latgale and Zemgale, sending out questionnaires to the heads of methodological associations of schools in these regions. The obtained empirical results were compared with the four aspects of the innovative approach of the education reform, performing the meta-analysis of factors of thematically respective selected questions from the secondary school students' survey carried out in 2018.

Data are obtained using open and closed questions on 5-point Likert scale in the online platform *QuestionPro*. The data analysis uses descriptive statistics ($M, SD$), exploratory factor analysis and the analysis of correlations, defining the linear Pearson's correlation ratio among the factors. The analysis of discrete questions, based on the non-parametric data, used the non-linear Spearmen's correlation ratio.

The participants of the study were 257 students of whom 63% are female and 37% are male respondents (Figure 2). The majority of respondents (84%) are students from gymnasia, representing schools from Riga, Vidzeme, Kurzeme, Latgale and Zemgale regions.

| Grade of learning | 10th (n=97) | | 11th (n=112) | | 12th (n=48) | |
|---|---|---|---|---|---|---|
| Gender | Female (n=161) | | | Male (n=96) | | |
| Direction School level | No direction (n=2) | Humanitarian (n=19) | Science (n=96) | Secondary school (n=37) | Gymnasium (n=215) | Other (n=21) |

**Figure 2.** Students' profile

Based on the innovative aspects (Andersone, 2020; National reforms..., 2020; Skola 2030, 2019), the system of criteria and indicators was designed (Figure 3).
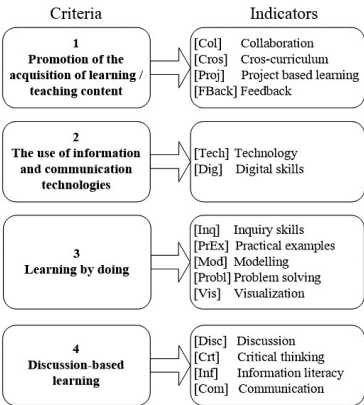
Criteria — Indicators

1 **Promotion of the acquisition of learning / teaching content**
[Col] Collaboration
[Cros] Cros-curriculum
[Proj] Project based learning
[FBack] Feedback

2 **The use of information and communication technologies**
[Tech] Technology
[Dig] Digital skills

3 **Learning by doing**
[Inq] Inquiry skills
[PrEx] Practical examples
[Mod] Modelling
[Probl] Problem solving
[Vis] Visualization

4 **Discussion-based learning**
[Disc] Discussion
[Crt] Critical thinking
[Inf] Information literacy
[Com] Communication

**Figure 3.** The system of criteria and indicators (adapted from Andersone, 2020; National reforms..., 2020; Skola 2030, 2019)

The developed system of criteria and indicators was used for describing the factors, incorporating the teaching/learning methods and transversal skills used in STEM education.

## Results

The indicator of the sample correspondence KMO was 0.85 and the Bartlett spherical test was significant (c2 (257) = 2250.94, $p < .001$), confirming the suitability of data for performing the factor analysis. The principal component analysis was carried out using the extraction method of varimax rotation with Kaiser normalization. The analysis used questions the factor load of which was at least 0.45. To determine the number of

principal components, the parallel analysis was used which allowed defining the four most important factors that explains 45% of the dispersion (Figure 4).

## Factors describing students' readiness to learn

The four main factors that describe students' readiness to learn STEM according to the priority aspects of the national education reform were determined in the factor analysis (Figure 4).
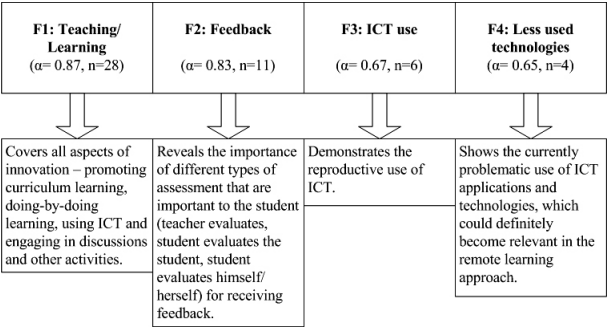


**Figure 4.** Main factors that are essential for students' STEM learning

## Description of factors defined in the study

**Table 1.** Descriptive Statistics, codes and factor loading of the F1

| Variable | Code | *M* | *SD* | *Mdn* | Load |
|---|---|---|---|---|---|
| 3.5. Use of practical examples | [PrEx] | 3.89 | .79 | 4 | .68 |
| 3.10. Use of experiments | [Inq] | 3.54 | .95 | 4 | .65 |
| 3.6. Visualization tools | [Vis] | 3.73 | .85 | 4 | .61 |
| 3.16. Development of inquiry skills | [Inq] | 3.75 | .87 | 4 | .61 |
| 3.9. STEM integration | [Crt], [Cros] | 3.40 | .87 | 4 | .61 |
| 3.14. Diverse media | [Tech], [Dig] | 3.32 | .90 | 3 | .60 |
| 4.13. Problem solving | [Crt], [Probl], [Com] | 3.38 | .96 | 4 | .53 |
| 4.12. Active participation | [Col], [FBack] | 3.46 | .88 | 4 | .53 |
| 3.13. Use of non-standard situations | [Crt] | 3.26 | .89 | 3 | .52 |
| 3.11. Assessment of STEM understanding | [FBack] | 3.40 | .88 | 4 | .52 |
| 4.10. Use of argumentation | [Crt], [Disc] | 3.40 | .88 | 4 | .45 |

**The first factor (F1) "*Teaching/Learning*"** (α = 0.87, the number of included questions *n* = 11) (Table 1) cover all four innovation aspects included in the national education reform – promotion of the acquisition of the teaching/learning content [Col], [Probl], [Cros] learning by doing [PrEx], [Inq], [Vis], ICT use [Tech], [Dig] and engagement in discussions [Disc] and other activities. Also the transversal skills suggested by Skola 2030 fall within this factor: critical thinking [Crt] and communication [Com] needed for the problem solving, for giving arguments for the personal opinion, for using non-standard situations and the discussion about the application of science concepts. Differing from the innovations included in the national education reform, secondary students consider feedback [Fback] also important, receiving it from active collaboration (*M* = 3.46; *SD* = .88; *Mdn* = 4), as well as receiving assessment for the acquisition and understanding the science concepts (*M* = 3.40; *SD* = .88; *Mdn* = 4). It is interesting that the choice of a high *(Mdn* = 4) most frequent answer on the 5 point Likert scale dominates in students' responses, besides, their opinion is rather similar (*SD* = .79– .96) and the mean value (*M*) in all answers is higher than "3".

**Table 2.** Descriptive Statistics, codes and factor loading of the F2

| Variable | Code | *M* | *SD* | *Mdn* | Load |
|---|---|---|---|---|---|
| 6.14. Assessment of classmates | [FBack], [Com] | 2.79 | 1.04 | 3 | .82 |
| 6.15. A classmate assesses me | [FBack], [Com] | 2.72 | 1.06 | 3 | .81 |
| 6.11. The teacher assesses STEM understanding | [FBack], [Com] | 3.28 | .90 | 3 | .53 |
| 6.13. Student assesses him/herself | [FBack] | 3.28 | .90 | 3 | .49 |
| 4.8. Collaboration in projects | [Col], [Proj], [Com] | 3.55 | .83 | 4 | .41 |

**The second factor (F2) "*Feedback*"** (α = 0.83, *n* = 5) (Table 2) presents students' understanding of the importance of different types of assessment. Students confirm that it is important for them to receive the feedback [FBack] both from the classmates and also to assess the classmates him/herself. Their opinions are slightly different (*SD* = 1.04–1.06), the evidence of that is the mean values of answers (*M* = 2.72–2.79). There is a more similar opinion (*SD* = .90) in questions about the teacher's assessment (6.11) and self-assessment (6.13). Students, to a certain extent, connect the receiving of the feedback with their mutual collaboration [Col] in projects [Proj] and the communication process [Com]. Students' answers here are more similar (*M* = 3.55; *SD* = .83; *Mdn* = 4).

**Table 3.** Descriptive Statistics, codes and factor loading of the F3

| Variable | Code | *M* | *SD* | *Mdn* | Load |
|---|---|---|---|---|---|
| 5.1. Internet for searching information | [Inf], [Crt], [Dig] | 4.12 | .92 | 4 | .70 |
| 2.1. Connection of STEM with other subjects | [Cros] | 4.12 | .92 | 4 | .65 |
| 5.22. Use of Video, DB | [Inf], [Crt], [Dig] | 3.67 | 1.05 | 4 | .57 |
| 4.6. E-communication | [Disc], [Crt], [Com], [Dig] | 3.55 | .83 | 4 | .50 |
| 4.15. ICT skills | [Dig], [Com] | 3.55 | .83 | 4 | .48 |

The third factor (F3) "*ICT use*" ($\alpha = 0.67$, $n = 5$) (Table 3) shows reproductive use of ICT; it is proved by students' opinion on using Internet for searching for information to be used in learning and other study materials (video, animations, data basis et.), where they need such transversal skills as information literacy [Inf], digital skills [Dig] and critical thinking [Crt]. Students' opinions are more similar in the question about searching for the information ($M = 4.12$; $SD = .92$; $Mdn = 4$), they are less similar in the question about the use of video, data bases and other more specific study materials ($M = 3.65$; $SD = 1.05$; $Mdn = 4$). The Internet is also used for communication [Com] and discussion [Disc]. Respondents equally highly ($M = 3.55$; $SD = .83$; $Mdn = 4$) assess their ICT skills [Dig]. Students relate the use of ICT not only to separate science subjects (biology, chemistry and physics) but also to the integration of real-life examples [Cros] in other school subjects, thus gaining a more unified idea about all school subjects in general ($M = 4.12$; $SD = .92$; $Mdn = 4$).

**Table 4.** Descriptive Statistics, codes and factor loading of the F4

| Variable | Code | *M* | *SD* | *Mdn* | Load |
|---|---|---|---|---|---|
| 5.12. Participation in MOOCs | [Dig], [Com] | 1.73 | .93 | 1 | .74 |
| 5.6. Use of e-folio | [Dig], [Com] | 2.02 | 1.06 | 2 | .67 |
| 5.3. Virtual laboratory works and simulations | [Tech], [Dig] | 2.62 | 1.16 | 2 | .64 |
| 5.13. Visualization e-tools | [Vis], [Dig] | 3.11 | 1.11 | 3 | .53 |

The fourth factor (F4) "*Less used technologies*" ($\alpha = 0.65$, $n = 4$) (Table 4) testifies about a problematic use of STEM applications. Students have the least idea about the open mass-scale online courses ($M = 1.73$; $SD = .93$; $Mdn = 1$). They also do not use the e-folio ($M = 2.02$; $SD = 1.06$; $Mdn = 2$) in their learning and very rarely they use virtual

laboratory works and simulations (*M* = 2.62; *SD* = 1.16; *Mdn* = 2). It is interesting that the use of such technologies and the necessity of digital skills have become very topical in the context of remote learning. It must be noted that exactly virtual laboratory works and simulations during the COVID-19 pandemic became almost the first necessity in the science acquisition. Despite the fact that students assess differently (*M* = 3.11; *SD* = 1.11; *Mdn* = 3) the use of visual means (5.13. *To understand natural phenomena, I learn using different (including electronic) visual aids (models, drawings, graphs and charts, etc.*)), probably, they are not always widely employed in all schools.

## Mutual correlation of factors and questions

A Pearson's correlation was run to determine the relationship between factors. It was established that an average good relation exists between *F1: Teaching / Learning* and *F2: Feedback* (*r* (257) = .50, *p* < .001) and *F2* and *F3: ICT use* (*r* (257) = .49, *p* < .001), but there is poor positive correlation between *F3* and *F4: Less used technologies* (*r (257) = .30, p < .001*).
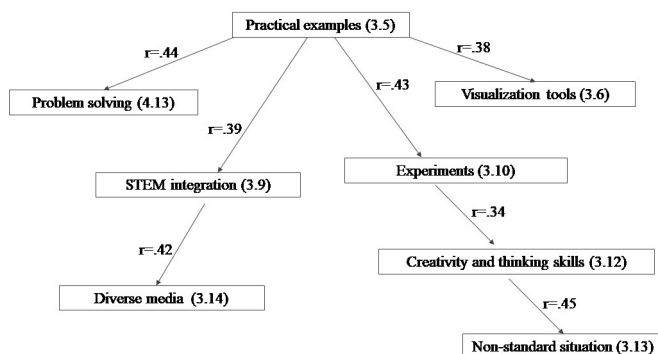


Note: level of significance *p* < . 001.

**Figure 5.** Mutual correlations between questions included in factors

The Spearman's correlation ration was used to determine the mutual relations between the questions included in the factors. As seen in Figure 5, it is important to use *Practical Examples* (3.5) in the science acquisition that correlates medium closely with *4.13. Problem solving* (*r* (257) = .44, *p* < .001) and *3.10. Experiments* (*r* (257) = .44, *p* < .001), but there is a weaker positive correlation with *3.9. STEM integration* (*r* (257) = .39, *p* < .001) and *3.6. Visualization* (*r* (257) = .38, *p* < .001). There is a medium good correlation between *STEM integration* (3.9) and *3.14. Diverse media* (*r* (257) = .42, *p* < .001) which confirms that in the acquisition of STEM it is important to use different kinds of information to form a holistic

understanding about the connection of STEM with the content of other school subjects and the real-life examples. The understanding of this information requires the application of such transversal skills as communication, information literacy and critical thinking. This is also proved by the fact that *Creativity and thinking skills* (3.12) medium well ($r$ (257) = .45, $p$ < .001) correlates with *3.13. Non-standard situation.*

## Discussion

Students' readiness to learn is defined by their purposeful action, acquiring the STEM subjects that is connected with the acquisition of knowledge and skills, the change of attitude as well as the choice of methods and strategies offered by the teacher. This is confirmed by factors defined in the study in which the identified innovation aspects are covered in general, at the same time showing a close interaction between separate features of the teaching/learning process and emphasizing those features that are topical in schools today (Figure 6).

Important innovative aspects mentioned in the national education reform have banded together in the first factor that describes the teaching/learning process in the acquisition of STEM, using practical real-life examples and experiments for developing the inquiry skills, applying diverse media and visualization tools to be able to solve actively the problems, to acquire better the science concepts, combining in an integrative way the science subjects and mathematics for creative activity in non-standard situations.
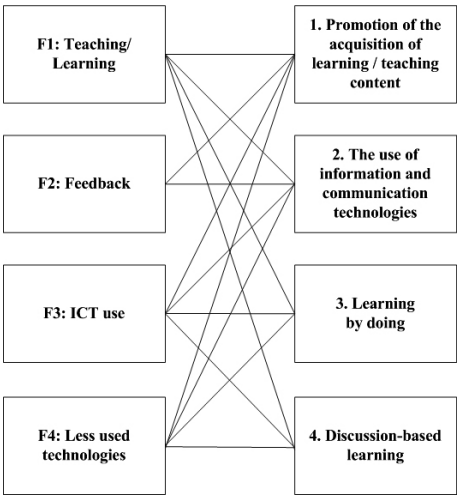


**Figure 6.** Relation of factors to innovative aspects

The essential thing is that students emphasize integrated learning because it is based on the constructivism approach and offers students learning by doing in a diverse teaching/learning environment (Thibaut et al., 2018). Such features of the teaching/learning process as receiving the feedback (F2), the use of ICT (F3) and less used technologies (F4) are actualized. Unlike other factors interlinked with all the innovative aspects mentioned in the national education reform, *F2: Feedback* is only related to two aspects: the promotion of the acquisition of teaching/learning content and the use of ICT. It is possible that the lack of feedback in the aspects of learning by doing and discussion-based learning could be related to the selection of questions, limited by the variable load. The results gained show that receiving and providing feedback in the learning process is an important issue, and this part of the research needs to be further developed. This is also confirmed by the statements of the National Reforms in School Education (2020) that it is important to move from assessment that focused only on recording the outcome to assessment to support student learning. It means that it is advisable to pay more attention to feedback so that the student can improve performance, learn how to act, learn more and demonstrate better results as they learn.

For the time being, both in Latvia and elsewhere in the world there dominates the orientation to separate disciplines and the implementation of integrated contextual learning is a serious challenge the overcoming of which requires the support on all levels because one, first, needs to gain respective knowledge about the pedagogical content (El-Deghaidy & Mansour, 2015), that will allow realizing the key idea of learning when operating with transdisciplinary concepts (Chesnutt et al., 2019). However, STEM education basically has transformed into a meta-discipline (Kennedy & Odell, 2014) and an interdisciplinary approach (English, 2016) that focus on solving contextual problems in science, technology, engineering sciences and mathematics (Wang et al., 2011). Research has displayed the difficulties faced by teachers when forming the respective links among the STEM domains, which frequently leads to the situations that students are not interested in science and mathematics when these subjects are taught separately, without linking them with cross-cutting ideas and the real world applications (Kelley & Knowles, 2016).

Responding to challenges of developing 21st century skills needed for students, one of the innovations offered by researchers is STEM-Based contextual learning (Thibaut et al., 2018), which as a teaching/learning system relies on the philosophy that gives students possibilities to connect the new information with prior knowledge and experience, because it is based on the cognitive situation that comprises constructing of such thinking processes as critical thinking, creative thinking and problem solving (Burrows &

Slater, 2015; Harris & de Bruin, 2018; Thibaut et al., 2018), thus, making learning more meaningful, motivating and preparing students for solving complex problems in new situations (Cook & Bush, 2018) as well as for creating new knowledge in the future.

Although it can be predictable that STEM competences will be more required in our constantly changing world, it is hard to anticipate which of the many approaches for advancing STEM education will be the most effective. One of the examples how to implement STEM – based activities is the link between modelling and engineering design processes (English, 2017), which is also included in the national education reform as the innovative aspect. STEM educators should ensure possibilities for students to think applying technologies as the driving force of changes, giving arguments how it affects positively and negatively the culture, society, politics, economics and environment (Kelley & Knowles, 2016).

The data of the present study, which stress the organization of the teaching/learning process that incorporates such characteristic study methods and strategies as experimental and practical learning, inquiry learning, exploration, asking questions and seeking answers, argumentation of the personal opinion, integration of technologies, discussion and mutual collaboration in problem solving and interdisciplinary projects that are characteristic to the acquisition of STEM, comply fully with the above mentioned ideas. It is important to mention the realization of problem-based and project-based learning, which are one of the most effective learning methods (Wilder, 2015), develop engineer technological thinking (Ritz & Fan, 2015) and describe student's action with apprenticeship, collaboration, accessibility, and independence (Tsinajinie et al., 2021). They are targeted both at acquiring the science content applying practical real-life examples, and improving students' information literacy, critical thinking, decision making, civic responsibility and collaboration skills (Birzina et al., 2021). The development of exploratory cognition is equally important because inquiry makes students think and act as true scientists asking questions, setting hypotheses and performing research (Kelley & Knowles, 2016). STEM learning is considered to be one of the most influential approaches that favours students to become self-regulated learners, because students in STEM lessons are given many possibilities to develop their thinking skills: metacognitive skills, critical and creative thinking (Anwari et al., 2015). This idea is observed in the study describing the existing connection with using creativity in solving a non-standard situation.

In the context of learning STEM the following is also important: communication, social interaction engaging in partner (one-to-one), small-group (one-to-small group), and whole-class (one-to-many) settings and meaningful activities (Lee et al., 2018).

Thus, students' readiness for the context of the national education reform is featured by their readiness to learn (1) using real problems, solving social, economic and environmental problems in the context and making decisions; (2) acting experimentally, improving their inquiry skills; (3) interdisciplinary – integrating biology, chemistry, physics and mathematics in problem-based and project-based learning; (4) being creative to explore non-standard situations; (5) collaborate, discuss and communicate, improving their transversal skills; (6) evaluating critically oneself and the others; (7) improving their digital and technological skills. The obtained results agree with the results gained in the previous research (Birzina et al., 2021; Birzina & Pigozne, 2020; Cedere et al., 2020; Jurgena et al., 2018).

## Conclusions

The study found out to what extent and in which way students are ready to learn STEM subjects. As the study was performed before starting the national education reform, then it is rather safe to maintain that secondary school students (mainly, students of gymnasia) have a relatively good readiness for introducing the innovations and the study actualizes the ways of STEM acquisition.

1. Regarding the promotion of the acquisition of the teaching/learning content, it is important and necessary to have the cooperation between students and teachers for ensuring the interdisciplinary link which can be implemented through transdisciplinary projects, which, in turn, provide the integration of science subjects. This means that in order to work together as a productive team, teachers' assistance is needed and it is possible if all teachers collaborate. According to students, an essential way of mutual collaboration is receiving the feedback both from the classmate and the teacher, thus promoting a meaningful acquisition of the teaching/learning content.

2. As regards the application of information and communication technologies, the use of technologies does not appear in the development of engineer technical thinking. The study does not actualize this particular issue but certainly it can be maintained that there appears a direction for the science acquisition to improve, probably in connecting modelling with the engineering design processes improving the technology literacy. The ICT topicality appears in the all factors defined in the study, even concentrating in two separate factors as "The ICT use" and "Less used technologies". Thus, this aspect is important both from the point of view of the way of using and the development of such transversal skills as digital literacy, information literacy, critical thinking, collaboration and communication. Actually, ICT is more used reproductively – for

searching for the study information in different internet resources but not for creating productive information. It is interesting that the less used technologies (MOOCs (Massive Open Online Courses), e-folio, virtual laboratory works and simulations) are especially important in the context of remote learning.

3. Learning by doing as it is characteristic in the acquisition of science is the most covered aspect in the study. There is a substantial emphasis on using practical real-life examples, inquiry and experimental teaching/learning methods, modelling and visualization, and the integrative approach in the STEM acquisition. The use of diverse learning methods and strategies in the acquisition of STEM forms a holistic understanding about the relation of STEM with the content of other school subjects and real-life examples. Communication, information literacy and critical thinking skills are needed for the student to develop meaningful awareness of learning and to be able to reach the application of the highest level knowledge in non-standard situations. All in all, methods and strategies mentioned in this factor describe a typical approach of STEM constructive learning.

4. The aspect "*Discussion-based teaching*" is the most connected with the transversal skills: the use of information literacy, digital skills, critical thinking, problem solving and communication skills in the discussion-based teaching/learning process. The results of the study show that transversal skills are topical in all factors defined in the study that confirm the students' readiness for the acquisition of STEM, expressing their personal opinion, proving it by providing arguments, engaging in discussions, analysing and assessing the data, drawing evidence-based conclusions, making responsible decisions and voicing their civic attitude.

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# CONCEPTUALIZATION OF PEDAGOGICAL ENTREPRENEURSHIP

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## ABSTRACT

The European Union (EU) and the Organisation for Economic Co-operation and Development (OECD) have stated that education is central to economic and social policy development. Entrepreneurial competence has been topical since 2006, when the European Commission identified a "sense of initiative and entrepreneurship" as one of the eight competencies necessary for all members of a knowledge-based society, however there is still no consensus on what the distinctive elements of entrepreneurship as a competency are.

Latvian educational reforms involve changes in the teacher education system in order to have highly qualified, competent, and excellence-oriented teachers who are able to respond quickly to the demands of the labour market and adapt to technological developments. The school reforms also necessitate teachers to create a study process where students develop entrepreneurial competence, which is a new and still vague concept.

The aim of the research is to conceptualize pedagogical entrepreneurship through a systematic literature review of the term 'pedagogical entrepreneurship' and its components – entrepreneurial skills and teachers' entrepreneurial behaviour (the methodological approach to teaching, which characterizes entrepreneurial behaviour in the context of education).

The present research analyzes 35 publications available on Web of Science, Scopus, ScienceDirect, and ResearchGate that were published in English from 2011 to 2021. The result of the systematic literature review is the compilation of literature for the terms 'pedagogical entrepreneurship', 'entrepreneurial skills', and 'teachers' entrepreneurial behaviour' ('teacherpreneurs'), as well as summarized explanations of each term.

The results can be used for further research on pedagogical entrepreneurship and its components. Comprehension of the value of pedagogical entrepreneurship in the context of education will create fertile soil for the effective integration and elaboration of entrepreneurial skills for teacher education students as well as already practising teachers that will support them to implement a competency-based curriculum and be competitive in the changing labour market.

***Keywords:*** *entrepreneurial behaviour, entrepreneurship education, entrepreneurial skills, entrepreneurial teachers, entrepreneurship competence, pedagogical entrepreneurship, teacherpreneurs.*

## Introduction

The growing interdependence of the world's economies, cultures, and populations has affected the demand and supply of the labour market (World Bank, 2020). This has led to new competencies required to deal with a contemporary situation brought about by globalization. International collaboration and a mixed type of economy require digital solutions and self-directed activity, as well as the ability to plan your time and manage work duties. This has been even more relevant during the pandemic situation, and that is why digital literacy and entrepreneurial skills are the most important skills necessary for the 21st-century economic and business environment, which affects a country's economic development (Turulja et al., 2020).

The changing socio-economic situation affects all spheres of life, and today, strategies for entrepreneurship in an educational context are a global phenomenon that emanates from policy. Policy has thus been a significant point of departure for research on entrepreneurship in a pedagogical context (Dal et al., 2016). The European Commission first referred to the importance of entrepreneurship education in 2006 in the Green Paper on Entrepreneurship in Europe, and the improvement of the entrepreneurial capacity of European citizens and organizations has been one of the key policy objectives for the European Union (EU) and Member States for many years (Bacigalupo et al., 2016). Although entrepreneurial capacity building has been on the agenda for many years, there is still no consensus on what the distinctive elements of entrepreneurship as a competency are (Slišāne & Rubene, 2021).

The Latvian education system has been undergoing changes both in schools and in the development processes of higher education. The task of implementing schools' competency-based curricula is an immediate issue (Regulations on State General Secondary Education Standards and Samples of General Secondary Education Programs, 2019), but its implementation is hampered by the boundaries of the existing teacher education system, established in 2020. As such, there arse plans to strengthen the teacher education system by 2027 to make teacher education better so that it is able to respond quickly to labour market demands and adapt to technological developments (Republic of Latvia, 2019).

21st-century teachers are perceived as educational innovators cultivating innovative pedagogy (Howard et al., 2018), and they should be encouraged to foster entrepreneurial skills, competencies, and mindsets. This could also help teachers to develop and implement an entrepreneurial attitude amongst their students from an early age (Arruti & Paños-Castro, 2020).

Over the years, various studies have used different terms such as 'entrepreneurship education', 'entrepreneurial learning', and 'entrepreneurship

pedagogy' to describe the link between entrepreneurship and pedagogical practices. As the term 'entrepreneurship' originally derives from the economic sector, it is essential to clarify its meaning in a pedagogical context. A narrow and traditional use of the term 'entrepreneurship' refers almost solely to business, including how people learn to start and operate an enterprise (Dal et al., 2016). A detached and much wider approach to the term is connected to the human qualities and skills that make it possible for individuals within organizations and communities to act flexibly and creatively when meeting rapid social and economic changes (Erkkilä, 2000).

The research problem is a vague and ambiguous comprehension of pedagogical entrepreneurship. There are no common foundations or criteria that indicate what entrepreneurial behaviour is in the context of education and what skills refer to entrepreneurial competencies. Without a conception of pedagogical entrepreneurship and its components (entrepreneurial skills), entrepreneurial methodology teachers have no foundation on which to develop entrepreneurial competencies for their students, which leads to the main problem – they cannot fulfil labour market requirements.

The aim of the research is to conceptualize pedagogical entrepreneurship through a selection and summarization of literature that studies pedagogical entrepreneurship, teachers' entrepreneurial behaviour, entrepreneurial skills, and the methodological approach to teaching that characterize entrepreneurial behaviour in the context of education.

Because the aim of the study was to map the research on pedagogical entrepreneurship with relevance for teacher education, the studies in the selection focused on various forms of secondary education. Studies conducted in other types of educational settings (e. g. at university level) or business-related studies where entrepreneurial skills were researched only in a business environment were omitted. The selection thus consists of research on pedagogical entrepreneurship conducted in contexts relevant for teacher education.

The research questions are: (1) What is pedagogical entrepreneurship? (2) What are entrepreneurial skills? (3) What is entrepreneurial behaviour in the context of education?

## Method

In order to find answers to the above questions, a systematic literature review of 35 literature items in the period from 2011 to 2021 was carried out, comprising 32 scientific articles, two policy documents, and the study *EntreComp: The Entrepreneurship Competence Framework*. Although the keyword: entrepreneurship education, pedagogy, entrepreneurial skills,

entrepreneurship competencies, entrepreneurial behaviour, pedagogical entrepreneurship, and teacherpreneurs, generated many hits, most texts were not relevant to this study, and a manual selection was carried out in several steps on the basis of title, abstract and content.

Divergent types of scientific studies were selected – empirical studies, systemic literature reviews, articles from scientific journals, policy documents, and technical reports. The guiding principle for the choice of databases was to ensure that the latest international publications in English were included. The selection thus consists of research on pedagogical entrepreneurship conducted in contexts relevant for teacher education.

The present research analyzes only full articles available on Web of Science, Scopus, ScienceDirect, and ResearchGate that were published in English between 2011 and 2021. Initial keywords were identified on the basis of the researchers' knowledge of the field.

The analysis was executed in two stages. First, each of the individual articles was analyzed according to the three research questions – what skills characterize entrepreneurship? What is entrepreneurial behaviour in the context of education? What activities indicate the implementation of pedagogical entrepreneurship? In the second stage, articles were categorized according to their responses to these questions. The results for each question were summarized in a table to get an overview of the publications written in English in the period from 2011 to 2021 that are relevant to pedagogical entrepreneurship.

## Results

As a result of the research, authors and publications were compiled into three sections – pedagogical entrepreneurship, entrepreneurial skills, and teacherpreneurs (entrepreneurship behaviour in the context of education). Each section has a concise summary of the literature items contained within them.

### Pedagogical entrepreneurship

In the process of researching the definition of pedagogical entrepreneurship, nine literature items from 2015–2021 were selected (Table 1). It can be noticed that mostly Nordic countries use the term 'pedagogical entrepreneurship' to define the phenomenon of entrepreneurship's integration into the learning and teaching process. However, both Nordic and European forums maintain that entrepreneurship in education is more than just a relationship between school and business; it is also related to political awareness, cultural life, and family and societal participation (Haara et al., 2016).

**Table 1.** Literature about pedagogical entrepreneurship (2015–2021)

| No. | Author(s) | Publication | Year |
|---|---|---|---|
| 1 | Katariina Peltonen | How can teachers' entrepreneurial competences be developed? A collaborative learning perspective | 2015 |
| 2 | Michael Dal, Janne Elo, Eva Leffler, Gudrun Svedberg, Mats Westerberg | Research on pedagogical entrepreneurship – a literature review based on studies from Finland, Iceland and Sweden | 2016 |
| 3 | Frode Olav Haara, Eirik Jenssen, Ingrid Fossøy, Inger Karin Røe Ødegård | The ambiguity of pedagogical entrepreneurship – the state of the art and its challenges. | 2016 |
| 4 | Frode Olav Haara, Eirik Jenssen | Pedagogical entrepreneurship in teacher education – what and why? | 2016 |
| 5 | Olivier Toutain, Janice Byrne, Janice Byrne, Fayolle Alain | Labour market uncertainty and career perspectives: Competence in entrepreneurship courses | 2017 |
| 6 | Kevin Celuch, Bryan Bourdeau, Doan Winkel | Entrepreneurial identity: The missing link for entrepreneurship education | 2017 |
| 7 | Annafatmawaty B. T. Ismail, Sukanlaya Sawang, Roxanne Zolin | Entrepreneurship education pedagogy: Teacher-student-centred paradox | 2018 |
| 8 | Adri Du Toit | Constructive congruencies in self-directed learning and entrepreneurship education | 2019 |
| 9 | Agnese Slišāne, Zanda Rubene | Entrepreneurship Pedagogy: Entrepreneurial Skills and Mindset? | 2021 |

Pedagogical entrepreneurship blends two subjects, each with its own traditions and way of thinking: on the one hand, pedagogy, with its ancient scientific traditions focused on socialization, knowledge, motivation, learning, and creation, and, on the other hand, entrepreneurship, which is rooted in an economic tradition focused on business development, individual initiative, and risk-taking. However, pedagogical entrepreneurship should not be about supporting or opposing economics and business, but about paving the way for human development and growth through an emphasis on authenticity, action competence, and students' ability to self-regulate (Haara & Jenssen, 2016).

It is valuable to understand pedagogical entrepreneurship to consider the necessity of its development for educators, and a systematic review of the impact of entrepreneurship education in higher education shows that there are several benefits for students. For instance, it will help an individual to effect personal change (in attitude, knowledge, skills, feasibility, and entrepreneurial intention), help them with business start-ups (Ismail et al., 2018),

provide an opportunity for them to establish non-traditional learning spaces, facilitate a creative atmosphere, and encourage cooperation among students (Dal at al., 2016).

Pedagogical entrepreneurship concerns how teachers can use their own entrepreneurial competence to manage their professional life outside as well as inside the classroom. Teachers and pedagogy play key roles in developing students' entrepreneurial competence. In order to achieve the goal of entrepreneurial education – that is, to develop the learner's entrepreneurial mindset and competence –, learners must be included in the learning process (Toutain & Fayolle, 2017; Slišāne & Rubene, 2021).

### Entrepreneurial skills

Contrary to pedagogical entrepreneurship, the term 'entrepreneurial skill' is more commonly used in the context of education since the (EU) emphasizes the need to move towards competence-based education (Council of the European Union, 2018). After the evaluation and selection of the literature, eight items on entrepreneurial skill from 2016–2020 were chosen (Table 2).

**Table 2.** Literature about entrepreneurial skills (2016–2019)

| No. | Author(s) | Publication | Year |
|---|---|---|---|
| 1 | Margherita Bacigalupo, Panagiotis Kampylis, Yves Punie, Godelieve Van Den Brande | EntreComp: The Entrepreneurship Competence Framework. Luxembourg: Publications Office of the European Union. | 2016 |
| 2 | Frode Olav Haara, Eirik Jenssen | Pedagogical entrepreneurship in teacher education – what and why? | 2016 |
| 3 | Ramona Diana Leon | Developing Entrepreneurial Skills. An Educational and Intercultural Perspective. | 2017 |
| 4 | Organisation for Economic Co-operation and Development | Developing Entrepreneurship Competencies. SME Ministerial Conference. OECD. | 2018 |
| 5 | Anderson Galvão, Joao J. Ferreira, Carla Marques | Entrepreneurship education and training as facilitators of regional development: a systematic literature review | 2018 |
| 6 | Organisation for Economic Co-operation and Development | SME Policy Index: ASEAN 2018: Boosting Competitiveness and Inclusive Growth. OECD/ Economic Research Institute for ASEAN and East Asia. | 2018 |
| 7 | Economic Research Institute for ASEAN and East Asia | Improving the entrepreneurship competence of pre-service elementary teachers on professional education program through the skills of disruptive innovators | 2019 |
| 8 | Jingyi Zhao | Combination of Innovation education and professional education in colleges and universities | 2019 |

The European Commission first referred to the importance of entrepreneurship education in the Green Paper on Entrepreneurship in Europe in 2003 (Bacigalupo et al., 2016). The development of the entrepreneurial capacity of European citizens and organizations has been one of the key policy objectives for the EU and Member States for many years. There is a growing awareness that entrepreneurial skills, knowledge, and attitudes can be learned and, in turn, lead to the widespread development of entrepreneurial mindsets and culture, which will benefit both individuals and society (Bacigalupo et al., 2016).

According to the Organisation for Economic Co-operation and Development's (OECD) publication *Developing Entrepreneurship Competencies*, entrepreneurial competencies include creativity, problem-solving skills, initiative, the ability to combine resources, and financial and technological knowledge (OECD, 2018). There is a core set of entrepreneurial competencies that allow individuals to identify, create, and respond to opportunities to create value by pooling resources and demonstrating self-efficacy, confidence, and a determination to overcome obstacles. One of the goals of developing entrepreneurial competence is to reduce the fear of failure by raising awareness and providing the knowledge and skills necessary to help individuals deal with problem situations/obstacles (OECD, 2018).

According to Leon (2017), entrepreneurial skills are multidimensional and combine knowledge, behaviour, and attitudes. They are a complex blend of rational, emotional, and spiritual knowledge. Any combination that promotes innovation and value creation can be referred to as "entrepreneurial skills" (Leon, 2017).

Entrepreneurial skills can be summarized as consisting of action orientation, creativity, initiative, risk-taking, perseverance, leadership, communication skills, problem-solving skills, the ability to collaborate/work in a team, the ability to learn, and time management.

## Entrepreneurial behaviour in the context of education

To answer the question of what entrepreneurial behaviour in the context of education can be seen in methodological approaches to teaching, the most relevant 18 literature items from 2011–2020 were selected. In the process of the research, the terms 'entrepreneurial teachers' and 'teacherpreneurs' refered to the teachers who are implementing actions with entrepreneurial characteristics during their teaching.

Teachers who have entrepreneurial skills demonstrate entrepreneurial behaviour that improves their own performance and creates better conditions for students to learn. Entrepreneurial behaviour is defined as behaviour that involves recognizing opportunities and marshalling resources to take advantage of and act upon these opportunities. It also includes

the ability to pursue innovative ideas effectively, motivate students to think critically and creatively, constantly search for new developments in the field of education, create compelling technology-based projects inside and outside the classroom, and find the necessary resources to introduce to learners that help them to adapt curricula and teaching materials to changes in a fast-changing environment (Neto et al., 2017; Khorrami et al., 2018), which contributes to the relevance of teaching materials. All this contributes to the academic success of the students of these teachers (Turulja et al., 2020).

The study carried out by Keyhani and Kim (2020) concluded that entrepreneurial teachers are socially motivated, innovative, collaborative, proactive, opportunity-minded, fully present in their work, knowledgeable, dedicated, resourceful, risk-tolerant, visionary and self-improvement-oriented. These traits help them to develop an entrepreneurial environment where learners' initiative, ideas, experimentation, individual and collaborative self-guided participation, and connection between their life outside of school and the contents and methods to be learned in school are implemented (Hietanen, 2014).

From the literature review, it can be concluded that teacherpreneurs have skills such as flexibility, problem-solving, the ability to recognize opportunities and marshal financial as well as human recourses, creativity, and vision. They demonstrate initiative, create new teaching methods, broaden students' view and learning experience by collaborating inside and outside school activities, provide opportunities for students to develop and use their ideas, and integrate activities that reflect novel teaching methods with activities that broaden the learning possibilities of students.

**Table 3.** Literature about entrepreneurial behaviour in the context of education (2011–2020)

| No | Author(s) | Publication | Year |
|----|-----------|-------------|------|
| 1 | Ana Pérez – Luñoa, Johan Wiklund, Ramón Valle Cabrera | The dual nature of innovative activity: How entrepreneurial orientation influences innovation generation and adoption | 2011 |
| 2 | Martin Obschonka, Rainer K Silbereisen, Eva Schmitt -Rodermund | Explaining entrepreneurial behavior: Dispositional personality traits, growth of personal entrepreneurial resources, and business idea generation | 2012 |
| 3 | Lenita Hietanen | Developing Entrepreneurial Learning Environments in Finnish General Education | 2014 |
| 4 | Council of the European Union | Council conclusions on entrepreneurship in education and training | 2015 |
| 5 | William Walton Kirkley | Entrepreneurial behaviour: the role of values | 2016 |

| No | Author(s) | Publication | Year |
|---|---|---|---|
| 6 | Roque do Carmo Amorim Neto, Vinícius Picanço Rodrigues, Shannon Panzer | Exploring the relationship between entrepreneurial behavior and teachers' job satisfaction | 2017 |
| 7 | The United Nations Educational, Scientific and Cultural Organization | Education and Skills for the 21st Century | 2017 |
| 8 | Patrick Howard, Charity Becker, Sean Wiebe, Mindy Carter, Peter Gouzouasis, Mitchell McLarnon, Pamela Richardson, Kathryn Ricketts, Layal Schuman | Creativity and pedagogical innovation: Exploring teachers' experiences of risk-taking | 2018 |
| 9 | Mina Khorrami, Homayon Farhadian, Enayat Abbasi | Determinant competencies for emerging educators' entrepreneurial behavior in the Institute of Agricultural Applied- Scientific Education, Iran | 2018 |
| 10 | Yue Peng, Jamie S. Pyper | Finding success with pedagogical innovation: A case from CSL teachers' experiences with TBLT | 2019 |
| 11 | Nadine Blankvoort, Vera C. Kaelin, Soemitro Poerbodipoero, Susanne Guidetti | Higher education students' experiences of a short-term international programme: exploring cultural competency and professional development | 2019 |
| 12 | Roque do Carmo Amorim Neto, Vinícius Picanço Rodrigues, Kathryn Campbell, Meaghan Polega, Torrie Ochsankehl | Teamwork and Entrepreneurial Behavior among K-12 Teachers in the United States | 2020 |
| 13 | Saeid Karimi, Ahmad Salman Makreet | The Role of Personal Values in Forming Students' Entrepreneurial Intentions in Developing Countries | 2020 |
| 14 | Lejla Turulja, Amra Kapo, Kemal Kacapor, Nijaz Bajgoric | Teachers' digital competence enhancing high school students' success: the mediating role of pedagogical innovation and entrepreneurship in teaching | 2020 |
| 15 | Arantza Arruti, Jessica Paños-Castro | International entrepreneurship education for pre-service teachers: a longitudinal study | 2020 |
| 16 | Najmeh Keyhani, Mi Song Kim | A Systematic Literature Review of Teacher Entrepreneurship | 2020 |
| 17 | European Commission | Erasmus+ Programme Guide | 2020 |
| 18 | Najmeh Keyhani | Entrepreneurial Teachers: The Novice and the Experienced | 2020 |

## Discussion

Studies and recommendations from the OECD and European Commission show that entrepreneurial competency must be developed in the learning process to attain success in one's personal life as well as professional field. However, it still can be seen that entrepreneurial skills are analyzed more in the business context rather than the educational context, which shows the deeply rooted assumption that entrepreneurial skills are needed only for entrepreneurs.

Although the term 'pedagogical entrepreneurship' is still vague and ambiguous, the belief that entrepreneurial competencies and knowledge are developed over time in society and through education is a strong foundation for conducting research on methods to improve the learning environment, methodology, materials, student involvement, internationalization, collaboration, digitalization, and systematic overview of education's ability to adapt to changes in the global economic situation.

After the conceptualization of pedagogical entrepreneurship and its components, observations of the current situation – future and practising teachers' knowledge, attitudes, and entrepreneurial skills in the context of education – would be a valuable basis for the creation of a unified support system for every educator, providing courses and methodology to habitualize pedagogical entrepreneurship in one's personal and professional life. Further, the evaluation of methods for the development of pedagogical entrepreneurship and understanding the impact of each method on the development of entrepreneurial skills are necessary to create the most effective set of methods.

## Conclusions

- Although entrepreneurial competencies in the context of education have mostly arisen from the political interest in overcoming cycles of economic activity and are based on the need to stimulate the economy and prosperity, they have a positive impact on individuals' personal and professional growth.
- There is a growing awareness that entrepreneurial skills, knowledge, and attitudes can be learned and in turn lead to the widespread development of entrepreneurial mindsets and culture, which will benefit individuals and society as a whole.
- Problem-solving, practice-based and real tasks, the ability to search for solutions independently, reflection, authentic knowledge transfer, and the development of an understanding of the market must all be used to develop entrepreneurial skills in the learning process.

- Entrepreneurial skills are a set of tools that can be advanced over time during study and practice. These skills allow individuals to identify their strengths and respond to opportunities, create value by pooling resources, and demonstrate self-efficacy, confidence, and a determination to overcome obstacles. Entrepreneurial skills raise awareness and provide the knowledge and skills necessary to help individuals deal with problem situations.
- Pedagogical entrepreneurship is carried out by teacherpreneurs who are innovative, flexible, solve problems when they see one, know how to arrange resources and work in a team, creative, and visionary. They construct new teaching methods and collaborate with partners both inside and outside the school environment. They also motivate and support students to develop and use their ideas.
- Pedagogical entrepreneurship creates a positive setting for innovation and creativity in teaching that promotes better academic success for the students.
- Teachers and pedagogy play key roles in developing students' entrepreneurial competence. To achieve the goals of competency-based education, teacher education students (future teachers) need to develop their entrepreneurial skills and understand how these skills can be transferred through their performance to their students. To achieve that, a common understanding of pedagogical entrepreneurship and its components must be demonstrated, and a methodology for its implementation must also be established.
- To foster and flourish, pedagogical entrepreneurship's purpose and long-term advantages must be comprehended to obtain support from those who will bring this approach to life – the educators of teachers and teacher education students.

## Acknowledgment

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# ACADEMICS' PERCEPTIONS OF QUALITY IN HIGHER EDUCATION IN TURKEY

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**ABSTRACT**

Quality in education is one of the main concerns for governments in order to make sure the students will be able to meet the work power needs of the sector, and be able to get a job that meets their expectations in career when they graduate. In other words, it can be summarized with two words; input quality and output equality. The study aimed to investigate Turkish academics' perceptions about the quality in higher education in Turkey. The study adopted survey method based on quantitative data. The participants comprised 53 academics from different universities in Turkey, and they were selected randomly on voluntary basis. The data were collected in distance using "The Questionnaire of Academics' Perceptions of Quality in Higher Education" adapted from Rossner (2008) as a Google Form. The data were analyzed using descriptive statistics such as frequency and percentage. The results revealed that majority of academics in Turkey were in favor for accreditation, they were in the opinion that the curricula content should be designed in accordance with the 21st century skills and market needs, and certified programs should be offered to students in an educational environment where even academics should be observed by field experts to make sure about the quality of educational practices.

***Keywords:*** *academics, accreditation, higher education, perception, quality.*

## Introduction

The concept of quality is associated with many parameters such as distinctiveness or desired characteristics or features by users of a product or a service or third parties (Montgomery, 2012, p. 3). Quality can be defined and evaluated in accordance with various objectives (Téllez & Ramírez, 2012, pp. 183-196). The ultimate goal of many countries is to guarantee the optimum educational access rates for improving the quality in education.

Education quality requires a set of elements in the before, during, and after every single process of educational practices, satisfying the implicit and explicit strategic expectations (Dorrian & Wache, 2009, p. 161).

Educational quality is evaluated via various indicators, such as the budget allocated to education, test scores, student/teacher ratios, teacher qualifications, and the period of time students spend in their schools (Madani, 2019, p. 104). Quality evaluation needs to respond to the issue of academics' responsibility for enacting and improving academic standards, move away from acting as a mechanism of state surveillance. A point of departure is that quality evaluation needs to be turned into a support mechanism to encourage individual academic's self-regulation of teaching and learning and to develop motivational forces for improvement. Education quality is believed to ensure the cognitive development of learners; building attitudes, skills and values that are likely to enable individual well-being and social development; and equity. However, most focus still on the quantitative aspects of education (Barett, Chawla-Duggan, Lowe, Nikel & Ukpo, 2006, pp. 6–11).

Just like in all the educational fields, higher education institutions are in need of taking initiatives to encourage academic staff to improve their teaching practice through promoting rewards activities (Cheng, 2017, pp. 160–162).

## Quality in higher education

In relation to how the educational system facilitates or obstructs behavior, quality seems to be linked to goal achievement and something that needs to be evaluated, audited and controlled in order to exist within the goal-and-result oriented education system (Mufic & Fejes, 2020, pp. 8–10).

The educational quality is based on the following principles (Nikel & Lowe, 2010, pp. 600–602):
- Quality in education is not to be seen as a definable end-state but as a commitment throughout the system to a continuous process of adjustment,
- Educational quality is a situationally grounded attempt to 'co-optimize' the dimensions recognizing that they will be in continuously shifting relationships of tension and complementarity.

And quality education includes (UNICEF, 2000, p. 3):
- Learners who are healthy, well-nourished and ready to participate and learn, and supported in learning by their families and communities;
- Environments that are healthy, safe, protective and gender-sensitive, and provide adequate resources and facilities;
- Content that is reflected in relevant curricula and materials for the acquisition of basic skills, especially in the areas of literacy, numeracy and skills for life, and knowledge in such areas as gender, health, nutrition, HIV/AIDS prevention and peace;

- Processes through which trained teachers use child-centered teaching approaches in well-managed classrooms and schools and skillful assessment to facilitate learning and reduce disparities; and
- Outcomes that encompass knowledge, skills and attitudes, and are linked to national goals for education and positive participation in society.

Quality in higher education may even be more difficult to define than in most other sectors. The first important step would be to agree internationally on terms such as levels, standards, effectiveness and efficiency. Such agreement on basic factors is also an objective for the so-called "Bologna process" of integration currently taking place in Europe" (Van Damme, 2001, pp. 420–430).

Quality in higher education comprises the following interrelated parameters of quality (Elten & Stensaker, 2018, pp. 189–202):

- Management
- Quality culture & notion of quality
- Sources of inspiration
- Employing institutional work
- Perspective to studying quality work
- Rationale for operation
- Actors' roles
- Outcomes
- Underlying logic
- Power and authority

## Educational Quality in Turkey

From the OECD Report in (2011) it could be understood that ten years ago Turkey was not in a promising position (See Figure 1).
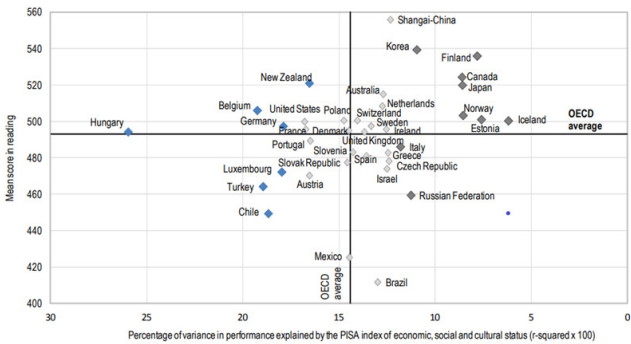


**Figure 1.** OECD Report in 2011

The figure shows that Turkey is in the negative part of both quality and equity axes. The terms efficiency, effectiveness, equity and quality have often been used synonymously. Some may emphasize the quality of inputs to the education systems but others stress the quality of processes and outcomes (Cheng & Cheung, 1997, pp. 452–454). In this perspective it can be said that the OECD report in 2011 could be one of the factors that awakened interest in educational quality in the higher education system, and lead to the establishment of Higher Education Quality Council, Turkey in 2015 (accessible at https://yokak.gov.tr/hakkinda) .

As for the time being, the meaning of quality in the area of higher education is debated as an important issue in the past few years in Turkey. For instance, an accreditation body called The Association for Evaluation and Accreditation of Teacher Education Programs (EPDAD), established in 2014, accredits the programs in the Faculties of Education in every Turkish university (accessible at https://epdad.org.tr/index.php). However, what constitutes quality has not been thoroughly clarified officially in the higher education system, and consequently, academics are confused to consider how they can define quality in their own context. As a consequence, the research question of the study was formulated as "What are the academics' perceptions of quality in Higher Education in Turkey?"

## Method

The study adopted survey method based on quantitative data. Survey method is applied to describe behaviors and gather people's perceptions, opinions, attitudes, and beliefs about a current issue in education (Creswell, 2008, pp. 16–17; Lodico, Spoulding, & Voeltge, 2010, pp. 12–20). The other details of the method are as follows:

### Participants

The participants of the study comprised 53 academics from different universities in Turkey, and they were selected randomly on voluntary basis. Once the Google Form of the data collection tool (a questionnaire) was created, the link of the form was shared with academics via some social media, such as LinkedIn and WhatsApp in Turkey. They were invited to respond to the questionnaire.

### Data Collection and Analysis

The data were collected using "The Questionnaire of Academics' Perceptions of Quality in Higher Education" through Google Form in distance. The questionnaire comprising 5 Likert type answers (Strongly disagree, Disagree, Neutral, Agree, Strongly Agree) was adapted from Rossner

(2008, pp. 24–26) with some modifications. Upon modifications, a draft version was developed, and then it was sent to two field experts for their opinions. Based on the experts' opinions, it was finalized as a five point Likert type questionnaire containing two main parts and twenty-seven questions. The first part was composed of seven questions about the participants' demographic information, such as their gender, academic title, academic experience, type of institution, etc. The second part included 20 items about the participants' perception of quality in higher education. The obtained data were analyzed using descriptive statistics such as frequency and percentage via Excel program.

## Results

Findings of the study are stated and illustrated as in the following:
- *Findings based on the demographic information of the participants*

The participants of the study comprised 53 academics in different state and private universities in Turkey. The demographic information about the participant academics is illustrated in Table 1 below.

**Table 1.** Demographic information of the participants

| Item | Information | Responses | *N* | % |
|------|-------------|-----------|-----|---|
| 1 | **Gender** | Male | 24 | 45.30 |
| | | Female | 29 | 54.70 |
| 2 | **Academic Status** | Part-time | 0 | 00.00 |
| | | Full-time | 53 | 100.00 |
| 3 | **Administrative Position** | Coordinator | 9 | 17.00 |
| | | Head of Department | 9 | 17.00 |
| | | Dean | 1 | 01.90 |
| | | None | 25 | 47.20 |
| | | Other | 11 | 20.80 |
| 4 | **Academic Experience** | 1-5 years | 7 | 13.20 |
| | | 6-10 years | 8 | 15.10 |
| | | 10-15 years | 14 | 26.40 |
| | | 15+ years | 24 | 45.30 |
| 5 | **Academic Title** | Instructor, PhD | 8 | 15.40 |
| | | Assistant Professor | 18 | 34.60 |
| | | Associate Professor | 10 | 19.20 |
| | | Professor | 16 | 30.80 |

| Item | Information | Responses | N | % |
|---|---|---|---|---|
| **6** | **Institution Type** | Faculty/college | 43 | 82.70 |
| | | Vocational college | 3 | 05.80 |
| | | English prep school | 5 | 09.60 |
| | | University center | 4 | 07.70 |
| **7** | **Field of Study** | Social Sciences | 47 | 90.40 |
| | | Natural Sciences | 3 | 05.80 |
| | | Health Sciences | 2 | 03.80 |
| | | Fine Arts | 0 | 00.00 |

As it can be seen in the table above; majority of the participants are full time academics, have administrative positions, have more than 15 years of academic experience, are Assistant Professors, work in a faculty or a college, and are from the field of Educational Sciences.

**Table 2.** Perceptions of Quality in Higher Education

| No. | Statements | Disagree | | Neutral | | Agree | |
|---|---|---|---|---|---|---|---|
| | | *N* | *%* | *N* | *%* | *N* | *%* |
| 1 | Educational standards and teaching activities should lead to developing 21st century skills. | 3 | 5.7 | 4 | 7.7 | 45 | 86.6 |
| 2 | All academics should work under the supervision of an appropriately qualified academic manager | 3 | 7.6 | 10 | 18.9 | 39 | 73.6 |
| 3 | Premises and classes should be suitable for 21st century education. | 3 | 3.8 | 4 | 7.5 | 47 | 88.7 |
| 4 | Curriculum and syllabuses should take account of the needs of prospective employers. | 1 | 1.9 | 7 | 13.2 | 45 | 84.9 |
| 5 | Resources and materials should be appropriate to the needs students and the course objectives. | 1 | 1.9 | 5 | 9.4 | 47 | 83.7 |
| 6 | Teaching methods and techniques should be appropriate and effective in the teaching learning process. | 1 | 1.9 | 2 | 3.8 | 49 | 94.3 |
| 7 | There should be a regular observation of teaching activities. | 3 | 9.5 | 7 | 13.2 | 41 | 77.3 |
| 8 | There should be continuous professional development for all academics. | 1 | 1.9 | 2 | 3.8 | 50 | 89.4 |

| No. | Statements | Disagree | | Neutral | | Agree | |
|---|---|---|---|---|---|---|---|
| | | *N* | *%* | *N* | *%* | *N* | *%* |
| 9 | There should be opportunities for students to reflect their individual questions and concerns, and to obtain information and advice. | 1 | 1.9 | 5 | 9.4 | 47 | 88.7 |
| 10 | Administration and auxiliary services should be efficient and effective. | 3 | 3.8 | 3 | 5.7 | 48 | 90.5 |
| 11 | Evaluation of and feedback in the educational process should be regular and appropriate. | 3 | 5.7 | 1 | 1.9 | 49 | 92.5 |
| 12 | Students should be provided with additional certified educational activities. | 1 | 1.9 | 6 | 11.5 | 45 | 86.5 |
| 13 | There should be platforms for students to give feedback on the educational process, and this should be analyzed and taken into account by academics and administrators. | 3 | 5.7 | 4 | 7.5 | 46 | 86.8 |
| 14 | Classroom size should not exceed 25 students except for the lectures in large conference halls. | 5 | 9.4 | 5 | 9.6 | 43 | 81.1 |
| 15 | Students should be provided with activities to increase their multicultural awareness. | 7 | 13.5 | 6 | 11.5 | 40 | 75.54 |
| 16 | Students should be encouraged and provided with facilities to learn additional languages. | 10 | 18.87 | 5 | 9.6 | 38 | 71.7 |
| 17 | There should be one to one interview/ communication platforms for students to prepare for after university & career life. | 7 | 13.2 | 7 | 13.2 | 39 | 73.6 |
| 18 | There should be international contacts for both academics and students. | 10 | 18.9 | 1 | 2 | 42 | 79.2 |
| 19 | There should be pre-determined standards for both educational and administrative practices. | 8 | 15.1 | 5 | 9.4 | 40 | 75.5 |
| 20 | Academic publications and research projects should be promoted through university funds. | 7 | 13.2 | 1 | 1.9 | 45 | 84.9 |

As the table illustrates, in terms of the quality, majority of participants agree on providing students with activities to increase their multicultural

awareness, motivating them to learn additional languages, preparing students for after university career life, helping students for international contacts, introducing the educational and administrative standards, and promoting publications and research projects.

## Discussion

In order to understand the quality of higher education institutions, it is essential to collect data and evaluate the character of the educational processes of educational institutions and their elements; such as the relationships between academic and administrative staff at different levels and in different departments and between the staff and the students, as well as the extent to which the organization in general is prepared contribute to the educational quality of the institution and its practices (Zou & Du & Rasmussen, 2012, pp. 170–171; Barret, Chawla-Duggan, Lowe, Nikel, J., & Ukpo, 2006, pp. 1–9).

In the study, academics' perception on the quality in higher education was obtained just like in the study conducted by Biggs and Tang (2011, pp. 1–418), in which each of the participants reflected their opinions in three domains or contexts (Biggs and Tang, 2011, pp. 120–125). The items in the questionnaire focused on academic, institutional, and administrative features in their institution. The study was based on the crucial information about quality by its internal processes including an element of externality (Brown, 2004, pp. 1–224). The results revealed that there was a considerable influence of social and economic situations on the quality of educational provision as it was the case in the study conducted by Tavassoli, Welch, and Houshyar (2000, pp. 279–304).

## Conclusions

In conclusion, based on the data obtained, it can be inferred that accreditation plays a significant role in the quality of a higher education institution. The curricula content should be designed in accordance with the 21st century skills and the needs of the prospective employers should be considered while planning the contents. In addition, certified programs can be one of the components to help students prepare for their future career, and in the educational process observing academics might be helpful to make sure about the quality of educational practices. It can also be recommended that students be provided with the activities to increase their multicultural awareness, motivating them to learn additional languages, guiding students for international contacts, and promoting publications and research projects in the university.

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# "NETWORK DESIGN" A MULTIDISCIPLINARY PROJECT TO RAISE AWARENESS OF THE INDISCRIMINATE USE OF PLASTICS

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## ABSTRACT

The University is a meeting place for the transmission of knowledge, but the fact of being able to transmit values that complement student's training is beyond the exchange of information.

Through the call for educational innovation projects, we have the possibility of carrying out actions aimed at solving specific problems by applying innovative methodologies. In 2019, at the High Technical School of Engineering and Industrial Design (ETSIDI) from the Universidad Politécnica de Madrid (UPM), a project was awarded in collaboration with the High Technical School of Architecture (ETSAM-UPM), the IADE School of Design, the Universidad Rey Juan Carlos (URJC), the Universidad Internacional de la Rioja (UNIR), as well as the Faculty of Fine Arts of the Universidad Complutense de Madrid (UCM).

The project, called Network Design, is framed in the Science, Technology, Engineering, Arts and Mathematics (STEAM) environment, applying active approach methods to the problem of the indiscriminate use of plastics. We must promote in the students' skills they will need later in their professional life. Considering that students of different degrees are used to working with problem learning methodology, we think that an approach should be given that goes beyond obtaining a tangible product.

The proposal presented is based on the reuse of food container nets as an essential material to create an object, being a design product, a drawing, or a painting. The "Network" union with other universities encourages the work to be truly multidisciplinary and interuniversity, and that each participant collaborates to spread the project more widely by combining the different ways of tackling the same problem. It will seek to create harmony between the point of view of the materials' specialist, the landscape painter, the set designer, the fashion designer, the industrial and product designer, and the interior designer. We look for different creation approaches with a common purpose that revalues each plastic. The motto is making beauty from the uselessness and one of the most important objective

is encouraging awareness about the indiscriminate use of plastics through a design or an artistic approach.

***Keywords:*** *artistic collage, creativity, network design, plastic nets, product design, STEAM approach, sustainability, visual communication.*

## Introduction

In 2016, the waste generated annually in the European Community was close to 2,500 million tons (Mascareñas, n/g). Faced with this reality, the community authorities set new binding targets to manage recycling, among other elements, packaging waste more efficiently as a first step. They promote a circular economy as a production and consumption model that involves sharing, renting, reusing, repairing, renewing, and recycling products to increase their life cycle. In addition, the residual materials with which they are made are reused or recycled to generate new products (European Comission, 2020).

According to Ola Persson the intellectual roots of "circular economy" stems from K. E. Boulding in 1966 where people must find their place in the earth without unlimited resources in a cyclical ecological system. The specific term was coined in 1980 by David Pearce and R. Kerry Turner to explain a system between the interrelationships of the economy and the environment (Persson, 2015).

Design can be the useful tool to access a new economic activity thinking of the way of generating growth placing the accent on the benefits for the whole society. The European Community intends to extend the useful life of the products and consequently to reduce waste significantly, thus creating added value.

The application of the 6R philosophy – rethink, restructure, reduce, reuse, recycle and redistribute –, proposed by Greenpeace, appears as a proposal for consumer habits (Mascareñas, s/f).

According to 2019 annual report (Plastics Europe, 2019), in the world, the annual production of plastics in 2018 reached 360 million of tones, and in Europe, the production was 62 million of tones. One of the commitments of Europe, through the Voluntary Compromise 'Plastic 2030' is trying to avoid plastics ending in the environment. The intention is to augment the reutilization and recycling of all plastic packaging waste and contribute to a better efficiency of the resources. According to Greenpeace (Greenpeace, s. f.), in 2018 more than two thirds of the plastic consumption is concentrated only in six countries: Germany (24.6%), Italy (13.9%), France (9.4%), Spain (7.6%), United Kingdom (7.3%), and Poland (6.8%). Spain is the fourth country in the European Union with the highest demand for plastics,

where up to 50% of them ended up in landfills in 2016. Most plastics are used in the manufacture of packaging, that is, in single-use products.

Marine litter is a global challenge, and it is unacceptable for waste, including plastics, to end up in the environment, rivers, or oceans up to 8 million tons every year according to the International Union for Conservation of Nature, making up 80% of all marine debris from surface water to deep-sea sediments (International Union for Conservation of Nature, May, 2018). Plastics are valuable resources that bring numerous benefits to society by offering sustainable solutions in countless sectors. It is unfortunate that plastics, whether due to irresponsible behavior or poor waste management, end up abandoned in the environment (Plastics Europe, 2019).

"Plastic" seems to be a single material, but it is not. In the same way that we know there are different types of metals with different properties, plastics also form an extensive family of different characteristics. Each plastic is designed with specific properties that make it ideal for the application for which it is intended. This makes possible to provide highly efficient solutions in the use of resources. Plastic materials can be obtained from different sources, as fossil origin (oil, gas, etc.). They can come from renewable materials (cane sugar, starch, vegetable oils, etc.) or even from minerals (salt). Regardless of the nature of their raw materials, some plastics are also biodegradable. If they are properly collected and treated together with organic waste, they can biodegrade and become compost (Plastics Europe, 2019).

Once the plastics are made, they are asked for different uses, and packaging sums 39.9%, far from construction and building that means 19.8%, and following by automobile sector with 9.9%. Packaging represents the biggest number of plastic uses.

The lifespan of plastics for packaging is less than a year, but can last for years and years, 15 or 50 years. From the plastic residues, there is a percentage that is thrown to the landfill (24.9%). A 42.6% is energetically recovered, and only 32.5% is recycled.

Every year the UPM makes a call for innovative learning projects to propose new methods and ways to approach teaching-learning process. The concern around all these figures brought Adela Acitores and Silvia Nuere to present an innovative project in their university. They wanted students think about the problem of the indiscriminate use of plastics and propose a way of raising awareness on this issue.

## Method

Looking at some data from the problem of plastics as waste impossible to recycle, some professors wanted to tackle this matter making students

be conscious. Universities can become laboratories of awareness through problem-based projects.

Even though our proposal is set in Spain, it can be extrapolated to other spaces and other countries. The innovative learning project aims at focusing on the big problem that plastic waste is causing to the environment and the necessity of acting against it. Our university, and universities in general, are good boosters to reflect on this matter, from our students but also from our teachers.

Learning methods must adapt to the European Higher Education Area (EHEA), developing a range of skills on the students. Once students leave university, they will face new challenges in a professional career. There is a need to change from the traditional way of teaching to a more active participation of the students.

In a hectic and modern world, we need to adapt teaching and learning to new ways of proceeding, concerning theory, practice, planning, thought, and action. We think that it is necessary training based on a more global and comprehensive perspective, in which enhance interdisciplinary, social, and cultural competences. In the XXI century we look for new teaching-learning method according to the knowledge to be transmitted (Tippelt & Lindemann, 2001).

Teaching based on competencies is one of the most recent movements in higher education. Professional competencies applied into the universities required designing a model where students must tackle a problem providing solutions where they can implement their knowledge. Proposed projects can be developed in laboratories or workshops or be framed in real contexts ( Brunel & Viesca, 2014).

Nowadays, between the different possible methods, the Projected Oriented Learning (POL) is a variant of the Project Based Learning (PBL) in which the professor raises a project to a group of students. This methodology favors students to become more active, responsible, and committed to their learning (Morales Vallejo, 2008).

As students work in groups, these learning models, according to De Miguel (2005), stimulate the following abilities, between others. We highlight the most suitable for the project with a brief description they can specifically follow:

Planification and organization: as they are different students and have a limited time to develop the project, they need to distribute needed tasks.

Analysis: what is the specific statement of the proposal (the indiscriminate use of plastics) and how they are going to face this problem and transmit it.

Synthesis: topic and design proposal according to their field of knowledge.

Investigation: research about plastics characteristics, possible realization, and means they will need.

Transfer of knowledge and extrapolation to other contexts: even though every group belongs to a specific degree or master's, they may be permeable to other disciplines.

Critical thinking: it is not a simple matter of making a product, but a way to raise awareness about the problem, and think about.

Individual and group responsibilities: every single person must acquire a responsibility into the group.

Management of different disciplines and sources of information: research, product, idea must meet the principal objective.

Oral and written expression: they must present their proposal to the mates, and professors.

Teamwork: working together benefits the result.

Leadership: this leadership can be understood as not individual but comparing to other groups.

Decision making: every problem needs a solution, and they must be conscious that soon they will have this responsibility.

Tackle these abilities in the university field will favour students to face in a better way their professional career. It is about simulating similar conditions by proposing a project based on the reuse of plastic nets from the packaging of fruits and vegetables.

## Innovative learning project proposal

'Network Design' is an interuniversity, interdepartmental, interdisciplinary, and collaborative project. It is a collective effort, from the academy, to reflect on the huge amount of plastic waste that in the long term is harmful to the environment. Products initially and sometimes are necessary, but perhaps replaceable.

'Network design' is based on plastic nets made for carrying fruits and vegetables. Fortunately, they end up in the plastic garbage. At worst, trapped in the marine vegetation or martyring the fish in our oceans.

What if those nets, which are harmful because of the abusive and disproportionate use we carry out, can also be beautiful in their end? What if the designer, the dreamer, the innovator, the creator, imagines another end for them? What if we, as a claim to good sense, could restore their dignity and give meaning to their lives?

'Network design' seeks, in a poetic key, to raise the issue of recycling and looks for a different use of plastics. It is not an investigation to generate peace of mind thinking about reducing the percentage of garbage. It is a cry, a complaint that aims to sensitize all sectors to understand the importance of the useful life of products and their packaging. It raises the

need to foresee the future of the accumulation of waste advocating a conscientious, knowledgeable, and supportive consumption in the future.

'Network design' wants to address, from different fields of creation and design, and from university classrooms, a different vision of those heaps of "useless" nets that are only useful until they reach our homes but that will exist for years. It is up to us to dignify production by giving dignity to products and studying the consequences that waste generates.

The project has started in the academic year 2019–2020 but due to the COVID-19 pandemic, was extended until the end of the course 2020–2021.

## Results

Professors from the different universities launched the project. To understand each proposal, we will present the statements of the proposal according to each subject.

1. IADE School of Design, in the master's in design and fashion, and luxury management, and the subject *Materials and textile design; materials and innovation* (experimental pattern), which professor is Brezo Alcoceba.

The concept of the proposal was: Development of a Zero Waste Do it Yourself (DIY) garment reusing fruit and vegetable nets. The fruit and vegetable nets were reused, thus demonstrating the potential of their utility beyond use and throw away.
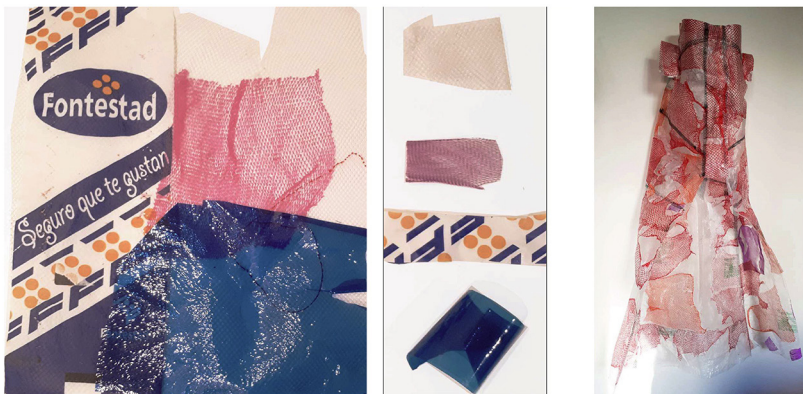


**Figure 1.** Dress patron. Sira H. Cortés

2. URJC, in the subject *Complement design* in the Degree of Fashion Design and Management (URJC), 3rd year, which professor is Brezo Alcoceba.

The main objective of the project was to develop clothing proposals made with innovative materials based on the recycling of fruit and vegetable nets. To achieve this main objective, an exercise was proposed within

the framework of the Complements Design subject in collaboration with Jewelry Design: the prototyping of a one-piece-construction bag.

Why a bag? The bag is the quintessential fashion accessory. Its interest as a small-format three-dimensional entity that allows us great versatility when it comes to studying its shape, material, function, texture, and size. Why one-piece-construction? Compared to the traditional construction by pieces, the generation of a three-dimensional volume is investigated from the treatment of a single two-dimensional surface. In this way, the interest of material innovation is prioritized over the complexity of the pattern.



**Figure 2.** Bag design. Marta Carrascal González, Olga de la Oliva Domínguez Ligero and Juan Manuel Ferrufino Rojas
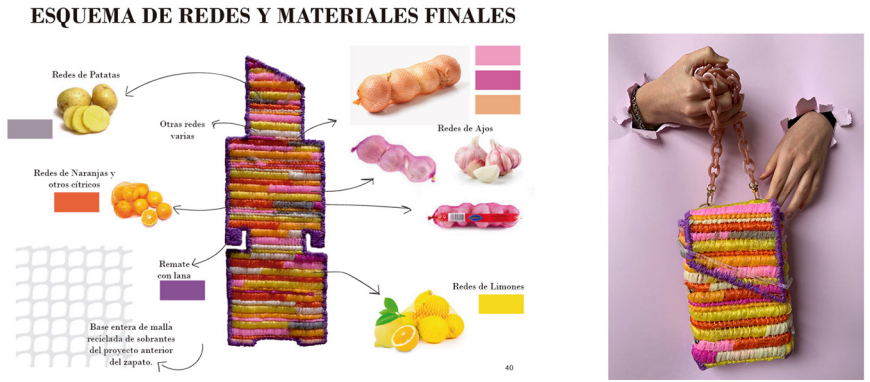


**Figure 3.** Bag design. Marta Corrochano Oliva, Sara Labraca Cerón and Natalia Las Heras Rodríguez

3. Universidad Complutense de Madrid (UCM), in the Degree of Fine Arts, and the subject Landscape Painting, in the 4th year, which professor is Esperanza Macarena Ruiz Gómez.

From the Landscape Painting subject, within the teaching syllabus of this subject, the topic dedicated to collage is selected to participate in this project with students, considering it ideal to introduce the net as an integral element of the students' work.

Collage is an artistic technique that essentially consists of gluing or combining elements of various materials, colors, and textures on a support. This technique is also very useful in artistic training, since it will let students developing their spatial arrangement, as well as their ability to geometrize. In this proposal nets that serve to wrap fruits and vegetables give free rein to the use of different textures, with their different colors and thicknesses. They must introduce them in a compulsory way in their work. Following it, they encourage a second life to this material.



**Figure 4.** Landscape. Oil and net on paper. 22 × 28 cm. Macarena Ruiz Gómez.



**Figure 5.** Artistic collage. Teresa Vicente Illoro

Due to the COVID-19 pandemic, some of the proposals are not landscape paintings as student could not go out for painting or only had building views. Portrait was one of the other options (Figure 5). This confinement situation also influenced the format of the works since most were carried out in the students' field notebooks.



**Figure 6.** Artistic collage. Irene Anguita Cuadra

4. Universidad Politécnica de Madrid (ETSIDI-UPM), in the Degree in Engineering in Industrial Design and Product Development, and the subject *Basic Design*, in the 2nd year, which professors are Adela Acitores Suz and Silvia Nuere.

After collecting as many nets as possible, different sizes, characteristics and colors, the students are asked to reflect and analyze the qualities they present to move on to an experimentation phase. Nets can be sewn, glued with heat, added to other structure to make them more reliable in the function they are intended to fulfill.

The members of the group will describe the characteristics and possibilities of the application of the material. Tools such as "mind maps" or "brainstorming" can be used.

Among the four members of the group, four design ideas should come out. They need to evaluate them based on the suitability of the material for the practical function, the formal solution given or the good design of the applied solution. Other materials can be used in a complementary way, although the design must be based on material produced from plastic nets.



**Figure 7.** Teddy Bear. Marta García-Moreno Brazal, María Martín Prado, Alejandra Fernández Gil, Estíbaliz Cabrera García



**Figure 8.** Design of a net for Ping Pong game. Bermejo, A., Almenara, D., Collado, E., Barrales, I., Ortega, J., Lana, O. & Rodríguez, R.

**Figure 9.** Net Cart. Molina, A., Pariente, E., Sagredo, C, Pulido, C. & Tormo, p.

As seen in an example, all students presented a panel with the most significant characteristics of their product as well as the process carried out.

5. Universidad Politécnica de Madrid (ETSAM-UPM), in the subject *Decorative Trends and Styles-III*, which belongs to the course of End of Degree Project of the Degree in Interior Design, which professor is Manuel Carmona.

This work appeals to recycling, to the application of technique, ingenuity, sustainability, environmental protection, aesthetics, and poetics. The results reflect the purpose of reusing and taking advantage of nets, for domestic use, which contain the fruits and vegetables of our daily consumption, for application to Interior Design.

Within this context, the main objective of this work has been to devise and make prototypes that eventually become products that can be applied to Decorative Arts. As a big scale, or from a very close view, nets appear to be different and to suggest different proposals. This is the reason why some of the proposals reproduce forms of nature: flowers, sea waves, jellyfish, etc. The chromatic variety has also been highly appreciated in every project.
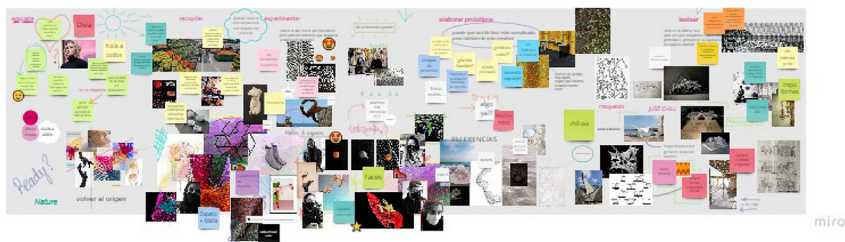


**Figure 10.** Common working panel. Materials Workshop Web Design. Interior Design UPM



**Figure 11.** Prototype: mesh sculpture. C. Morales, E. Gruber, A. Vivanco, L. Buño, B. de Miguel

6. ETSIDI- UPM in the subject *Artistic Drawing* of the Degree in Engineering in Industrial Design and Product Development, which professor is Silvia Nuere.

The application of the nets went carried out in the section of the conical perspective.

Alberti described for the first the conic perspective in his book "Della Pintura" in 1436, defining the paint plane, the point from where to draw, perpendicular lines, horizontal line, and other elements. He compared it with a window and established that it was the best way of representing with method (Dubery & Willats, 1983, p. 56). Using a "Leonardo Window" made by the teacher, they had to draw in an acetate sheet a view chosen by them and use plastic nets to face an artistic proposal.

A line drawing was made with an indelible marker, with Leonardo's Window, on an acetate sheet. Then, by studying the nets, their characteristics, weft, color, and possible combinations, these were artistically integrated into the acetate, in the way they consider best.

Being an artistic proposal, the options are endless and what is sought is the expressiveness of both the conical perspective layout and the incorporation of color and textures that nets allow us. Nets can become means for expressing yourself.

A small reflection on the indiscriminate use of the nets and how the proposal can contribute to raising people's awareness is needed.

In the examples we can see pictures taken during the process drawing with the "Leonardo Window" and final work.



**Figure 12.** "Leonardo's Window" perspective proposal. Esteban Gil.

**Figure 13.** "Leonardo's Window" perspective proposal. Nicola Kowalczyk

7. ETSIDI-UPM in the subject Visual Communication of the master's degree in Engineering in Industrial Design, which professors are Raúl Díaz-Obregón and Silvia Nuere.

The main objective is the proposal of a message where nets play a fundamental role as a claim to raise awareness about the indiscriminate use of plastics. The idea must come with a materialized product. They need to create something and later think about the best message that could match their ideas.

Next, an explanatory panel will be held where all the elements of visual language, as composition, and visual rhetoric will be studied to compose a coherent message. Nets can be applied in any way where colors, textures, shapes, and the adaptation of the meshes make up the essence of the message. A document will include the process carried out, the evolution of ideas and the justification of the final proposal of the group.

The options are endless and what you are looking for is an attractive, powerful message that hooks the viewer's gaze and makes them reflect on the indiscriminate use of nets and how the proposal could contribute to raising awareness for responsible use.



**Figure 14.** Pasaguas. Marta Contreras, Marta del Val, Óscar Gil & Alejandro Vélez

In this proposal there is a play-on-words with the name "umbrella" in Spanish ("Paraguas"). Its translation is "stop water" and the new name is "Pasaguas" which translation is "Pass Water".



**Figure 15.** Poster imitating the face of Frida Kahlo with flowers made of plastic nets, in the head. Manex Garay Beristain, Angeliki Karapiperi Stamatakopoulou, Borja Mata Sebastián & Carmen Ruiz de la Bastida

8. UNIR in the subject Fundamentals of creativity workshop of the Degree in Digital Design, which professor is Laura de Miguel Álvarez.

The objective is to enhance the educational possibilities offered by waste material when used as the protagonist of a visual discourse. It also intends to use the communicative power of the fixed image to build a visual narrative loaded with meaning. The narrative is built from an argument, a beginning, and an ending and what happens in that timeline.

Storytelling is a tool for creativity and imagination and gives us the opportunity to build on the new, trying the diverse to engage in understanding and visualizing it. Normally we find the narrative through images in the audiovisual universe, but it is also possible through a single image. It is about exposing a narrative in such a way that the viewer is caught immediately.



**Figure 16.**  Jonathan Piqueras

### Professional collaboration

Even though this was an innovative project focus on students, we also spread the idea to some professionals. The project will end in November 2021, but in May 2021 we had already received the proposal of a well know Spanish photographer. His name is Jordi Valls Capell. He likes to photograph something else than an instant. He wants to show a piece of a universe in constant movement.

He has photographed some flowers and has made another one inspired in the first one but made with plastic nets (Figure 17). It is a poetic approach to raise awareness about the indiscriminate use of plastic.



**Figure 17.**  Flowers. Jordi Valls Capell

## Discussion

We want to highlight the main achievements of the students' proposals.
**1. IADE School**
Throughout the process they have experimented with the possibilities of plastic nets, creating a catalog of thermo-fixed textures to investigate their behavior against heat and a catalog of handmade textures.

The process offered a reproducible garment through DIY instructions (Figure 1) that will be uploaded to the *Instructables* platform so that anyone, anywhere in the world, can bring it to life again and take it further with a Creative Commons license and following instructions can make their own piece.
**2. URJC**
The wide range of results is very remarkable. Regarding design, highly recognizable typologies such as the baguette or the clutch have been generated, as well as others (Figure 2 & 3). In all of them a very diverse color palette is achieved, from the most defined tones (segregated net) to the most indeterminate (overlapping nets). Regarding its elaboration, the applied techniques are very diverse: textile art strategies such as quilting, embroidery or crochet are reinvented to adapt them to the treatment of this specific material, and some more alternatives such as thermofusion are generated.
**3. UCM**
Being an interdisciplinary project and considering that one of the main objectives is taking care of the environment, the discipline of Landscape Painting is ideal to participate (Figure 4 & 5). Although the dominant one is the pictorial practice, it is carried out from dialogue and direct contact with nature, taking it as a model and respecting it as a source of inspiration.

As can be seen in the results obtained, the amount of this material used in the works is in some cases symbolic, thus not avoiding the continuous message of contamination of our natural landscape (Figure 6). The presence of this material 'the nets' in the students' collages, have been used mainly as a claim and awareness to promote recycling in the classroom as well as caring for the environment.
**4. ETSIDI – UPM**
*Basic Design*
The options presented by the Basic Design students were varied but in all of them a product made using the fruit and vegetable nets was delivered. Most of the proposals were made in a life-size scale.

Considering that these students are in a degree in engineering in industrial design, they also had to carry out a study on the characteristics of the material (nets) to understand that, based on the properties they could make

one design or another. You can find differences between a proposal where the object needs to be exposed to certain forces, and a bear like a cuddly toy (Figure 7).

To sum up there were a variety of proposals, covering various uses, with real and functional prototypes where nets were the protagonists with varied colors and textures.

In a case, the proposal went beyond the materialization of a product (net for Ping Pong game), designing a logo for the School they belong ("In the ETSIDI we design for sustainability") (Figure 8). The idea is to make every one of the community aware of the need to embark on a path towards sustainability in all actions carried out at the university.

The group that made the net cart went shopping with it and checked its resistance and capacity (Figure 9). In this case, they recycled the structure of another one damaged and gave it a second life.

### Artistic Drawing

Combining the necessary skills for a good drawing and considering the present problem of excessive use of plastics, the proposal for these students was the combination of conic perspective with an artistic approach (Figure 12 & 13). They have chosen nets of striking colors and for others some that are more in line with the color of the real element.

This activity has made them see how impractical plastic nets are, as one student points out in their work. Basically, they are produced to be simple to use and to be thrown away practically instants after fulfilling their function.

### Visual Communication

In the subject Visual Communication of the master's in Engineering in Industrial Design, students face the knowledge of the elements that make possible a good understanding of an image. The decisions taken about a combination of shape, texture, light, color, composition, and visual rhetoric can drive them to a specific message. The excessive use of plastics is a perfect topic to deal with searching for a strong message that could make people think about (Figure 14).

All proposals are related to the idea of the plastics uselessness comparing them to the product they made; for example, an umbrella made of plastic nets or a swimsuit completely transparent.

In another proposal, students made a poster. In the picture a student appears as if she was Frida Kahlo, with a quotation from her (Figure 15). The flowers of her head are made of plastic nets. The text that appears at the bottom says:

"Collective effort to reflect on residues of difficult decomposition in the XXI century. Materials applicable to disposable products that only pass through our hands to go directly to the trash. Initially necessary but

perhaps replaceable products that have a huge impact on the planet. We want to substitute the natural for the waste."

## 5. ETSAM – UPM

The process was also about experimenting, collecting, and obtaining sufficient material for its dissemination, as well as documenting the entire development through sketches, images, videos, etc. It is about talking about materials and the options they allow to work on (Figures 10 & 11).

After its completion and seeing the results, it can be said that, after a first sharing, the sinuous forms of the nets have seduced the students.

## 6. UNIR

Students have used plastic nets to catch the attention of the viewer. They worked with the combination of plastic nets, photos or arranging a scene to create the narration.

With the use of waste material, they have known how to value its artistic potential and the possibilities offered by the networks as protagonists of a visual discourse (Figure 16).

To sum up and as a general comment, it is empirically corroborated that the food net, a material born with an expiration date due to its use as temporary packaging, can have a second life of a permanent nature. Its appeal is not only functional, but also highly visually attractive when applied in the field of accessories and being extrapolated to any other field of fashion, art or design.

Thanks to the exercise, students have reflected on ways of being able to reuse the nets promoting the creative possibilities offered by them, becoming protagonists. The nets are born from the head simulating the imagination, full of light, and all kinds of thoughts, which ultimately try to reflect that creativity can never be imprisoned.

Maybe the logo is one of the clear examples of reflection beyond the materialization of products as well as the posters made by the students of the subject "Visual Communication". The message about be conscious about the indiscriminate use of plastics is perfectly state. In the other cases, the final goal will be better exposed in the exhibition that will be held in October 2021, where people will see the effort made by students and teachers at a glance. Some conferences are planned to publicize the scope of the project and possibly this sharing is what distinguishes our project from others, a multidisciplinary work with a single objective.

## Conclusions

Engineering students in industrial design had to analyse the material, its behaviour, and the most appropriate processes to later apply to the chosen idea. In the case of Fine Arts students or in the subject of Artistic Drawing,

nets became textures that accompany students' expression. For the Master of Fashion students, the nets formed the fabrics that would form a dress as an experimental pattern. Plastic nets served as perfect materials to make bags, decoration elements or stories to tell about a specific message. Different media were used to communicate their proposals. Plastic nets become a perfect element to tell a message through a rhetoric figure. Analysing form, texture and colour, nets become decorating elements. Different proposals for a unique purpose: raise awareness about the indiscriminate use of nets that are thrown away.

They are also easy to melt so that they can be reconverted with other shapes and even mixed with other plastics that give them greater resistance, thus expanding their range of applications.

It is important to highlight the above: in the creative aspect, the original qualities of the nets have been considered. By maintaining the original colours and textures, the processes and results obtained are very much in favour of sustainability. The proposals are respectful with the environment. The production processes seem simple and do not require complicated infrastructures to carry them out.

At the same time, work has been done on poetics. The solutions given are very attractive, but they are also feasible. This makes them doubly beautiful. It is also important to point that even though students had to make the proposal, all relatives, friends, and mates were involved in collecting nets. It is a work of months and months, also seeking the most suitable one for their product.

From the university we think that these generations of students should be formed from an early age in this global consciousness and that thanks to activities of this nature they experience and better assimilate the message. They will also be able to transmit it, and when they reach professional life, they may remember these activities and be able to start projects of a larger nature.

After the development of the different workshops and the results obtained, it should be said that through recycling and the use of fruit and vegetable nets there can really be multiple possibilities to generate elements of interest within different fields.

Nowadays, more than reflections, these words should be made given that the uncontrolled rhythm that we have of production and consumption, as the experts already reflect, do not bring much happiness.

We should try to meet two objectives: that they do not end up abandoned anywhere, since they can contaminate and damage fauna, and try to stop production (either from nets or some other product) by looking for other more ecological materials, creating a cycle with those that already exist so that they are needed anymore.

Multidisciplinary nature is essential so students can see in each other ways of reacting, work and think. They have also seen proposals from the first course of a degree, going through all the courses until the fourth, and in the master's in engineering in industrial design.

There are infinite ideas between those discovered and those yet to be discovered. Thus, in addition to the presented proposals, we also invite people to develop their creativity so that they win in all aspects.

Even though the main objective was the awareness of the incredible number of plastics we use, the products they have designed and made have a very good quality and therefore, exhibition will be held in October 2021 with the main objective, as already mentioned, to show the project done from different fields of knowledge.

## Acknowledgments

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# DISCOVERIES THROUGH CHALLENGES: COLLECTIVE AUTOETHNOGRAPHIC STUDY OF TEACHER EDUCATORS IN THE COVID'19 SITUATION

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**ABSTRACT**

After the World Health Organization announced the COVID-19 pandemic in March 2020, education systems were forced to move instruction to the virtual world. It drastically changed the interplay between teachers and learners, educational content, and the learning environment. When scrutinising the experience of teacher educators, we realised that it was important to focus on their discoveries. Collective reflection and collaborative autoethnography of four teacher educators developed into a reflective process of creating collective knowledge about their lived experience of coping with the new reality of teaching. The research was carried out in four steps: collective reflection on the context of education and individual lived experiences, collective analyses of transcribed first-person narratives, collective interpretation of the first-person narratives, co-creation of insights, and implications for the future of teacher training. The paper discusses the discoveries of four teacher educators made during the pandemic period: the benefits of communication technology, new interpersonal relations, the dynamics of self-learning, and a new concept of multiple educational spaces. The research results showed that the online teaching and technological breakthrough encouraged teacher educators to use various online platforms and technological tools, to develop new teaching strategies, to find effective ways of communication, to focus more on the organisation of teaching and learning, the usage of multiple learning spaces, and teaching multimodality. At the end of this paper, we provide some insights for teacher education: teacher education programmes should create conditions for student transformative learning preparing prospective teachers to live and work in a rapidly changing and challenging world, to create space and time to develop important qualities of student teachers such as flexibility, the ability to adapt to changing circumstances and resistance to physical and emotional disturbances.

*Keywords: collaborative autoethnography, collective reflection, COVID-19 pandemic, teacher educators, the new reality.*

## Introduction

Since March 2020, 1,7 billion children and youth in 188 countries were heavily affected by the unexpected closure of schools and rapid transition to distance learning (OECD, 2020). Teachers occurred in an extreme situation, which demanded them to change their traditional work routine without having the necessary IT competencies and skills. Research indicates (Eurydice, 2020) that teacher educators were facing serious challenges as well. Distance learning also forced them to spend much more time in front of screens causing harm to their health and emotional condition (Moawad, 2020). They had to solve problems of limited communication (Bao, 2020), digital exclusion (Radha et al., 2020), digital and academic ethics, all kinds of technological issues (Chen et al., 2020) as well as the loss of physical learning/teaching space and environment (Chang & Ming, 2020; Daniel, 2020). This new reality raised questions "about the nature of teaching and ways of supporting the learning of student teachers, but it also challenges teacher education to (re) think the ways of (re)educating teachers for scenarios that are unpredictable and unknown but which raise questions related to equity and social justice" (Flores, Swennen, 2020).

Even though online learning triggered quite a few problems in the field of teacher education, simultaneously it provided new opportunities for innovation and experimentation. Teacher educators note the growth of personal and professional self-efficacy of themselves and their students. They discovered more opportunities to differentiate the study process and take into account the needs and interests of individual students, to apply a greater variety of information sources and assessment methods, to use more diverse means of communication with students, and to monitor the quality of studies more effectively (Bryson & Lauren, 2020; Rapanta et al., 2020; Mollenkopf & Gaskill, 2020; Wargadinata et al., 2020). In some respects, the said factors have even improved the quality of studies. Summarising research on the influence of pandemic for teacher educators, Flores and Swennen (2020) argue that on a global scale it has shocked teachers at all levels but at the same time, it inspired and motivated them "to find solutions to problems they have never encountered before the pandemic and will have to face in the near and not so near future".

Despite numerous research in the field, teaching and learning in a pandemic situation remain open to research insights. Considerations remain relevant as to what lessons for education were learned, how they will affect teacher training, what were best practices of the period, and how they can be used in the future. In this paper, we seek to discuss teacher educators' discoveries through challenges in the COVID-19 situation and, based on them, to provide insights for the future of teacher education.

## Method

The authors of the study are four researchers and teacher educators working with future teachers, doctoral students, and experienced teachers in different contexts: school, university, and non-governmental educational organization. We were scrutinising our lived experience of teaching from the start of the lockdown in March 2020 till February 2021. We combined two approaches of qualitative research: autoethnography and collective reflection. Autoethnography is a genre of the first-person narrative based on the premise that understanding the self is a way to understand others (Kim, 2016; Kathy-Ann et al., 2017). We were using collective autoethnography by pooling our lived experience on educating teachers during the lockdown and analysing and interpreting it collaboratively. The process we used was a collective reflection, which enables us to use our life stories and experience to understand and interpret the interrelationship between ourselves and others at the unique social reality of the present crisis (Roy & Uekusa, 2020). Collective reflection helped us strengthen autoethnography by considering action and reflection as an integrated whole. There were 4 steps in the current research:

1. Collective reflection on the context of education and individual lived experiences to set the research scope. During 2 two-hour recorded Zoom sessions, we freely shared our experiences without defining specific topics and areas of experience. The session record was transcribed, the transcript consisted of 6 pages (3006 words).

2. Collective analyses of transcribed first-person narratives. We used the MAXQDA (a software package for analysing qualitative data) for thematic content analysis. The thematic content analysis consisted of three stages: pre-analysis, exploration, treatment and interpretation (Bardin, 2009). The first author of this paper had read, organized the material to the analysis (the pre-analysis stage), defined the units of analysis, and established thematic ideas for them (the exploration stage). To ensure the reliability of the coding, it was carried out by second and third researchers. After comparing the codes provided, all researchers participated in identifying the categories (the treatment and interpretation stage). We identified the underlying themes: the use of educational technologies in the study process, the characteristics of self-learning during the pandemic, transformation of interpersonal relations with students, and the combination of multiple educational spaces.

3. Collective interpretation of the first-person narratives indicating challenges and discoveries in the COVID-19 situation. When interpreting the data, we decided to focus on the discoveries of the benefits of

educational technology, new interpersonal relations, the dynamics of self-learning, and the new concept of educational spaces.

4. Co-creation of insights and implications for the future of teacher training and professional development based on the discoveries.

We revealed four discoveries for teacher education: the benefits of communication technology, new ways for building interpersonal relations, the dynamics of self-learning, and a new concept of multiple educational spaces. We discussed them in the context of the insights and findings of other researchers. We included original excerpts from the narratives of the authors of this paper using their real names.

## Results

### Discovering the benefits of educational technology

The sudden transition to online teaching raised concerns among academics about their capacity to teach online by maintaining the same level of interaction with students as during face-to-face teaching (Teräs et al., 2020). Teacher educators encountered challenges arranging online classes, choosing online teaching platforms, monitoring the effect and quality of online teaching, and dealing with online tools which constrained teaching (Chen et al., 2020; Mseleku, 2020). Not active pre-pandemic use of IT prevented teachers from becoming smart users of technology, fully aware of the opportunities it provided. Rūta described her lived experience as follows:

> *"At the very beginning of the lockdown Zoom, Teams looked like some magic, certainly not designed for me or teaching. That's how the first two weeks passed – I ignored the situation. I was only able to prepare my lectures on PowerPoint slides and send them to students."*

On the other hand, the sudden transition to online teaching led to rapid changes. What was to be learned in an uncertain future was mastered in a matter of months. This is how Rūta described her teaching experience in half a year:

> *"Now I'm diving in the web. I don't know what I haven't tried with my students. Sharing screens, putting them into break-out rooms, mute/ unmute, etc., that is simple. Now I can easily put out a relevant video or find something on the internet that I need promptly. It has never been like that before."*

Such "diving" online and the use of various tools provided obvious satisfaction to teacher educators and significantly enriched the processes of teaching and learning. Both Rūta and the other authors of the paper discovered and enjoyed their new ability to use various online platforms and teaching tools.

The expanded learning geography enabling the involvement of other professionals in sessions with students was another discovery of online teaching. We found an example of this in Liudmila's story:

> "I have never had such a good chance to enrich my courses with guest lecturers! Thus, e. g., I was giving a course on the phenomenological approach. I invited two of my former doctoral students who applied it in their dissertations... An even more striking example was a collaboration with distinguished professor David Bloome from Ohio State University (USA). David took part in our online lectures for one hour twice a month. We would never have had such a luxury in the old routine of teaching/learning."

Online education enabled us to enrich our teaching by inviting other people to take part in our classes, especially those who had unique competencies or practical experience useful for students.

We discovered other benefits of online education, such as flexibility, when teachers and students have the freedom to join the session from different spaces and geographically remote locations; reduced costs of travel and premises; saved time; unlimited access to information sources, and easier sharing of information. Although we were aware of those benefits, in theory, it was only during the pandemic that we discovered them as a personal opportunity to improve the quality of teaching and learning.

### Discovering new interpersonal relations

Direct contact with another person in the process of learning is one of the most important conditions for effective teaching and learning (Gablinske, 2014; Japutra & Wang, Li, 2021). For a long time, it has been a routine practice for us; it helped to build interrelationships and develop social skills. During the pandemic, a huge change took place because we realised that we can no longer continue to work and communicate as before. Limited, in some cases, only one-way communication during lectures caused serious concerns (Arefi, 2021). It complicated fostering and building interpersonal relationships, the development of a favourable emotional microclimate, and collaboration. Remigijus's and Liudmila's narratives illustrate how it was confusing to establish and maintain the relationship with students at the beginning of the online teaching era:

> "Quite often, I was talking to black windows. In such cases, I was addressing students personally. Afterward, I could hear a sound from that dark window and I was doing my best trying to get them involved in our discussion." (Remigijus)
> "It looked like you could no longer understand what was going on behind the screen. Earlier you could sense body movement or a glance but now you felt completely isolated from non-verbal information... It was obvious

*that I needed to change something and look for new ways of communication."* (Liudmila)

Since there was no clear understanding of how learners acted in the digital space, since we did not know or understand students' expectations and needs, we had to remodel and revise the tasks and the very design of classes. Re-evaluation of the personal contribution in creating two-way communication became particularly important. One of the main discoveries for us was the new understanding of the social perception process, the interpretation of non-verbal language signals. Rūta's narrative illustrated that experience:

*"Now, I see very well them privately corresponding with each other in those chats, and I can tell who is corresponding with whom because the one who was writing smiled and another who was answering smiled back… and I don't want to forbid this to them because it is still a way of communication…"*

Re-evaluation and change of attitudes, approaches, and beliefs became one of the main factors predetermining the successful development of interpersonal relationships in the digital space. We realized that in distance contacts, it was important to change both our own and student ways of communication and the maintenance of relationships. It was important for us to put up with the current situation and not to be afraid to change, learn, and acquire the necessary skills. That helped us to establish contact with students. The wish to be efficient and important enabled one to learn by analysing both one's own and learners' emotional and teaching/learning experiences.

### Discovering dynamics of self-learning

Since the beginning of the lockdown, our perception of teaching in a "disembodied" virtual space has changed dramatically. We experienced the dynamics of being pushed past our "comfort zone" to the "panic zone" and it took some time for us to move to a "learning zone" (Colvin, 2008). We were forced to become "expert learners" through "deliberate practice which involved risk-taking" (Stobart, 2014, p. 50). Such a turn from experiencing a challenge to discovering new possibilities is demonstrated by Liudmila's narrative:

*"I believed that online learning could be effective only when there was no other way to meet live, that live interaction was extremely important... And suddenly it came to a halt. But a year later I understood that I would never come back. I realised that virtual meetings and digital learning offered a lot of new opportunities and have huge potential."*

The "new reality" shook us quite radically. To acquire new IT skills and develop new routines was an easy part. Much more difficult was to

confront our own identities as teacher educators, questioning the meaning of our professional lives and raising questions about our capacity to support teachers in real crises. We had little experience or knowledge of how to do it, and not much time to learn. Eglė shares her experience:

> *"After schools were closed and teachers dived into online learning, my work as a teacher educator stopped for some time. I felt lost, helpless, and useless. I got into a "panic zone": what could I offer teachers at this point? Their needs were completely different from what I could offer; online learning was not my expertise. It took some time to understand the new reality and find out how I could be useful again..."*

The experience represented the transformational process of self-awareness of a teacher educator in a new, unfamiliar, and unpredictable context. The new reality pushed her past the "comfort zone" toward the need to adapt to a new educational context in a very short time. That stage can be understood as providing opportunities for growth because when we "move outside the comfort zone into the learning zone we are being stretched to master new skills and knowledge" (Stobart, 2014, p. 51). Rūta comments on the changes that have taken place:

> *"I used to think that "distance learning" was something very sophisticated. Previously at the university, we had to use a special room for that and only an IT assistant could arrange it. Since the spring, learning IT tools was extremely fast. I could not imagine that I could do it from my home. Now I'm managing zoom conferences for 500 participants, I'm juggling easily with 5-6 opened video files during my sessions. Feeling competent with IT makes a big difference and it allows you to see its opportunities."*

To sum up the dynamics of our learning during a year of lockdown, we can call it a transformative learning experience. According to Meijer, such experiences or shifts shatter our identity and break the orientation but later it helps us to change "in order to get any further" (Meijer, 2011, p. 14). This experience is transforming us as teacher educators and gives us ideas on how we should create a transformative learning environment for our students.

## Discovering a new concept of multiple educational spaces

The idea of multiple educational spaces is not new. Distance education, e-learning, online learning is a well-know*n* form of educatio*n* in which the main elements include physical separation of teachers and students during instruction and the use of various technologies (Radugin et al., 2020). In the COVID-19 situation, not only is online instruction used, but the concept of space itself is changing. Rūta offers her story how a current lecture takes place:

> "When I look at the screen during the lecture, I see my 25 students. Each
> of them is in their own space, and at the same time, we are together on
> one screen. They experience the same thing. We are all in one another's
> homes. Probably while listening to me and looking at the screen, they
> are checking social networks and news portals. When asked, they find
> information in a virtual library or websites. I also check the course data
> myself in the Google classroom system, sometimes my e-mail as well. And
> it's all on one screen."

The teacher sees all of her 25 students on one screen who are in their
private space. The 26 teacher and student spaces fit in one screen: *they all
are in one another's homes*. Moreover, the students admitted that during
lectures they are not only performing the tasks provided by the lecturer but
checking their e-mail, Facebook news, visiting virtual libraries, and online
portals. The learning space is both reduced to a single screen and simul-
taneously expanded virtually and geographically. The new routine means
giving lectures to students scattered all over Lithuania or learning from
different countries or even different continents.

The learning space becomes disembodied. These are no longer build-
ings, rooms, or halls but websites. As Pacheco argues, when "moving from
physical face-to-face presence to virtual contact (synchronous and asyn-
chronous), the learning space becomes disembodied, virtual, not actual,
impacting both student learning and the organization of schools, which
are no longer buildings but websites" (Pacheco, 2020, p. 3). We act, work,
and communicate no longer in the first or second, but in the third space.
In this space, new cultural identities are formed, reformed, and con-
stantly in a state of becoming. Moreover, that presence in the third space
changes us. We work across internal and external boundaries of educa-
tional spaces and create "new institutional spaces, knowledge and relation-
ships" (Whitchurch, 2008, p. 386). We lose our presence here and now.
As Remigijus says, "*we are teaching and learning in virtual space, it seems
to students that they can afford to be in two or three places. ... they can com-
bine multiple tasks, being in several places*". Networking, laterality, hybridity,
flexibility, multi-tasking becomes important features of the newly created
educational spaces (Taylor, 2008).

## Discussion

Despite the numerous publications in recent years on the impact of the
pandemic on education, the issues of learning and teaching during the lock-
down, and the related challenges and opportunities, quite a few questions
remain unanswered. With a view to the future, researchers seek to find out
how the lockdown affected the higher education sector (Mseleku, 2020),

the impact of the online transfer on student learning habits (Wargadinata et al., 2020), and academic outcomes (Mseleku, 2020), the advantages and disadvantages when comparing offline and online learning (Radha et al., 2020), and the lockdown experiences and lessons relevant to the field of teacher education (Mollenkopf et al., 2020; Wargadinata et al., 2020, Flores, Swennen, 2020). In our study, we focused on the challenges faced by teacher educators due to a sudden transition from offline to online teaching and evaluated the experiences of coping with them as discoveries significant for the future practice of teacher education. Our discoveries are believed to be not merely the solutions of the encountered problems but also effective ways of teaching teachers "how to teach, facilitate and encourage learning, both explicitly, via lectures, seminars, and tutorials, and implicitly, by modelling (…) what it means to be a professional teacher" (European Commission 2013, p. 8).

The sudden transition from face-to-face to online learning brought numerous challenges for teacher educators (Mollenkopf et al., 2020). If the difficulties in online teaching analysed in the above-mentioned studies were mostly dealt with as individual cases, the COVID-19 situation revealed their complexity and relevance to higher education in general (Mseleku, 2020). As demonstrated in our paper, at the beginning of the lockdown, teacher educators lacked the knowledge and habits of use ICT in the process of studies, they experienced difficulties in the interaction between teachers and students. They had to rethink the concept of educational space as well as to deal with the problems of emotional and physical well-being. Every challenge we faced during the year of the lockdown brought us important discoveries. We learned how to use various online platforms and technological tools to improve the quality of studies. We discovered new strategies for communicating with students and used virtual educational spaces and multimodal learning. There is still a shortage of research on the benefits of new modes of learning during the COVID-9 pandemic.

The paper is based on the approach of social constructionism which centres on the notion that meanings are constructed by individuals in relation with others to understand the existing reality (Berger & Luckmann, 1966; Burr, 2003). New reality pushed us from the "comfort zone" forced us to acquire new skills, and changed our beliefs and stereotypes about distance learning. This transformative learning experience helped us reconsider important questions of our professional identity and the future of our work, this dynamic experience is reflected in our stories. The COVID-19 situation encouraged us to include innovation in the teacher training process and provided us with new opportunities for our professional development.

## Conclusions and insights for teacher education

On summarizing our experience and research findings, we can argue that the chosen methodological approach through reflection and sharing experience enabled us as researchers to reveal the meaning of the current situation and to identify opportunities. Through reflecting on our experience, we discovered that the online teaching and technological breakthrough during the lockdown brought a lot of advantages into our academic practice. In a very short time, we learned not only how to use various online platforms and technological tools, but how to apply them flexibly when working with students. The absence of direct communication encouraged us to develop social awareness and communication skills through testing new online teaching strategies. Changes in relationships made it possible to rethink attitudes and beliefs by finding more effective ways to build and maintain relationships to compensate for the limitations of distance communication. The changed concept of the learning and teaching space freed us from caring about physical spaces and obliged us to focus more on the organisation of teaching and learning, the usage of multiple learning spaces (virtual libraries, video resources), and teaching multimodality.

It has become clear that we must think about a new routine for the new future, taking into consideration the multifaceted challenges of the "new normality". As Žižek (2020, p. 3) argues that "there is no return to normal, the new 'normal' will have to be constructed on the ruins of our old lives, or we will find ourselves in a new barbarism whose signs are already clearly discernible". Prospective teachers need to be prepared to live and work in a rapidly changing and challenging world. Flexibility, the ability to adapt to changing circumstances, and resistance to physical and emotional disturbances are the qualities of teachers made particularly relevant by the COVID-19 situation. Therefore, teacher education programmes should create conditions for student transformative learning where they could take risks and face challenges to be better prepared for the uncertainties of the "new normal". For transformative learning, teacher educators should create communities of trust, build space and time for reflection, and encourage students to confront their painful and stressful experiences as well as identity issues.

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# EXPLORING STUDENTS' PERCEPTIONS ON ACQUISITION OF TRANSVERSAL SKILLS DURING AN ONLINE SOCIAL SIMULATION

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**ABSTRACT**

Due to the demands of the current job market, universities need to adapt their teaching approaches to provide students with opportunities to advance their transversal skills in order to succeed with their careers. Social simulations have been considered previously as a fruitful study method that helps to advance transversal skills; however, the research in this field is scarce. This study aims to explore the perceived affordances and limitations of social simulation as an online learning method for acquisition of transversal skills of graduate and undergraduate students from communication and media study programs. The empirical part draws on a set of qualitative data. All together 32 students in two universities participated in the testing of an original simulation scenario that was created in an Erasmus+ Strategic partnership project. The results indicate that students in both simulation exercises mostly applied their negotiation, strategic thinking and planning skills. During the second simulation, self-evaluation forms filled before and after the event helped the students to realize which transversal skills they need and want to develop further. Our results demonstrate that students felt pressured to intensively collaborate and coordinate with their group members, other groups and the teachers as during both testing sessions technical disruptions were experienced. We conclude that an online social simulation is a productive interactive learning and teaching method that helps to sensitize students towards their transversal skills and stimulate self-reflection. We also argue that in exercising a social simulation online there is an additional layer of pedagogical implications: the choice of the digital platform and the potential technical disruptions such as the loss of Internet connection or sudden malfunction of some of the platform's features may divert the flow of the simulation.

***Keywords:*** *interactive learning, online learning environments, social simulations, transversal skills, 21st century skills.*

## Introduction

Preparing students for the 21ˢᵗ century challenges means preparing them for living and working in rapidly changing situations that require sophisticated comprehension and fast, flexible adaptation in order to be successful with one's career (European Commission, 2011; Milakovich & Wise, 2019). According to the World Economic Forum (2019), creativity, problem solving, teamwork, critical thinking and emotional intelligence should be highlighted as the skills that will be increasingly demanded. Educators thus experiment with various study methods and tools that support not only the acquisition of specialist knowledge or job specific skills, but also the so-called transversal skills. Reuter, Ferreira Dias, Madaleno et al. (2020) emphasize that for advancement of transversal skills it is necessary to formulate and develop effective and efficient teaching concepts that combine both theoretical and practical elements.

Scholars agree that acquisition of transversal skills happens most efficiently when learning is an active process, with the emphasis on the learner and his/her authentic experience (Reuter et al., 2020; Krpálek, Berková, Kubišová et al., 2021). Therefore, games, social simulations, role-plays and other interactive study methods are increasingly being applied as teaching methods in higher education to support acquisition of transversal skills. Technology is often seen as means of educational enrichment and tool for productivity (Torres, Sousa & Torres, 2018). With the current study, we aim to explore the perceived affordances and limitations of social simulation as an online learning method for acquisition of transversal skills among graduate students from Communication and Public Relations study programs at University of Tartu and Vilnius University. The study was carried out as part of an Erasmus+ project where universities in Latvia, Estonia and Lithuania collaborated to explore innovative study methods for higher education.

### Transversal skills: definitions

Transversal skills are defined as transferable behaviors that can be used within a wide range of contexts including different functions and activities. They can be contrasted with professional and technical skills (Direito, Pereira & Duarte, 2014). UNESCO has defined transversal skills "as not specifically related to a particular job, task, academic discipline or area of knowledge and that can be used in a wide variety of situations and work settings" (UNESCO, 2013). Thus, transversal skills are needed for everyone's full life in today's society. In previous literature, various related terms such as soft skills, 21ˢᵗ century skills, key skills, core skills, employability skills, and cross-curriculum skills have been used (Deep, Salleh & Othman,

2019; Goggin, Sheridan, Lárusdóttir, Guðmundsdóttir, 2019). Moreover, there is an extensive discussion around the notions of skills and competences, and no consensus among scholars on the meaning of these two has been achieved so far. To avoid confusion, in the current study we use the term transversal skills considering this as the most widely used term for the skills that are opposed to job-specific skills.

UNESCO classifies transversal skills in the following five groups:
1. Critical and innovative thinking;
2. Inter-personal skills (e. g. presentation and communication skills, organizational skills, teamwork, etc.);
3. Intra-personal skills (e. g. self-discipline, enthusiasm, perseverance, self-motivation, etc.);
4. Global citizenship (e. g. tolerance, openness, respect for diversity, intercultural understanding, etc.);
5. Media and information literacy such as the ability to locate and access information, as well as to analyse and evaluate media content (UNESCO, 2013).

The UNESCO's framework partly overlaps with the one proposed by National Research Council (2012) which draws on the analysis of earlier conceptualizations, and proposes to distinguish between three broad categories of skills:
1. Transversal skills on the Cognitive domain (critical thinking, reasoning and argumentation, innovation);
2. The Intrapersonal domain (flexibility, metacognition, openness, work ethics, initiative); and
3. The Interpersonal domain (collaboration, teamwork, leadership, conflict resolution etc.) (Education for Life and Work: Developing Transferable Knowledge and Skills in the 21st Century, 2012).

## Acquisition of transversal skills through interactive study methods

Previous studies indicate that by engaging in educational activities such as games or social simulations, students acquire various transversal skills: autonomy, cooperation, digital skills, communication (see e. g., Díaz Pareja, Cámara Estrella, Muñoz Galiano et al., 2018). The meta-analysis carried out by Reuter et al. (2020) indicate that in previous studies advancement of such transversal skills as teamwork, collaboration, emotional intelligence, performance under pressure, creativity have been analyzed. In the social and human sciences, mostly the focus is on acquisition of such transversal skills: communication, argumentation, ability to negotiate, adaptability, anticipate situations, critical thinking, leadership, and motivation. It has been found that motivation helps to achieve higher

learning outcomes in a more flexible way (Varela-Candamio, Enriquez-Diaz & Rouco-Couzo, 2020). It seems that interactive study environments naturally promote cooperation and in some cases confrontation of ideas through which students gain deeper understanding of the study content and raise self-confidence. In a game-based learning situation, the teams compete with one another and they need various resources to solve the challenges integrated in the game scenario effectively in a restricted time (Buckley & Doyle, 2016). In a similar vein, Kirkwood-Tucker (2004) points out that the active nature of simulations requires students to engage and adapt to circumstances within a specific context, engage flexibly, communicate, and collaborate. A social simulation encourages students to practice critical thinking skills (Cummings, Mason, Shelton & Baur, 2015), interpersonal communication, teamwork, leadership, decision-making, task prioritizing and stress management (Vlachopoulos & Makri, 2017), as well as to experience the feelings, questions, and concerns associated with their particular role (Gredler, 2004). Synchronous online collaboration increases social presence, which promotes learning. As noted by Torres, Sousa and Torres (2018, p. 589) "technology is of paramount importance as a tool to foster students' autonomy and collaboration, and can, most interestingly, be used to promote active learning and possibly emancipation." Video, audio or even just text chat increases engagement in learning activities (Martin & Parker, 2014).

In literature, the term "simulation" is used to convey different meanings. What we focus on in this study is a social-process simulation that is defined as an open-ended situation that can take different directions, depending on the actions and reactions of the participants (Gredler, 2004; Thavikulwat, 2009). By engaging in a social simulation exercise, students experience the effects and consequences of one's decisions and actions, they can experiment and make mistakes thus building a better overall understanding and creating new knowledge (Cummings et al., 2015; Davidsson & Verhagen, 2017; Hill & Semler, 2001; Kirkwood-Tucker, 2004).

**The role of students' reflection in learning**

Schön (1987) describes the formation of new knowledge as a result of increasing students' self-awareness of one's repertoire of knowledge and skills through creating specific circumstances during the learning. Reflection is crucial in the Schön's (1987) model. Dewey (1910) defines reflection as a cognitive activity that is active, persistent, and includes responsibility for future consequences. According to Dewey (1910), reflection can be both retrospective and progressive. As previous studies have demonstrated (see e. g., Rarieya, 2005) reflection supports learners in making sense and meaning of their learning experience. Student reflection on

the experience gained through a learning activity also leads to an improved self-awareness of one's skills and knowledge level. Helyer emphasizes that "developing a reflection means that an individual begins to automatically challenge and question why tasks were undertaken in a certain way rather than how they were carried out" (2015, p. 23). Reflection provides the opportunity for the students to be sensitized to the variety of skills needed to achieve a result. As demonstrated by Chang's (2019) study, through reflection students could identify the gaps in their knowledge and skills. Thus, reflection may also help to define goals to enhance particular skills in the future (Coulson & Harvey, 2013). It is especially important for the course of acquiring transversal skills which are often also called employability skills, and valued in the job market, because reflection can help to contextualize and personalize the learning experience (Chang, 2019). Ability to reflect on one's transversal skills are pivotal to development in lifelong learning (Rushton, 2005) and is a requirement in many professions (Betts, 2004). In order to make the reflection fruitful, students need to be provided with means to reflect on their skills before and after the learning activity (Coulson & Harvey, 2013). Written reflection should be combined with oral reflection for a more in depth self-assessment (Quinton & Smallbone, 2010).

## Method

### The Participants

Graduate and undergraduate students from Vilnius University ($n = 16$) and University of Tartu ($n = 16$) participated in the social simulation and the study.

### Data collection

Data collection was carried out during two social simulation sessions. The focus of the social simulation was on the scenario of pollinators and pesticides. During the social simulation, participants had the opportunity to identify with different stakeholders and show a wide range of skills. Due to the COVID-19 pandemic, the social simulation that originally was prepared for in-person was transferred to online.

Lithuania: Two methods were employed for data collection: written student self-reflections (free format) and instructors' notes. Instructors' notes were made from debriefing/reflection sessions in which the following issues were discussed: gains obtained from the participation in this simulation, skills and competencies developed during simulation, opportunities and risks using social simulation as a learning method, social simulation in the online environment.

After this simulation, a student self-reflection form was created, which was used in the next simulation in Tartu.

Estonia: Two methods were used for data collection, first, student self-reflection forms filled in before and after the simulation exercise focusing on a list of transversal skills (UNESCO, 2013; Milakovich, & Wise, 2019 etc.). The following transversal competencies were evaluated (on the scale from 0 to 10) before and after the simulation: critical thinking, learning to learn, problem solving, flexibility, decision making in groups, managing uncertainty, communication, persuasion skills, collaboration, presentation skills, leadership and responsibility, contextual awareness, initiative and self-direction, conflict management, productivity, negotiation skills, creativity and innovation. Second, instructors' notes were made from debriefing / reflection sessions in which the following issues were discussed: gains obtained from the participation in this simulation, skills and competencies developed during simulation, opportunities and risks using social simulation as a learning method, social simulation in the online environment.

## Data analysis

Medians were calculated for transversal competencies (student self-reflection forms), while student's free self-reflections and instructor notes were recorded and transcribed. All the transcripts from reflection sessions were analysed by the two researchers using the inductive thematic analysis approach. Each transcript was approached with a preliminary read-through, and the initial analytic codes were developed. These codes were later refined and grouped into themes and sub-themes. The initial coding was performed by the researchers independently, and later the codes were compared and discussed over several meetings. The collaborative approach was employed to resolve disagreements during the process of theme identification. Such an approach was useful to reduce the risks of potential researcher bias and subjectivity.

## Ethical considerations

Students' confidentiality was respected in the study. The students agreed that an audio recording would be made during the reflection sessions, which was deleted after the transcripts were created. Method section shows how the study was conducted.

## Results

In the Lithuanian simulation, first of all, the theme of becoming more sensitized towards some transversal skills was prominent: several of the students mentioned that the simulation activity helped them to understand

where they are at mastering the skills. For example, one student mentioned that "*During the simulation, I realized I wasn't such a bad negotiator*". A rather similar was another students' observation about herself: "*I tried negotiation skills that I believe aren't really impressive, but you need to start from somewhere, and it [the simulation] was a great chance*". Another student had realized that she is a much better team player than she had thought before: "*Most definitely the remarkable thing was the team work. I normally prefer working in solitude, but placing my trust in my teammates' hands turned out to be very gratifying*". Another student emphasized that the simulation exercise let him think about the variety of transversal skills needed to complete the task: "*Simulation was an exceptional experience – such practices open the eyes to what skills are really important when trying to innovate*".

The data codes revealed that negotiation and argumentation skills were the ones most often mentioned as the skills that students had to apply during the simulation. Other skills that were mentioned were strategic thinking, working in teams, presentation skills, communication, and decision making in groups. The simulation had also been an opportunity for the students to embody roles that they said they would not have taken on in real life. Such a finding points toward the fact that such simulations in general may allow students to take on unusual roles in teams, such as revealing themselves as leaders, negotiators, and so on. In this case, experiences and competencies that students have gained from participation in and use of social media platforms help them to create their identities, communication style and choose the appropriate negotiation role according to the "persona" they had to play during the simulation.

From the intra-personal skills' set (UNESCO, 2013), management of emotions was mentioned several times. Because of the remote study process due to the COVID-19 pandemic related restrictions, students had to participate in the simulation online. It meant managing various ICT platforms, which the students were not very familiar with, and also experiencing technical disruptions. Several students admitted that they had to deal with anxiety and frustration due to these technical technological challenges, as, for example, in this excerpt: "*We had technical disruptions, one of our members could not join normally, so there were difficulties in communicating with the other groups and lots of confusion*". Several students also realized that their ICT skills were insufficient.

In the Estonian simulation, the students were asked to fill in a self-evaluation form before the simulation, where they needed to rate their transversal skills on the scale from 0 to 10, as well as to choose three from the list that they felt needed to be developed the most. The median evaluations of different transversal skills did not differentiate very much, ranging from six to eight on 11-point scale (0–10). The skills evaluated the highest by

the students were collaboration (8), critical thinking (8), and communication (7). The lowest score was given to presentation skills (6). The lowest scores given by individual students to their transversal skills was 4 (by one student for persuasion skills), at the same time 10 points for different skills were used once by seven students (see below Fig. 1).
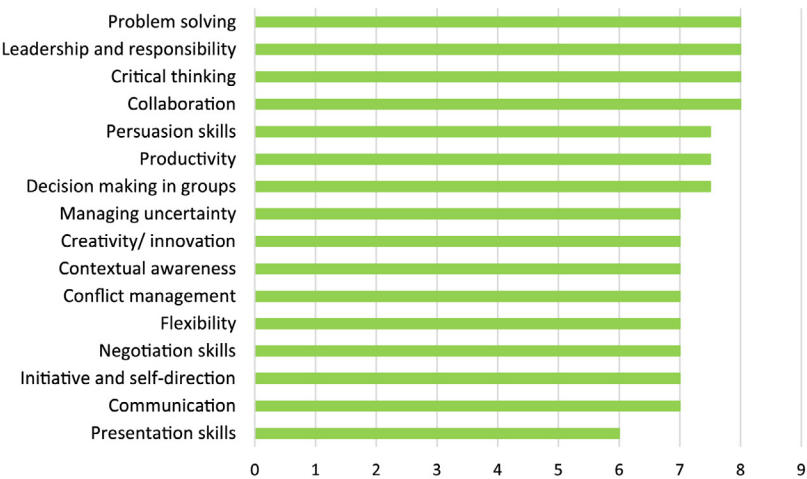


**Figure 1.** Median evaluation of students of their transversal skill before the simulation (on scale 0–10)

Besides rating their transversal skills, the students were asked to choose three skills, which they felt the need to develop the most. Among the transversal skills students would like to develop the most, almost all listed skills were chosen – this shows that students' expectations for the simulation were quite versatile. Two of the most frequently chosen skills were also among the lowest evaluated ones: presentation skills and learning to learn, the third most often chosen skill was productivity. Interestingly, no student marked negotiation skills – perhaps the key competence developed in such simulations (which was mentioned often in the debriefing session).

After the simulation, the students had to fill in another self-evaluation form, where they were asked to reflect if they had a chance to try out and improve each of the 17 transversal skills. Students reported that they were able to use or try out most of the skills, but in such a short time they did not really feel they had improved any of them. Students wrote that learning to learn was one of the skills they could not develop at all because of the nature and duration of the simulation. Surprisingly, they also reported that conflict management could not really be put to use since the groups were finding compromises very fast. This could also be due to the fact that the group of students were rather homogeneous and with similar backgrounds.

In addition, the students were asked to reflect separately on the three skills they had singled out before the simulation and then choose three skills they now felt they needed to develop further. The most often chosen skills were negotiation skills, as well as conflict management and presentation skills. Again, almost all competencies were chosen – which shows that students get quite different learning experiences out of the same simulation.

## Discussion and Conclusions

In this study, we explored the perceived affordances and limitations of social simulations (Gredler, 2004) as an online learning method to acquaint university students with transversal skills.

The social simulation required the students to work closely in groups, develop strategies and messages, negotiate and find consensus with other groups in order to achieve their goals.

Our study demonstrates that one simulation exercise does not let to improve the transversal skills much, but gives quite a good idea to the students what they are good at and what they need to develop in the future. Looking at the student reflections, we can conclude that the role of simulation is not really to be a teaching tool for transversal skills. Rather it works as a self-testing or reflection tool for the students where they can test out different skills and have new discoveries about themselves: what they are (already) good at and what they could work on further.

Besides that, reflecting about transversal skills does not come easy for students – they tend to over or under-estimate their skills, do not consider them as important (Rarieya, 2005). Simulation is one of the best tools (in the classroom format) to test and analyze actual skills. As pointed out in the theoretical part, Schön (1987) describes the formation of new knowledge as a result of increasing students' self-awareness of one's repertoire of knowledge and skills through creating specific circumstances during the learning. Our testing of simulation indicated that it is a great method that helps to sensitize students about their transversal skills. Therefore, debriefing is a crucial part of the simulation and should direct students to think about the learning experience to raise self-awareness.

Our material suggests that online environments are suitable for conducting social simulations and training specific skills. Online simulations do not hinder application of the same skills as in in-person meetings. It has similar limitations to all online teaching and learning activities that happen in groups: problems with getting noticed, getting heard (fight or fly), and time management. Some specific limitations related to the online environment that we identified in our study were mainly linked to students' inexperience with digital tools, technical limitations of usable digital

platforms, and psychological barriers related to uncertainty and lack of competencies. Still, learning online the students gain experience to work effectively, discuss and solve problems. In addition, the students reported that participating in the simulation online created a buffer space for them and created a "persona" to act differently than usual, be more open and brave to try out various skills.

However, some transversal skills are even more required online like presentation, negotiations, time management. Due to the COVID-19 pandemic related restrictions, online simulations were a forced option for us, but even after returning to classrooms, teachers should consider using online formats and the opportunity to conduct simulations online.

The study comes with some limitations. Obviously, two examples analyzed in the paper do not give definite answers about transversal skills and online arrangements. There are several challenges with online simulations to be explored further: how to let the students express themselves during group discussions, the role of the facilitator in the group discussions to ensure inclusion also of the more silent/shy ones etc.

## Acknowledgements

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# IMPLEMENTATION OF STUDENT-CENTRED EDUCATION PRINCIPLES IN A MASTER'S STUDY PROGRAMME: AN EXPLORATION OF THE EXPERIENCE OF ACADEMIC STAFF

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**ABSTRACT**

The paradigm shift in higher education pedagogy and policy has been a subject of discussion for 30 years, during which time the emphasis has been placed on the transition to student-centred education. The implementation of this approach requires the democratisation of the study process and a shift towards performance-based outcomes, thus promoting students' research capacities, well-being, personal growth, and quality of life. The most important document on the subject, which was developed in collaboration with the leading organisations of the Bologna Process, is the Standards and Guidelines for Quality Assurance in the European Higher Education Area. This describes the common understanding of student-centred learning, teaching, and assessment. The standards and guidelines are also incorporated into the Latvian higher education quality assurance regulations.

The authors of the present study are involved in the development and approbation of a new master's study program, in which special attention is paid to the implementation of the principles of student-centred education. The central aim of the present study was to study the experience of lecturers in the implementation of the principles of student-centred education in the programme. The relevant literature and documents were surveyed and data from questionnaires (distributed to programme participants) were analysed.

Using the Standards and Guidelines for Quality Assurance in the European Higher Education Area and the Science, Technology Development and Innovation Guidelines 2021–2027 approved by the Latvian Ministry of Education and Science, the present study sets out 10 basic principles of student-centred education. A survey was created for lecturers who are implementing the newly created master's programme over one semester. Seventeen lecturers participated. The analysis of the questionnaire results indicated that promoting mutual respect in student–academic staff relations and students' active engagement in the study process were considered to be the most important principles. The results also revealed that lecturers applied every student–centred principle, but it is necessary to promote a common understanding by developing a mechanism for evaluating them and to improve the competence of teachers in implementing them.

***Keywords:*** *academic staff, higher education policy, implementation, master's study programme, student-centred education.*

## Introduction

The issue of changing paradigms in higher education has been discussed in respect of tertiary pedagogy and higher education policy for 30 years. This discussion has emphasised the shift to student-centred study. To ensure and implement student-centred education, it is necessary to make the study process more democratic and move it towards performance-based outcomes, thus facilitating students' research capacities and wellness in the study process, as well as their personal growth and quality of life.

The most important document that has been developed in collaboration with the leading organisations of the Bologna Process is the Standards and Guidelines for Quality Assurance in the European Higher Education Area (2015). This outlines the common understanding of student-centred learning, teaching, and assessment. The standards and guidelines are also incorporated in the normative regulations for higher education quality assurance in Latvia and the internal normative documents of higher education institutions.

The scientific publications on the philosophical, pedagogical, and political aspects of the student-centred educational approach by Lynch (2016), Sadker and Zitleman (2017), Gover et al. (2019), and Trinidad (2019) formed the theoretical basis of the present study. Its authors are currently participating in the development and approbation of a new master's programme (called *Education Sciences*) in which great emphasis is placed on a student-centred approach. The introduction of student-centred education is connected with the organisational culture and a change of opinion among its members regarding every aspect of teaching and learning (Gover et al., 2019). The present study aimed to explore the experience of the academic staff in the introduction of student-centred education principles in the master's study programme in question. The central research question was: "How do the academic staff implement student-centred education principles on the master's study programme?"

## Method

The present study adopted a mixed-method research design comprising the qualitative and quantitative analysis of the relevant scholarly literature and documents (i. e., sources) and questionnaires. Special attention was paid to the student-centred and research-based study process, where the process itself became the object. The present study makes a contribution to the literature on student-centred approaches in higher education programmes (Mārtinsone et al., 2016; Taber, 2016).

The study was based on the key principles of student-centred education as defined in the Standards and Guidelines for Quality Assurance in

the European Higher Education Area (2015) and the Guidelines for the Development and Innovations of Science and Technologies 2021–2027 (Cabinet of Ministers, 2020), which were approved by the Latvian Ministry of Education and Science. The master's programme itself takes into account and respects students' interests and needs as a means of establishing appropriate learning paths to promote knowledge, skills, and competences; considers the different possible ways it may be implemented; applies diverse pedagogical methods and strategies, depending on the circumstances; encourages students' motivation and independence, and at the same time ensures guidance and support from the academic staff; facilitates mutual respect in student − staff relations, promoting an open and socially inclusive environment; and uses procedures for resolving students' complaints.

A survey was developed for the academic staff who have spent a term implementing the new master's programme; 17 participated. 15 respondents have a doctoral degree in educational management, pedagogy or psychology, two – a master's degree in educational management. The data collected were summarised and analysed using statistical and content analysis.

The questionnaire contained two questions: the first question with ten statements and the possibility to supplement the given statements (i. e., participants were given specific answer options and an opportunity to add their own). For the latter, participants were asked to give specific examples based on their experience of following the principles of student-centred education in their courses.

## Results

The results of the present study were derived from the analysis of the empirical data. Student-centred learning (SCL) is an approach in higher education that focuses on students' learning needs to ensure the achievement of the intended learning outcomes. Student-centred learning ensures that the content of the study programme (including its structure and interactivity) reflects its aims and intended learning outcomes and that the methodology is appropriate (Gover et al., 2019; European Students' Union, 2015). Several related terms are used in the theoretical and methodological literature—the person-centred teaching-learning approach, the child-centred approach, and the pupil-centred approach—and each targets the learner at different ages and levels of education.

Student-centred learning is often understood differently in higher education, and it has been criticised within the academic discourse. This reveals a lack of understanding. Student-centred learning places a greater emphasis on the individuality of the student. It helps them to become aware of and understand their potential for success in changing circumstances. It is less

structured than traditional approaches. It places less emphasis on previous academic experience. In SCL, the results to be achieved are determined in collaboration with the lecturer, and they depend on the current needs and interests of the student. The previous results of the study course and the programme are taken into account, and methods and techniques are jointly established (Lynch, 2016; Trinidad, 2019).

The European Students' Union, in its research study *Overview on Student-Centred Learning in Higher Education in Europe* (2015) stresses that SCL represents a shift in the culture and mindset of higher education institutions. It is a learning approach that is related to constructivist theories of learning. The European Students' Union established the theory on which SCL is based and the practice by which academic staff and students can implement SCL. It formulated nine SCL principles with the aim of providing a clearer understanding of SCL:

1. SCL is an ongoing reflexive process.
2. SCL does not have a *one-size-fits-all* solution.
3. Students have different learning styles.
4. Students have different needs and interests.
5. Choice is central to effective learning in SCL.
6. Students have different experiences and background knowledge.
7. Students should have control over their learning.
8. SCL is about enabling not telling.
9. Learning involves cooperation between students and staff.

The philosophical basis of SCL is formed by the theoretical findings of social constructivism, progressivism, and existentialism. In social constructivism, the goal is not only to form a generation of problem solvers but also to try to identify and eliminate problems that have arisen in society. The result to be achieved is to promote students' understanding of a society in which social injustice prevails, to value society and to reduce inequalities in it, and to create a new and fairer society (Sadker & Zittleman, 2017). The theory of SCL emphasises the notion of students' individual action: they choose their goals; set social priorities; create action plans; and implement change (Lynch, 2016).

Progressivism is a student-centred theory of education. Individuality, change, and progress are prerequisites for education. Students learn best from what they consider most relevant in their lives (TheDigiTeachers, 2020), so in SCL, course programmes should be sufficiently flexible to take into account individual abilities, experience, needs, and interests when establishing course outcomes.

In education, the theory of existentialism manifests itself in students' self-directed learning, because the main question is whether students want to define who they are or whether they want society to define them. They

should be allowed to develop their unique understanding of life, and this is one of the main results to be achieved (Lynch, 2016). Lecturers act as coordinators, helping to find the most appropriate methods and tools and allowing students to work on a variety of self-selected tasks at their own pace.

One of the most important principles of SCL is the promotion of mutual respect in student − academic staff relations. Students' diverse needs with regard to teaching methods and learning approaches, their active engagement in the study process, and the promotion of their self-reflection and independence through the staff's guidance and support are integral to the above-mentioned theories, which form the philosophical basis of SCL.

The methodology of the programme is based on the following:

1. Students can supplement the course content (i. e., they can develop an individualised plan).
2. Students have the opportunity to lead and take responsibility for learning (i. e., recommend and choose methods and techniques).
3. Students can personalise the pace at which they learn, using, for example, digital opportunities.
4. Several choices are provided in the assessment of the competencies acquired on the course.
5. The role of the lecturer as advisor is given greater emphasis (Heick, 2020).

By focusing on a student-centred approach, the university system and individual lecturers will be able to make the necessary changes to create an effective and life-transforming environment for students. Student-centred learning is generally described in terms of innovative methods of teaching that aim to promote learning in communication with academic staff and other students, and take students seriously as active participants in their own learning through the promotion of transversal skills (e. g., critical thinking, reflective thinking, and problem solving). Study processes should be described *in* terms of learning outcomes, thus giving students more responsibility in choosing their study paths and curricula. Students need to be engaged and motivated, but the foundational aspects of the faculty–student relationship in the academic environment should not be forgotten. Trinidad (2019) stated that there is a great deal of theoretical research on SCL in higher education that highlights key aspects and principles, but not of all of the findings have been scrutinised empirically (European Students' Union, 2015; Lynch, 2016).

The key principles of student-centred education that have been put forward based on the Standards and Guidelines for Quality Assurance in the European Higher Education Area (2015) can be observed in the development and implementation of the master's programme. The participants in

the present study indicated which of these principles they follow in their practice. Figure 1 summarises their responses. They are presented in the order determined by the compliance of the principles with the internal logic of the development and implementation of the programme.
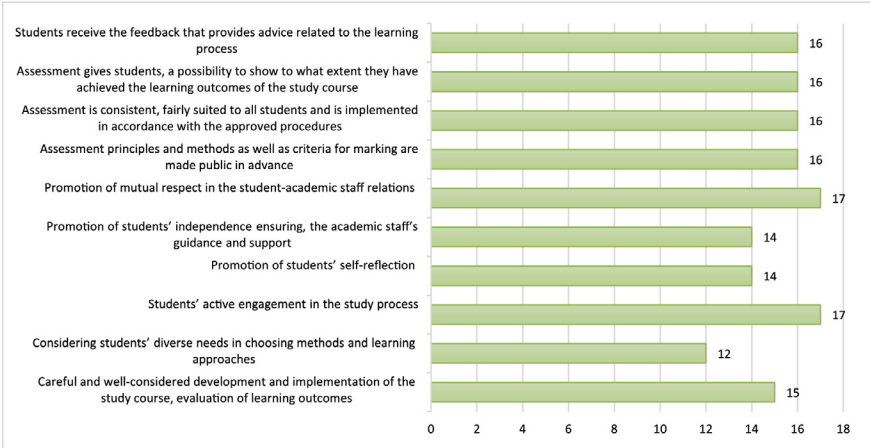


**Figure 1.** Student-Centred Education Principles in the Programme Study Courses

The principle *a careful and well-considered development and implementation of the study course, evaluation of learning outcomes* has been implemented since the beginning of the programme. First, the authors analysed characteristic indicators of the national economy of Latvia and trends of the current education policy implemented in the country; evaluated master's programmes in education sciences offered in Latvia and other countries of the world; and explored and conceptualised the needs of the target audience to formulate the aim and learning outcomes of the study programme and to ensure the succession of the content of each study course. An analysis of the learning outcomes of the courses and the experience of the academic staff revealed that purposeful acquisition of basic knowledge and skills was promoted; this will allow mastery of the intended competencies in the subsequent study process.

The principle *considering students' diverse needs in choosing methods and learning approaches* was evident in the incorporation within the overarching course of several subprogrammes: *Pedagogy*; *Education Management*; *Teaching and Learning for Competence*; *Diversity and Inclusion in Education*; and *Human Behaviour and Education*. Students had access to a voluminous literature at the University of Latvia Library. Different learning approaches were applied: visual, auditory, reading, and learning through doing. Accordingly, written and oral presentations, work with texts, case studies, situation analysis,

role plays, and so on were used. The academic staff attempted to under-
stand the everyday work needs of each student and adjust the modifiable
content in lectures to these needs. Methods were adapted during the study
process in accordance with the speed of students' perception and level of
comprehension. They were subordinated to the real situation rather than
previous decisions. Students had the option of choosing themes they were
interested in. Despite the limitations of remote learning, the academic staff
used pair work, group, and individual work requiring diverse tasks. These
included reading and reflecting on texts; making presentations based on
found materials; writing essays, carrying out project work in groups where
each student was given a special responsibility. Some courses respected the
time students needed for individual or group work. Students were given
the opportunity to add to the prescribed sources of information.

Academic staff responses in the questionnaire emphasised *students'
active engagement in the study process*, one of the most essential principles
of student-centred education. They pointed out that they used a range
of interactive methods, e. g., brainstorming, discussions, role-plays, pres-
entations in groups, and case study analysis. The students led seminars,
directed practical classes, and engaged in discussions. Their participation
was encouraged, and they were given equal opportunities to participate in
the study process.

One of the core values of the student-centred approach is *the promotion
of students' self-reflection*. This is closely related to another principle of the
programme − *the promotion of students' independence ensuring the academic
staff's guidance and support.* The respondents stressed that self-reflection
was a compulsory element of the course, and that assessment allowed for
an understanding of the students' mindfulness, vision, and opinions. For
instance, every student received descriptive feedback after each piece of
independent work on the course *Introduction to Education Science Studies*.
They had to search, analyse, reflect independently, and take responsibility
for their initiative and outcomes when they carried out practical tasks. The
staff supported students during lectures and tutorials by answering their
questions.

The principle of *promotion of mutual respect in the student−academic
staff relations* is a topical one in terms of the democratisation of the edu-
cational process. It requires the acknowledgement of abilities, knowledge,
and values and taking into account different needs. The staff claimed that
the atmosphere on the programme was open and calm and they regularly
sought students' opinions and drew upon their experience. They found this
sharing approach to be enriching. They also regarded students' peer learn-
ing as important. Different methods of communication were employed, and
staff tried to ensure that these were always respectful.

The following student-centred assessment principles must be abided by in the implementation of the programme:

1. Assessment principles and methods as well as criteria for marking are made public in advance.
2. Assessment is consistent, suited to all students, and implemented in keeping with the approved procedures.
3. Assessment gives students the opportunity to show that they have achieved the course learning outcomes.
4. Students receive feedback that offers advice related to the learning process.

As defined in the internal normative documents of the University of Latvia, students have to pass an examination at the end of every course in accordance with the requirements described in the course description. The latter must indicate how the results of interim tests and the final examination are distributed within the final score. The academic staff acquaint students with the course requirements and discuss them in a way that corresponds to the immediate circumstances. Students have access to more detailed assessment criteria in their e-study areas. Good practice in this regard was found on the course *Introduction to Education Science Studies*, on which evaluations were summarised, the most positive experiences were analysed, and mistakes were noted without any reference to students' names. The evaluations of the students' individual work were uploaded to the e-studies environment as separate documents.

Assessment allows students to exhibit the degree to which they have met the learning outcomes of the course. When several academic staff deliver courses, they evaluate the students' performance together to ensure fairness and objectivity. Students can consult with the staff if they are unclear about any issues. This assists in quality assurance. The consultations can take place via email, telephone, or Microsoft Teams.

## Discussion

Although the questionnaire responses were positive towards SCL, they highlighted some serious problems and challenges. At present, SCL in Latvia is more substantiated in education policy documents than in in-depth pedagogical studies. The student-centred approach requires that learners' needs and activities are prioritised. For this to be achieved, lecturers need new competencies, which can be acquired through lecturer-centred continuing professional development. For example, when analysing the implementation of the principle of promotion of mutual respect in student−academic staff relations, it became clear that, while the respondents knew it necessary, it was not explicitly implemented (e. g., in terms of methods or

techniques). It is conceivable that it was achieved indirectly, using peda-gogical tact and ethics based on the lecturers' inner sense.

It is therefore necessary to promote a common understanding of SCL principles and a common mechanism of evaluation (Kim & Davies, 2014). Institutional solutions for SCL implementation and collegial cooperation are also needed. In light of this, and having analysed the results of the academic staff questionnaire and the descriptions of the relevant study courses, we recommend that the course providers:

1. Diversify e-tools used in the remote study process (e. g., Mentimeter, Slido, Padlet, Google Drive, Linoit, and Miro).
2. Update and improve programmes on an ongoing basis.
3. Organise a seminar for academic staff on the programme to promote purposefully a common understanding of student-centred education principles.
4. Pay greater attention to the students' experience (including their experience of studying) and introduce more peer learning.
5. Provide more opportunities for individual (online) consultations as part of the remote study process.
6. Formulate the requirements of the course very precisely and focus on the culture of communication during lessons.

The present study revealed that, in general, the SCL was evaluated positively. However, future researchers should pay close attention to the over-simplification of certain aspects of the approach. A Finnish study by Saarinen and colleagues (2020) suggested that SCL could increase inequal-ities in learning outcomes if students' social and educational backgrounds are not taken into account, while researchers from Belgian universities (Baeten et al., 2013) have argued that SCL in higher education needs to make meaningful use of lecture-based and case-based approaches to ensure deeper learning.

## Conclusions

A student-centred approach—the aim of which is to meet the needs and satisfy the interests of the target audience and achieve learning outcomes—is one of the essential features of the paradigm shift in higher education. The present study has examined the experience of academic staff in their attempt to apply student-centred education principles to a master's study programme *Education Sciences* and has addressed the research question "How do the academic staff introduce student-centred education principles on the master's study programme?"

The analysis of the results of a questionnaire suggested that the staff took a positive view of SCL because the principles associated with it were

observed in the study process. The most frequently implemented principles were the promotion of mutual respect in student − academic staff relations and students' active engagement in the study process. The findings, which also drew attention to the ambiguous and sometimes over-simplistic understanding of SCL, showed that there is a need to focus on the development of a common understanding of SCL at the institutional and programme level and to develop the methodological competence of lecturers in applying SCL principles. This should be carried out incrementally to ensure continuity and sustainability and to limit formalism in the process of implementation. When creating and developing study programmes, it is important for academic staff to have a deep understanding of how best to introduce SCL institutions in the context of organisational culture.

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# CONCEPTUALISATION OF UNIVERSITY STUDENTS' CIVIC TRANSVERSAL COMPETENCE

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## ABSTRACT

Education plays a key role in promoting fundamental values, citizens' rights and responsibilities as well as social inclusion, in particularly so by reducing hostility towards vulnerable social groups. Therefore, all stages of education, including higher education, are important in the development of civic transversal competence. To ensure sustainable, qualitative, modern, and competitive higher education, the education facilitating the productive involvement of students in civil society and, consequently, their competitiveness in the labour market is a topical issue in the context of Latvia too. In keeping with this rationale, in January 2020, the University of Latvia started the implementation of the first round of the research "Assessment of Competences of Higher Education Students and Dynamics of Their Development in the Study Period" with the study of students' civic transversal competence as its part. The paper aims to conceptualize students' civic transversal competence, to determine its criteria and their indicators at different levels of higher education. Using the qualitative data processing program NVivo 12.0, there was carried out an analysis of 20 recent studies and higher education documents (2014-2020), as well as examples of good practice. The result is a descriptive matrix for civic transversal competence assessment, which can be used as a basis for the development of assessment tools.

*Keywords: civic transversal competence, conceptualisation, higher education, pedagogical process in higher education, students, qualitative data analysis.*

## Introduction

Citizenship and related issues have remained relevant in discussions in various disciplines for the past fifteen years. The focus of the discussion is both on issues of involvement at different levels of public processes, which in turn promotes democracy and economic growth, and on issues of content and implementation of civic education at different levels of education. In the context of education, the focus of the discussion involves examining the nature and scope of civic transversal competences (CTC) at different

levels. This focus in the field of education is supported by the argument that civic education includes the potential to promote CTC. Muleya (2019) emphasizes that civic education is considered to be an important part of the development of CTC both in the context of this and future generations. These discussions have raised many questions about the content and form of civic education. However, in all the concepts of the discussion, the learning results are formulated in the form of a CTC as part of professional autonomy. Civic education in the current situation is seen as a potential solution to many societal challenges (Mouritsen & Jaeger, 2018). It should therefore be emphasized that the education system as a whole is recognized as one of the driving forces of civil society and the developer of CTC. The European Commission Education and Training Monitor (ECETM, 2018) identifies education as an essential resource for the internalisation of fundamental civic values, the acquisition of citizens' rights and responsibilities, and the promotion of social inclusion, with a particular focus on reducing hostility towards vulnerable groups. This issue is important at all levels of education, including higher education. Because higher education is a stage of education that simultaneously implements training of highly qualified specialists in the necessary sectors of the labour market, development and renewal of research human capital, knowledge base, which is a basic condition for creating new knowledge, technologies and innovations and creating a sustainable economic system. Thus, the goal of sustainable education is a person who lives not only in harmony with nature and other cultures, but also knows how to fully realize himself in society and the economy, ensuring the long-term and prudent use of resources. Such a person understands local problems, as well as is able to see them in a global context, understands and respects other cultures, as well as maintains healthy relationships at all levels of society, promotes economic development, thus promoting social sustainability (Medne & Jansone-Ratinika, 2019).

This is a topical subject of discussion in the Latvian context as well, as its position is still partly maintained by the context of the post-Soviet educational space, where misunderstanding of critical thinking, democratic consciousness and partial or misunderstanding of active citizenship is still identifiable (Rubene et al., 2019; Rubene & Svece, 2019). Therefore, in order to provide the population of Latvia with modern, high-quality and competitive higher education that promotes professional development of everyone, healthy progress of development content, research and innovation capacity, as well as competitiveness in the labour market resulting in professional autonomy, review of content and form is necessary. According to this justification, the Ministry of Education and Science (MES) and the University of Latvia (UL) signed a cooperation agreement on ESF project. The aim of the research is to study the transversal competences of students – innovation,

research, digital, entrepreneurship, global and CTC, in order to identify the dynamics of their development in certain fields of study: RIS 3 (Research and Innovation strategy for smart specialization) areas. Thus, one of the research dimensions of the project includes the theoretical framework of the content of CTC and the determination of its indicators in the behavioural manifestations at different levels of higher education. The analysed situation characterizes the research problem, according to which the aim of the research is determined: to conceptualize CTC.

## Substantiation of the content of civic transversal competence, challenges for its conceptualization in the discourse of higher education

CTC is identified as a necessary component for the existence of a democratic society at European, national and local community level. However, research emphasizes the lack of a harmonized definition, which is also recognized as a common problem (Muleya, 2017). There are also a number of problems associated with measuring CTC: both in defining common criteria and indicators for this competence and in identifying the degree of involvement (Torney-Purta et al., 2015). Defining criteria and indicators for CTC at the behavioural level, as well as identifying the dynamics of behavioural criteria and indicators at three levels of education (bachelor's, master's, and doctoral), can increase understanding of the role of the education system in developing CTC and formulate recommendations for democratic processes. In all identified and analysed literature units, it is emphasized that CTC at the behavioural level includes indicators of knowledge, skills, attitudes, as well as aspects of promoting civic action experience. In order to formulate the definition of CTC, identify criteria and indicators, as well as determine the description of indicators at the behavioural level at the bachelor's, master's and doctoral education levels, the conceptual content of criteria and indicators was initially analysed.

Knowledge is identified as the first content component of CTC. There is an active discussion in publications about a typical problem: on the one hand, focusing on factual knowledge of democratic institutions, processes, and issues of national history, on the other hand, understanding such knowledge is challenged by the growing consensus that CTC includes knowledge and understanding of ambiguous issues, intergroup relations, local processes, and community affairs (Carretero et al., 2015). There is a growing consensus that promoting an active and responsible civil society requires different levels of knowledge, as an active civil society also needs an understanding of concepts and principles, practices (experiences) for responsible action, a willingness to engage and a commitment to democratic values (Haste et al., 2017).

In parallel with the concept of knowledge, it is determined that effective civic participation requires a variety of skills. Civic skills are divided into intellectual skills, participatory skills and socio-emotional skills (Fine et al., 2007). Conceptual understanding of knowledge includes the idea: *to know what*, while the understanding of civic knowledge skills is procedural – *to know as*. Cognitive skills allow to analyse and synthesize information and arguments, as well as to evaluate, conclude, take and defend a position in solving issues of public importance (Kirlin, 2003). The concept of knowledge in terms of skills involves considering different perspectives, interpreting political communication and formulating a supportive position that is based on evidence. Participatory skills, in turn, include the ability to cooperate, form coalitions, seek consensus, negotiate, and manage conflicts. Communication skills are also included in this group: public speaking, petitioning, culture of protest, organization (mobilization, provision of funding, meetings) and joint decision-making, both in terms of matching perspectives and evaluating alternatives. Respectively, skills in the content of CTC are what a citizen can do to participate effectively and include:

a) critical thinking skills: gathering and evaluating information, clarifying and prioritizing, identifying and evaluating consequences, reflecting,

b) participatory skills: to communicate, to negotiate, to cooperate, to manage conflicts, to seek conformism.

The third criterion includes those aspects of values, motives, and identity that underpin effective engagement in democratic practice (Youniss & Levine, 2009). Values are important motives for civic action, as they make citizenship a personal issue, giving meaning to civic action. As certain issues are often considered morally and ethically charged, they are internalized directly in the learning process, thus promoting a sense of personal responsibility. Analysing the identified literature, it can be concluded that attitudes in the content of CTC include:

1) personal dimension: moral responsibility, self-discipline, respect for diversity of opinion (empathy),

2) public dimension: observance of laws, desire to engage in public affairs, the balance between self-interest and common prosperity,

3) a culture of protest.

Also, civic attitudes include: courtesy, respect for the rights of others, respect for the law, honesty and open-mindedness, critical thinking, the search for compromise, perseverance, compassion, patriotism, courage, tolerance for uncertainty (Bennett & Soule, 2005).

Civic action experience is the fourth component of CTC content. Its interpretation in the content of CTC includes an idea that substantiates and

allows to realize the understanding of CTC knowledge, skills, and attitudes. For a long time before becoming formal citizens, children and young people interact in different civic settings. It is important to implement age-appropriate and meaningful civic learning opportunities in these environments. This form of civic engagement involves purposeful cooperation in solving problems related to issues of common interest. Social activity is characterized by social responsibility and commitment to cooperate with others, understanding the problems, as well as openness in the development and implementation of solutions. Such a simulation of the experience of civic action promotes social activism, reciprocity and a strong sense of belonging (at local, national and European Union (EU)) level.

## Research Methodology and process

The conceptualization of CTC has been implemented in three steps:
- Step 1. Formulation of the definition of CTC.
- Step 2. Identification of criteria and indicators of CTC.
- Step 3. Development of a matrix of criteria and indicators of levels of CTC at different levels of higher education.

Within this publication, a detailed focus will be placed on the third conceptualization step, briefly describing the first and second conceptualization steps.

In order to implement the three steps of conceptualization of CTC, an analysis of the latest research and educational documents was performed. In total, 20 studies and policy documents from 2014-2020 met the inclusion criteria. Various types of research were included – empirical research, reviews of systemic literature, articles in scientific journals, policy documents and technical reports, in which CTC was identified as the subject of research. Boolean search operators were used to select literature items: "Citizenship competence" "civic competence" "higher education" "civic education" "global civic education". Criteria for inclusion: (a) published between 1 January 2014 and 31 January 2020, (b) the analysis of the content and form of CTC relates to the higher education area. Exclusion criterion: no access to the full text.

For the conceptualization of CTC, the design of a concept mapping review was chosen, the aim of which is to structure the literature items included in the study, allowing to create a classification scheme and structure the field of interest, to identify the coverage of criteria in the field.

The results of the research reviews were analysed using qualitative and quantitative context analysis in the qualitative data processing program QSR NVivo 12. The linguistic processing and analysis of the literature items included in the analysis was implemented in the following order:

1) importing the text of the definitions identified in the content of the publications into the NVivo file;
2) quantitative and qualitative context analysis (identification of the most frequently used words, contexts of their use);
3) imports of the full text of publications into the NVivo file;
4) quantitative and qualitative context analysis (identification of the most frequently used words, contexts of their use);
5) open and hierarchical coding in the NVivo file (to identify criteria and indicators);
6) open coding in the NVivo file (identifying behavioural indicators at different levels of education).

## Results

### Defining civic transversal competence

Defining CTC was identified as the first step in conceptualization. To define CTC, definitions were identified in all publications included in the study, then all definition text items were imported into the qualitative data processing program QSR NVivo 12. The most frequently used words in the definitions are identified by numerical values: the frequency of each code (the number of times it is mentioned in the text) and the weighted percentage of the word, which indicates the frequency of the code in relation to the total amount of text. In order to define CTC, the program carried out the next step, which identified the distribution and succession of the most frequently used words, showing the sequence of words in the thematic blocks, the sequence of which is shown in the program according to their subordination. Analysing the obtained data, it can be concluded that the words included in the definitions form four levels of mutual subordination, where the arrangement of words indicates their connection, subordination, and succession. Analysing the distribution of the most common interrelationships of words, it can be concluded that the distribution of interrelationships of words included in the definitions shows that they complement each other by marking succession in the definition and clarifying the understanding and implementation steps of CTC. The division of word interrelationships allows the identification of four levels of interrelationship and succession in the wording of the common definition.

The first level of the definition is general, it consists of the concept of the object to be defined (*lat. definiendum*). It includes *knowledge, skills,* and *values* (values are the basis of attitudes), namely the three components of any competence.

The second level – modes, which is denoted by adjectives: *effective, active, meaningful,* and *responsible,* they describe the quality of content

implementation; as well as the type of involvement: *for participation* and the social direction of involvement: *in civic and social life*. The third level includes the objective: *contributes to the healthy social and political well-being and sustainability of communities, democratic communication and economic growth*. The fourth level defines the territorial boundaries: *at the community, national, European Union and global level*.

The analysis of the most commonly used words in the definitions of publications and their interrelationships resulted in the definition of CTC: CTC is a set of values, knowledge and skills for effective, active, meaningful and responsible participation in civic and social life, sustainability, democratic communication and economic growth at Community, national, European Union and global levels. It can be concluded that the formulated definition corresponds to the understanding of the classical definition, i. e., it includes an indication of belonging to a certain class of objects and its difference from all other objects of this class.

## Identification of criteria and indicators of civic transversal competence

The identification of criteria and indicators of CTC formed the second step of conceptualization. In order to understand the content of CTC in essence, its criteria and indicators were identified by importing full texts of publications into the NVIVO program, which included both theoretical outlines and already identified criteria and indicators. The next step was open coding (identifying topics and contexts by assigning a code to the relevant part of the text of the publication), open codes were identified as indicators of CTC. During open coding, nine codes were identified and defined: Implementation of sustainable goals at different levels (implementation) (18); Involvement at the local level (16); Involvement at the level of the global community (15); Characteristic issues of local and international cooperation (12); Characteristic aspects of civil rights and duties (20); Political system's governance (20); Management of binding regulations (20); Social justice management (20); Capacity for social and political change (20).

At a later stage of coding, they were combined in meaningful broader codes (criteria). Respectively, open coding was followed by hierarchical coding, which was necessary to combine meaningful related codes, which were defined as indicators of CTC. Thus, the relationship between interconnected open and hierarchical codes was obtained. During the coding, three hierarchical codes of CTC criteria were identified. The relationship between open and hierarchical codes, which form the relationship between criteria and their indicators, is shown in Table 1.

**Table 1.**  Criteria for civic transversal competence (hierarchical codes) and indicators (open codes)

| Hierarchical code (criterion) | Open code (indicator) |
|---|---|
| 1. Management of civil rights and responsibilities (understanding and implementation in one's social life) | 1.1. Characteristic aspects of civil rights and duties |
|  | 1.2. Social justice management |
| 2. Knowledge of the principles of a democratic society and their use (realisation) in one's social life | 2.1. Management of binding regulations |
|  | 2.2. Characteristic issues of local and international cooperation |
|  | 2.3. Political system's governance |
|  | 2.4. Implementation of sustainable goals at different levels (implementation) |
| 3. Dimension of community life | 3.1. Involvement at the local level |
|  | 3.2. Involvement at the level of the global community |
|  | 3.3. Capacity for social and political change |

## Development of a matrix of criteria and indicators of levels of civic transversal competence at different levels of higher education

The third conceptualization step was to develop a matrix of descriptions of behavioural indicators to determine how CTC manifests itself at the level of student behaviour and how it dynamically changes at three levels of education (bachelor's, master's and doctoral). In this step of the research, the description matrix is chosen as the method because it demonstrates the hierarchical relationship within the topic.

The matrix of each indicator of CTC consists of two dimensions:

gradation of the cumulative content of the indicator at different levels of education (basic, medium, high) (horizontal),

description of the content of CTC (vertical).

The first criterion of CTC is the management of civil rights and responsibilities (understanding and implementation in one's social life), for which two indicators have been identified. First indicator *Aspects characterizing the commitment of civil rights and obligations*, which content at the bachelor's level (BL) consists of the following behavioural indicators: iscusses the possibilities of exercising one's civil rights and obligations in a local and global context (10); demonstrates a tolerant attitude towards the civil rights and obligations of fellow human beings (11); exercises his/her civil rights and obligations (12). Master's level (ML): evaluates the connection between civil rights and obligations in the local and global context (12);

able to develop and model effective strategies for the exercise of civil rights and obligations in a local and global context (12); involvement is deliberate and reasoned (9). Doctoral level (DL) regularly engages in advocacy for civil rights and obligations in the local and global context (9); offers ideas and/or solutions for the implementation of civil rights and responsibilities in a local and global context (10).

Second indicator of the first criterion of CTC: Management of civil rights and obligations (understanding and implementation in one's social life) *Social justice management*, the content of which BL consists of the following behavioural indicators: understands the essence, basic concepts of social justice (13); knows how to argue the essence of his decisions in the context of social justice (11); recognizes social injustice in different social contexts (9); observes the principles of social justice in communication (10); shows empathy in cases of discrimination and/or inequality (8). ML: understands the relationship between social justice and social responsibility (10); how to address ethical dilemmas in a tolerant way (8); uses effective strategies to reduce social injustice in communication (11). DL: knows how to reduce discrimination and/or inequality or promote social justice (10); implements effective strategies to promote/support social justice (12); demonstrates responsibility for maintaining social justice ideas in the social environment (12), initiates social campaigns to promote the idea of justice (9); demonstrates socially acceptable intolerance of discrimination and/or inequality (11).

The second criterion of CTC is the knowledge and use (realisation) of the principles of a democratic society in their social life, for which four indicators have been identified: the first indicator, *The Management of Binding Regulations,* the content of which BL consists of the following behavioural indicators: knows the local, national and EU political and legal framework (10); is able to identify problems in local, national and EU political and legal frameworks (9); researches them and is aware of his/her co-responsibility in solving them (11); communication implements the civic morals and democratic principles specified in the binding regulations (9). ML: identifies important issues in the context of local, national and EU political and legal frameworks (11); participates in discussions on the impact of the principles and ideas included in the founding documents of the Republic of Latvia on the social and political system and problem issues (9). DL: actively expands its knowledge of the local, national and EU political and legal frameworks (12); able to raise a discussion using topical issues included in local, national, EU and global political and legal frameworks (9); participates in reasoned discussions and/or organizes discussions on local, national and EU political and legal frameworks (10).

The second criterion of CTC Knowledge of the principles of a democratic society and their application (realization) in one's social life, the second indicator is *Issues Characterizing Local and International Cooperation,* the content of which BL consists of the following behavioural indicators: knows the principles and conditions of cooperation at the local level (9); identifies the causes of non-cooperation problems; knows the specifics of identities in the context of cooperation (10); identifies controversial social, political and historical issues (13); identifies different perspectives at the local, national and global level (12) ML: generalizes the principles and conditions of cooperation at the local, national and EU and global levels (11); understands various controversial social, political and historical issues (11); understands different perspectives at local, national and global levels (9). DL: models cooperation at local, national and EU and global levels, promoting peer involvement (12); develops proposals for resolving various controversial social, political and historical issues (9); develops effective strategies to promote cooperation based on different perspectives at local, national and global levels (8); demonstrates responsibility for organizing the form, content and quality of cooperation at the local, national and global levels (11); takes the initiative in cooperation at all levels (13).

The second criterion of CTC Knowledge of the principles of a democratic society and their application (realization) in one's social life, the third indicator is *Governance of the Political System,* the content of which BL consists of the following behavioural indicators: recognizes and identifies in information sources and practice the main components of democracy and political systems, the principles of democracy implementation, civic virtues that determine the functioning of government, society and community (11); recognizes the potential of democracy as an organization at all levels (9); participates in various activities for the promotion of democracy and the improvement of the political system (12); participates in elections as a voter at all levels (8). ML: observes and implements civic virtues and democratic principles in local, national, EU and global level cooperation (10); involved in social movements at local, national, EU, and global level (7); if necessary (if problems are identified) contacts (in writing/orally), officials of various institutions, bodies and organizations (10). DL: implements the principles of democracy at local, national, EU, and global levels (9); develops recommendations for the improvement of the social and political system that promotes civic virtues at the local, national, EU and global levels (10); develops recommendations for the implementation of democracy (in accordance with the main components of democracy and political systems, principles of democracy implementation) (12); generates ideas of social movements (organizes social movements) (12).

The second criterion of CTC Knowledge of the principles of a democratic society and their application (realization) in one's social life, the fourth indicator is *Implementation of sustainability objectives at different levels,* the content of which BL consists of the following behavioural indicators: recognizes and identifies sustainable choices in information sources and practices at local, national, EU and global levels (11); understands sustainable decision-making procedures and principles at local, national, EU and global levels (12); sees its potential for sustainable decision-making at local, national, EU and global levels (9); evaluates the capacity of local, national, EU and global levels to ensure sustainability (10). ML: evaluates the information available in different sources on the different dimensions of sustainability at local, national, EU and global levels (11); maintains the idea of implementing sustainability content in all areas of life (11); performs sustainability performance evaluation (11); participates in sustainable decision-making in the context of local, national, and EU levels (9). DL: sustainability goals and their fulfilment are continuously improved (11); performs sustainability assessment in the investment/resource selection assessment process (12); provides open communication and regular reflection on its sustainability performance (9); promotes people's understanding of sustainable decision-making at local, national, EU and global levels (11); involves partners/peers in an active dialogue on sustainability issues (8).

The third criterion for CTC is the Community dimension of life, for which three indicators have been identified: the first indicator is *Involvement at local level,* the content of which BL consists of the following behavioral indicators: knows the principles and structure of local and national level governance (9); knows how to search for information about local and national level NGOs (Non-governmental organization) (9); knows the types and tools of participation/involvement in local and national level NGOs (10); knows which NGOs are registered and operate at local and/or national level (11); participates voluntarily in announced social initiative activities (11). ML: analyses the principles of operation of local non-governmental organizations and local government in relation to each other (11); voluntarily, using various involvement tools, gets involved in the activities of local NGOs and improves the management system (9); initiates social initiative activities (9). DL: develops recommendations for the operation of local non-governmental organizations to improve local governance (10); develops and submits to appropriate institutions ideas for forms of activities and activities of local non-governmental organizations for community sustainability (12); participates in the advisory councils of local non-governmental organizations (9); participates as an expert in various local non-governmental organizations (9).

The second indicator of the third dimension of CTC, the Community dimension of life, is *Involvement at Global Community Level,* the content of which BL consists of the following behavioural indicators: knows his/her right to participate in the EU and global level Evaluates the possibilities of participation in the activities of the EU and global non-governmental organizations (11); participates in informative seminars on the activities of the EU and global non-governmental organizations (12); if the opportunity is offered to participate in the activities of the EU and global non-governmental organizations, this opportunity is used (9). ML: knows current issues in the activities of the EU and global non-governmental organizations (10); knows about the existence of non-governmental organizations and their activities at EU and global level (8); uses a variety of sources of information to identify their opportunities to participate in the workings of the EU and global NGOs (8); voluntarily engages in the activities of EU and global non-governmental organisations (10); voluntary engages and actively participates (including monetary donations and volunteering) in EU and global NGOs, including through the e-participation form (11). DL: gains a wide range of experience in EU and global NGOs (e. g., expert work, advisory councils) (10); generates ideas for effective implementation of EU and global NGOs (10); supports the involvement of colleagues (initiatives) in the activities of EU and global non-governmental organizations (10).

The third indicator of the third dimension of CTC, the Community dimension of life, is the *Capacity for Social and Political Change*, the content of which BL consists of the following behavioural indicators: able to identify legal and illegal types of protest in different literature sources and practice (11); is aware of protests in terms of his civil rights (9); understands the nature of protests (that protest is a way to change political and/or social direction) (11); demonstrates an interest in engaging and/or occasionally engaging in legal protests (8); participates in protest campaigns organized by young people on a topic of interest to them (10). ML: understands the connection between legal and illegal protests (10); identifies and differentiates the causes and consequences of legal and illegal protests (11); demonstrates rejection of illegal protests gains a variety of experience willingly by volunteering and actively participating in the various legal forms of protest or organising it (10). DL: offers new effective strategies/ways to implement legal protests (10); demonstrates ethically responsible action against various protests (11).

## Conclusion and discussion

Publications of various discourses, the publication time of which is 2014–2020 – The analysis of scientific journal articles, empirical studies,

reviews of systemic literature, technical reports and policy documents allowed for a more multidimensional interpretation and interpretation of CTC in the context of higher education. As a result of the analysis, aspects of civic life and system context that are important in the pedagogical process at the level of higher education are highlighted, providing education organizers with a wide range of informative material that allows understanding the conditions for CTC development. Namely, the results of this study suggest that CTC is related to civic education, which can be effectively implemented if the learner is involved in a social context. The social context, social resources, and their dialectic are an essential condition and resource for the development of all criteria of CTC. Respectively, CTC is a component with which the social context (cultural, nation, community, state) can be explained. This focus of the clarification of CTC highlights the teacher as the key human resource in the implementation of civic education and in the development of civil rights for students. It is important for the development of CTC, as well as for community / national development, that teachers are effectively trained, therefore it is important to encourage them with appropriate teaching competencies both during the teacher education program and during postgraduate professional development. Therefore, one of the focuses of further research the teacher can be identified as a provider of civic education.

As a result of theoretical findings and qualitative and quantitative context analysis, it can be concluded that the content framework of CTC consists of four components: knowledge, skills, attitudes and Civic action experience; CTC is a multidimensional construct that connects the subjective with the objective, the individual with the social and the present with the future, so it can be concluded that it goes beyond the personal (subjective) perspective and is a search for balance between the subjective and the social. Therefore, its acquisition and implementation takes place at different levels: micro, meso and macro, where the development of civic transversal competences can be promoted and hindered, and that PCL can be applied to face-to-face, virtual and mediated meetings with people with different ideas. As a result, a CTC multidimensional construct (Figure 1) was developed using the Reflective first-order, reflective second-order principle (Polites et al. 2012).

The CTC multidimensional construct allows mapping of variables at all levels of involvement, therefore it will be used in the development of competency maps in each of the Latvian RIS3 specialization areas, as well as the identified behavioural indicators are defined as basic variables for the survey tool development.

**Figure 1.** Multidimensional construction of civic transversal competence

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# THE INCLUSION OF NON-TENURED STAFF IN INSTITUTIONAL QUALITY CULTURE

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## ABSTRACT

The paper is reviewing an array of recent literature sources arguing that the Neoliberalism and the New Public Management are the driving forces behind the observable increase in numbers of terminated employments in several countries in recent decades. The further focus of the literature review is on recent researches suggesting that the non-tenured staff members tend to have less pedagogical skills and are excluded from the internal quality culture.

The synthesized findings of the both review sections suggest that the inclusion of the non-tenured staff into the institutional quality culture can augment the quality of higher education. This constitutes the core motivation for the authors to further research within this article whether the tendencies of increasing share of non-tenured staff members can be identified in Latvia as well. The empirical section of this article is based on statistical analysis of data from different reliable sources.

The study suggests that due to shrinking higher education market and necessity to handle the impact of 2008-2012 Economic crisis, the share of academic faculty staff is being consolidated around the core elected faculty staff.

Nevertheless, it is important to consider a timely inclusion of the non-tenured staff into the institutional quality culture. However, in view of recent higher education reforms and new academic career model being introduced, it is hard to predict the further dynamics of the non-tenured positions in higher education of Latvia. This paper is an effort to start filling the existing research gap in the emerging but under-researched subject of non-tenured staff in Latvia.

*Keywords: internal quality culture, managerialism, neoliberalism, non-tenured staff, university.*

## Introduction

This study builds upon fusion of the following hallmarks of recent higher education developments – the changes in higher education as imposed through neoliberal mindset, the defining ideology of postmodernity (Lethbridge, 2015); the increased attractiveness of non-tenured staff which is further strengthened through recent economic and social developments;

the changing landscape of education with focus shifting from the teacher to the learner; as well as studies suggesting that the non-tenured staff in education have knowledge and skills gaps to approach these developments accordingly and deliberate actions in form of professional development measures have to be taken to include them advisedly within the institutional quality culture.

## Neoliberalism shapes the higher education

From the 1980s onward, rooted in neoliberal consciousness, countries worldwide introduced reforms that were marked by the term New Public Management and were aimed at improving the efficiency of public sector organizations, based on the concepts of economic rationality (Hood, 1995) and managerialism (Osborne, Radnor, & Nasi, 2013). Increasingly, the ideology, or a system of values and beliefs, as well as techniques and practices, were borrowed from the private sector and adopted to the public-sector realities.

With New Public Management expanding across different world regions and public sectors, it also affected the governance of higher education (Alves, & Tomlinson, 2020).

In strive for greater efficiency the governments around the world sought to hold publicly funded institutions more accountable for their outcomes in an effort to improve their performance (Ortagus, Kelchen, Rosinger, & Voorhees, 2020) and increase own accountability towards taxpayers (Brignall, & Modell, 2000).

Acting within the context and framework of performance-based funding induces profound changes in higher education institutions.

In order to comply with the governmental requirements and compete with other higher education institutions for the eventual ex post funding amount, the institutions cascade the competitive conditions downward to other institutional levels, to faculties, departments, degree programs (Madsen, 2020). Unavoidably the performance indicators become proxy measures as they inter alia reduce complex phenomena to one or more concrete measures through a process of selection and simplification (McCormick, 2019).

## The increased attractiveness of non-tenured staff

The basic statistics in higher education reveal that the neoliberal academic labour market is highlighted by increase in non-tenured teaching positions, which is expected to further increase (Jaschik, & Lederman 2015).

The factors that led to this change are complex (e. g., new institutional types, declining appropriations and revenues, greater demand for flexibility,

the emergence of new disciplines, and the massification of higher educa-
tion) (Kezar, & Maxey, 2014). Universities respond to these challenges by
employing more staff on sessional contracts (Harvey, & Jones 2020).

The impact of recurring economic crises, as well as inequalities in
money supply due to changing funding periods of different programs, pro-
duce fluctuating funding patterns, that further exacerbate the problem. Due
to the instability of funding lines many institutions increasingly refuse to
make long-range commitments to faculty.

Moreover, the higher education sector as a rule of thumb employs
highly qualified staff members, which are too readily absorbed by the com-
petitive environment of the mobile labour force.

## The changing landscape of education

Apart from the already mentioned rise of neoliberalism and knowledge
economy Savic (2020) emphasizes other factors such as the 2008 global
economic crisis, Fourth Industrial Revolution, the 2020 COVID-19 pan-
demic, the continuing emergence of online learning, the amount of student
debt, and employers' dissatisfaction as dramatic global socio-economic
transformation drivers that challenge the traditional university models and
generate pressure to reconsider global higher education systems. Hence
in 2018 the "learning to learn" is still considered one of the key compe-
tences by the European Commission to successfully address the challenges
of the 21st century and therefore the twenty-first century curriculum has to
address them (Erstadt, & Voogt, 2018).

The teaching practices are reframed to serve student learning (Rege, &
Nicole, 2017) and the role of the teacher changes as teachers differentiate
their instruction strategies (Valli, & Buese, 2007).

## The non-tenured staff in education

The increasing (versus tenured faculty) share of the non-tenured fac-
ulty enters classrooms and faces contemporary student body of post mas-
sification, internationally mobile (Shields, 2019) and diverse through
both higher education access (Tight, 2019) and equity of access measures
(McCowan, 2016).

Majority of the non-tenured staff, due to their average age, have grown
up with front-lectures themselves, so instructing the present-day students
becomes a challenge.

Various researches have found that non-tenured track faculty members
do not use learner-centered teaching practices (Kezar, 2013), and do not
get the preparation, furtherance that they require to perform their job
(Nica, 2018).

## Method

An array of recent literature articles suggests that countries that are impacted by the efficiency driven Neoliberalism and the New Public Management (which attempts to manage the public sector through neo-liberal ideology), cause an increase in numbers of non-tenured staff members.

Further range of recent publications in the field stresses that the educational landscape is changing, and that the non-tenured staff members tend to have less pedagogical skills necessary to address these changes properly.

These detected trends were further merged to reveal the relevance and topicality of inclusion of non-tenured staff in the internal quality culture, suggesting that the inclusion of the non-tenured staff into the institutional quality culture can augment the quality of higher education.

The higher the share of non-tenured staff, the higher the impact potentially on the institutional teaching quality can be achieved by deliberate inclusion of the non-tenured staff within the internal quality culture.

This constitutes the core motivation for the authors to further research within this article whether the tendencies of increasing share of non-tenured staff members can be identified in Latvia as well and specifically at the University of Latvia.

The empirical section of this article is based on statistical analysis of data from different reliable sources, as well as based on consultations with respective administrative departments of the university.

Based on discovered share of non-tenured staff members and its dynamics – one will be able to conclude whether the deliberate involvement of the non-tenured staff in internal teaching quality culture at the University of Latvia may wield a substantial improvement of the teaching quality at the university and thus comprise a means for internal improvement of quality that should be further examined.

Due to existing research gap on non-tenured staff in Latvia, it was important to identify the national stand as per international developments. It has to be stated that the comparative analysis of developments related to non-tenured staff among different countries is a difficult task due to the tight embedment of the concept in local framework, the various terms used and contextual heterogeneity.

Apart from the "tenured" and its opposite concept – "non-tenured" (Benson, Probst, Jiang, Olson, & Graso, 2020), which is quite widely used in the academic circles, to demonstrate the complex inherent academic culture and speak of highly diverse national, regional, institutional labour policy intensive context, the academic community applies a wide range of distinctions – "part-time (part-timers), adjunct" (Xu, 2019),

"casual" (Narayan, 2020), "sessional staff" (Broadbent, 2018; Harvey, & Jones, 2020), to denote a non-permanent staff member in higher education from the core personnel.

In this paper the authors have used the concept "tenured" and "non-tenured" as it emphasizes the permanency of the working relations and refers also indirectly to the exclusion from the traditional, specific academic career path (lecturer to professor).

However, one has to remember that the ambiguities in terms, gaps in present research agendas, pluralism of ideas – they all result in vague distinctions and cross-cut each other in manners that are still unclear and should be addressed through further researches in the field.

In this paper the authors do not reveal the concept of "internal quality culture" in details. In compliance with the aim of this paper it generally comprises the internal institution-specific approach to quality assurance in teaching, with professional development measures being one of the tools of its formation. Since the quality assurance and quality management are central challenges in the governance of higher education institutions, the paper relates to the issues of collegiality and managerialism.

## Results

### Non-tenured staff in Latvia

Within the previous study, the author has found indications that the New Public Management is shaping the higher education sector in Latvia – managerialism seeks to replace collegiality in governance. The performance-based funding has been recently introduced in higher education sector to improve the efficiency of the system. Structures within higher education institutions are created to ensure that each structural unit works towards reaching the institutional performance indicators that are linked to the governmental funding. Also factors that lead to this change are pertinent to the case of Latvia – changes in institutional types are conducted, appropriations and revenues are declining, there is a greater demand for flexibility, the higher education is being massified.

Similarly, like implied in analyzed articles, also in Latvia

> *"Salaries for per-hour contracts are comparatively low, and HEIs appear to use per-hour contracts to cope with the volatility of institutional income in the Latvian higher education system,"* (Arnhold, N., Pekkola, E., Püttmann, V., & Sursock, A., 2018, p. 184).

Indeed, as we will see below, the per-hour contract faculty staff is first to go in difficult times.

Simultaneously, the involvement of per-hour contract faculty staff in Latvia is often connected with other than pure cost-saving considerations.

"*Doctoral students and recently graduated researchers with doctoral degree should be involved,*" to renew the staff, or "*sectoral experts should be involved in applied study courses on per-hour contract basis,*" to improve the knowledge delivery to the students on sector specific issues (University of Latvia, 2017, p. 38).

The reviewed publications state that neoliberal academic labour market is characterized by increase in non-tenured teaching positions. There are secondary sources, albeit not recent, confirming the trend of increasing non-tenured faculty staff numbers also observable in Latvia.

> "*Increasingly, teachers that do the teaching as a side job and teachers on per-hour contract are involved in the training process. They are usually top-class specialists in their field,*" (Riga Technical University, 2010, p. 4).

In the introductory part of this paper the reviewed publications found that the non-tenured faculty staff members lack modern teaching skills. There are indications that the allegation that the non-tenured staff would need to be included in internal quality culture holds true also for Latvia.

> "*..in Latvia a large part of the academic staff is on per-hour contract who are good or even excellent experts or scientists, but have never studied didactics in their lives.*" (LETA, 2013).

Thus, many of the prerequisites for the generalizability of the findings of the reviewed literature are met, to suggest that in Latvia the number of non-tenured staff could be increasing as well. However, there is no straightforward statistical information available on the target group of this article – the "non-tenured" academic staff of Latvia.

> "*Regardless of the high staffing autonomy of Latvian HEIs on paper, the national framework is substantially steering the recruitments, salaries, positions, and ranks of academics*" (Arnhold et al., 2018, p. 182).

The system level regulations distinguish the progression of academic staff between academic track (assistant, lecturer, docent/assistant professor, associate professor, and professor) and research track (research-assistant, researcher, and leading/senior researcher). There is no civil servant status-based tenure system in Latvia.

> "*According to the recent ruling of the Constitutional Court international law could be applied to time practice for the Latvian system, according to which the docent could be identified with an assistant professor, and that would be the post for a fixed term, but the positions of associate professor and professor could be considered as predictable careers model posts*" (World Bank, 2020, p. 16).

Therefore, to identify the non-tenured faculty staff dynamics it is important to study the staff numbers of academic track, with "associate professor, and professor" representing the tenured faculty staff and the "assistant,

lecturer, docent/assistant professor" representing the non-tenured staff members. Apart from these, the legislative framework foresees "visiting academics" and academics on per-hour contracts. The statistics is important to see whether the global trend of increasing share of non-tenured faculty workforce is valid in Latvia as well.

However, it is important to note that

> *"in contrast to other higher education systems, most academics in Latvia do not hold one (full-time) position for which a certain, more or less stable task portfolio is defined"* (Arnhold et al., 2018, p. 183).

The academic staff can hold one position from each track at the same time, as well as have several administrative positions of differing workload added on top of it. Thus, there are many individual combinations of positions possible that seldom remain stable over time due to close connection between source of funding and the type of position.

> *"HEIs frequently renegotiate the contracts with their academics — three times per year on average at one institution".* (Arnhold et al., 2018, p. 207).

These workload portfolios are reassembled as soon as the external funding changes due to decrease in tuition fee paying students or acquiring of an externally funded research project.

> *"The need to combine different positions and tasks can easily lead to high workloads, particularly if there are sudden changes in work portfolios".* (Arnhold et al., 2018, p. 184).

The division of academic staff in academic and research staff, the combination of full workload by tasks under different positions, and the frequent changes in contracts impede the acquisition of reliable statistical data on personnel in general.

Since the academic staff in Latvia basically works on terms of common national Labour Law, the Central Statistical Bureau collects information on academic staff in their main/primary workplace (the employer of primary workplace may restrict working in any secondary workplace if this right is fixed in the contract and/or collective agreements). However, this information does not distinguish between academic and research track and cannot be used to draw unequivocal conclusions on the dynamics of non-tenured faculty staff (Central Statistical Bureau, 2020).

The Ministry of Education and Science, even though collects information on academic personnel according to both progression tracks, however has published only statistical data reports of years 2018 and 2019 (Ministry of Education and Science of the Republic of Latvia, 2020a). Using these reports the data between the two years cannot be compared with each other due to different set of information represented in both reports (Ministry of Education and Science of the Republic of Latvia, 2020b, 2019).

Therefore, currently it is impossible to retrieve the statistical information characterizing Latvia from secondary sources.

I. Leduskrasta, Deputy director of the Department of Student Services, (Personal communication, July, 2020) provided the authors with the set of official statistics of the University of Latvia for the period 2011–2020, that are collected and forwarded to the Ministry of Education and Science every year in October (10 years).

The abovementioned statistics show that the number of "associate professor, and professor" has remained relatively stable throughout the years 2011–2020, fluctuating between –4% till +6% each year. When compared to year 2011, the number of "associate professor, and professor" has grown by 5%, whereas the summarized number of "assistant, lecturer, docent/assistant professor" has dropped by 14%, with the number fluctuating between –40% and +21% at its extremes. When analyzing the number of total academic track staff, within the last 10 years the number has dropped by 5%.

The number of the visiting professors, visiting docent/ assistant professor and visiting lecturers (containing also the foreigners) has fluctuated with decreased tendency and dropped from 107 in 2010 till 2 in 2020.

The abovementioned data does not provide separately information on faculty staff members on per-hour contract. To get this data at a central university level one has to retrieve the information and process the data by applying an extensive effort, analyzing the different contracts of individual task and position portfolios of the employees. The authors have to rely on statement provided by A. Beķeris, statistician for the Department of human resources, (Personal communication, July, 2020) that the number of such faculty staff is non-significant.

Interestingly, the Development Strategy of University of Latvia in 2004 for the period till 2015 was supportive of short term and per-hour contract faculty staff involvement for updating and diversifying the study process with applied knowledge (University of Latvia, 2004). The later strategies do not explicitly address the employment of short term and per-hour contract faculty staff.

Nevertheless, as demonstrated above the analyzed statistical data of the University of Latvia show a reduction in junior faculty staff numbers. This reduction was mitigated by both the demographic and the economic crisis, which both had an influence on the university's performance in the analyzed period 2010-2020.

The higher education market is shrinking – the student numbers experienced 23% drop within last 10 years. The number of students at the University of Latvia has dropped by 16% in the period.

The university reacted to the onset of the grave economic crisis in 2008/2009 with decision to increase the student groups per teacher and

make the most out of the elected academic staff, ensuring that only exceptional minimum of per-hour contract faculty staff is employed hereinafter (University of Latvia, 2008). This purposeful consolidation of academic faculty staff body is also reflected in the statistical data above.

> *"Since academics do not necessarily have a full-time position at one HEI, they might have to top up their salaries to make a decent living. That is why many of them have side jobs."* (Arnhold et al., 2018, p. 184).

Apart from decrease in staff numbers, the both crises have also promoted shift in workload. 10 years ago 63% of academic staff were holding one full workload position, whereas in 2020 only 12% hold one full workload. While 10 years ago 4% of academic staff were holding workload less than 0,25, whereas in 2020 the share of such academic staff is 34%. The possibility that the academic staff will be able to cover the living expenses by not accepting side jobs is rather limited due to academicians having *".. low salaries, especially compared to Western countries,"* (Arnhold et al., 2018, p. 189).

## Discussion

With regard to the responsiveness of the management on the inclusion of the non-tenured staff within the internal quality culture, there are two pitfalls to be considered – tendency to treat the non-tenured staff as the highly variable share of the human resources and therefore hard to influence, as well as the minor share of the human resources and therefore having no substantial impact upon the quality culture of the higher education. The concluded literature review implies that it is important to regard the non-tenured faculty staff as standalone target group for professional development measures.

However, to begin with, one has to be aware of the non-tenured staff members to engage them in quality related measures.

There are considerable difficulties to find the statistics on the non-tenured faculty staff. This is inter alia due to fact that *"a tenure track model, as is common in Western but also neighboring countries, does not exist in Latvia"* (Arnhold et al., 2018, p. 164), at least not the tenure in the sense of civil service. Therefore, while looking for available statistics the potential proxies need to be explained. While explaining, whenever possible, it is necessary to rely on existing findings of the recent trustworthy international comparative analyses of the local system. The recent World Bank research on Academic Careers in Latvia (Arnhold et al., 2018; World Bank, 2020) was one of the important secondary sources to be related to.

In addition to differences in notions that have to be tackled, the publicly accessible sources of general statistics on academic staff in higher education in Latvia are very scarce.

Also at the centralized institutional level information on the short-term faculty staff data is not freely available, meaning that this target group is not institutionalized. There is a decentralized approach and reliance on collegiality-based involvement of non-tenured staff members in institutional quality measures.

From the University of Latvia case alone one can not draw conclusions on the stand in Latvia, as the University of Latvia is the largest national public university. It might be interesting to further analyze data from different types of institutions in Latvia, inter alia private and smaller higher education institutions, to get a more correct illustration on processes.

Simultaneously, one of the definitions of the non-tenured faculty is actually "part-timers". The share of the elected academic personnel holding posts with workload less than one full workload at the University of Latvia is quite high – 88%, with the largest group (34%) even having the workload less than 0.25. Since getting a side job seems to be the usual strategy to cope with a decreasing workload, the academicians might experience a dwindling connection with the institutional quality culture and less possibilities to develop professionally the skills needed for teaching. Simultaneously, when relating to these data, one has to remember that the academic staff of research track is included in these statistics as well.

The unpredictable and volatile workload, combined from multiple positions, can quickly lead to high workloads, especially if the higher education institution can not mitigate the effect by flexible rearrangement of individual portfolios' of positions. High workloads mean not only increased impact of time management efficiency on professional development accessibility, but that less time for professional development can be allocated in general.

The envisaged nation-wide reforms of the career system by integrating academic and research tracks in line with European and international good practice will abolish the current practice of attending to multiple contracts and allow to manage the annual working time, as well as focus on career development of core staff in line with the strategic objectives of the institution.

## Conclusions

The national accountability measures have not yet come into a direct relation to the non-tenured staff members and their inclusion into internal quality culture of the higher education institutions of Latvia. The statistical information on this target group is hard to access both in national and institutional (large, public university) level.

The higher education institutions in Latvia face the same challenges and are addressing the volatility of available funds through strategical operation

with workload of the faculty staff, ensuring that the core highly qualified staff remains in working relationship with the institution as long as possible.

As a result of country specific contextual situation a considerable share of core faculty is experiencing decrease in workload as well. The academic personnel (including research track academicians) with less than ¼ of workload is the most populous subgroup at the University of Latvia.

The decreased workload requires a more inclusive approach towards involvement of this staff within institutional quality culture and related professional development activities. The deliberate involvement of the non-tenured staff in internal teaching quality culture at the University of Latvia may wield an improvement of the teaching quality at the university. The higher education institutions should create a targeted policy ensuring that all types of faculty staff (both permanent and non-permanent, part time and full time) receive support to develop professionally.

The leading to institutional quality culture standardized professional development measures in form of further education courses that are efficient in other higher education systems are less effective in addressing the professional development needs of academicians in Latvia, whose background and prior experience is characterized by highly erratic and defragmented individual careers. The courses should be focused and fragmented as well, representing smaller knowledge chunks, that the individual academicians can use to fill in the missing knowledge.

This also means that it is especially important to provide measures and tools that will help the academicians to reflect upon own skills and detect the possible missing knowledge chunks (for example, developing a teacher's portfolio).

Also, the importance of time management skills and efficient time usage requires the most flexible approach to the professional development measures, requiring them to be accessible 24/7, possibly in the form of knowledge data base that can be explored at individual pace. The widely established regular professional development courses are fine if integrated in curricula of doctoral students, which all have comparatively similar experience background to be addressed in standardized way.

If the tenured staff members are aware of the institutional quality culture due to the intensive exposure to it, the non-tenured staff members might benefit from separate introductory course on the respective institutional quality culture within which they should integrate.

Profound reforms of the academic career system have been initiated by the Ministry of Education and Science. Therefore, this would constitute a disadvantageous time for starting any institutional system overhauls.

Indeed, the inclusion of non-tenured staff into internal quality culture of the higher education institution is clearly an accountability driven measure,

that will eventually increase both the workload of managers, as well as that of academics. Therefore, it is important to ensure that the higher education institution will be able to draw on evidence that the benefits of the introduced accountability measure will cover the associated administrative costs.

Expecting a further rise in transforming power of Neoliberalism and New Public Management in higher education matters, the higher education institutions should be prepared to state ways and describe processes, how the non-tenured staff members are involved in internal quality culture of the institutions.

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# CLASH OF GIANTS – THE CHANGE OF INTERNAL HIGHER EDUCATION GOVERNANCE IN LATVIA

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## ABSTRACT

Globalization, the transfer to knowledge society exposes the environment of higher education institutions (HEIs) to increasingly complex operating conditions. The universities have to address additional demanding tasks with often-staggering public funding at their disposal.

The paper aims to depict the interaction of government – managers – and higher education (HE) sector – employees – in the context of recent university governance reforms, which in its essence is another manifestation of managerialist policy followed by the government.

The paper starts with contextual information on the HE system in Latvia and its antecedently limited public funding. It then touches the introduction of the performance-based funding model. The review of the funding model came as a reaction to dramatic public funding cuts within the higher education sector that were triggered by the economic crisis 2009-2012. The paper outlines the expectations of the higher education sector that additional public funding will be invested as soon as the new funding model is implemented. However, quite surprisingly for the higher education sector, the newly elected government decides to reform the internal governance of public higher education institutions instead.

The depicted context is analyzed against the concept of managerialism and its influence on the higher education sector, specifically on the deterioration of collegiality as the traditional form of university governance. The paper explains, why the plans to reform the university governance in Latvia by introducing university boards with external stakeholders represented there have been met ambiguously by the higher education sector. The authors seek to answer the seemingly irrational series of actions taken by the Latvian government and do so referring to phenomena of managerial ideology, as well as cautions against the rule of uncompromising, forthright managerialism within the public sector.

The article finds, however, that pure collegiality is no longer viable in the higher education sector in Latvia, and different manifestations of managerialism are there to stay in the higher education sector. Therefore, ways need to be found to adopt and draw benefits from the induced changes. Understanding the rational reasons behind seemingly irrational reforms introduced by the government is the first step in this direction. The next step, but this would be then the subject of further researches, would be to detect the conditions in which the incoming managerialism may undermine or reinforce the quality of higher education.

## Introduction

### Almost quasi-market system

When classifying the varying historical university models in Europe and estimating the direction of change that the analyzed countries take, it was estimated that due to the factors of change "*Adaptation to the market economy and its needs; Unclear role of the state; Increasing demand for HE*" the HE systems of Eastern European countries like Poland, Russia and Moldova can be best characterized as "*Transition system with fast transformations towards market model (private sector)*" (Koivula, & Rinne, 2008, p. 267). Using this classification, Latvia has surpassed minor orientation towards the market model that according to Koivula & Rinne characterizes Spain, Finland, Sweden – a "*State system with some transformations towards market model*" (Koivula, & Rinne, 2008, p. 268). and can be appropriated as quite close to the "quasi-market system". This estimation is based on a range of factors. Similarly like in the United Kingdom, the state encouraged and keeps encouraging the higher education institutions in Latvia to generate funding from non-state sources. Latvia, where 27 public HEIs and 19 private HEIs coexist, is one of the largest private HE sectors in the region (Pachuashvili, 2009). Furthermore, the Latvian higher education sector is characterized by a dual-funding system – also at public universities the studies are only partly state-supported and almost 40% of students pay a full tuition fee there (Ministry of Education and Science, Report 2019). The attraction of fee-paying students is one of the income-generating strategies. The tuition fees in the country through the public co-funding are considerably lower than they would be in case the system would be fully quasi-market oriented. However, since the income level of the population leaves it struggling to cover the full tuition fee, a loan support system has been established, that allows money inflow into the system from the bank sector. At the same time, the money available through the bank sector is capped to avoid the tuition fee rise as an adverse effect.

### System in decline, system in need

"*Despite a modest but sustained positive public funding trend since impressive budget cut in 2012, the effects of the large budget cuts applied in economic crisis 2009–2012 are still felt by Latvian universities*": according to the Public Funding Observatory in 2019 (Bennetot Pruvot, Estermann, & Kupriyanova, 2020, p. 33). It has characterized Latvia as "*system in decline, system in need*" (Bennetot Pruvot et al., 2020, p. 33) due to funding decrease higher

than the actual student numbers decline. However, in Latvia's case of a dual-funding system number of study places has broadly remained stable, while the student body decline is mostly due to a lower number of fee-paying students. At times of public funding austerity, the public institutions have been therefore hit both by the decline in public funding and by lower income from tuition fees.

The ongoing globalization of the higher education sector places the HEI in an increasingly competitive external and internal environment. In addition to teaching and research, modern universities have additional contemporary tasks like nurturing and taking care of eco-systems, commercializing the science, just to name a few. These new tasks rarely come with additional funding. These new roles of the university, which are brought by through the unfolding of the knowledge society, are merely claimed to be just self-evident need for the universities to change over time. All of this brings the system in money shortage, while more and more compromises with basic academic values have to be taken.

Following the perspective, that there is a "*need for rationalization and quality improvement and better use of tuition fees*" (Aslund, & Dombrovskis, 2011, p. 73) in the higher education sector, a series of reforms were intended to address these needs. These additional performances and quality improvement-oriented tasks were specified by conventional amendments to the Law on Higher Education Institutions (*"Grozījumi Augstskolu likumā"* 2011) and this concurrently with the harsh public funding cuts, as high as 48% at the beginning of 2009 and a further cut of 18% in 2010 (European University Association, 2011), resulting from economic crisis 2009–2012.

Within this context, all higher education stakeholders were that much united in the understanding, that public funding share in higher education must be increased, that this social agreement was fixed in Law on Higher Education Institutions by its amendments (*"Grozījumi Augstskolu likumā"* 2011) as early as in 2011. However, much to the distress of the higher education sector, the public funding increment rate, fixed in the law to be 0.25% of gross domestic product each year, was never put in effect, as a matter of fact, leaving the sector struggling with the need of restructuring following new circumstances imposed by greater demands to the sector and simultaneous lack of resources.

## Introduction of performance-based higher education funding model

To address the abovementioned issue shortly after the economic crisis in 2009–2012, in 2015 a new higher education funding model in Latvia has been introduced. The concept has been elaborated in 2014 by the World Bank

as part of World Bank Reimbursable Advisory Service on Higher Education Financing in Latvia to "*help Latvia achieve its objectives, such as enhanced quality of teaching and research, greater efficiency, access, and internationalization, and stimulate innovation, entrepreneurship and staff development,*" (World Bank, 2014, p. 25). The World Bank experts conclude that the current public funding model in Latvia is mainly an investment-oriented "one pillar" model, which does not ensure a balance between stability, performance, and innovation orientation. "*While, in principle, public funds are allocated according to study places, i. e., educational needs, this is de-facto nearly the only public funding instrument, and thus has to accommodate many competing needs (partially related to research and wider institutional missions) of universities,*" (World Bank, 2014, p. 16). Therefore, the experts proposed adopting a "three pillar" model instead, where the [1st pillar] base funding ensures the sustainability of the system, the [2nd pillar] performance funding promotes the achievement of results, while the [3rd pillar] development funding promotes the connection with the long-term economic development needs.

During 21 months, apart from many HEI, more than 30 stakeholders have been interviewed and the "*stakeholder consultations played a vital role in the project methodology*" (Arnhold, Kivistö, Vossensteyn, Weaver, & Ziegele, 2018a, p. 237). After this kind of rather tight interaction with the higher education sector of Latvia, citing the final report – "*The World Bank team is convinced that all stakeholders in Latvian higher education have a strong interest in the enhancement of the higher education sector in terms of quality, efficiency, strategic orientation, international competitiveness and equity,*" (Arnhold et al., 2018a, p. 280).

So how did it happen that just a couple of years later the conflict between the stakeholders who all are united by the same values escalated as to two reputable stakeholders requesting the resignation of the minister ("Arī Rektoru padome prasa" 2021)?

## Method

To answer this question a retrospective analysis of series of events is conducted, with the culmination point being the recent reforms of the higher education governance in Latvia. This longitudinal case analysis uses the elements of historiography – highlighting particular details in the form of exact citations from authentic and validated secondary sources. These details are synthesized into a compelling narrative form. The exhibited compilation of events taking place at multiple follow-up times represents the analyzed longitudinal data.

Close attention is paid to the temporal component and the related qualitative content of the event as related to the analyzed context. To add depth

to the study the authors illustrate the context through texts from several directly related, even causal, comprehensive researches on the higher education sector in Latvia conducted by the World Bank, as well as other secondary data such as news articles, governmental and international comparative reports from validated authors such European Commission, European University Association.

The process tracing is applied to dissect the causal triggers and mechanisms unveiling the higher education sector's transition to a new form of university governance.

The longitudinal data are analyzed to disclose the underlying clash of collegiality and managerialism.

## Results

### University Governance Reform

The university governance became the new major reform focus of the government soon after the elections in 2018. This earnest undertaking however came impulsively, as it was not envisaged in the declaration of the Cabinet of Ministers at the moment of its formation in early 2019. Instead, it increased the demands for the higher education sector by setting the ambitious benchmark of inclusion of at least one Latvian university among the top 500 universities globally (Deklarācija par Artura Krišjāņa Kariņa vadītā Ministru kabineta iecerēto darbību, 2019, p. 15). The academic community continued expecting a rationally consecutive and planned full implementation of the new funding model, as also stated by the abovementioned government declaration: "*Ensuring an increase in state budget funding for the efficient operation of the three-pillar model*" (Deklarācija par Artura Krišjāņa Kariņa vadītā Ministru kabineta iecerēto darbību, 2019, p. 15).

Thus in 2019, the European Commission speaks of the new government having pledged "*to ensuring financial support to the three-pillar funding model*" (Education and Training Monitor 2019, 2019, p. 8). Nevertheless in 2020, according to a publication on the official website of the Ministry of Education and Science, the three-pillar funding model, that has been approved by the Cabinet of Ministers in 2015, still lacks funding for the third pillar.

While in 2014 the World Bank already asserts: "*the system is significantly underfunded in comparison to not only other European countries but, importantly, also vis-à-vis the government objectives and legally-set targets, both as a proportion of public spending and per study-place*" (World Bank, 2014, p. 5), in 2020 the government pertains to even the more arduous aim of "*top 500*" even though the liabilities implied by previous social agreement have not yet been attended to in whole – instead of three-pillar funding model 5

years later there is only funding allocated for the two pillars in fact. While developing the three-pillar funding model the World Bank discouraged from implementing it unless additional funding is allocated: "*Without any incremental funds, there is the minimal capacity to reform the financing model,*" (World Bank, 2014, p. 52). Even more, the World Bank experts warned that: "*Allocating fewer or even the same amount of resources differently may create substantial volatility within the system,*"(World Bank, 2014, p. 52).

Certainly, the findings do state that Latvia is one of the few OECD countries where external stakeholders are not included in HEIs' governance boards (OECD, 2019) as well as among 8 European higher education systems, where it is not required to include external stakeholders in the internal governance of the institution, in fact, Latvia is even not able to include (Arnhold, N., Kivistö, J., Püttmann, V., Vossensteyn, H., & Ziegele, F., 2018b). Nonetheless, this does not mean that the internal governance at this point was closed to stakeholder involvement. The experts find that within the existing legal framework "*the involvement of internal stakeholders is well-developed in Latvian higher education institutions. This also holds true for students,*" (Arnhold et al., 2018b, p. 142) and "*External stakeholders are involved in the governance of Latvian higher education institutions in different ways, but.*" following the legal requirements: "*..for the most part without formal decision-making rights and responsibilities*" (Arnhold et al., 2018b, p. 99). Moreover, the experts even praise the existing system:" *Among the most striking features of internal governance in Latvian higher education institutions are the deep-rooted democratic culture and the highly interactive and inclusive decision-making processes on all institutional levels,*" (Arnhold et al., 2018b, p. 140).

Even though the experts play around the possibility to adjust the governance in Latvia to a modern managerial approach: "*Contrasting the current situation in Latvia with developments and practices in other countries, a more formal and systematic way of integrating external stakeholders into governance processes could be beneficial,*" (Arnhold et al., 2018b, p. 142), however, the experts are not explicitly negative on the existing governance system, as they just suppose that traditional collegial governance structures can hold back the ability of Latvian HEIs to respond swiftly and strategically to changing economic and societal needs (OECD, 2019). Also, concerning the advantages of reforming the governance structures the experts are careful about their statements: "*Especially in the Latvian context, where the current governance culture is cherished by many, gradual shifts toward a more managerial, personal responsibility-focused approach that does not destroy the democratic culture is particularly relevant,*" (Arnhold et al., 2018b, p. 142). or even point out that the optimism about the positive effect of governance boards in European higher education systems in between has diminished:"

*In the course of the increasing involvement of external stakeholders in govern-
ance boards, different challenges have become apparent that can limit their
positive impact on the development of higher education institutions,"* (Arnhold
et al., 2018b, p. 71)

## Discussion

In this context, the unexpectedly raised higher on the agenda issue of
university governance is met ambivalently by the higher education sector.
Even though the World Bank experts had proposed certain alignments of
the internal governance to the global trends, allowing the HEIs to involve
external stakeholders in line with the rest of the world would be sufficient.
After all, the HEIs seemed to be open, and involving stakeholders was
a commonly represented practice across the HEIs, so the higher educa-
tion sector understands the benefits of attending to stakeholder's points
of view.

At the same time the apparent ignorance of the obviously insufficient
funding that the higher education sector had to cope with for decades
(the necessity of this investment was underlined as imperative to address
by World Bank experts as well), was interpreted by the higher education
sector as an allegation that there is already enough money in the system
available, one should only govern it more efficiently and this – with help
of external stakeholders, since the internal stakeholders, apparently, are
unable to do so.

Indeed, neoliberal managerialism enters the higher education in Latvia
with attempts to seize the control and power, attempts to measure the per-
formance, also the imperceptible and intrinsic value of academic activities,
with explicit and rational indicators – promising Latvian higher education
institutions to reach the top 500, and claims that higher education insti-
tutions in Latvia are not effectively governed (*"On conceptual report "On
internal governance reform of the higher education institutions""* 2020).

It is clear that incoming managerialism, in order to establish itself in
higher education, needs to discredit the existing form of governance – col-
legiality – a form of established self-governance based on trust and col-
laborative decision making of communities of scholars of roughly similar
intellects and abilities, being at its core value-driven and normative in ori-
entation (Chong et al., 2018).

In its essence: "*The main features of managerialist policy are incessant
organizational restructuring, sharpening of incentives, and expansion in the
number, power, and remuneration of senior managers, with a corresponding
downgrading of the role of skilled workers, and particularly of professionals,*"
wrote Quiggin in 2003.

In line with these characteristics of managerialist policy introduced by Quiggin (2003), the higher education sector in Latvia has undergone series of seemingly incessant reforms aimed at restructuration. As a major structural driver for achieving the goals set by the government the performance-based funding was introduced and gained formidable political support (Dougherty et al., 2014), also in Latvia. Herewith a tool for increased managerial control and command in this public sector has been established. By linking state appropriations, at least a portion of them, directly to institutional outcomes it was declared to address the challenges of, according to the neoliberal view, the underperformance of higher education as the public sector – and simultaneously gain an easy to use tool for accountability purpose.

To gain public support and speed up the deconstruction of the existing form of governance in higher education, a campaign is needed to claim that the existing form of governance is inefficient and that the new form of governance instead will allow achieving the goals shared by all stakeholders.

Public support is necessary for accountability reasons. The owners of capital – the electorate/ the taxpayers – are not in charge of their property as they have commissioned through election procedure the government – the managers – to administer the state property and the tax money. With knowledge society advancing, the taxpayers become increasingly aware of the commissioned rights and in exchange they require accountability. With the advancement of the postmodern neoliberal concept also public-sector organizations need to become increasingly accountable or implement accountability measures. After all – in the private sector, everyone is equally accountable to those who have power and money. However, it is far easier to measure productivity in industry, the output created by a low-skilled workforce, than the performance of the intangible value-intensive public sector.

Self-evidently – to be able to defend its existence to the electorate, the government itself needs to understand what its supervised public-sector institutions do. This is not an easy task, as public-sector institutions usually employ highly qualified staff, to attain qualitative goals, so to understand the specifics of the job, one should be a professional of the same field. However, it is highly unrealistic to be that qualified in every field of knowledge, so the managers, on basis of exerting power, require sound and comprehensible evidence that would allow anyone, even non-professionals in the field, to easily judge the performance of the public sector professionals. The focus shifts from mere trust in best performance due to one's proven professionalism, to demonstrable indicators of performance to anybody – any taxpayer – who would seek to question the quality of performance thereof.

The managers require proofs of efficiency, and the academics supply these proofs, however, both parties measure the efficiency based on a different narrative. With managerialism, the value rationality is replaced by purpose rationality (Rutgers, & Schreurs, 2006), or as further specified by Klikauer (Klikauer, 2015, p. 107): "*For managerialism, there are no democratic solutions to problems, only managerial ones*".

In reality, with the existing form of governance – collegiality, the government simply lacks the tools to convincingly demonstrate the quality of its managerial work performance to anyone who would like to question this quality, including own donors. There is a need for clarity, transparency – how each of the system's subjects works under the supervision of managers to achieve the goal. In addition, to be able to support higher education institutions with their competence of goal rationality, the management and monitoring systems are needed that allow management to identify areas of intervention, as well as tools to influence the decision-making process in higher education institutions, like performance-based funding as an instance. Managerialism follows the command-and-control concept of management and the collegial democracy of decision making seems inappropriate in this case. After all "*for managerialism, politics and democracy are simply a hindrance on the way to efficiency and competitive advantages.*" (Klikauer, 2015, p. 107).

Because controlled individuals cannot be trusted by default as they all act in the name of self-interest, in neoliberalism (Hodge et al., 2018), government research in the higher education sector is no longer conducted by sector's experts themselves, but by third parties, interviewing the exactly same higher education experts and retelling to governmental managers what they are saying. In other words, the state increasingly directs public funding to smaller and larger external consultants' organizations that specialize in translating the work done by universities into a procedural language understood by managers. This is a skill that universities have yet to develop, and the new governance system, with a university board represented by many different members of society, to whom the university both administrative and academic staff will have to account daily, will contribute to the development of this skill. At the same time, it demonstrates how in the managerial approach the experts of the field are downsized, merely considered purely in the status of another to be analyzed material inventory, an element of capital – human capital. This is in line with attempts by managerial policy to downgrade the role of skilled workers, and particularly of professionals mentioned earlier in this text.

To facilitate this translation process, there are discourses in the public media cultivated, portraying students as consumers, teachers as service providers, and the higher education sector, as a sector seemingly capable of

endless efficiency improvements, a sector that ultimately benefits the society only as much as its graduates can earn. Just like Klikauer argues the managerialism "*..has led to intellectual and scientific limitations. These limitations mirror corporate limitations when the focus on numbers and mathematical equations eliminates dialectical thinking in favor of one-dimensional thinking,*" (Klikauer, 2015, p. 115).

While being in an induced by neoliberal ideology spiral of goal rationalism, it is tempting to get into the position where one can decide on the use of money in a controlled entity, make the process of allocating money more transparent to the parties involved, as well as respond to the needs of the sector as per the understanding of existing needs by involved external parties. This is where the university boards become a convenient tool.

If universities may be unwilling to leave their comfort zone and defend their spending against the arguments that are founded by purpose rationalism, then managers may fall into the trap prepared by the neoliberal perpetual drive for efficiency. The demands of the sector for additional investments are rejected antecedently by appeals from managers to improve the efficiency of the existing system first and foremost. The authoritarian management style of managerialism "*increases the potential for corporate immorality*" (Klikauer, 2015, p. 114), which in the case of Latvia was observable in the circumstances described before – the higher education sector has to fulfill its obligations as per law, whereas the government ignores the social agreement even though it has been fixed in the same law.

As a matter of fact, indeed, it is not effective to invest extra money in an inefficient sector. By using the newly acquired power in this way, the managers have undoubtedly acted rationally at the end of the day by refraining from investing more money into the sector, which they had declared as inefficient. Nonetheless, in the long run, the base of provided services keeps deteriorating and, contrary to expectations, the voices of taxpayers become more dissatisfied. Just like a cow can be milked and not fed for a while – first, those who do care about the cow's exterior will become dissatisfied and then, as time passes, everyone will start complaining.

When introducing accountability solutions in universities, the impact of such measures needs to be carefully considered in advance. At present, an underfunded sector, that has to compete in the European free market will also have to reallocate internal resources to carry out the functions associated with the new form of governance. In systemically larger universities, the effects of governance rooted in managerialism may increase accordingly. For each report requested by the manager, a workload share of the university administrator or academic staff must be diverted. As it is inefficient to redirect the human resources of academic staff to attend to these needs, the number of the administrative staff will be increased, however in

the end the highly skilled academics most probably will still need to contribute to accountability measures. The administration overhead in higher education systems affected by managerialism will naturally increase, as witnessed by a college in Australia "*..restructuring that was supposed to see a far more efficient administration has produced the opposite: a proliferation of middle and upper managers so that administrative costs have ballooned*" (Fisher (Kambah), 2012).

Exaggerating systemic problems in public discussions to gain support for intended actions, may not achieve the intended results, despite the great work done by all parties involved in improving the system.

## Conclusions

The standpoint of the former prime minister of Latvia V. Dombrovskis, as acknowledged in his memoir already as early as 2011, that there is a "*need for rationalization and quality improvement and better use of tuition fees*" (Aslund, & Dombrovskis, 2011, p. 73) in the higher education sector, lies within the frames of managerialist policy characteristics. It shows the purpose rationalist strive for efficiency and performance. At the same time, it also contains the idiosyncratic to managerialism declaration of "better knowing" of both what is needed and how to manage the funds. The short excerpt clearly demonstrates the managerialist endeavor for greater control and power as it positions the managerialist as an active, sophisticated on the process person, ready to take action to improve things. Simultaneously, it downgrades the professionals at the autonomous higher education institutions, which at that point in time were managing – both setting the goals and managing resources to attain them. Following the aim to exert power and control usurpation, the existing model is deconstructed by the substitution of ideas. It is declared that the highly skilled professionals are inferior to managers and the management should be delegated to managers. This is uttered in an authoritarian style and reminds us that managerialism is an ideology in its essence.

From the above mentioned we can conclude that the higher education sector had objective grounds to approach the internal governance reforms ambiguously. Irrespectively to any other underlying reasons for introducing the new governance model in Latvia, it is clear that this initiative is in line with managerialist policy as well. Observing the deep roots that the managerialism approach has taken in Latvian politics, it is clear that pure collegiality is no longer viable in the higher education sector in Latvia, and different manifestations of managerialism are there to stay. Just a couple of days ago the new internal higher education governance model has been adopted by the government.

The higher education sector needed to understand the rationale reasons behind the seemingly irrational reforms introduced by the government, as it is the first step to become active co-creators of the future. The next step, but this would be then the subject of further researches, would be to detect the conditions in which the incoming managerialism may undermine or reinforce the quality of higher education, with these conditions to be encountered as early as possible, and in the best way possible – by all involved parties. Since we are one of the last traditional management strongholds in Europe, we will be able to follow the developments and advancements of managerialism in other countries and wield knowledge spillover, as soon as it becomes feasible.

## Acknowledgment

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# DO WE EQUIP TEACHERS TO DEAL WITH GLOBAL CRISIS? CASE OF INITIAL TEACHER EDUCATION IN THE REPUBLIC OF CROATIA

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## ABSTRACT

Traditional teacher education focused on crisis teaching, crisis prevention and crisis management at the internal and external level changes require education to react to factors and contexts at *meso* and *macro* level. The aim of the research was to determine whether the learning outcomes of initial teacher education that prepare future teachers to deal with crises at *meso* level and *macro* level can be identified. Also, research aimed to identified learning outcomes with respect to the type of crisis they address and the level of revised Bloom's taxonomy (Anderson & Kratwohl, 2001). Content analysis of initial teacher education curriculums on a national sample of the Republic of Croatia was conducted. Curricular content analysis identified learning outcomes in a broad field of society, education, ecology, technology, but there are no learning outcomes related to economy. Most learning outcomes in the area of crises in society were at the level of evaluation (27,3%), as well as the learning outcomes in the area of crisis in education (34%). Since there is no national standard for teacher education, significant differences were found in the scope and number of learning outcomes according to the year of study as well as the university. Given the results of this research, it is necessary to revise initial teacher education curriculums and develop lifelong learning programs that would provide future teachers with the development of competencies necessary to act in various situations of crisis.

**Keywords:** *curriculum analysis; global crisis; learning outcomes; primary school teacher education; Republic of Croatia.*

## Introduction

It is not easy to clearly define the term crisis. There are different challenges in dealing with the term: first being the *conceptual challenge* reflected in the difficulty of reaching a consensus on the various definition of the concept of a crisis; second, the *practical challenge* resulting from the difficulty of identifying the skills required at various phases of a crisis and

third, *the reflective challenge* related to the lack of knowledge with respect to the actors' behaviours, emotions, and decisions in the period immediately preceding the crisis (Lalonde & Roux-Dufort, 2013). Any crisis can be seen as a threat, danger, and disorder or an opportunity, possibility. Crises in education occur in the period when teaching process does not meet the needs of society and the economy nor does it progressively contribute to their development, and the solution to the crisis is reflected in education system reforms (Apple, 2016; Cohen et al., 2018; Mauch & Sabloff, 2018; Organization for Economic Co-Operation and Development [OECD], 2018; Pastuović, 1999; Stoll & Fink, 1996;). The paradox of the modern educational system is reflected in the fact that only the reform is permanent, i. e., under the influence of extremely rapid economic, social, economic, health changes, the educational system is constantly facing crises (Liessmann, 2008).

Crisis situations in the teaching profession are not new. Teachers regularly encounter crisis situations in their work (Apple, 2011). However, while during the twentieth century crises, i. e., situations in which teachers are expected to respond quickly and competently to various obstacles, were more significant at the level of the classroom and school environment, in recent decades there have been more noticeable external crises that (indirectly) affect teachers and pupils. With the development of globalization and informatization of society, and especially due to the presence of mass media, more and more external (global) crises, which do not have to directly affect the participants in the teaching process, affect the teaching work and the teaching process. This is corroborated by a number of studies that emerged after the 9/11 attacks when it was shown that such major disasters leave consequences on both the emotional and cognitive aspects (Honos-Webb et al., 2006; Huston & DiPietro, 2007; Silver et al., 2002).

This issue is particularly pronounced during the COVID-19 pandemic and encourages the importance of reviewing the acquisition of future teachers' competencies in such a way that it seems that it is not enough to prepare teachers only to deal with crisis situations at the classroom and school level. In other words, the professional development of teachers should be directed to three different but interrelated levels. The first level covers *micro* factors and contexts (e. g. classroom relationships, teaching content; child welfare), the second level includes *meso* factors and contexts (e. g. institutional changes and problems, school system), while the third level covers *macro* factors and contexts (cultural, societal, political, economic) (Bautista & Ortega-Ruiz, 2015; Opfer & Pedder, 2011). Therefore, the main interest of this research was to examine whether during the initial teacher education students learn about crises at *meso* level and *macro* level and are they learning how to deal with them.

Given that modern curricular and competency approaches are based on the theory of constructive alignment (Biggs, 1996), the basis of this paper is a revised Bloom's taxonomy consisting of three domains (cognitive, affective and psychomotor) as well as on six levels: remembering, understanding, applying, analysing, evaluating, and creating (Anderson & Krathwohl, 2001).

## Method

The aim of this research was to determine whether teacher education course curriculums include learning outcomes that prepare prospective teachers to cope with crisis on *meso* and *macro* levels. According to this research goal the following hypotheses were made:

H1:    Learning outcomes that enable prospective teachers to cope with crisis on *meso* and *macro* levels will be represented in teacher education curriculums in all relevant areas.

H2:    The level of learning outcomes according to Bloom's revised taxonomy will not differ according to the categories of crisis on *meso* and *micro* level.

H3:    There are significant differences in the representation of learning outcomes in teacher education curriculums that enable prospective teachers to cope with crisis according to the university or year of study.

The sample of research included 6 initial teacher education curriculums on a national sample of the Republic of Croatia (Curriculum web pages are listed in the Reference section): University of Zagreb, Juraj Dobrila University of Pula, University of Split, University of Zadar, University of Rijeka, Josip Juraj Strossmayer University of Osijek. According to their structure, teacher education is an integrated five-year study, and the research covers all five years of study. Content document analysis, a form of qualitative research, was conducted to collect and explore data. Since all teacher education curriculums are based on competence approach, with clearly stated learning outcomes, a matrix for learning outcomes was created according to learning domains and levels of revised Bloom's taxonomy (Anderson & Krathwohl, 2001). Learning outcomes were then coded and grouped according to the area of crisis they relate to. Since there is still no national standard to teacher education in the Republic of Croatia, the curriculums are often structured according to research interests and competence of university teachers and researchers employed at different universities. Also, it is reasonable to expect a significant difference between the number of learning outcomes addressing crises. Therefore, learning outcomes were

analysed at the level of the overall research sample. To answer on the second and the third hypotheses, nonparametric tests were used.

## Results

For the purpose of answering the first research hypothesis, a matrix of learning outcomes related to crisis on *macro* and *meso* levels was created. Five broad categories (society, education, environment, economy, technology) and their subcategories were identified (Table 1). After dividing the learning outcomes into the main categories, their content analysis was approached and it was noticed that society, environment, technology refer to the *macro* level, while the learning outcomes in the area of education seem to relate to both *macro* and at the *meso* level. For the purpose of this paper all areas were included in further analysis.

**Table 1.** Matrix of learning outcomes areas related to crisis

| Society | Environment | Economy | Technology | Education |
|---|---|---|---|---|
| Globalisation | Sustainable development | Labour market | Digital transformation | Reform |
| Democracy | Ecology | Employment | E-learning | Lifelong learning |
| Sustainable development | Health | Sustainable development | Robotisation and AI | Professional development |
| Intercultural-ism | Natural disasters | Financial literacy | Digital literacy | Professional Identity |

Descriptive statistics (Table 2) show that most of learning outcomes identified as outcomes that address potential crisis relate to crisis in society (globalisation, democracy, interculturalism and sustainable society; $n = 121$). The second most considered category is environment (sustainable development, ecology, health, natural disasters; $n = 77$). Technology (digital transformation, E-learning, robotisation and AI, digital literacy; $n = 76$) is the next are that can be identified in learning outcomes. Surprisingly, a lesser number of learning outcomes are related to crisis on *meso* level (reform, lifelong learning, professional development, professional identity; $n = 47$).

It is necessary to recognise that numerous learning outcomes in teacher education curricula address crisis in the area of education, but on a *micro* level (classroom). The area of economy (labour market; employment; sustainable development; financial literacy) seems to be a blind spot in teacher education curricula $n = 0$. Therefore, we can conclude that the results did not confirm the first hypothesis H1.

**Table 2.** Frequency of learning outcomes according to crisis area

| Crisis area | Society | Education | Environment | Economy | Technology |
|---|---|---|---|---|---|
| Frequency | 121 | 47 | 77 | 0 | 76 |

With the aim of answering to the second hypothesis (H2) the content analysis of learning outcomes according to revised Bloom's taxonomy (Anderson & Krathwohl, 2001) showed that there are differences in the levels across crisis areas (Table 3). Most learning outcomes in the area of crises in society were at the level of evaluation (27.3%), as well as the learning outcomes in the area of crisis in education (34%). Learning outcomes that addressed crisis in ecology were mostly at the level of understanding (35.1%) while learning outcomes related to crisis in education were on the level of application (26.3%). The second hypothesis was confirmed.

**Table 3.** Percentage of levels of learning outcomes (Bloom) across the crisis areas

| Crises area LO Bloom's taxonomy | Society % | Education % | Environ- ment % | Economy % | Technolo- gy % |
|---|---|---|---|---|---|
| Remembering (1) | 17.4 | 10.6 | 6.5 | 0 | 11.8 |
| Understanding (2) | 20.7 | 17.0 | **35.1** | 0 | 14.5 |
| Applying (3) | 18.2 | 29.8 | 23.4 | 0 | **26.3** |
| Analysing (4) | 9.1 | 2.1 | 1.3 | 0 | 14.5 |
| Evaluating (5) | **27.3** | **34.0** | 28.6 | 0 | 13.2 |
| Creating (6) | 7.4 | 6.4 | 5.2 | 0 | 19.7 |

Next, we tried to determine whether there were differences in the representation of learning outcomes according to the year of study or university that students attended (H3). Research results show that there is significant difference between the number of learning outcomes according to the university that students attend in the area of crisis in society ($H = 18.469$; $p = .02$) and crisis in ecology ($H = 13.377$; $p = .010$). Teacher education curriculum at University of Rijeka has significantly less learning outcomes related to crisis in society in relation to all others. On the other hand, teacher education curriculum at University of Split has significantly more learning outcomes related to crisis in ecology. There are no significant differences in the distribution of learning outcomes related to education ($H = 3, 010$; $p = ,390$) and technology ($H = 7.192$; $p = .207$) according to the university. Further analysis showed that there are significant differences in learning outcomes representation according to the year of study

in the area of crisis in ecology (H = 10.605; $p$ = .031). Students of 3rd year had statistically less learning outcomes dealing with crisis in ecology than during any other year of study. There were no significant differences in representation (distribution) of learning outcomes in the area of crisis in society (H = 7.546; $p$ = .110), crisis in education (H = 2.609; $p$ = .456) or crisis in technology (H = 4.760; $p$ = .313). The results have confirmed the third hypothesis (H3).

## Discussion

Research results did not confirm completely the first hypothesis (H1), since there are no learning outcomes related to the area of economy in any of teacher education curriculums in Croatia. Based on the results it can be concluded that this seems to be the common denominator and a blind spot for all teacher education institutions at universities in Croatia. There is a need for future teachers to develop understanding about the dominant challenges of the society, as well as the tension between contradictory demands of economic and cultural forms of globalisation, and between globalisation and localisation (Bates, 2008; Rieckmann, 2012). Also, research shows that COVID-19 pandemic already made an impact on higher education and the need to provide sustainable development education and competencies is only going to grow in the coming years (Leal Filho et al., 2021). Research results did not confirm the second hypothesis (H2) because the level of learning outcomes according to Bloom's revised taxonomy differ according to the categories of crisis on *meso* and *micro* level (Bautista & Ortega-Ruiz, 2015; Opfer & Pedder, 2011). It is important that future teachers develop higher levels for application, analysis, evaluation, and creation in completely new circumstances and that they are thus ready to teach their future students (Khizar et al., 2020). Not all areas of macro crisis result with the same level of learning outcomes. However, the results of this research have confirmed the third research hypothesis (H3). There are significant differences in the representation of learning outcomes in teacher education curriculums that allow future teachers to cope with crisis across different years of study or universities. This can be an issue since it is obvious that teacher education must be, very *systematic and consistent* (Apple, 2011).

Based on this research, we can determine that learning outcomes that prepare future teachers to deal with crisis on macro level exist. However, they are unsystematic, not evenly distributed in course curriculum, and have lack of categorization, since education system is constantly confronted with crisis (Liessmann, 2008). The results show that their representation depends on the university teacher competencies and interests. This

research has its limitations. There is a lack of comparison with studies in other countries. For the purpose of better understanding of this topic, the research could be expanded to get a more complete image because global crisis should be addressed on a global level. Also, the (self)perception of teachers and student's competence in managing crisis of this scope could be interesting to research and compared.

## Conclusion

We stress that there is a need for systematic research on teacher education in order to investigate the extent to which we prepare educators to deal with global crises. In addition to the importance of recognizing the impact of global crises in a particular area, it is also important to know what to do when they occur. A pandemic caused by a SARS-CoV-2 virus, wars, earthquakes, floods, poverty, or a disruption of any other segment of a person's educational, social and natural life requires of teachers to manage and mitigate these situations. It is the responsibility of teacher education institutions to ensure that future teachers are educated for crises management and mitigation. We recommend the development of guidelines for the development of teacher competencies in this area, or the competency profile of educators. Based on results in this research it is essential to review teacher education curriculums in order to prepare future teachers and develop their pedagogical competencies for acting in situations of crisis on macro level. The present seems to be characterized by unpredictable situations that require teachers to adapt, plan and respond to the new crisis situations and teacher education is obliged to respond to their needs.

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# FACTORS AFFECTING STUDENTS' UNDERSTANDING OF THE QUALITY OF HIGHER EDUCATION

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## ABSTRACT

Students are the main stakeholders in the higher education area so their involvement is closely related to the quality of higher education. There are a lot of factors that affect the understanding of the quality of higher education. Factors are used for quality planning, assessment, assurance, control, improvement etc. The research question is: what factors affect students' understanding of the quality of higher education?

The research was conducted in two stages. During the first stage of the research, the concept of the quality of higher education was analysed by using literature review and focus group discussion. During the second stage, a questionnaire was developed and students of the Faculty of Engineering Economics and Management of Riga Technical University (RTU FEEM) were surveyed, the results of students' survey were analysed by using Spearman rank correlation.

The research shows that there are three groups of factors that affect students' understanding of the quality of higher education: factors related to the study process (SP), support and resources (SR), and external factors and results (EFR). As a result of correlation analysis, SP factors have more internal correlations within the group, while SR and EFR factors more correlate with each other. The most significant factors that affect students' understanding of the quality of higher education are the quality of educational content and professors' competence.

Some trends were observed: (1) factors with a small number of correlations have more internal correlations than intergroup correlations; (2) the more important is the factor, the greater is the number of relationships, and vice versa; (3) the more important is the factor, the closer are relationships, and vice versa. There is one exception recognised in the research: although the factor 'Quality of educational content', according to the students, is the most important factor, the correlation analysis shows that it has no statistically significant correlations with other factors.

**Keywords:** *factors, higher education, quality, students, understanding of the quality.*

## Introduction

Quality is one of the most strategic drivers of higher education (Rossouw & Goldman, 2014). Modern managers, including management of higher education institutions (HEIs), are actively analysing directions of industry development and looking for solutions to ensure that the organization meets the requirements of the industry, the stakeholders, and education policies (Dahlgaard-Park, 2008; Iljins et al., 2015; Iljins et al., 2017; Ozoliņš et al., 2018; Straujuma et al., 2017).

HEIs operating in global settings cannot focus solely on the needs of the local labour market and methods and content of classical education. For Latvia, regaining its independence in 1991 was the starting point of a new stage in higher education and understanding of the notion of quality. In the last decades quality criteria and assessment procedures have changed both at the national and European levels. In 2015, the student-centred learning principle was included in the Standards and Guidelines for Quality Assurance in the European Higher Education Area. Student-centred learning moves students from passive receivers of information to active participants. To increase stakeholders' mutual understanding of the quality of higher education is one of the most important condition for aimed and gradual quality improvement – step by step, in coordination with stakeholders.

Universities need not only to develop and ensure harmonised quality management system, but to achieve a high level of staff's involvement in quality improvement. Each staff member needs to accept the quality as everyone's own value and part of their behavioural system (Lanarès, 2008).

On the one hand, quality can be seen as meeting minimum requirements. On the other hand, quality is seen as excellence. The concept of quality ranges from meaning "**standards**" to meaning "**excellence**". It is impossible to draw a line between levels of requirements, and it is impossible to separate the requirements of quality of input, process and output. In the second strategy specific indicators are used. The indicators that focus more on inputs are administrative, student support, instructional (Schindler et al., 2015), on process – procedural quality (Sallis, 2002), on outputs – student performance, employability etc. (Støren & Aamodt, 2010).

Socio-economic and geopolitical settings, new generations' behaviour models, fast development of knowledge and technologies with a simultaneous outdating process, continuous educational process create a necessity for HEIs to introduce innovative quality management system and new forms of co-operation that are based on **unified understanding of quality of higher education** (Medne et al., 2020; Setijono & Dahlgaard, 2007).

When providing the quality of higher education, universities are affected by several stakeholders: students and their parents, employers, ministry

of education and science, society, teaching staff and administrative staff, investors, taxpayers and others. Much of the literature on quality in education focuses on the student as a customer. In order to deliver high quality services to students, universities must manage every aspect of students' interaction with all of their service offering, student judgement of university experience is based on what happens within and beyond the classroom (Douglas et al., 2006).

The results of the majority of studies show that **students are the most important stakeholders** (Geryk, 2018; Mainardes et al., 2010; Shah & Nair, 2010). According to Paricio, in the terms of a new paradigm, students are true customers of modern higher education:

> *"The idea of student-customers [..] is part of an entirely new paradigm in higher education, which also includes [..] the idea of higher education as a competitive market, public reputation as an institutional priority associated with a greater capacity for attracting and satisfying students, [..]"* (Paricio, 2017, p. 137).

The authors believe that students are not just stakeholders or just customers. Students are "**involved customers**" – customers with an active role in quality planning, assurance, assessment and improvement. Universities need to analyse the factors affecting students' understanding of the quality of higher education, as well as use these factors to create closer relationships between university staff and students.

## Method

During the focus group discussion organized in 2017, 55 representatives of different Student Unions of HEIs of Latvia were interviewed. The interview took place during the Student Leaders Forum organized by the Student Union of Latvia to bring together the most active representatives of student councils. The aim of the discussion was to determine factors that students consider important for the quality of higher education. As a result, a list of 14 factors was prepared (Degtjarjova et al., 2018). Based on the literature review and factors obtained in focus group discussion, 32 factors affecting the quality of higher education were obtained.

During the second stage of the research, students' opinions were analysed. A questionnaire with 32 factors was drawn up. Cronbach's alpha was calculated to verify the consistency of the questions (Degtjarjova et al., 2018). In 2018, a survey sample was composed of the students of the Faculty of Engineering Economics and Management (FEEM) of Riga Technical University.

FEEM offers 24 study programs. The authors made a random selection of five students from each program. 120 questionnaires were handed out,

the sample size at the 95 per cent validity level was calculated and 92 of questionnaires were filled out, which was considered a representative size (Bell et al., 2014). According to the error selection traditionally accepted in research practice, the representative error in the survey is 5%. The random sample is calculated by the formula:

$$n = \frac{t^2 w(1-w)N}{\Delta^2 N + t^2 w(1-w)} = \frac{1,96^2 \cdot 0,5 \cdot (1-0,5) \cdot 120}{0,05^2 \cdot 120 + 1,96^2 \cdot 0,5 \cdot (1-0,5)} = 91,44$$

where
$n$ – representative respondent base;
$t$ – 1.96 (if reliability is 95%);
w – relative frequency 0.5;
$N$ – general sample;
$\Delta$ – sampling error.

The survey instrument was a self-explanatory questionnaire. The Likert scale with four values from 0 to 3 ('very significant influence', 'significant influence', 'insignificant influence' and 'no influence') was used.

To make a factor correlation analysis, the Spearman rank correlation was used as a non-parametric test that is used to measure the degree of association between two variables.

## Results

Factors obtained during the focus group discussion and literature review were grouped in three thematic groups – Study process (SP) with 14 factors, Support and resources (SR) with 11 factors, External factors and results (EFR) with 7 factors (see also Degtjarjova et al., 2018).

The SP thematic group includes factors related to the study process, i. e., SP1 *Strict entrance requirements*, SP2 *Quality of educational content*, SP3 *Professors' competence*, SP4 *Strict and objective student evaluation*, SP5 *Clear achievement assessment and feedback*, SP6 *Quality of study materials*, SP7 *Teaching methods*, SP8 *Student-centred learning*, SP9 *Students' active involvement in research and projects*, SP10 *Employers and professionals' involvement in the study process*, SP11 *Internship opportunities*, SP12 *Study programs' relevance to labour market requirements*, SP13 *International guest speakers*, SP14 *Study process organization and administration*.

The SR group includes factors related to support and resources that affect the student's life. Only the factors under the responsibility of the university were included in this group, i. e., the university staff are empowered to make decisions about them and can affect them. The SR factors are

the following: SR1 *Opportunity to study and work*, SR2 *International mobility*, SR3 *State subsidized studies according to quality criteria*, SR4 *Allowances, grants and other financial student support*, SR5 *Friendly administrative staff*, SR6 *Co-operation between the management and students, taking into account students' needs*, SR7 *Students' active involvement in student councils and in processes to improve quality*, SR8 *Co-operation among secondary schools and HEIs when working on educational content and requirements*, SR9 *Purposeful partnerships among all stakeholders – students, employers, HEI, professional organizations, etc.*, SR10 *Extracurricular activities (sports, arts, etc.)*, SR11 *Equipment and infrastructure relevant to the needs of the study process*.

The EFR group includes external environmental factors that affect students' understanding of the quality of higher education, as well as factors related to the university performance, i. e., EFR1 *HEI's reputation*, EFR2 *Prospects for future education*, EFR3 *Students' competitiveness on the labour market*, EFR4 *Strict accreditation requirements*, EFR5 *Competition among HEIs*, EFR6 *Equal study opportunities in the capital city Riga and regions*, EFR7 *Funding of higher education*. The factors of EFR group cannot be influenced by the university at all or can be influenced very minimally.

Based on the thematic groups of the factors a questionnaire was developed. The Cronbach's alpha of the questionnaire (.826) indicates good internal consistency of questions. The internal consistency of the questions in each group was also determined (see Table 1). The obtained results also point to good internal coherence; for EFR the internal consistency of the questions was insignificantly lower.

**Table 1.** Cronbach's alpha

| # | Thematic group of the factors | Cronbach's alpha |
|---|---|---|
| SP | Study process | .716 |
| SR | Support and resources | .731 |
| EFR | External factors and results | .691 |

The aim of the survey was to find out students' opinion about factors' importance. The Likert scale was used. It is the most universal method for survey collection: it is easy for respondents to understand and use to express their own views freely, responses are very easy to code and use for further research and analysis. Values of factor significance were clear, easy to understand, students were given written instructions.

According to the results of the survey, factors were ranked from largest to smallest. Intervals between factors were analysed and four groups were formed: G1 – the most important factors with the score of 268–261 points, G2 and G3 – factors of medium importance with the score of 239–212 and

199-158 points accordingly, and G4 – less important factors with the score of 133 points. Intervals of 1–2 points between the factors within the group were identified, whereas intervals between the groups G1–G2, G2–G3 and G3-G4 were 22, 13 and 25 points accordingly.

The most important factors were identified in the SP thematic group, these are SP2 *Quality of study content* and SP3 *Professors' competence*. The opposite trend was observed in the group of EFR – there are the less important factors, according to the students (Table 2).

**Table 2.** Number of factors by importance groups

| Thematic groups | Number of factors (score interval) | | | |
| | G1 (268–261) | G2 (239–212) | G3 (199–158) | G4 (133) |
| --- | --- | --- | --- | --- |
| Study process | 2 (100%) | 6 (50%) | 6 (35%) | 0 |
| Support and resources | 0 | 3 (25%) | 7 (41%) | 1 (100%) |
| External factors and results | 0 | 3 (25%) | 4 (24%) | 0 |

In the next step of the research, statistically significant correlations between factors were identified. To make a factor correlation analysis, the following formula was used to calculate the Spearman rank correlation:

$$\rho = 1 - \frac{6 \sum d_i^{\,2}}{n(n^2 - 1)}$$

where
$\rho$ – the Spearman rank correlation
$d_i$ – the difference between the ranks of corresponding variables
$n$ – the number of observations

The number of correlations and the correlation strength were analysed in each group, between groups, as well as throughout the factor set.

As a result of correlation analysis, the biggest number of internal correlations is in the SP thematic group, i. e., 28 statistically significant correlations, whereas the factors of the SR thematic group have 22 internal correlations and the factors of the EFR thematic group have 15 internal correlations (Fig. 1).

The largest number of intergroup correlations are between SR and EFR factors – 28 statistically significant correlations. The factors of the SP and SR have 24 intergroup correlations, the factors of the SP and EFR have 16 intergroup correlations (Fig. 1).
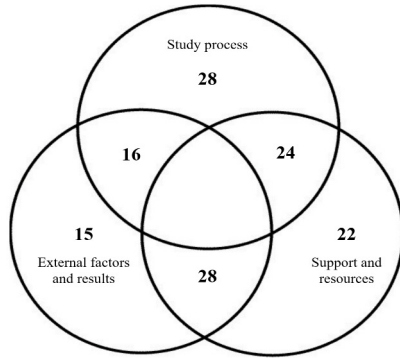
**Figure 1.** Internal and intergroup correlations

The **factors with the largest number of correlations** were analysed separately (Table 3). These factors have more intergroup correlations than internal.

As a result, two factors with the biggest number of correlations were obtained – these are SR5 *Friendly administrative staff* and EFR4 *Strict accreditation requirements.*

One of the most important factors SP3 *Professors' competence* has 12 statistically significant correlations, whereas SP2 *Quality of study content* is not identified as a factor with a big number of correlations.

**Table 3.** Factors with the largest number of correlations

| # | Factors | Number of correlations (incl. internal/intergroup correlations) | Group of importance |
|---|---------|------------------------------------------------------------------|---------------------|
| SP3 | Professors' competence | 12 (6/6) | G1 |
| SP5 | Clear achievement assessment and feedback | 11 (4/**7**) | G2 |
| SP7 | Teaching methods | 12 (7/5) | G2 |
| SP8 | Student-centred learning | 14 (7/7) | G3 |
| SR5 | Friendly administrative staff | **17** (7/**10**) | G2 |
| SR8 | Co-operation among secondary schools and HEIs when working on educational content and requirements | 12 (6/6) | G3 |
| SR11 | Equipment and infrastructure relevant to the needs of the study | 13 (5/**8**) | G3 |
| EFR4 | Strict accreditation requirements | **17** (5/**12**) | G3 |
| EFR5 | Competition among HEIs | 12 (6/6) | G3 |
| EFR7 | Funding of higher education | 14 (5/**9**) | G2 |

Analysis of the statistically significant correlations between the previous factors showed that EFR4 has statistically significant correlations with all of the other factors (Table 4).

**Table 4.** Spearman's rank correlations of the factors with the largest number of correlations

| | Statistically significant Spearman's correlation coefficients | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **EFR5** | .365** | | | | | | | |
| **EFR4** | .313** | .519** | | | | | | |
| **SR11** | .207* | .295** | .298** | | | | | |
| **SR8** | .302** | | .291** | .233* | | | | |
| **SR5** | .298** | .224* | .214* | .329** | .368** | | | |
| **SP8** | | | .336** | .268** | | .237* | | |
| **SP7** | | | .212* | | | | .466** | |
| **SP5** | | .282** | .382** | | .296** | .297** | .315** | |
| **SP3** | .315** | | .215* | .212* | .252* | | .235* | .278** |
| | **EFR7** | **EFR5** | **EFR4** | **SR11** | **SR8** | **SR5** | **SP8** | **SP7** |

Note. ** 99 per cent correlation, * 95 per cent correlation

Analysis of the **factors with the small number of correlations** showed that there are more internal correlations (within the thematic group SP, SR and EFR) and fewer intergroup correlations. Although factor SP2 *Quality of educational content*, according to the students, is **the most important factor**, the correlation analysis showed that factor SP2 **has no statistically significant correlations** with other factors (Table 5).

**Table 5.** Factors with a small number of correlations

| Factors | Number of correlations (incl. internal/intergroup correlations) | Group of importance |
|---|---|---|
| SP2 Quality of educational content | **0** | G1 |
| SR1 Opportunity to study and work | 0 | G3 |
| SR2 International mobility | 3 (1/2) | G3 |
| SP4 Strict and objective student evaluation | 4 (3/1) | G3 |
| SP6 Quality of study materials | 4 (4/0) | G2 |
| SP12 Study programs' relevance to labour market requirements | 4 (3/1) | G2 |
| SP13 International guest speakers | 4 (3/1) | G3 |
| SP14 Study process organization and administration | 4 (2/2) | G3 |

**Correlation above .400** was determined within the thematic groups only, intergroup correlations above .400 were not identified (Table 6).

**Table 6.** Factors with correlation above .400

| SP5 | .451 | | | | |
|---|---|---|---|---|---|
| SP8 | | .428 | .466 | .464 | |
| SP11 | | | | | .581 |
| SP12 | | | | | .417 |
| | SP4 | SP6 | SP7 | SP9 | SP10 |

| EFR6 | .411 | | | |
|---|---|---|---|---|
| EFR5 | | .463 | .519 | |
| EFR3 | | | | .413 |
| | EFR7 | EFR1 | EFR4 | EFR2 |

| SR4 | .485 | |
|---|---|---|
| SR7 | | .435 |
| | SR3 | SR6 |

Analysis of the importance and correlations of the factors showed that there are five factors with the largest number of correlations and strong correlation rank, i. e., SP7 *Teaching methods*, SP8 *Student-centred learning*, EFR4 *Strict accreditation requirements*, EFR5 *Competition among HEIs* and EFR7 *Funding of higher education*.

## Discussion

Quality standards and principles used by HEIs to a great extent depend on the national and international requirements and guidelines, the socio-economic conditions, the short-term goals and needs, the long-term strategy, the organizational life cycle, as well as the management style. The analysis of the students' understanding of the quality of higher education helps to involve the students in the university's quality management system more and encourage them to take active role in quality improvement. The factors can be used, on the one hand, to preserve stability, and, on the other hand, to promote development and innovations (Fig. 2).

The research was conducted in Riga, and 92 students of the RTU FEEM participated in the research. Due to the limitations of the study its results should not be generalized.

There are two factors that need to be deeply analysed: SP2 *Quality of study content* and EFR4 *Strict accreditation requirements*. SP2, according to the students, is the most important factor, at the same time, it has no statistically significant correlations with the other 31 factors. The importance of EFR4 was evaluated as G3 (i. e., closer to the unimportant factors), this factor has statistically significant correlations with all of the other factors with the largest number of correlations.
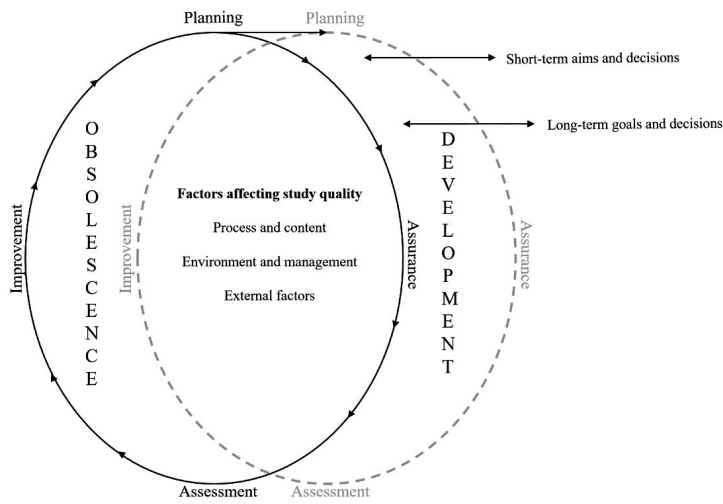
**Figure 2.** Factors as stability and development aspects (developed by authors)

## Conclusions

According to the students, **the most important** factors were identified in the SP thematic group, as well as the biggest number of **internal correlations** was identified in the SP thematic group. The most important factors are SP2 *Quality of study content* and SP3 *Professors' competence*. Although SP2 *Quality of educational content* is the most important factor, the correlation analysis showed that factor SP2 has no statistically significant correlations with other factors.

Whereas **the less important** factors were identified in the EFR thematic group and the largest number of **intergroup correlations** was identified between SR and EFR factors.

SR5 *Friendly administrative staff* and EFR4 *Strict accreditation requirements* are the factors with **the largest number of correlations**. EFR4 has statistically significant correlations with all of the other factors with the largest number of correlations.

Some **trends** were observed: the more important is the factor, the greater is the number of relationships, and vice versa; the more important is the factor, the closer are relationships, and vice versa; the factors with the small number of correlations have more internal correlations within the thematic groups and less intergroup correlations.

According to the research the most important factors that affect the understanding of the quality of higher education, according to the students, are the factors of the SP thematic group, especially the quality of study content and professors' competence.

Changes in one of the factors cause changes in other factors. In majority of cases the influence is not one-to-one, but one-to-many. That is why HEI need not only to identify the factors, but also to understand how they affect each other. It is important to analyse the influence of all of the factors separately and through the thematic groups, i. e. to distinguish weak factors and strong factors with broad influence and use this knowledge for improve the quality of higher education.

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# UNDERSTANDING OF TEACHERS AND HEALTHCARE PROFESSIONALS ABOUT THEIR PROFESSIONAL DEVELOPMENT

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## ABSTRACT

Changes in technology use and globalization are leading to significant changes in the structure of the labor market, emphasizing the need for labor market participants to learn continuously and acquire new knowledge and skills in order to adapt to a rapidly changing work environment. Economists point to the risks posed by technological development, such as the reduction of low-skilled jobs as a result of digitalization and automation processes. Although professionals working with people, such as healthcare professionals and teachers, are less exposed to the risk of automation, they are still increasingly unstable as technology and artificial intelligence compete with human experts. This means that medical and education staff will also need more targeted, regular and labor market-oriented professional development in order to remain competitive and demonstrate demand-driven performance. In line with changes in the quality standards of professional performance for healthcare professionals and teachers, changes are also taking place in how the professional development of these groups is implemented. In addition to formal development activities such as courses and seminars, the need to accept the impact of informal learning is emphasized, not only expanding the aims and content of professional development activities but also offering new learning formats.

The aim of the qualitative research conducted by the authors is to study the understanding of teachers and healthcare professionals about their professional development by analyzing their answers regarding their professional development. The focus of the study has been chosen to test the assumption that healthcare professionals and teachers view their continuing education more in the context of formal training, with less emphasis on professional development through informal learning. Within the framework of the research, a survey of random respondents within the said target groups has been conducted and the answers of the respondents have been analyzed, with attention paid to the aspects of formal and informal learning. The article presents the results of the content analysis, highlighting the most important trends of study results and the problematic aspects related to the improvement of the quality of professional development.

***Keywords:*** *attitudinal development, formal learning, functional development, healthcare professionals, informal learning, professional development, teachers.*

## Introduction

Changes in patterns of technology use and globalization are also leading to significant changes in the structure of the labor market, emphasizing the need for all labor market participants to learn continuously and acquire new knowledge and skills in order to adapt to a rapidly changing work environment. The Organization for European Co-operation and Development (OECD) points to the need for countries and organizations to develop sustainable adult education programs, providing employees with the opportunity to retrain and strengthen their competencies in their professional field (OECD, 2019).

Economists point to the risks to employment posed by the rapid development of technologies, such as the reduction in the number of low-skilled jobs due to digitalization and automation processes (World Bank, 2013). It is predicted that workplace automation will have less of an effect on those areas where employees need a high level of education, the ability to manage themselves and others, and the ability to plan and coordinate complex processes (Ministry of Economics of the Republic of Latvia, 2020).

On the one hand, this leads to the conclusion that professionals such as healthcare professionals and teachers, whose work specifics are directly related to working with people, are less exposed to the risk of automation. On the other hand, these professions also become more unstable as technology and artificial intelligence compete with human expertise (Susskind & Susskind, 2015). This means that medical and education staff will also need more targeted, regular and labor market-oriented professional development in order to remain competitive and demonstrate demand-driven performance.

In line with changes in the quality standards of professional performance of healthcare professionals and teachers, changes are taking place in the way in which the professional development of these groups is implemented. In addition to formal development activities such as courses, conferences and seminars, the need to accept the impact of informal learning and incidental learning is emphasized (Marsick & Watkins, 1990, 2020; Eraut, 2004), thus extending not only the aims and content of professional development but also offering new learning formats.

The aim of the research conducted by the authors is to study the understanding of healthcare professionals and teachers about their professional development by analyzing their answers about what professional development is and in what ways the representatives of these professional groups supplement their knowledge and skills. This focus of the study has been chosen to test the assumption that healthcare professionals and teachers view their continuing education more in the context of formal learning,

with less emphasis on professional development that takes place through informal and incidental learning.

## Previous findings

Although there is a link between an individual's professional development and professionalism, society's understanding of what it means to be a professional in one's field has changed over time. Professionalism is related to the job responsibilities and functions that a representative of a particular field has to perform according to his or her job description, with certain skills and knowledge necessary for the successful performance of one's duties (Evans, 2008, 2015). Professionalism determines what performance and expertise are expected of the professionals, while defining their future learning needs to demonstrate such performance. In a case of teachers and healthcare workers, professionalism is the way what they think about their profession and how they behave and implement their professional knowledge and skills related to the profession (Wardoyo, Herdiani & Sulikah, 2017).

Professionality is not a constant description of the ideal performance expected of every employee in the field. It is more of a socially constructed and contextual variable; it relates to the requirements imposed on employees to perform certain duties (Troman, 1996). This means that as society changes, the criteria by which the practical performance of professionals is assessed also change, and new improvement and learning outcomes are defined (Kumar & Ganguly, 2021) to meet the collective demands of organization and society.

In the case of teachers' professional development can be defined as different activities that enables improvement in teachers' knowledge and teaching practices with the goal to better student learning (Darling-Hammond et al., 2017). Another view of professional development is defined as the growth of the employee beyond the formal education qualification and standardized learning experience (Stevenson, 2010). This means that professional development is linked to the choices and purposes which employees make for their further learning after obtaining professional qualifications and starting their careers.

The goal of professional development is to improve the employee's performance in working with clients, to implement the necessary changes in employees' attitudes and beliefs, as well as to improve client achievements (Guskey, 2002). In the context of the professional development of teachers and healthcare professionals, this means acting as effectively as possible to meet the needs of their clients – students and patients. Professional development goals and learning needs also differs according to the previous work experience of professionals and stages of their professional life (Louws et al., 2017).

Within the framework of the professional development of employees, it is important to emphasize both functional improvement, which is related to employees' practical work with clients, and attitudinal development, which changes employees' motivation and view of responsibilities and their role in meeting clients' needs. The professional development of attitudes includes the intellectual and motivational growth of employees, while functional development focuses more on procedural improvement (Evans, 2008). It means that professional development is a "combination of intellectual, attitudinal and functional development which provides teachers with knowledge, skills and professional understanding supporting teaching for the benefit of student achievement, school professionalization and accompanying the implementation of educational reforms" (Zeggelaar, Vermeulen & Jochems, 2017).

In order to improve professional performance, there are various aspects to the development of employees: knowledge of content, which allows them to improve the performance of their duties at work; knowledge of the process, which helps them to understand how specific tasks are performed; day-to-day knowledge, which helps them to orientate themselves in the environment where responsibilities are performed; attitudes, values and beliefs; unconscious knowledge, which allows them to perform duties without additional thinking; and professional skills, which provide opportunities for them to perform the assigned duties more effectively (Jarvis, 2004).

Professional development is a way for employees to learn new methods and techniques and help them to prepare for the changes that take place in a society where the work environment and conditions change and new customer needs are defined (Jones & Dexter, 2014). As a part of professional development, employees' skills are improved, a new understanding of professional goals and results is achieved, problem-solving skills are improved, the ability to work with colleagues is improved, and other changes in employees' practice take place (Hargreaves & Fullan, 2012). Professional development is the process by which an individual acquires new or improves existing skills, knowledge and attitudes in order to improve their professional practice (Mitchell, 2013).

In the context of professional development, there are several ways in which it can happen in accordance with changes taking place in society, organizational development goals and personal development goals for employees. Thus, for example, professional development can take place within the framework of formal education, where the development of new knowledge and skills takes place in accordance with previously defined rules and learning outcomes to be achieved; within non-formal education, where specific groups of people acquire specific knowledge and skills outside the framework of formal education; or within informal education, where

learning is not purposefully organized and managed and the acquisition of new knowledge and skills takes place unconsciously (Melnic & Botez, 2014).

Formal professional development usually takes place in in-service training courses, seminars, lectures, workshops, etc. in formats that are structured, externally driven and provide pre-defined learning outcomes. Formal professional development is focused on single events, such as lectures and workshops led by external experts in the concrete field to promote mastery of certain professional skills and competences (Bergmark, 2020). However, the impact of such learning experiences on employee achievement is questionable, as employees rarely use methods that have been learned in formal learning without purposeful reflection on the content learned and how it is linked to their performance in daily practice (Wideen et al., 1998).

The knowledge and skills acquired during formal learning are rapidly becoming obsolete and no longer meet the professional standard, which is why new ways to update them continuously need to be explored (van Veelen et al., 2017). In addition, part of the professional learning in organizations takes place accidentally and unconsciously (Eraut, 1994), rather than in a formalized learning process.

Informal learning is the acquisition of new knowledge and skills outside a structured, institutionally organized learning environments and contexts (Cerasoli et al., 2018). It takes place in a voluntary collaborative process, where employees of the organization share experiences and engage in negotiations without clearly defined learning goals (Marsick et al., 2008). Some authors describe informal learning as indirect and unplanned learning that does not highlight the person who teaches others (Eraut, 2004) because learning takes place in the process of social interaction. The aim of informal learning is not to acquire specific, pre-defined content but to implement the exchange of experiences and ideas between employees and to improve their instructional skills and knowledge (Louws et al., 2017; Jeong et al., 2018).

Informal learning takes place both within individual activities, such as reading and analyzing professional literature, establishing social contacts with other professionals in one's own or another field and observing the performance of other professionals, and within collective activities such as mentoring or involvement in professional networks (Desimone, 2009). Informal learning provides greater flexibility and freedom for participants as opposed to a formal learning process, emphasizes the need and offers the opportunity to learn from other professionals, and takes place in various forms and allows the employee to update and use the professional experience accumulated within the organization (Sjöberg & Holmgren, 2021).

However, informal learning, which takes place inside or outside of an organization, can be planned and formalized to ensure better learning

outcomes, for example by pre-determining which professional development activities employees need to engage in. This means that the structure of professional development can be formalized, but the learning process itself remains informal. Thus, different types of professional development in the workplace can be distinguished: casual informal learning, planned informal learning, and formal learning (Billet, 2004, 2011). Another type of professional development – incidental learning – is introduced by Marsick & Watkins (1990, 2020). Unlike informal learning, incidental learning always takes place unplanned and is often a side effect of other activities in the workplace.

In sum, formal learning takes place through purposefully organized courses and seminars, where employees are taught specific, pre-defined skills and knowledge. In turn, informal learning takes place as part of the daily work process, which provides indirect knowledge without a specific, obvious purpose of application. Therefore, the professional development of employees through informal learning is not enough, because it provides indirect, difficult-to-assess knowledge. In addition, there is no guarantee that all the necessary competencies are already available within the organization. Therefore, there is also a need for formal learning and pre-planned learning activities that create the conditions for a meaningful informal learning process and allow unconsciously acquired knowledge to be transformed into everyday practice (Slotte et al., 2004).

## Method and design

The data for the research were obtained following the dissemination of the questionnaire which was prepared electronically using the *Google Sheets* form and distributed from December 1, 2020 using the method of *Snowball Sampling*. *Snowball Sampling* is a data collection method providing an opportunity to pass the questionnaire to potential respondents who then distribute it to other respondents (Oliver, 2011) to expand the circle of respondents in situations when the researchers do not have access to the selected target group (Given, L. M., 2012). In total, 126 responses had been received by December 16, and after a few days when no additional responses were received, the survey was closed on December 20. The participants gave their consent for their responses to be used anonymously and any references to them would not allow them to be individually identified. After 6 duplicates were deleted, a total of 120 surveys were selected for analysis (60 teachers, 60 healthcare professionals).

The emphasis of the survey was two open-ended questions about what the representatives of the selected professional groups understand by the concept of "professional development" and how they improve their

knowledge and skills for the successful performance of their duties. Within the framework of the research, the respondents were not offered closed-ended questions with previously prepared answer variants in order to reduce the risk of socially desirable answers that may arise when survey participants choose from answers offered by the researchers. The survey also included seven questions relating to the participants' demographics (age, gender, geographic region, etc.) as well as their professional affiliation, amount of work experience, and so on.

The content of the answers obtained within the framework of the survey has been analyzed and classified into the relevant research categories. In the category "professional development goals" attention is paid to whether the respondents' answers show indications of the development of knowledge, skills or views within the framework of professional development. In turn, in the category "forms of professional development" it is analyzed whether the answers of the respondents indicate professional development by way of formal or informal learning. The opinions of respondents were analyzed using the principles of qualitative content analysis. It is a method that involves the systematic and objective selection of qualitative data according to defined research categories with a goal to reduce the amount of qualitative data obtained within research, so that it can be described and interpreted (Schreier, 2013). For purposes abovementioned QSR International's NVivo 12 software was used (QSR International Pty Ltd., 2020).

## Results

After deleting duplicates from the survey responses, there appeared to be 60 respondents from healthcare and 60 from the field of education. Of the 120 respondents, 88% were female and 12% were male (across both in medicine and education) – according to the state census bureau, this reflects the tendency of the Latvian population to work in said professions.

**Table 1.** Professional experience (years)

| Group | Min | Max | Average | Standard deviation |
|---|---|---|---|---|
| Teachers | < 1 | 43 | 17.60 | 12.96 |
| Healthcare professionals | 1 | 38 | 15.82 | 10.63 |
| All respondents | < 1 | 43 | 16.71 | 11.83 |

The data obtained in the study show that there are no significant differences in how the surveyed teachers and healthcare professionals reflect on their professional development and which professional development

activities they participate in to improve their performance. For example, references to formal professional development activities – participation in conferences, seminars, workshops, masterclasses, etc. – appear 88 times in the answers of the surveyed healthcare professionals and 78 times in the case of teachers. In turn, references to informal learning – which takes the form of involvement in informal conversations with colleagues, independent acquaintance with the latest scientific literature and research results, participation in professional cooperation networks, etc. – appear 69 times in the answers of the surveyed healthcare professionals and 89 times in the answers of teachers.

When asked what they understand by the concept of "professional development" one of the healthcare respondents (female, 47) indicated that it is about participation in international conferences in the field of his direct activity and national conferences in related fields of activity, which are necessary to provide new examples to be used in professional practice. Another healthcare respondent (female, 41), on the other hand, answered this question by saying that professional development is the "periodic attendance of courses, seminars and other educational events." These answers indicate formal professional development in terms of the ways in which the further education of teachers and healthcare professionals is implemented.

In turn, with regard to informal learning, the respondents' answers reflect a wide variety of professional development activities that are used to achieve learning outcomes. Thus, for example, one teacher respondent (female, 41) states that she implements her professional development "by meeting regularly with colleagues to share ideas, looking for opportunities for mutual cooperation, creating teaching materials for students, as well as using various sources and experience of other colleagues." Another healthcare respondent (female, 37) states that in order to implement her professional development, she communicates with representatives from other countries and reads articles in internationally cited journals in order to find out the results of the latest research and learn from them.

Such results can be explained by the fact that formal learning is still an important set of professional development activities that is determined by historical traditions and the existing regulatory framework in Latvia. According to the requirements, teachers need to participate in 36 hours of professional development activities within 3 years (Cabinet of Ministers of the Republic of Latvia, 2018), and healthcare professionals have to obtain 100 to 250 continuing education points (1 continuing education point = 1 academic hour) within 5 years for recertification (Cabinet of Ministers of the Republic of Latvia, 2012). In turn, the proportion of responses involving informal learning can be explained by the fact that the audience of

teachers and healthcare professionals increasingly emphasizes the need to learn from the professional expertise within the organization, which can be implemented by observing the performances of other colleagues and reflecting on what can be learned from their experience. This means that the awareness of teachers and healthcare professionals of different formats in which the development of new knowledge, skills and attitudes can be implemented is broadened.

In the case of teachers' answers in particular, it is important to take them into account in the context of the ongoing general education reform in Latvia, which emphasizes the continuous professional development of teachers through informal learning as a precondition to implement competency-based learning and make schools effective learning organizations. This means that elements of informal learning emphasized in the teachers' answers could confirm the desired rather than the actually used professional development formats.

The survey included a question on the purpose of professional development for teachers and healthcare professionals in order to find out how often in the answers of these groups there are indications of functional development – acquisition of new knowledge and skills for successful performance – and how often there are references to attitudinal development, which is related to the aspects of motivation, the acquisition of new attitudes and values. This question was asked based on the assumption mentioned in the scientific literature that the effectiveness of professional development improves if the learning outcomes include aspects of both functional and attitudinal development.

The data obtained in the study show that there are significant differences in the frequency with which references to functional and attitudinal development appear in the responses of teachers and healthcare professionals. In the answers of teachers, elements related to functional improvement are mentioned 48 times, while those related to the improvement of attitudes are only mentioned 2 times; the answers of healthcare professionals are similar – 53 and 2 times. This leads to the conclusion that the previous learning experience of the surveyed teachers and healthcare professionals is more related to professional development goals, which include the acquisition of new knowledge and skills. However, insufficient attention has been paid to the development of new professional attitudes and values in order to broaden their understanding of various aspects of professional performance.

One healthcare respondent (female, 47) pointed out that professional development "is divided into two main parts – the formal one which is needed to be able to do a particular job, usually by collecting points, or (…) in a similar way. If you do not collect points, you cannot do the job. The

second is informal [improvement], the one that improves your knowledge, skills, so that you can do work better, faster, more qualitatively, more creatively. Unfortunately, they are often unrelated."

Another healthcare respondent (male, 29) pointed out that the goal of professional development is "to improve and develop the existing knowledge and skills, as well as to acquire new knowledge and skills that give added value to me as a specialist in the field." These answers point to functional professional development, as they emphasize the need to improve existing knowledge and skills or to acquire new ones in order to effectively perform the duties set out in the job description.

Elements of attitudinal development can be illustrated by mentioning the answer of one of the healthcare respondents (female, 33) to the question with regard to how he understands the term "professional development": "Training in which knowledge and skills necessary for professional work are acquired. Also awareness of personal attitudes and purposeful work with a psychotherapist or other qualified professional." Another healthcare respondent (female, 46) stated: "By [this] concept I mean that professional development can go hand in hand with personal development that complements each other." Personal development, which includes the formation of attitudes and values as well as the review of existing beliefs, is an important aspect that enables healthcare professionals and teachers to deal with the challenges of a rapidly changing work environment and with an increasing emphasis on the satisfaction of clients.

The low proportion of elements of attitudinal development in the answers of the surveyed teachers and healthcare professionals is natural, considering that the respondents emphasized the importance of formal rather than informal learning experience for their professional growth. As part of formal professional development, it is easier to define a specific set of knowledge and skills that participants need to acquire in order to meet the requirements of a professional standard. In turn, the professional development of attitudes is implemented more through informal learning activities, where the formation of new attitudes, values and beliefs is a side effect of individual reflection and feedback received from colleagues and clients about the professional's performance.

A new, previously unplanned category of analysis was introduced during the coding of respondents' answers – "vagueness". The authors introduced this category in the face of a significant amount of content that could not be classified into the previously defined categories of analysis. "Vagueness" included responses whose content was too general and did not indicate the presence of the other defined study categories. Within the framework of the research, "vagueness" was found 40 times in the answers provided by teachers and 46 times in those by healthcare professionals. For example,

the following response from teacher (female, 59) was found to be vague: "[Professional development] is a continuous growth activity to support students in the learning process so that their competence in the subject becomes the basis for their further life and work." Also, the answers that professional development is "professional growth" or "continuous development" were also found to be vague.

## Discussion

The study conducted by the authors shows that the teachers and healthcare professionals who were involved in the present research confirmed a "narrow" understanding of the learning content to be acquired within the framework of professional development. Teachers and healthcare professionals reflecting on what professional development is emphasize the acquisition of new knowledge and skills but do not emphasize the need to develop one's personality by creating new or transforming already existing attitudes, values and beliefs, which is related to the sense of their professional role and responsibilities.

In the audience of surveyed teachers and healthcare professionals, when choosing professional development formats, formal learning activities dominate, such as attending courses, conferences and seminars, participation in workshops and masterclasses, etc., and they are less involved in informal learning activities in the workplace. As indicated above, this could be related to the traditions and habits of professional development in Latvia, which provide for a wider range of formal development formats, where participation can be confirmed by certificates, thus fulfilling the requirements of professional development specified in regulatory enactments.

Respondents' answers that include aspects related to informal learning are dominated by the independent analysis of scientific literature and acquaintance with the latest research results, while observing the professional activities of other colleagues in the organization is rarely mentioned. It is this aspect of informal learning that should be given additional attention by teachers and healthcare professionals, as learning from other colleagues' experiences, reflecting on experiences and providing feedback contribute to a similar understanding of professional performance standards in the organization and provide access to expertise and solutions.

In order to draw general conclusions about aspects of the professional development of teachers and healthcare professionals, further research needs to be conducted to find out the answers to other questions, for example, how the fact that teachers and healthcare professionals work in several jobs affects the choices made about their professional development.

It should also be examined whether and to what extent the choice of professional development format of teachers and healthcare professionals is influenced by the length of their service and previous professional experience. There is a possibility that, over time, each professional group develops habits in terms of defining further learning goals and choosing the most appropriate professional development activities.

It is also important to research what the differences are between the chosen professional development formats for healthcare professionals and teachers and what the reasons are for these differences. This could be important due to the assumption that healthcare professionals, whose professional development is largely an individual learning activity, such as becoming acquainted with the latest medical research and scientific conclusions, are more involved in informal learning activities than teachers in whose professional field scientific innovations take place more slowly. Further research is also necessary to explore why teachers and healthcare professionals do not pay attention to informal learning in the workplace but, at the same time, use a wide range of formal learning opportunities, because both of these forms of development are necessary for teachers and healthcare professionals to reach professional standards.

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# WORK-BASED LEARNING IN PROFESSIONAL EDUCATION OF LATVIA: HISTORICAL DEVELOPMENT

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## ABSTRACT

The Latvian labor market has been facing the problem of a quality labor force shortage for several years now. The acquisition of demanded specialties in Latvia is possible in the framework of professional education, which is offered at three levels – the level of primary education, professional secondary education, and professional higher education. Since 2015, work-based learning has been introduced in the professional education of Latvia, serving as a measure for the economic enhancement for the entry of quality labor force into the labor market. As a part of this initiative, educational institutions in cooperation with employers develop curricula that match the requirements of the labor market. This learning model is based on an example of a higher professional education model, where practical skills are acquired mostly during the students' field practice. To conduct the empirical research on work-based learning in higher professional education, at first, it is necessary to look at the historical aspects of this learning model. The given article provides historical evidence, describing the historical development of work-based learning in professional education in Latvia. The beginnings of work-based learning in Latvia date back to the 14-15th century, but for the first time given form of education in its contemporary meaning has been introduced in Soviet times, as historical sources show the calls for get to know work experience as an integral part of communist work schools. After the regaining of independence, Latvia focuses on building the democratic education system, and since 2015 work-based learning is explicit in the Law on Professional Education as a specific form of education. Since its inception, work-based learning has reflected the public's perceptions of the necessary specialties in the labor market.

**Keywords:** *higher education, lifelong education, professional education, work-based learning, working environment.*

## Introduction

Historically developed and constantly solved topical problems in the modern economy – lack of skilled labour force, the solution has already been partially implemented in Latvia. Vocational education at a secondary

level can also be implemented as a work-based learning process. It is a flexible form of education, which is implemented both in a vocational education institution and in a company. Work-based learning in Latvian vocational education was officially introduced in 2015 when there was a shortage of more than 50,000 different professionals. It is this form of education that has played a central role in Latvia's efforts to cope with the consequences of the economic crisis in Europe (Cedefop, 2015). The abovementioned model is related to the integration of students into the working environment, ensuring timely cooperation between the prospective employee and the employer and avoiding the transition period between studies and the performance of direct work duties since the student is already in the working environment during the study period. In such an educational model, the employer himself or herself can direct the prospective employee towards the acquisition of the necessary knowledge and skills.

The justification for the inclusion of such a form of study/study at all levels of vocational education, including higher vocational education, is the Sustainable Development Strategy of Latvia until 2030, which provides for improvement and accessibility of the quality of education, stressing the need to improve support measures that would motivate for employers to invest in the development of resources of the skilled labour force (Latvia 2030, 2010). The report of the Ministry of Economics of the Republic of Latvia on the support program developed by the public sector to facilitate the application of conditions for attracting highly qualified specialists also concluded that the lack of highly qualified specialists limits the growth of the Latvian economy, the growth of the productivity of enterprises and attraction of investments, and thus the formation of well-paid jobs (2018, February 20).

Although work-based education officially got its name in Latvia only in 2015, such a model has existed in Latvian and European education systems in the past, using terms such as "oil training" "project learning" "learning in the workplace" etc. It is learning in the workplace that is the basis for work-based learning. In its development, such a form of education has always reflected the interrelationship between economics and education, the linking theory and practice in the educational process and linking the social and institutional division of the dual training system (Wagner & Childs, 2000). There can be talking about work-based educational process as indirect, unforeseen, opportunistic and unstructured learning without a teacher. At the same time, it is a learner's practice under the guidance of a mentor or supervisor. It is learning led by learners themselves, not academic staff (Attenborough et al., 2019).

Meanwhile, the introduction of work-based studies in such fields as teachers (2020, January 21). and nurses' vocational education has begun

in higher vocational education in Latvia. Since September 2021, as a result of the reform of nursing education, the acquisition of this profession will also be rooted in the concept of work-based studies, which stipulates that at least 60% of the entire study process will take place in a clinical environment (2019, July 3).

The lack of need workers and its link with the educational process is currently relevant to research problems not only in Latvia, Europe but also worldwide. According to various European studies on the work-based study process introduced in vocational education, its impact on labour force qualifications and the entry of the worker into the relevant labour market (Attenborough et al., 2019, Abbot et al., 2019; Moldovan, 2019), such a form of study promotes motivation to acquire the skills necessary for the relevant profession and ensures that specialists meeting the requirements of employers enter the labour market.

Work-based learning can be viewed in close association with vocational education at different levels of its implementation. The aim of the article is to provide a brief insight into the historical development of teaching terminology and the process itself in Latvia based on the working environment. The first part of the article presents the development of terminology related to work-based learning and historical evidence of the use of the concept of such a learning model. The second part of the article examines the historical development of work-based learning in the context of vocational education. In order to find out the historical aspects related to the research topic, historical evidence will be analyzed, describing the development of work-based learning, which over the years has led to the introduction of such a model in Latvia.

## Development of terminology related to work-based teachings

About work-based learning as a unique form of education that includes different operational strategies, such as operational learning, operational science and practice communities, combining it all into a single system, writes Joseph A. Raelins (Raelin, 2008), a researcher at Northeastern University. He talks about work-based learning as combining knowledge and action in the workplace. The author believes that this type of education is learning with others, putting victory on the inclusive model, which is considered effective in the acquisition of all professions. Author sees learning as creating, adapting, and deepening knowledge. Without such a concept of learning, it is impossible to change the meaning and self-functioning of one's professional activity. Thus, learning nowadays has already become a natural way of improving any organization and acquiring a profession. Work-based learning combines theory with practice and knowledge with experience (Raelin, 2008).

Theoretical interpretations of work-based education in the world have so far shown similar terminology. In 1918, educational researchers refer to such a learning model as the "project method" (Kilpatrick, 1918). In 1938, the renowned educational theorist John Dewey writes about the development of "experimental learning." He has already talked about including "real life" in the learning process during this period, encouraging students to explore physical and technical applications wherever they can be found to develop a technical and critical understanding of the environment of their chosen profession (Dewey, 1938). Fifty years later, such a form of education is also referred to as "productive activities" (Wagner & Childs, 2000). However, on-the-job training has always been linked directly to the acquisition of skills required by the profession. This is also the reason for the use of the term 'polytechnic education' (Beck, 1990) in the historical development of work-based learning. Despite the terminology used to describe such an educational model, the aim of such a model has always been to use educational practices to involve learners more quickly in socially pro-active and income-generating activities in potential workplaces (Wagner & Childs, 2000).

Turning to the use of terminology in the Latvian context, it should be noted that term "work-based learning" in Latvian laws and regulations can be found only in the Vocational Education Law, which states that such study process may be implemented as a separate form of vocational education training (Vocational Education Law, 1999). In higher vocational education such a model is not mentioned separately in-laws and regulations. However, in research and educational practice in Latvia, the term "work-based learning" has already taken root, although such a model of education has changed its name over time. The unifying element, despite the use of different terminology in different time stages, has always been the goal – to get the student into the appropriate working environment during the study period, thus stimulating the entry of specialists into the labour market.

## Historical development of work-based learning
## in the context of vocational education in Latvia

The beginnings of work-based learning in Latvia can be observed already in the 14th-15th century. In the beginning, the oil lasted 1-2 years, but at the master's discretion it could take up to 10 years (National Encyclopedia, 2021). This form of learning reflects, in a way, a situation in which whoever knows the position educates young craftsmen using their work experience. Nowadays, within the framework form of education based on the working environment, we can also talk about educational practices in educational institutions.

In the 19th years, the history of Latvia is marked by the stage of freeing farmers, when the main task of educational institutions was to educate farmers to slink with the economic and political interests of landlords. Thus, peasant schools were created, where peasants next to the elimination of illiteracy, teacher training, promotion of a social way of life discussion of topical political and domestic issues, promotion of writing and singing culture, transferred their practical knowledge in rural work to young people, thus creating descendants of the position (Ķestere, 2019; Latvijas Vēstnesis, 2020). It is in the 19th century that vocational education is considered to be the stage of the emergence of vocational education as a separate form of education when various educational institutions are established in Latvia for the acquisition of a specific position – craft schools. In the 19th, 1930's and 1950's years, the first craft schools were opened in Latvia – vagary school, servant's school, Trikata meadows breeding school. The establishment of all these educational institutions has been based on the influence of social, economic, political and cultural factors over time, the development of which led to a rapid increase in the need for qualified professionals (National Encyclopedia, 2020). In 1861, the first educational institution of this type – Riga Polytechnic School – was opened, the purpose and main task of which was to provide theoretical and practical education to prepare specialists of higher qualification in the manufacturing, technical and commercial sectors, thus contributing to the economic growth and modernisation of the Baltic region (National Encyclopedia, 2021). At the end of the 19th century, in the context of vocational education in Latvia, workers' associations contributed, which, among other things, dealt with educational issues. (Ķestere, 2019).

In the context of vocational training, work-based learning has been implemented to some degree since the 19th year, when the first schools are established in Latvia with the aim of facilitating the entry of appropriate professionals into the labour market. To ensure this, young apprentices are sent to training with already experienced crafts. In later years, such a form of education is associated with manufacturing enterprises where training places are organized.

Simultaneously with the establishment of the Latvian state in the 20th century the beginning is the period when vocational education, interacting with adult education, becomes a part of the state education policy, for which pragmatic goals are set – practical acquisition of knowledge necessary for the economy and vocational education (Statistics of Latvian culture. 1918–1937, 1938). In the early 1990s, vocational education institutions in Latvia were established to meet the requirements of the economy. The lack of a qualified labour force in Latvia is considered to be the reason for the establishment of such schools. In the history of Latvia, publications

on this problem can be found since the 1990s. In the 1920s, when production work, which requires highly skilled labour or, in the words of that time, a lot of labour force and knowledge, is mentioned as one of the basic tasks of rebuilding the country, along with national thinking. In order to provide such specialists at a national level, it is necessary to start searching for the solution to the problem already during school hours, in addition to general education, also providing a place for acquiring practical knowledge in the amount of at least one hour a week (Dindan, 1921).

20 years later, despite the economic crisis and the time of the Soviet occupation of Latvia, vocational education is still relevant for the development of the national economy. In 1941, the magazine "Work" where, among other things, there is talk of new professionals entering in the labor market, the report of the leader of the Soviet era A. Scherbakov was published. It takes the view that a situation where unsuccessful working-class workers enter the labour market after the learning process cannot be tolerated. As a solution to the problem at that time, the Supreme Council of the USSR started sending more than 600,000 young people to craft and railway schools and various factories. This was done with the aim of facilitating the entry of adequately trained workers into the labour market. This would receive new skilled workers willing to 'give up their professional knowledge, in the words of that time, 'to give back for the sake of strengthening the homeland and its grandeur' (Scherbakov, 1941). In the working environment, this problem is still relevant a few years later, when a 1944 meeting of trade union activists highlights the fact that the problem of the skilled labour force is topical. To solve this problem, it is tasked to assign unskilled workers to the qualified ones for the acquisition of qualifications and improvement of skills (Zemgale communist, 1944).

The successful link between vocational training and the emergence of economic, socially critical thinking in relation to the corresponding "qualifications" are also discussed in historical evidence 20 years later. In 1958, the newspaper "Soviet Youth" writes about work as a basis for learning and knowledge. During this period, the choice of students to acquire the particular profession is mentioned as a topical problem of vocational education, i. e. often this choice does not coincide with the desire to perform the duties of the corresponding position. Thus, there can be the discussion of the acquisition of knowledge and skills that are incomplete and frivolous, which in turn does not contribute to a positive attitude towards work. It is believed that society should be involved in the process of educating every individual by sending each pupil to a production facility during the summer holidays. Thus, by getting into real working life in a timely manner, the young people themselves would encourage self-schooling and the desire or, accordingly, unwillingness to work within this profession. This would be the

real rapprochement with real working life. At the same time, the publication raises the problem – students regularly delay lectures on the reason for the performance of work duties. Educational institutions during this period invite employers to provide information on how many graduates end up working in the chosen field. This would show the importance of combining study time and work within the framework of studies, bringing students closer to real working life. Problems: lack of skilled labour and non-entry of graduates into the labour market for the profession. At that time, the solution is offered to professional learners to work at the possible next place of work (Andrejsons, 1958) for at least a year during their studies.

Two decades later in historical evidence, it is already possible to see the implementation of the solution to the a fore mentioned problems in practice, as the 1976 magazine "October Flag" describes the creation of a classroom in a potential workplace, thus solving a national problem – the qualitative and appropriate skills of students for the performance of trade. After the establishment of the classroom in a factory, the productivity of students is evaluated 7% higher. Getting to know and use the experience of first – timers during these years of history has already become an integral part of the Communist Work Schools program (Turkovsky, 1976).

With the beginning of a new phase in the history of Latvia – the reconstruction phase of an independent, democratic republic, one of the most important tasks of the restored state is mentioned precisely the arrangement and improvement of the education system with the aim of preparing citizens for life in a democratic society. The education guidelines also determine, among other things, the development and improvement of professional abilities (Latvijas Vēstnesis, 1995), thus contributing directly to the development and growth of vocational education.

The development of vocational education in the period after the restoration of independence of Latvia can be divided into three stages:

1. Vocational training between 1995 and 1998. During this period, the basic principles of education are determined by the Education Development Programme (1998 – 2003). Its preconditions are based on the *Phare programme* and the management of the transition program in Latvia.
2. Vocational education in the period from 1999 to 2001.
3. Vocational training for the period 2002–2005. During this period, the Concept of Educational Development 2002–2005 is operational. It aims to promote a knowledge-based democratic and socially integrated society and an increase in the competitiveness of the economy (Gosh, 2007).

Reducing the unemployment rate and increasing the competitive labour force are processes that can be viewed together in the context of

vocational education and work-based learning. In itself, vocational education is an instrument for the entry into the labour market of specialists of the appropriate level with the skills and competencies they will need in carrying out their duties in the labour market (Vjakse, 2020). The above-mentioned Vocational Education Law, which also applies to higher vocational education, states that the level of professional qualification acquired by an educate upon graduation from such an educational institution is his theoretical and practical training, which allows him or her to perform work duties of a certain complexity. The professional competencies laid down in the Law are, in turn, a set of knowledge, skills and responsibilities necessary for the performance of professional activity in a specific work situation. Such competencies are acquired during the training practice, where the acquisition of the practical part of studies is implemented in an educational institution or outside it. Meanwhile, the trainee himself is defined in the law as an educate who, according to the acquisition of the practical part of the relevant vocational education program, is in training practice in an institution, merchant or association (Vocational Education Law, 1999).

The concept developed by the Ministry of Education and Science in 2009 to increase the attractiveness of vocational education and promote the active involvement of social partners envisages the improvement of the efficiency and quality of vocational education. Vocational education programs are mainly implemented in educational institutions, but practical training – in educational institutions or companies (Cedefop, 2015).

Since 2012, in the context of vocational education, work-based learning has begun to be introduced in Latvia, when the Ministry of Education, by signing a memorandum on cooperation in the field of vocational education in Europe, starts supporting such a model of education. It envisages a new form of apprenticeship education. In 2013, such a learning model is introduced in six different vocational education programs. The acquisition of education is based on two stages, firstly, the acquisition of theoretical knowledge in a vocational education institution, secondly – the acquisition of skills and compositions in an enterprise or real working environment. The successful implementation of the project in Latvia opened up opportunities for further development of such an educational model (Cedefop, 2015).

Officially, studies based on the environment in Latvia were introduced in 2015, when the Employers Confederation of Latvia began to implement such a training model in vocational education, providing for tripartite cooperation between educates, educational institutions and employers (ESF project Participation of students of vocational education institutions in work-based learning and training practices in enterprises, 2020).

## Method

In order to find out the historical development related to the research topic, which is rooted in historical evidence, regulation of regulatory enactments and the dominant concepts in this field, historical literature sources, Latvian regulatory enactments and statistical data were analyzed. Based on the keywords – *higher education, lifelong learning, vocational education, work environment, work-based learning,* articles and periodical sources were found that provide evidence, describing the historical development of work-based learning in vocational education in Latvia. The conclusions presented in this article will form the basis for further research on the work environment-based study process model for the second level higher professional education in the field of health care for obtaining the qualification of a general care nurse.

## Conclusions

Although the term 'work-based learning' is already ingrained in today's society in 2015, the concepts of "project method" "real-life implementation" "real activities" "polytechnic education" etc. were used to reflect this form of education.

The origins of work-based learning in Latvia can be found already 14–15th century. In modern terms, it is first realized in Soviet times, when the testimonies of the history of 1976 analyze about getting to know work experience as an integral part of communist work schools. In its early days, work-based learning can be considered a decentralised process where working skills are acquired from an already practising craftsman. At later stages of history, such a form of education is inseparable from vocational education, the beginnings of which in Latvia are considered to be the establishment of the Riga Polytechnic School 19th century. Agriculture and crafts have been the driver of vocational education in Latvia through the times, resulting in 20th century he 1960s and 1970s, training classes were introduced in manufacturing enterprises in Latvia with the aim of bringing young specialists closer to the requirements of the particular labour market and promoting economic productivity. It can be said that vocational education institutions in Latvia are inherited from the education policy of the Soviet Union when vocational schools were closely related to large industrial enterprises in different sectors of the economy.

After regaining independence, vocational education in Latvia is mainly based on the Phare program and the management of the transition program in Latvia, which is later included in the Education Development Strategy

with the aim of promoting the improvement of the competitiveness of the national economy.

Since 2015, Work-Based Learning has been included in the Vocational Education Act as a separate form of acquisition of this education. Although work-based learning is no longer a new phenomenon secondary professional education level, such a study model is now increasingly being developed in high vocational education. In higher vocational education, a work-based educational process is currently being integrated into qualification practices. However, in professions such as 'teacher' and 'nurse', the first approbations of work-based study programs have already begun.

Work-based learning has, since its inception, reflecting the public's perceptions of the specialities needed in the labour market at the time. The main factor in the development of work-based learning, which over the years has led to the introduction of such a training model in Latvia – the ack of the quality labour force. The results of this report will be used in the future to carry out a study on the implementation of the work-based study process in the higher vocational education of nurses.

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# POSSIBILITIES FOR PRE-SCHOOL EDUCATION STUDENTS TO COMBINE STUDIES AND WORK: EMPLOYERS' POSITION

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## ABSTRACT

Practice of higher education institutions reveals that many students start working during their studies and some of them enter higher education institutions already being employed. The vast majority of pre-school education students who study in part-time studies have been already working since the first year of their studies or are already in practice. In the process of combining studies with the work there is a need to find out the problems that students face while entering the world of work trying to combine studies and work, and to determine the employers' attitude towards the studying employees revealing the essential characteristics of working students. The research was carried out in two stages. In the first stage of the research the studying conditions in higher education system of Lithuania, the experience of students in the labor market and good practices of applying student-friendly measures in combining studies and work in the European Union were discussed. The second part of the work presents the data and the results. The study revealed that half of the students who participated in the study were employed and that most of the students start working in the first year of their studies. Research problem – what is employers' attitude towards the pre-school education students' ability to combine studies and work? Research aim – to reveal employers' attitude towards students' possibilities to combine studies and work. Research objectives: to determine employers' attitude towards studying employees. To substantiate possibilities of combining studies and work. To reveal the essential employees' characteristics required for a working student. Research methods: document analysis and a questionnaire/ survey. The results of the research revealed that the employers' attitude towards studying employees is favorable.

*Keywords: combining work and studies, employment, part-time studies, pre-school education, professional competencies.*

## Introduction

According to the data of 2020 in Lithuania the share of the first and the second cycle working students who work during the whole academic year

makes up more than a third of all studying students. On average more than 30 hours per week are spent for work. The number of working students is increasing every year. In Lithuania most often are employed students who are over 30 years of age, studying in master's degree programs, students entering universities or colleges after a break after high school graduation, studying social sciences and humanities or studying in part-time studies. In Lithuania first-year students choose jobs that are easy to combine with their studies: they work in the evenings, on a rolling schedule, at weekends, usually in the service or trade sector (State of Lithuanian Studies, 2020). However, senior students are already starting to look for jobs that are relevant to their studies. Students start working earlier and more often for several reasons: to have financial freedom and because they are no longer dependent on their parents. Employment helps young people to develop the qualities they would need in their future life, to develop time planning skills, as everyone tries to keep up not only with the work but also with learning and to find time for the hobbies, too (Beerkens, Mägi, & Lill, 2011). There are certain exceptions for a working student in Lithuania: it is possible to work part-time: to work less than 8 hours per day and 40 hours during the week. Part-time work during a working day or a working week is determined by the agreement between the learner and the employer (agreement of both parts is required). Study leave is granted: upon submission of a certificate regarding the examinations, passing of credits and the dates of their holding, the studying employee is entitled to get the study leave of the planned duration. The employer having assessed the purpose of such leave must provide it. Annual leave can be combined with the learning needs of a working student: the employer must satisfy the request for an annual leave if the employee is studying without interrupting work, combining annual leave with examinations, credit tests, preparation of diploma theses, laboratory work and consultation time (State of Lithuanian Studies, 2020). Work experience (especially relevant to the field of study) can increase students' competitiveness and facilitate the transition to the labor market. Due to the high workload the time spent on studies and integration into the social and academic community of the higher institution (university/college) may decrease. This may contribute to the deterioration of academic achievements, increase the probability of non-completion of studies (Lukšas, 2019; Šerėnaitė, 2020; Urbonaitė – Vainienė, Brunalas, 2018).

**Research problem** – what is employers' attitude towards the pre-school education students' ability to combine studies and work?

**Research aim** – to reveal employers' attitude towards the students' possibilities to combine studies and work.

**Research objectives:**

1. To determine employers' attitude towards the studying employees.

2. To substantiate possibilities of combining studies and work.
3. To reveal the essential employees' characteristics required for a working student.

**Research methods:** document analysis and a questionnaire/survey.

## Possibilities to combine studies and work

In 2019 the share of working first cycle students among university and college students respectively was 32 and 50 percent. According to the results of an international survey in Lithuania the share of the first- and the second-cycle working students who work during the whole academic year makes up more than a third of all studying students. On average, they spend more than 30 hours per week on work. According to these indicators, Lithuania is in a higher than average position among other EU countries. In the EU, an average of 35% of students work throughout their studies. Work experience (especially relevant to the field of study) can increase students' competitiveness and facilitate the transition to the labor market. It is noticeable that due to the high workload, the time spent on studies and integration into the social and academic community of the higher institution may decrease. This may contribute to the deterioration of academic achievements and increase the probability of non-completion of studies (State of Lithuanian Studies, 2020).

According to the carried-out researches and the data of the center for monitoring and analysis in science and studies the number of working students is growing across Europe. A study done by Eurostudent in 28 European countries shows that, on average, more than half of all students in European higher education institutions combine their studies and work. The number of working students ranges from 15 percent in Italy, Albania, Serbia to more than 50 percent in Germany, Romania, Estonia, Lithuania. About 85 percent of students work in Ireland. In all European countries students who work during their studies on regular basis or part -time jobs, mostly are employed for financial reasons. These reasons are particularly common among older students, students without higher education and students living apart from their parents. On average, 69 percent of these students work to cover their living expenses. On average, one out of five working students financially supports other family members – a partner, children or parents. Besides financial reasons almost 60 percent of working students note that they choose a job in order to gain experience in the labor market and to improve employability skills (State of Lithuanian Studies, 2020).

Work during the studies not only provides financial stability, but also allows students to gain valuable experience, enter the labor market and sometimes discover their career path. However, combining study and work

can be a difficult task. So how to keep balance and keep things on time without compromising neither studies nor the start of career? Nowadays we have enough students who are keen to combine studies and work. However, young people are often discouraged from starting to work by a simple fear that they will not be able to succeed in studies and achieve good results at work at the same time. Often young people simply do not dare to try or to find a suitable work format for them. Still, real experience shows that a successful combination of work and study is certainly possible. The company seeks to create conditions that would allow a studying employer not to push his/her studies aside (Combining studies and science, 2020, p. 13).

Half of the students who raise children also indicated that they had to look for additional work to improve financial situation of their families. This and the above-mentioned consequences are significantly related as the work, study and family harmonization tensions affect the physical and psychological well-being of students. The most attractive measures for combining students' studies and work are based on teachers' positive attitude towards working students, possibility to be provided with free attendance and individual study schedule.

The combination of study and work is more relevant for master's and part-time students. One of the most important things to successfully combine study and work is good time planning and efficient agenda allocation. Work in shifts with a flexible schedule is the most suitable for this. Flexibility in the work schedule is a key to the balance between study and work. Being able to express student's preferences for working hours makes it easier for a person to plan days and weeks in a way to pay enough attention to both study and work. For example, a number of studying colleagues choose the opportunity to work in the evenings or work when they are not busy at studies. Employer's involvement is also important. Even if a job has flexible work schedule situations occur for a studying staff when their important reports or lectures at the university coincide with the intensive periods at work. These are moments when many working students face the greatest challenges. It happens often when not only a very intensive period at work and at the university coincides but when personal matters also put pressure. In such cases it is really easy to "burn out". However, even these situations can be managed with the involvement of the employer. The situation is stabilized by only a few extra days for so-called academic holiday (Sanchez-Gelabert, Figueroa, & Elias, 2017).

Stress management sessions also work as an appropriate prevention during which psychologists help to solve various challenges that arise during work, including time planning, study and work coordination. "One of the most important aspects to avoid stressful situations is to communicate with the employer about the situation. There is a need for mutual

understanding – both the employer should be more flexible about the needs of students and colleagues should announce the need for study days as early as possible (Šerėnaitė, 2020, p. 8). One of the most common mistakes students make when they want to work is the desire to cover too much material. Often people who combine studies and work slightly overestimate their strengths. They want to work full-time and study, attend additional subjects and courses at the university, as well as to devote enough time to their interests and hobbies. Some manage to do this but it requires discipline and good time planning skills. As a result, you should realistically assess your options and plan your activities wisely, for example, you may be able to start with a part-time job instead of a full-time job. Then watch how it goes and only then increase the volume of work" (Combining studies and science, 2020, p. 14). Possibilities to combine studies and professional activities need to be seen from both the work and a higher education institution's side. There would be no problems at work if students have to spend more time on studies, lectures and if the university also treat working students with understanding, allows them to adjust the dates and deadlines for assessments or research papers. There is a large number of young people seeking synergy between study and work today, so it is important for employers who compete for professionals to enable them to enter the labor market without leaving studies. Otherwise, companies simply reject a significant proportion of potential employees. "It is important for young people to acquire not only theoretical knowledge but also practical skills in real work, and this path begins with time planning and the first steps of career" (Neyt et al., 2017, p. 5; Sanchez-Gelabert et al., 2017, p. 10).

Employers' surveys are of great importance improving students' possibilities to combine work and studies. Such surveys can identify current or future needs or shortage for skills and knowledge needed to perform job functions, as well as companies' human capital strategies, such as employee training and other aspects. The information gathered and systematized through employers' surveys can contribute not only to the development of labor market or employment measures, but also to continuing education programs, long-term strategies for investing in human capital. The main advantage of such employers' surveys is gaining the direct information from employers themselves about the labor market and the situation in a company (Mane, Corbella, 2017, p. 8).

## Methodology

Research method is a survey which was carried out by using questionnaire. The questionnaire survey was conducted in October – November, 2020. The questionnaire was submitted to 55 employers whose organizations

employ employees studying pre-school education programme at Kauno kolegija/University of Applied Sciences. The questionnaire was prepared on the basis of the theoretical provisions highlighted in the theoretical part of the study. The questionnaire consists of 29 closed-ended questions, one open-ended question which asks for recommendations about the possibilities to combine work and study. When compiling the questionnaire the research questions were divided into the following semantic blocks: questions that delve into the learner's position in a specific organization; issues that go deeper into creating the conditions for the studying employees; issues that delve into the links between the workplace and the educational institution; issues that deepen the employer's attitude towards the studying employees; questions that delve into the individual characteristics of the learner. During the research the volunteerism of the research participants and the anonymity of the research data were ensured. The research data were used in general and for research purposes only.

## Analysis and discussion of research data

Respondents' answers to the question "Indicate the percentage of studying employees in your institution" (Fig. 1), were distributed as follows: working at 0,25 part-time makes up 15 percent, working at 0,5 part-time makes up 36 percent, working at 0,75 part-time makes up 9 percent, working full-time makes up 20 percent. The "other" option was indicated by 20 percent of respondents.
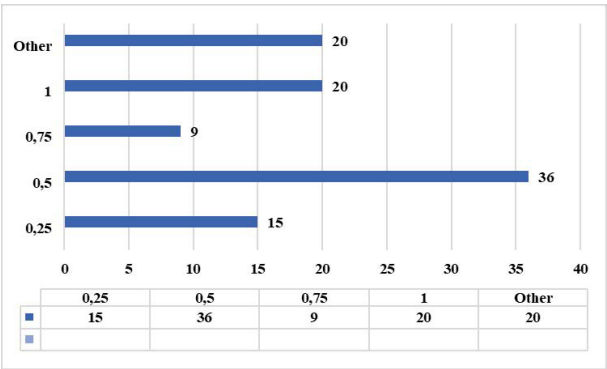


| | 0,25 | 0,5 | 0,75 | 1 | Other |
|---|---|---|---|---|---|
| | 15 | 36 | 9 | 20 | 20 |
| | | | | | |

**Figure 1.** Employment of studying staff in the organization

Summarizing the respondents' answers it can be stated that the vast majority of studying staff work part-time, but a large proportion of students work more than half-time or full-time (29% in total). So, the working

students work long hours, which is quite a big load – studying full-time and working half and more full-time per month.

Respondents' answers to the question "Studies of the studying employees are mostly a) related to the specialty b) not related to the specialty (Fig. 2), were distributed as follows: 94 percent of the respondents indicated that the students who work in their institution work according to the specialty they are studying and only 6 percent of employers indicated that students working in their institution do not work according to the specialty they are studying.
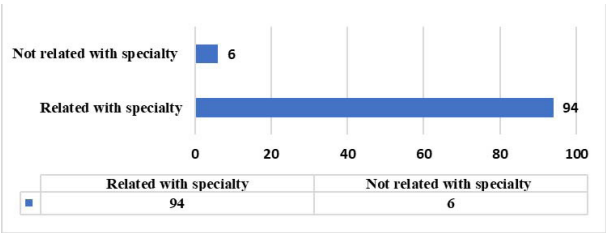
**Figure 2.** Work and study ratio

Summarizing the answers received by the surveyed employers it can be concluded that the absolute majority of the working students in the surveyed institutions work according to their future specialty. This aspect can be considered as a very positive students' step, a conscious choice to work according to the subject they are studying in order to gain work experience and deepen competencies.

Respondents' answers to the question "As a manager you treat a studying employee: a) with the hope that we will have a highly qualified employee; (b) the same as others; c) I avoid hiring such employees" (Fig. 3), were distributed as follows: 82 percent of employers say that they treat the studying workers with the hope of having a highly qualified employees, 15 percent of respondents say that they treat such employees as everyone else and only 3 percent of employers avoid hiring students for work.
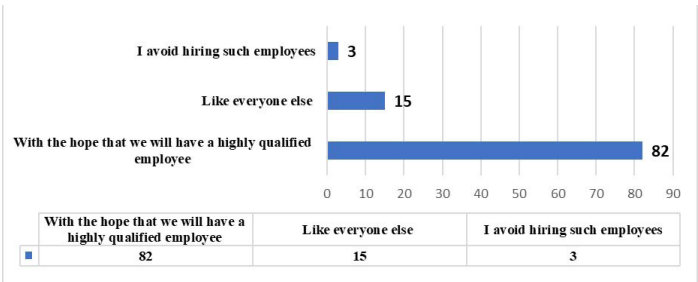
**Figure 3.** Employers' attitude towards a studying employee

Summarizing the respondents' answers it can be stated that the absolute majority of surveyed employers have a very positive attitude towards the studying workers, they find it beneficial having students in their organization, understand that after graduation such people will create an added value to the institution.

Respondents' answers to the question "Organization encourages employees to study" (Fig. 4), were distributed as follows: 44 percent of respondents agree or strongly agree with this statement, which indicates that a total number of employers (88%) assess working students very positively. This shows employers' awareness of the importance of learning, in this way creating a learning organization and creating an added value not only for the individual employee, but also for the organization itself. 6 percent of respondents stated that they disagree with this statement and have no opinion on the matter.
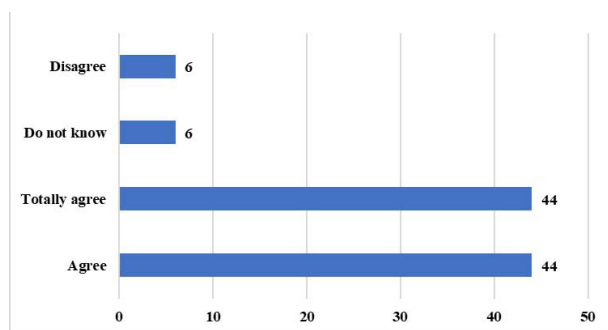


**Figure 4.** Organization and studies

Summarizing the respondents' answers it can be stated that the interviewed employers consciously encourage employees to study because they see benefits in that for their organization.

Respondents' answers to the question "Studying employees in your institution: a) are able to combine work and studies; (b) are partially able to combine work and study; (c) find it difficult to combine work and study; d) the answer "absolutely unable to combine work with studies" (Fig. 5), were distributed as follows: the vast majority of employers say that more than 70 percent of working students are able to combine work and study and 30 percent point out that working people are partially able to combine work and study. No one indicated that the working students are unable to combine work and study or that it is difficult for the working people to combine work and study.

Summarizing the respondents' answers it can be stated that students manage to fully or partially combine work and studies. Employers do not

observe fundamental problems in this process. It can be assumed that the work and study process is manageable and there are no major problems.
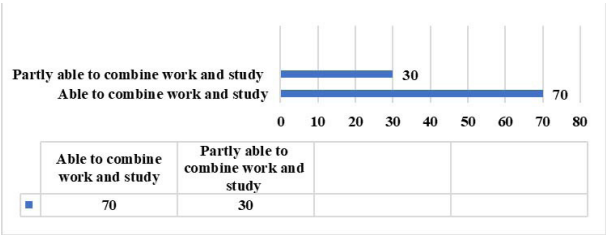


**Figure 5.** Assessment of the ability to combine work and studies

Respondents' answers to the question "Individual work schedules are created for the studying employees in the organization" (Fig. 6), were distributed as follows: 54 percent of respondents agree with the statement, 33 percent fully agree with the statement, 13 percent disagree with the statement. Summarizing the total data of "agree" and "strongly agree" answers the obtained result (87%) shows that organizations pay sufficient attention to the individualization of learners' work schedules, that their needs are important to the manager who is interested in employee's studies and learning conditions.
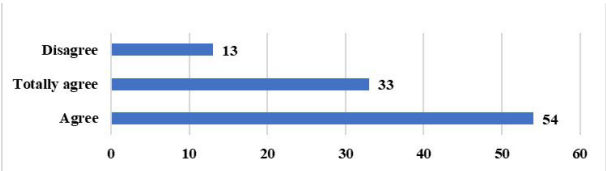


**Figure 6.** Creating an individual work schedule

Summarizing the respondents' answers it can be stated that employers understand the issues of combining work and studies of the studying worker considering the needs of the employee when creating work schedules.

Respondents' answers to the question "Is it important for the working students that the schedule of studies and examinations would be provided as early as possible" (Fig. 7), were distributed as follows: 38 percent of respondents agree with the statement and 53 percent of them fully agree with the statement. So, the overall percentage of respondents who positively evaluate the pre-submission of the schedule, appropriate information and communication is 91 percent. This shows that cooperation between a higher education institution, a learner and employers is very important in

this process in order to create favorable conditions for both learning and work performance. 9 percent of respondents indicate that they have no opinion on the matter.
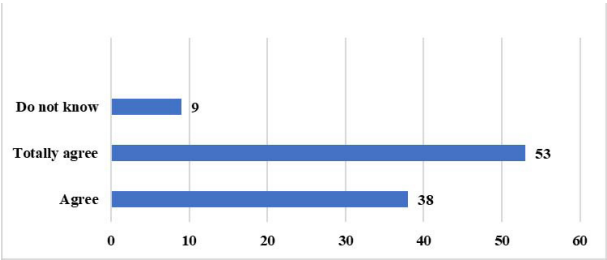


**Figure 7.** The importance of schedule coordination

Summarizing the respondents' answers it can be stated that employers understand the needs of the studying employees and actually also think about their organization so that work processes do not suffer having studying workers who are assigned to perform the tasks, etc.

Respondents' answers to the question "Relationship with an educational institution is mutually beneficial (e. g. carried out contracted researches, qualification events)" (Fig. 8), were distributed as follows: 44 percent of respondents agree with the statement and 32 percent fully agree. So, the total number of respondents who positively evaluate the statement makes up 76 percent. This shows that the three quarters of employers recognize the significance of cooperation with an educational institution as it is useful for the employee, the higher education institution and the employer in carrying out contracted researches and organizing qualification events whilst 6 percent of respondents answer that they are not sure if such cooperation is useful and 18 percent of respondents do not agree that such cooperation is beneficial.
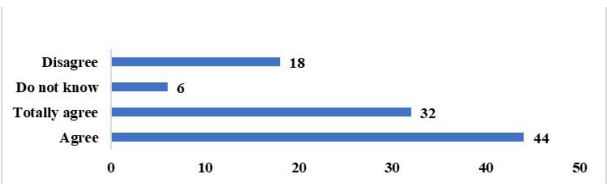


**Figure 8.** Relationship with an educational institution

Summarizing the respondents' answers it can be stated that the surveyed employers not only maintain contact with the higher education

institutions but also perceive the meaning of such cooperation, because a positive mutual communication brings real benefits to all stakeholders.

Respondents' answers to the question "A working student brings innovations to the organization" (Fig. 9), were distributed as follows: 36 percent agree with the statement; 40 percent fully agree. In total, this makes up 76 percent of respondents' responses who have a positive attitude towards the fact that working students bring new information and innovations from a higher education institution to the organization. But 12 percent of respondents do not have any opinion or disagree with the statement.
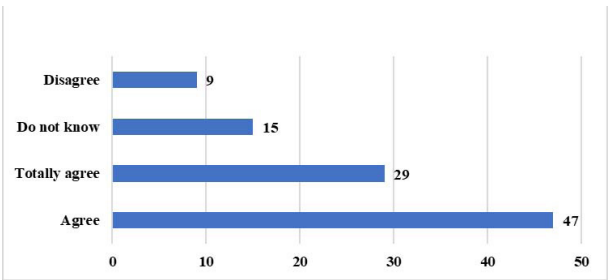


**Figure 9.** Studies and work activities

Summarizing the respondents' answers it can be stated that the interviewed employers perceive the importance of learning, the significance of innovations that an employee brings from a higher education institution to a specific organization. Thus, a mutually beneficial process takes place – the student gains work experience in the workplace and a particular organization receives innovation from a higher education institution.

Respondents' answers to the question "Work during studies helps to develop general abilities: verbal communication; cooperation; leadership; teamwork; time planning; problem solving" (Fig. 10), were distributed as follows: the absolute majority of employers agree that general skills of studying employees develop especially favorably during their work practice – the answers "agree" or "strongly agree" make up from 70 percent to 100 percent. Only a very small proportion of respondents (ranging from 6 percent to 30 percent) say that they do not know or do not agree that the key competences are developed in the workplace. However, this is more related to possessing leadership competencies, so it is believed that these competencies are developed more in a managerial work and working students do not perform such work yet and the respondents tend to wait until they graduate.

It is obvious that employers positively assess not only professional but also general abilities of the studying employees and believe that these abilities are developed in a favorable direction in the workplace.
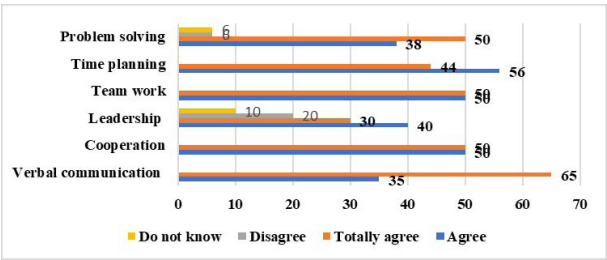
**Figure 10.** Development of general skills

Respondents' answers to the question "Remote learning can help to solve the problems of work and study compatibility" (Fig. 11), were distributed as follows: the total percentage of those who agree and completely agree with the statement make up 70 percent. 18 percent state that they have no opinion on the matter, 6 percent state that they disagree or strongly disagree with the statement.
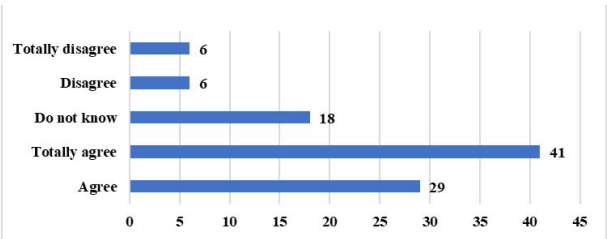


**Figure 11.** Remote learning opportunities

Summarizing the respondents' answers it can be stated that the surveyed employers positively evaluate the opportunities provided by remote learning for the studying employees.

When asked to submit proposals and recommendations for the effective work and study balance, the following answers were received: theoretical preparation is sufficient, but practice is lacking. Pre-submission of schedules and coordination with the work schedule. It is important to improve working students' ability to plan their time; personal characteristics of the studying staff (flexibility, cooperation, initiative). Kindness of teachers. The most important aspect for the respondents is students' motivation to work and study.

## Conclusions

- The organizations involved in the study state that they have studying employees. Employers perceive such employees as beneficial to their organization; encourage employees to study; enable them to work and study and wish that in the future such employees after graduation could work in their organization.
- Possibilities of combining studies and work: appropriate communication, cooperation of stakeholders, choice of optimal workload, choice of work activities related to studies. Possibilities of combining studies and work depend on the effectiveness of cooperation between the higher education institution, the employer and a person himself. Employers want timely to receive information about the student's session time, examinations, changes in the schedule. Effective communication with the higher education institution is considered to be an important aspect not only for the studying employee but also a useful factor implementing activities in the organization.
- Student performs mandatory activity functions both in the workplace and in the higher institution, so his or her personal qualities are important for timely and accurate performance of tasks in both organizations. Punctuality, time planning, ability and willingness to learn, information and communication technology (ICT) skills, psychological stability, flexibility, ability to seek for help, team work, cooperation, desire to acquire the subject competencies required at work are necessary requirements for the studying worker.

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# IMPLEMENTATION OF THE NEW SUB-PROGRAM FOR MATHEMATICS TEACHERS AT THE UNIVERSITY OF LATVIA

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## ABSTRACT

A qualified and knowledgeable teacher is a foundation of a good education, responsible for motivating a pupil to acquire new knowledge and apply it in different ways. By 2020, in Latvia, a teacher's qualification could be obtained in various higher education institutions, which had dozens of study programs in different faculties, so it was difficult for school graduates to orientate in a large number of programs and requirements. Between 2018 and 2020, within the European Social Fund project "Education and Pedagogy" of the University of Latvia, a joint professional bachelor's study program "Teacher" for several universities was developed. This program has several sub-programs – one of which is the sub-program "Mathematics Teacher" where in September 2020, the first students started their studies. In the new program significant changes were made compared to the previous programs. In this article we analyze the changes made to the study courses while comparing them with a professional bachelor's program "Secondary School Mathematics Teacher" in the Faculty of Chemistry at the University of Latvia.

The COVID-19 pandemic brought changes to the planned study process, which also affected the implementation of the new program. Thus, in September and early October 2020 students at the University of Latvia attended lectures in person, but in mid-October the remote study process began. Since studying and lecturing online is a new experience not only for students, but also for the majority of lecturers and professors, it was a great challenge to reorganize the study process from studying in person to remote learning without losing quality and feedback acquisition. Given the fact that pupils and students in Latvia studied remotely also in Spring 2020, several surveys were conducted, focusing on remote learning process in schools. In order to see how remote studies affect students of science, technology, engineering and mathematics (STEM) programs, a survey about difficulties of remote learning process for 1$^{st}$ year students in the sub-program "Mathematics Teacher" was conducted.

***Keywords:*** *mathematics teacher education, mathematics study courses, professional bachelor program Teacher, remote learning, teacher education.*

## Introduction

The Organization for Economic Cooperation and Development (OECD) International Training Environment Study TALIS 2018 (OECD TALIS, 2019) provides information that the average age of teachers in Latvia is 48 years, which is higher than average age of teachers in OECD countries and TALIS Member States (i. e., 44 years). In addition, 51% of teachers in Latvia are aged 50 and over (the OECD average is 34%). This means that in next decade Latvia will need to replace about every second teacher from now available teachers. Thereby consideration should be given to the importance of a new teacher preparation accordingly to new tendencies in education and teaching of subjects, including both theoretical knowledge and practical skills in working with pupils.

The very basis of a good education is a qualified and knowledgeable teacher. Therefore, it is important that teachers are prepared for all challenges they might face during their carrier in today's schools. By 2020, everyone interested in being a teacher could choose to obtain their teacher's qualification in one of many various higher education institutions in Latvia, which had dozens of study programs in different faculties that made it difficult for school graduates to understand and orientate in various programs and their requirements. Between 2018 and 2020 within the European Social Fund project "The University of Latvia's Innovative, Research-Based field of studies "Education and Pedagogy" study program" a joint professional bachelor's study program "Teacher" (University of Latvia, 2020) was expounded. It was developed under the management of experienced professionals at the University of Latvia, in cooperation with leading teacher education institutions in Latvia – Daugavpils University, Liepaja University and Rezekne Academy of Technologies.

The goal of a study program is to provide professional bachelor's studies in educational sciences by facilitating the development of the general and professional competence of the teacher in accordance with the profession standard "Teacher" in the study fields selected by the student. Students have a unique opportunity to combine two subjects from the given list (see Table 1), as well as to choose one of the sub-programs:
   • Latvian Language and Literature Teacher,
   • Mathematics Teacher,
   • Russian Language and Literature Teacher,
   • Teacher of Social Sciences and History.

**Table 1.** Two subject teacher possible combinations

| Basic Subject | Additional Subject |
| --- | --- |
| English Teacher | English Teacher |
| German Teacher | Biology Teacher |
| Computer Science Teacher | Computer Science Teacher |
| Teacher of Design and Technology | Teacher of Design and Technology |
| Science Teacher (Biology Teacher or Physics Teacher, or Chemistry Teacher) | Russian as a Foreign Language Teacher |
| | Latvian as Native and as a Foreign Language Teacher |
| | Mathematics Teacher |
| | German Teacher |
| | Science Teacher; Physics Teacher; Geography Teacher; Chemistry Teacher (combination of any two subjects) |

Changes in teacher training were mostly influenced by changes in the school education, because in Latvian schools during the study year 2020/2021, students of grades 1, 4, 7 and 10 (a gradual transition of other grades to the new curricula will take place in coming years) started to learn following the project "Competency Based Approach in School Curricula" implemented by the National Centre for Education, the aim of which is to develop, approbate, and gradually implement this content of general education and the approach to teaching in school starting from pre-primary to secondary, as a result pupils will gain knowledge, skills and attitudes needed for life nowadays. Thereby it was necessary to introduce changes to teacher training so that they would be ready to work accordingly to the new curricula and would be theoretically prepared, because the changes were not only in a way how pupils should be taught, but also the significant changes were made in the content of Mathematics, especially in the secondary school. The main content changes are returning to teaching elements of Calculus (limits, derivatives, integrals) and Analytical Geometry to secondary school pupils who are learning mathematics at an in-dept level, also importance of probability theory and statistics has been significantly raised (*Regulations on State Secondary Education Curricula and Sample Secondary Education Programs*, 2019).

Before 2020, Mathematics teacher's qualification could be obtained, for example, at the University of Latvia through the program "Science and Information Technologies Teacher" sub-program "Secondary School Mathematics Teacher" where in 4 years students learned different courses in pedagogy as well as courses in mathematics that have remained without

changes for many years. In the new program "Teacher" significant changes compared to the program that has been active till 2020 at the University of Latvia have been made. The new program was licensed on August 19, 2020. Main changes will be discussed in the Results and Discussion section. A single and appropriate to modern requirements program attracts potential students. For autumn semester, all 15 state-funded study places were filled, and it is the largest number of the state-funded study places within all sub-programs of the program "Teacher".

Unforeseen difficulties in the implementation of the new program and planned study process were brought by the COVID-19 pandemic. Thereby in September and beginning of October 2020, students at the University of Latvia attended lectures in person, but in middle of October remote learning process began. Since studying and lecturing online is a new experience not only for students, but also for most of the teaching staff, it was a great challenge to organize the qualitative transfer of knowledge and to receive feedback. In a short period of time teaching staff had to reschedule the study process and learn the use of technology while taking into account technical equipment available for their students and themselves (for example, a personal computer, a camera, a graphic display or a tablet, an internet connection, a platform for online lectures). In the Results section summarization of common characteristics and differences about remote study process and studying in person at the University of Latvia will be given.

Not only did schools and universities in Latvia had to quickly switch from studying in person to remote learning due to the COVID-19 pandemic but also many other countries worldwide, see (Azhari & Fajri, 2021), (Manca & Delfino, 2021), (Nobre et al., 2021).

## Method

Taking into account that in autumn 2020 in Latvia, pupils and students were studying remotely, several surveys for pupils and teachers were carried out, focusing on remote learning process in schools. To gain the information on how remote learning affected the students at the University of Latvia, a survey about remote learning advantages and disadvantages for 1st year students of the sub-program "Mathematics Teacher" were carried out.

The survey was conducted in January 2021, and it uses the questionnaire method for students of the sub-program "Mathematics Teachers". The questionnaire was created in Google Sheets; potential respondents were reached online via e-mail. In the questionnaire there were open-ended and close-ended questions; in total, 19 questions were put forward to the respondents. The results were analyzed quantitatively and qualitatively. Respondents make up 73,3% of all students of the sub-program "Mathematics Teacher"

(the questionnaire was filled out by 11 out of 15 students). Since the program had only started in 2020 and does not have many students, the number of respondents was not large, but it is representative.

Questions discussed general information about student's previous education, choice to become a Mathematics teacher, differences between remote study process and studying in person, and courses studied in the 1st semester.

## Results and Discussion

The discussion will be divided in two parts. First part deal with the new professional bachelor's program "Teacher" sub-program "Mathematics Teacher" and the main changes compared to the sub-program "Secondary School Mathematics Teacher" of the program "Science and Information Technologies Teacher". Second part is devoted to the analysis of survey results gained by carrying out the questionnaire for students about studying in person and learning remotely

### Main Changes in the Sub-program Mathematics Teacher

When the new program "Teacher" was developed, a great attention was paid to the structure of the course plan, that is why all the sub-programs have common compulsory courses (see Table 2) whose total amount is 60 ECTS.

**Table 2.** Compulsory courses for the program "Teacher"

| General education study courses | Theoretical courses in the field |
|---|---|
| Introduction to Education for Sustainable Development | Inclusive and Special Education |
| Education Management | Information Technology in Education |
| Legal Aspects of Pedagogical Process in Education | Class Management |
| Psychology for Teachers | Learning and Teaching |
| Research in Education | Socio-emotional Learning in School |
| Basics of The Professional Activities of The Teacher | |
| State, Civil and Environmental Protection | |

In order to learn the application of theoretical knowledge in real life, students have five practices in schools with a total of 18 ECTS. The schedule of each practice in school is aligned with the course schedule, that is, students gain theoretical knowledge and straight after it they have practice

in school to apply the theory in real life situations. At the end of the studies a bachelor thesis (15 ECTS) should be written, and a qualification exam (3 ECTS) should be passed. The total amount of mathematics courses is 120 ECTS; all the mathematics study courses are given in Table 3.

**Table 3.** Mathematics courses for the sub-program Mathematics teacher

| | |
|---|---|
| Algebra for Teachers I, II | Use of Mathematics in Other Fields |
| Analytical Geometry and Its Methodologies | Methodology of Mathematics I, II, III |
| Elementary Mathematics Methods | Calculus and Its Methodology I, II, III |
| Introduction to Theory of Differential Equations | Mathematical Statistics and Its Methodology |
| Introduction to Number Theory | Elements of Mathematical Logics and Set Theory |
| Introduction to Probability Theory | Elements of Modern Elementary Algebra and Geometry |
| Information Technology for The Development of Teaching Materials in Mathematics | Programming Basics for Teachers |
| Information Technology in Mathematics | School Mathematics Practice I, II, III |
| Combinatorics and Elements of Graph Theory | Basics of Geometry |

Compared to the program "Science and Information Technologies Teacher" sub-program "Secondary School Mathematics Teacher" in the sub-program "Mathematics Teacher" in many courses the methodology of the given course also is included, because some of these topics have been included in the school curricula. This is a challenge for the teaching staff, because they need to change the course content and the approach on how lectures should be given and organized – a student has to be encouraged to become an active participant instead of a passive listener. Students of the sub-program "Mathematics Teacher" who graduated from school until 2021 and are going to graduate in a year or two, will have to teach topics they did not learn at school themselves, because many mathematics topics were not included in the previous curricula (*Regulations on State Secondary Education Curricula, Subject Standards and Samples of Educational Programs*, 2013), so it is important to link theoretical knowledge to the methodology without delay. The study process also focuses on learning and using the Information and Communications Technology (ICT) in Mathematics lessons (the study program "Teacher" has both specific courses and use of the ICT integrated in the study courses), because the ICT is more actively used in schools in the teaching process (Bretscher, 2021), since it helps to ensure the study process and get quick feedback. Nevertheless, in order to include

new study courses, some courses should be excluded – in mathematics several theoretical courses were reduced, following courses are no longer thought to the future teachers:

- Programming and Computers II,
- Linear Algebra and Analytical Geometry I, II – these courses are divided into two different courses Algebra for Teachers I and Analytical Geometry and its Methodology,
- Introduction to Complex Analysis – some topics of this course are integrated in the course Algebra for Teachers I,
- Differential Equations – the amount of the course is decreased from 6 ECTS to 3 ECTS,
- Methods of Mathematical Physics,
- Physics for Natural Sciences.

Nowadays a serious problem is a huge number of students that decide to leave studies. In Latvia, only 48% of students graduate in time from the study program they have chosen (OECD, 2019). The largest number of dropout students is at the end of the first semester, because of the difference between school learning process and the study process at the university. Students have to be more self-controlling, and they have to study more independently. To make this transfer smoother, the tradition of teaching Calculus and Analytical Geometry in the 1st semester was changed and in the new program courses "Calculus and its Methodology I" and "Analytical Geometry and its Methodology" are being taught in the 2nd semester, so students who just started their studies would not have a big number of complicated highest mathematics theoretical courses.

## Advantages and Disadvantages in the Remote Study Process

To find out how the 1st semester students of the sub-program Mathematics Teacher rate the remote study process and studying in person, a survey was conducted. In autumn 2020, studies in this sub-program started 15 students, 11 of them participated in the survey.

The main reasons why students decided to choose a teacher's profession were due to their liking for mathematics, good grades in the secondary school mathematics, family tradition, and an encouraging teacher of Mathematics. Nine of respondents are secondary school graduates, but two graduated state gymnasiums. Most of the students applied for this sub-program immediately after graduating the school, but there are also students that graduated school between 2009 and 2013.

Based on admission requirements, to apply to the program "Teacher" the basic subject grade must be 7 or higher. In Figure 1 the information about students' final grade in Mathematics (vertical axis) and their result

in a final Mathematics exam (horizontal axis) are given. As it can be seen, for students with same grades in the school exam results can differ significantly.
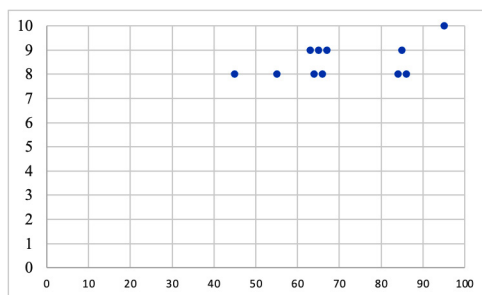


**Figure 1.** Students' final grade in Mathematics and their result in a final Mathematics exam

In September these students started their studies in person and later continued studies remotely. Thus, giving an opportunity to the students to compare studying in person with studies online through MS Teams platform. Most of these students answered that it is easier to study in person, as main advantages mentioning:
- a direct contact with the lecturer,
- unclear questions can be asked directly when needed,
- you can more easily concentrate on studies,
- communication in person with course mates,
- a lecturer controls whether the students follow the lecture and do the given tasks.

While as advantages of remote studies were given:
- time planning accordingly to everyone's personal needs,
- video recordings where you can repeatedly go through the material,
- you do not have to spend time to get to the faculty,
- you can use lecture materials during your tests.

As an advantage of the remote learning was mentioned that a student can use any materials during their tests and exams, even if it is not allowed by the lecturer who cannot control what students do while sitting at home in front of their computers. All tests must be designed in a way that allows the lecturer to properly assess students' knowledge and to ensure academic honesty during the remote learning process (Paredes et al., 2021).

Usually when students choose full time studies, they expect that all lectures will be held in person. Also, teaching staff, during years of work, has developed methods and approach to teaching in the auditorium in close contact with students. In October 2020 due to the COVID-19 all study process

had to be held remotely as synchronous online lectures, that significantly differs from the work in the auditorium (Silva et al., 2021). Synchronous and asynchronous distance learning processes have been investigated by (Goksu et al., 2021), where the authors concluded that while using both synchronous and asynchronous distance learning enhances motivation, whereas synchronous learning increases attendance.

Many lecturers had no experience and knowledge of how to give lectures remotely (Dias-Trinidade & Santo, 2021). It is even more difficult in STEM subjects, where students have to learn fundamental theoretical knowledge, which is hard to do even when studying in person. The main reason why students drop out of the STEM subject programs is a lack of fundamental knowledge that they have not learned or have acquired improperly or insufficiently in the secondary school. In Latvia, the results of the final mathematics exam are the lowest comparing to the results of the final tests in other subjects (National Centre for Education, 2020), average results in Mathematics are about 35% (in 2018 – 34.6%, in 2019 – 32.7%, in 2020 – 35.4%). It should be taken into account that, pupils, when graduating from secondary school, have to pass three mandatory exams – Mathematics, Latvian and a foreign language. Other exams are not mandatory, and pupils choose to pass only those final exams that are needed for applying to the higher education institution they have chosen. Thus, it is hard to judge about the knowledge level of pupils in Latvia in other STEM subjects, such as Physics, Chemistry, Biology. Students in the survey admitted that in the course "Elements of Mathematical Logic and Set Theory" they lacked knowledge about mathematical induction. It can be explained by the fact that in the past 13 years in the final Mathematics exam there has not been a problem about mathematical induction, so many teachers teach this topic superficially or does not teach it at all.

In the survey, most respondents acknowledged that in the 1st semester, the easiest courses were "Psychology for Teachers" and "Principles for the Professional Work of the Teacher" which did not make much difference whether students were studying in person or remotely, since they were actively involved in the training process. From the mathematics course list, considering both the course content and the lecturer's work, students most easily completed the courses "School Mathematics Practice I" and "Algebra for Teachers I" the students appreciated the lecturer's work and teaching methods, as well as given examples from their experience at school. Although in the course "Basics of Programming for Teachers" were a lot of homework and some students had no previous experience in programming, most students appreciated the lectures and the organized consultations that helped them to acquire the course. The most difficult course in the 1st semester was the course "Elements of Mathematical Logic and Set Theory"

both from the point of view of content and the method of teaching because the lecturer mainly showed only presentations.

Analyzing students' answers and the number of students who passed the session (only 3 students did not pass the session, which is significantly less than in previous years), it can be concluded that the decision to move two higher mathematics courses "Mathematical Analysis and its Methodology I" and "Analytical Geometry and its Methodology" to the 2nd semester has been reasonable, as it has reduced the large gap and students' load in the transition from school to university.

In the survey as major problems in the remote study process were mentioned:

- it is hard to concentrate for studies when you are at home,
- it is more difficult for the lecturers to get feedback and maintain communication with students,
- some lecturers tend to move forward faster through the material,
- difficulty to understand mutual explanations that are not visually represented in the presentation (especially if the graphic display or tablet is not used or it is used inappropriately),
- different technical problems – lack of stable internet connection, inappropriate computer equipment and incompatibility of programs with the computer.

However, as most dangerous disadvantage was mentioned a long time at the computer in one position, that results in mental and physical health problems. Some respondents mentioned that a successful study process depends on the competence of the lecturer, and it is not important whether lectures happen in person or remotely.

## Conclusions

- The professional bachelor's program "Teacher" at the University of Latvia licensed in 2020 corresponds to the new approach to teacher training; its sub-program "Mathematics Teacher" has been approved by the 1st year students who admit that the transition from school to university has been relatively easy. In the future, students should also be interviewed regularly about the study program to keep it appropriate to student needs and the labor market, regarding to the ascending demand for teachers, especially in STEM subjects, in next decade.
- Breaking the tradition of the course acquisition order, in the sub-program "Mathematics teachers" some mathematics study courses were moved to next semester to reduce the large gap between the school and the university learning process and students' load in the 1st semester. One more crucial change is methodology integration in some courses

content, which allows future teachers to discuss methodological aspects and current issues in the school curricula. According to the survey these changes are appreciated by the students.

• The lecturer has a big role in the acquisition of the study course, regardless of teaching in person or remotely; students positively evaluate lecturers who actively involve students in the study process and work together with them. Students also find it interesting and useful to listen to lecturers' stories about school, which provide an insight into a teacher's profession and daily work.

• The greatest advantage of the remote study process is wider possibilities for planning one's time, but it is also a big risk, because not all students manage to follow the developed plan and complete all the planned works. Students also lack mutual contacts with course mates and direct discussions with the lecturer when there are questions about the course content.

• Students admit when learning mathematics courses remotely, it is best to perceive the material if the lecturer works together with students, for example, writes on a graphic display or tablet, rather than just speaking or showing already prepared theoretical material. Another advantage of the remote study process is the opportunity to record lectures, which can be watched again if necessary.

• When planning the remote study process, the time spent at the computer should be considered so that it does not start to affect the student's physical health, as well as it has to be ensured that students are actively involved in the study process and do not passively watch the lecture.

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# LITHUANIAN UNIVERSITY STUDENTS' MOTIVATION TO STUDY ENGLISH

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## ABSTRACT

Lithuanian university students' motivation to study English as an obligatory study subject seems to be not researched. This is the reason why this study attempts to fill in the existing gap by aiming to learn how motivated Lithuanian students are to learn English at a liberal arts university in which English (as a foreign language) is obligatory to study. 61 upper-intermediate level students at Vytautas Magnus University (VMU) in Kaunas (Lithuania) were involved in the study and filled in an anonymous online questionnaire to reflect on their motivation to study English. The questionnaire involved statements on demographic information and 21 statements on different types of motivation. In addition, the research participants needed to explain in writing why they chose specific statements (all of which started with *I study English because …*). Thus, it was a quantitative and qualitative study, since qualitative data is lacking in various previous research on student motivation. The findings show that the Lithuanian university students are mostly instrumentally oriented. They hardly see English as an obligatory subject, even though it is, and intend to use it mainly as a tool to achieve various goals in the future, for instance, while travelling, communicating and working. Therefore, English teachers should place the learning content in these contexts to increase student motivation to study. This research may also have implications for the teaching of other obligatory non-speciality subjects at a liberal arts university, such as VMU.

*Keywords: English as a foreign language, instrumental motivation, motivation to study English, university students, VMU.*

## Introduction

At Vytautas Magnus University (VMU) in Kaunas, Lithuania, English is an obligatory study subject to all first cycle study programme students, so they cannot choose not to study it. Usually the students have to gain advanced knowledge of English (C1 level according to the CEFR) during the first two years of their studies. This research aims to learn how motivated Lithuanian students at VMU are to study English at upper-intermediate level. It is hoped that the exploration of motivation will help to

understand what characterises the students and their attitudes, experiences of learning English and expectations, since it is an obligatory study subject, just like some others not necessarily directly related to the students' field of study but meant to provide with universal liberal arts education at VMU.

Gardner (2010, p. 8) states that there is no one simple definition of what it is, as different researchers provide numerous definitions. According to Harmer (2006, p. 51), "motivation is some kind of internal drive which pushes someone to do things in order to achieve something". In a similar manner, motivation can be seen as a passion to achieve one's goals or a reason to do something (Oroujlou & Vahedi, 2011, pp. 995–997). Most frequently two types of motivation are distinguished: intrinsic motivation that "comes from within the individual" and extrinsic motivation which "is caused by any number of outside factors" (Harmer, 2006, p. 51). That is, intrinsic motivation comes from the individual himself/ herself, while extrinsic motivation is influenced by some other, usually outside, source. Extrinsic goals can be either short-term or long-term: the former ones usually are related to grades, prizes, competitions, similar awards (Oletic & Ilic, 2014, p. 26), money and even positive feedback of some types (Pan, 2010, p. 151), while the latter ones involve a longer period of time and are related to opportunities to find a better job in the future, climbing up the social ladder, etc. (Oletic & Ilic, 2014, p. 26). Nevertheless, in order to be successful at something, intrinsic motivation is said to be more important (Harmer, 2006, p. 51) and related to success in the long term, while extrinsic motivation is associated with short-term success (Pan, 2010, p. 151).

There are several other types of motivation distinguished. Gardner (2010), Wang (2008) and Kormos, Csizer, Menyhart and Török (2008) research integrative motivation which in a foreign language learning context means that a student wants to become like people who speak, for instance, English or likes their culture. Another type is instrumental motivation, which means that a student who studies English does it for a future job/career, higher salary of the job, travelling, getting good grades or simply in order to pass a course or an exam (Kormos et al., 2008, p. 72; Wang, 2008, pp. 633–634). It is important to emphasise that travelling, for example, can be either integrative or instrumental, because it depends on the actual purpose of travelling (Gardner, 2010, p. 16). Furthermore, achievement motivation is related to planning and effort to achieve goals and a wish for excellence in general. That is, a variety of the mentioned types reflects on the need to identify specific motivation accurately. The next section discusses previous research on motivation in the context of foreign language learning, English in particular.

**Previous Research on Motivation to Learn English**

A great number of studies on student motivation to study English have been carried out in other countries. For example, a Hungarian study revealed that external motivation was the drive in English studies, so a lack of such motivation did not help students to improve and did not encourage putting more effort into learning (Kormos et al., 2008, p. 65). Moreover, Gonzalez Ardeo's (2016) research findings in Spain indicated that intrinsic student motivation depended on gender, while instrumental motivation depended on age. Furthermore, Altun's (2017) research in Turkey showed that students' instrumental motivation differed greatly depending on a study programme, since their job prospects depended or did not depend on their English skills (Altun, 2017, p. 67). In a different study, Ekiz and Kulmetov (2016) learnt that first-year upper-intermediate students in a Turkish university were motivated to learn English when their parents encouraged them and were also more motivated while learning with friends. The research participants were also motivated by the teacher who was almost a native speaker and explained why the activity was needed and how it would be related to certain real life situations (Ekiz & Kulmetov, 2016, p. 28).

Wang (2016) researched motivation in a university in China, and the results showed that learning English was mostly certificate-oriented, as future prospects and opportunities for a prestigious job often depended on it. This means that the students were extrinsically motivated and their motivation was also instrumental. Nevertheless, Wang's (2008) research emphasises cultural differences while discussing motivation for learning English. For instance, examinations motivate Chinese students greatly but travelling abroad in the future does not, while in Tony Lai's (2013) study, Taiwanese undergraduate students studied English for travelling and were both instrumentally and integratively motivated.

In short, there have been numerous studies on university students' motivation to learn English. They differ not only in their participants (nationality, year of study, study programmes, etc.) and design but also in terms of results. As discussed above, motivation to study English might depend on the country or culture, but it can also be related to individual needs and desires. However, Lithuanian students' motivation to study English as an obligatory study subject at a liberal arts university has not been researched yet.

## Method

The present study investigates how motivated Lithuanian students are to learn English. At VMU, English is an obligatory study subject during the first two years in bachelor studies in all study programmes. A1–B2 level

courses are general English courses. Whether students need to study these depends on their enrolment grades, international tests and VMU placement test of English. However, students must reach levels C1–C2 of English. Thus, if the enrolment results are low, such students study English longer till they reach level B2 and only then need to take courses of English for specific purposes (ESP) at C1–C2 levels.

An online questionnaire which consisted of both qualitative and quantitative statements was administered to 61 VMU students who were studying English at B2 level in a distance mode in the fall semester of 2020. They had been informed about the study during one of their classes but participated in it not during their class time. The questionnaire was of two parts: one on demographic data and the other one on 21 statements starting with *I study English because...* They were the following: 1. it is an obligatory subject at my university/ study programme; 2. my parents/ teachers force/ make me to; 3. getting a good grade will increase my grade average significantly; 4. it makes me feel happy and enjoy it; 5. I am interested in the subject; 6. I like the materials/ books/ tasks/ online tools, etc. used to teach it are interesting; 7. I like learning new things/ languages; 8. I like the English language in general; 9. it is challenging; 10. I would like to speak like a native speaker of English; 11. I would like to speak English fluently; 12. I would like to live abroad; 13. I would like to speak English as well as other students in my university/ study programme/ study group; 14. I like the cultures of English speaking countries; 15. I like songs/films, etc. in English; 16. knowing it I will be able to express myself in a foreign language; 17. I want to pass my final exam with a good grade; 18. I will need it/ for my future job/ career; 19. Knowing it will allow me to read literature/ materials for other courses in English; 20. It will help me to make foreign friends/ communicate with them; 21. I need it for travelling.

The research participants were able to choose as many statements as they needed if the statements could be applied to their motivation to study English. Statements 1–3 were on extrinsic motivation, 4–9 on intrinsic motivation, 10–13 on achievement motivation, 14–16 on integrative motivation, and 17–21 on instrumental motivation. It is also important to emphasise that sometimes certain statements could be assigned to different types of motivation. For instance, Statement 18 may also reflect on extrinsic motivation, while Statement 21 can also refer to integrative motivation (Gardner, 2010, p. 16). Consequently, the respondents were provided with a box to explain their choices in greater detail, since it had been noticed that in numerous research studies on student motivation the collected data usually was not interpreted by their participants. It was hoped that the explanations would provide valuable insight into student motivation to

study English and help to identify it more precisely. All the collected data was analysed using Microsoft Excel.

Out of the total of 61 respondents, 72.13% were female students, while 27.87% were male students. All the respondents were bachelor's degree students: 83.67% of them were in their first year of studies, in other words, they were freshmen; 14.8% of the participants were in their second; and 1.6% in their third study year.

## Results

As the results show, there is no one particular reason that motivates but rather a variety of them. The most frequently chosen statements or reasons are given in Table 1.

**Table 1.**  The most frequently chosen statements

| Statement number | Number of students who chose it (out of 61) | Type of motivation |
|---|---|---|
| 15 | 51 | Integrative |
| 11 | 48 | Achievement |
| 21 | 45 | Instrumental |
| 20 | 40 | Instrumental |
| 8 | 37 | Intrinsic |
| 16 | 35 | Integrative |
| 18 | 35 | Instrumental |

It shows that the research participants are mostly instrumentally and integratively oriented, but achievement and intrinsic motivation is also important. The explanations provided by the research participants might reveal a bigger picture about their motivation, so descriptive analysis was used to overview the comments made by the research participants.

## Discussion

The comments are discussed based on the type of motivation they explain. In addition, in order to refer to specific participants without giving their names, certain abbreviations or rather codes are used, for example, "R1." stands for "research participant number 1."

Since three out of seven most frequently chosen statements show instrumental orientation, they are discussed first. It appears that it is important for the students to be able to use English as an instrument to achieve

different goals in the future. One of such goals is to use English while travelling (Statement 21) either to English speaking countries or other countries in general for pleasure or for studies. In addition to travelling, making foreign friends and/ or communication with them (Statement 20) motivates to study English, because the English language serves as a tool for such communication. Moreover, knowing English helps to create closer/ better/ more sincere/ more fulfilling relationships with foreigners. This can be applied to both relationships in the real world and those in the virtual environment or social networks.

One more practical reason to study English is a likely need of it in one's future job or career (Statement 18). As the research participants are university students from different faculties, their given explanations reveal the participants' future plans and how they are actually going to use English after they graduate. The analysed comments suggest that English will be needed in such specialities as follows: translation, politics, business, education and others, but a substantial part of the respondents reflects on the need of English in all occupations and fields of work, too.

Integrative motivation, which is related to a wish to be like other people who speak English or appreciation of the English culture, is also important to the research participants. However, having chosen Statement 16, the respondents provided the explanations that in fact express either intrinsic (e. g. R29., R22.) or instrumental (R20., R21., R58.) motivation, not integrative motivation as it was thought before the research. Nevertheless, those who have chosen Statement 15 do provide reasons to study English that actually reveal integrative motivation. These reasons are mostly related to popular culture, since the research participants like watching films, TV shows, TV series and videos in English, listening to music in English or appreciate the English culture in general, because there is much of it everywhere.

Achievement motivation is related to one's personal goals and excellence. As Singh (2011, p. 165) states, "[a]chievement motivation is expectancy of finding satisfaction in mastery of difficult and challenging performances where as in the field of education in particular it stands for the pursuit of excellence". Indeed, some research participants indicated it, e. g. R.6, R.11, R.12, R.17, R.34, R.36, R.49, etc., since they explained their wish to learn to speak English fluently (Statement 11) as being related to gaining self-confidence, achieving excellence in English, expressing themselves and their feelings, being understood or overcoming their fear or complex to speak in English. However, quite many other explanations are in fact related to instrumental rather than achievement motivation, for instance, related to travelling (R. 3, R.61), communication (R.8, R.14, R.20, R.21, R.48) and finding a job where the English language would be needed

(R.39, R.40). This only proves once again how strongly the research participants are instrumentally motivated and oriented.

Since internal motivation refers to someone's internal wish to learn English, it is pleasant to see that the research participants like the English language in general (Statement 8) and study it not because the subject is an obligatory one in their university study programmes. The participants' explanations reveal that English is a beautiful language and they like the way it sounds. Even though the statement itself is on intrinsic motivation and the explanations provided by the research participants are in line, in fact instrumental motivation is present in some explanations, too (e. g. R.12 who reflects on English being a tool for communication).

Of course, some limitations of the research could not be avoided, since the research included three randomly chosen English classes of upper-intermediate students rather than equal numbers of students to represent different faculties at VMU.

## Conclusions

Knowing students' motivation could help teachers to make their teaching more effective despite the field of students' study at university and have a greater effect on the students' overall performance. As the research shows, Lithuanian university students are mostly instrumentally oriented, so their university teachers of English should include more of the content that would clearly show a strong connection to the real world and how the students will be able to use their knowledge gained in the English language classes in the future outside the classroom. Since Lithuanian university students are motivated to use their English skills while travelling, communicating or working, real life situations including these contexts are essential for their motivation in the classroom of general English at B2 level. However, usually future employment situations and skills are focussed on only later by ESP teachers when students study level C1–C2 courses of English at VMU. Thus, it is evident that teachers of general English at lower levels should do this as well, since Lithuanian students start thinking about their future careers a lot earlier than they start studying ESP courses.

At the same time, the research may have implications for the teaching of other obligatory non-speciality subjects at a liberal arts university, such as VMU. If students are instrumentally oriented, their teachers should demonstrate how specific obligatory subjects will be useful to the students in the future in order to increase their motivation to study.

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# OUTPUTS OF A PHD COURSE ON THE EUROPEAN POLICY OF FOREIGN LANGUAGE TEACHER EDUCATION

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## ABSTRACT

The European Commission has developed several standard documents for foreign language education including teacher education and opened access for the common use of all European counterparts. This study is based on a PhD course aiming at increasing awareness of and fostering deep research about foreign language teacher education policy in Europe. The study aimed to scrutinize the opinions of the PhD students in the field of English Language Teaching (ELT) about the European foreign language teacher education policy. In the study, the case study research design was adopted, utilizing qualitative data. The participants of the study were selected via total count sampling model and covered all of the PhD students (*N* = 9) taking the course entitled "Foreign Language Teacher Education Policy in Europe" with the code: IDO710 within the ELT program of the Hacettepe University Graduate School of Educational Sciences in the Fall Semester of 2020–2021 academic year. The data were collected via students' self-reflection reports after the course had been completed and were analysed using content analysis as one of the qualitative data analysis methods. The results showed that at the end of the course the participant students' awareness was highly increased about the European foreign language teacher education policy and related documents; they decided to make use of these documents in their own contexts; they had a deeper understanding of the English as a Foreign Language (EFL) teacher education; and they became determined to carry out further research on the effectiveness of the European documents on EFL teacher education in Turkey.

***Keywords:*** *English Language Teaching, European documents, European policy, foreign language teachers, teacher education.*

## Introduction

Teacher education (TE) process comprises the procedures on developing prospective teachers in terms of knowledge, attitudes, behaviours and skills they need while performing their professional activities in the classroom,

school and the related contexts. The TE process in Europe is divided into three career stages: (a) initial education, (b) induction period, (c) professional education as given below:

a. Initial education covers the college period during which they attend classes to develop their knowledge and skills on didactic, general knowledge as well as their field of teaching.

b. Apprenticeship/induction is the first year of exposure to professional activities and teaching in a particular educational institution.

c. Professional development refers to one-shot or continuous in-service teacher training activities designed for teachers to catch up with the latest educational developments (European Commission, 2011, 2013).

The process of TE is the subject of national educational policy in most countries, reflecting both values and cultures besides considering financial resources. The degree of political control over TE varies depending on the government, and in most developed systems it is the subject of detailed prescription of a governmental body. The government specifies the skills that all teachers must possess, or it specifies the content of TE courses in order to avoid confusions about standardization. For instance, the European Union policy of foreign language teacher education requires a broad description in which European language teachers are expected to fulfil the requirements in the Common European Principles for Teacher Competences and Qualifications (European Centre for the Development of Vocational Training [CEDEFOP], 2009). The related documents are the following:

• The Common European Framework of Reference for Languages – CEFR (Council of Europe [CoE], 2001) is a descriptive & educational document based on 3 principles (learner autonomy, self-assessment, cultural diversity), and an action oriented approach.

• The European Language Portfolio – ELP (Little, 2009) comprises 3 components (Language Biography, Language Passport, Dossier) as a self-assessment, recording and reporting tool.

• The European Portfolio for Student Teacher of Languages – EPOSTL (Newby, 2007) covers 3 main parts; Personal Statement, Self- assessment and dossier, and is composed of 193 descriptors in 7 categories namely: Context, Methodology, Resources, Lesson Planning, Conducting a Lesson, Independent Learning, and Assessment of Learning.

• The European Profile for Language Teacher Education – EPFLTE (Kelly & Grenfell, 2004) is made up of 4 sections: Structure, Knowledge and Understanding, Strategies and Skills, and Values covering 4 items of description.

- The European Profiling Grid for Language Teachers (European Commission, 2011) provides valuable input to the descriptors in the self-assessment for teachers in service and covers 4 key areas: Qualifications, teacher training, and experience; Core competences (methodology – knowledge & skills, lesson and course planning, interaction with and monitoring of learners, assessment); Enabling skills (language awareness, intercultural competence and the ability to use digital media); and Professionalism.

Considering these, the following research question of the study was formulated: "What are opinions of PhD students in the field of English Language Teaching (ELT) at the Hacettepe University in Ankara, Turkey about the foreign language teacher education policy in Europe?"

## Method

The study was based on a qualitative research design. Qualitative research involves collecting and analysing non-numerical data to understand concepts, opinions, or experiences. It can be used to gather in-depth insights into a problem or generate new ideas for research (Bryman, 2008). The details about the method of the study are as follows:

### Participants

The participants of the study were selected via total count sampling model on voluntary basis. They were all of the PhD students ($N = 9$) taking the course entitled: "Foreign Language Teacher Education Policy in Europe" with the course code: IDO710 within the English Language Teaching (ELT) program in the Fall Semester of 2020-2021 academic year at the Hacettepe University Graduate School of Educational Sciences. In the first class hour of the course, the students were informed about the purpose and the method of the study, and they were invited to take part in it. All the students agreed to participate in the study voluntarily.

### Data collection and analysis

The data were collected via students' self-reflection reports after the course had been completed. The self-reflection reports were blinded and analysed anonymously via content analysis as one of the qualitative data analysis methods.

### Procedure

The study was based on the aforementioned course, which lasted for 16 weeks in the Fall Semester of 2020–2021 academic year. The details of the course are given below.

**Course Aims.** Students understand the concept of foreign language teacher education in Europe. They develop skills for making use of various standard documents of European foreign language teacher education in different contexts, and they have the knowledge and confidence to conduct research for further studies on this subject.

**Learning Outcomes:**
- Understanding the core concept of foreign language teacher education, its procedure and the practices in Europe;
- Understanding how to adapt European teacher education systems in their own context;
- Identifying their own foreign language teacher education policy comparing and contrasting with other countries in Europe;
- Developing the core European competencies necessary for teacher education;
- Applying scientific methods and techniques for developing a research on teacher education.

**Course Outline**

**Table 1.** Weekly Course Outline

| Weeks | Topics |
|---|---|
| *Week 1* | Introduction to the course and to the Foreign Language Teacher Education in general |
| *Week 2* | Association for Teacher Education in Europe – ATEE & Handbook for teacher training |
| *Week 3* | European Portfolio for Student Teachers of Languages (EPOSTL) |
| *Week 4* | Revision |
| *Week 5* | European Profile for Language Teachers Education |
| *Week 6* | Revision |
| *Week 7* | Supporting Teachers Educators |
| *Week 8* | Supporting Teacher Competence Development for Better Learning Outcomes |
| *Week 9* | Mid-term |
| *Week 10* | Discussion on relevant articles |
| *Week 11* | Continuous Professional Development (CPD) for Teachers in the UK |
| *Week 12* | Innovations in pre-service education and training for English language teachers |
| *Week 13* | Revision |
| *Week 14* | Discussions |
| *Week 15* | Presenting final report |
| *Week 16* | Final remarks and closing the class |

## Results

In the study, since the participating students were PhD students of ELT Department, and since they were proficient in English language with English language background, the medium of communication during the data collection period was English, and their responses were in English. There was no need for translation.

Findings of the study are presented and illustrated in Table 2 below.

**Table 2.**　Participants' Reflections on Their Achievements in the Course Entitled "Foreign Language Teacher Education Policy in Europe"

| Themes.  Statements |
| --- |
| **1.  Theory and Practice** |
| As an integral part of the educational system, teacher education is closely related to the society. |
| Educating high-quality teachers is one of the most important problems which should be solved by policy makers. |
| Teacher education is a lifelong process which starts with pre-service/initial teacher education, leads to early career support and goes on with continuous professional development (CPD). |
| Teacher-autonomy and cultural diversity are the points that are emphasized in European teacher education policies. |
| Teachers play crucial roles in the development of any nation. |
| **2.  Internationalization** |
| Becoming a member of Association for Teacher Education in Europe (ATEE) and European Association for Language Testing and Assessment (EALTA) was one of the most important achievements of this course. |
| I believe that collaboration with colleagues is as important as intellectual development in teacher education. |
| Teachers in professional development setting in which they develop their teaching skills as a part of continuous development can also be members of some organizations. One of them is called EALTA. |
| People who are interested in language testing can keep in touch with other teachers from different countries by considering cultural autonomy. |
| Being an English language teacher requires to become a member of a worldwide community. |
| **3.  Documentations** |
| All the documents were connected to each other just like the pieces of a chain. This connection ensured that the foreign language teacher education system made sense. |
| Another precious document that we discussed was the European Portfolio for Student Teachers of Languages (EPOSTL). |
| The European Profiling Grid gives us a new point of view. It categorizes professional development phases into three. |

The Supporting Teacher Educators has suggestions for policy makers. The examples from different countries which are presented in this document shows the current policies on teacher educators, which provides us with an opportunity to make comparisons among them.

The European Portfolio for Student Teachers of Languages (EPOSTL) can scaffold reflective teacher learning in language teacher education.

Throughout the course, we were informed about EPOSTL, European Profile for Language Teacher Education, Supporting Teachers Educators, CPD, Supporting Teacher Educators and Supporting Teacher Competence Development. What these documents have in common
is that they are not prescriptive, they present guiding principles.

The European Portfolio for Student Teachers of Languages (EPOSTL), which is a document for pre-service teachers to encourage them to reflect on their skills and knowledge, assess their own didactic competences, monitor their progress and record their experiences of teaching during the course of their teacher education, has a direct contribution to teacher autonomy.

The European Profile for Language Teacher Education is a document about which I have not been informed before. It presents a toolkit of 40 items which could be included in a teacher education program to equip language teachers with the necessary skills and knowledge.

The Supporting Teacher Educators is of great importance in the field of teacher training. The document gives information about who the teacher educators are and what skills and competences they need to develop.

I believe that introducing and using EPOSTL during teaching practicum experience can be very fruitful for student-teachers. Student teachers can be autonomous in their future lives.

The European Profiling Grid is designed to help teachers see and track their qualifications and competencies by assisting them through the requirements in four different areas.

Teachers in professional development setting can study the European Profile for Language Teacher Education, the Supporting Teacher Competence Development, and the Supporting Teacher Educators, which all have descriptive nature rather than prescriptive.

Given the teacher orchestrating what happens in the classroom, the importance of the European Profiling Grid (EPG) is unquestionable. It is an innovative tool describing the competences of language teachers.

## 4. Awareness of Local System

Taking a critical eye towards the current teacher education policy in Turkey and stepping out of the boundaries through learning about the implementations in Europe are necessary. In this regard, I believe that this course has addressed this need and enabled me to broaden my perspective in teacher education.

Teacher education is a critical component of education systems. I believe that this course provided me with in-depth insight with regard to the regulations and policies in teacher education across Europe. Having completed the course, I can say that teacher education in Turkey has neglected points when compared to the European policies. Therefore, as a PhD candidate and a teacher, I believe that more attention is needed to the field of teacher education.

Throughout the course, I had a chance to self-reflect. As a language teacher, I had some questions about who I am, what didactic knowledge, competences, and skills I have had, what qualifications the teacher training program from which I graduated offered me, where I am in my professional journey, what I can do for my personal and professional growth.

## 5. Fostering Further Researches

This course offers me a new perspective in terms of foreign language teacher education. The documents we analysed and the discussions we made were really useful to understand the core concepts of teacher education. This course was a rewarding experience for me to learn the principles of teacher education, and I would like to conduct different researches by taking these principles into consideration.

With the help of this course, my research scope has changed so much, and I will make changes regarding foreign language teaching process in the institution I work.

What I have learned so far in teacher education policies allows me to notice spaces to be opened for the scope of further research agendas, fostering an interest in the development of teacher education programs.

## 6. Self-achievements

Throughout the semester, we analysed different handbooks which focused on different aspects of teacher education.

With the help of this lesson and the readings, I have realized that teacher education is a cumulative process that never ends. Besides, I could also generate my own ideas related to teacher education to support teachers in different settings.

Seeing that teacher educators are also given value is great and fruitful because even if we are teachers now, we can be teacher educators in the future. Hence, teachers should also prepare themselves to be mentors in the future as a part of their continuous development.

In teacher education programs, grey areas important to recognize or areas which are often ill-defined compel me to question taken-for-granted assumptions of teacher development. I have reshaped my thoughts to establish a revitalized perspective that avoids one size fits all models in the spirit of reflexivity and professional development.

We were able to lay out the aspects of teacher education landscape, gain a well-rounded understanding and insights of these complicated issues under the scope the European-based frameworks.

A Europe-wide set of standards for language teacher training are at the heart of offering such an opportunity with all angles covered. Getting acquainted with policy examples of the European countries enriches my holistic understanding of teacher/teaching competences and how to help teachers to acquire and develop professional competences throughout their careers.

Thanks to the course, I feel developed academically and professionally.

I have learnt about the international associations for teacher education such as ATEE and EALTA.

One of the biggest achievements of this course for me was the chance to examine the EPOSTL in detail. In addition, I have learnt about the European Profiling Grid (EPG).

## Discussion

The results revealed that the participant students had an opportunity to understand the fundamentals of foreign language teacher education policy in Europe. They were also able to compare and contrast their education policy with other countries in Europe. Referring to the European Commission's (2013) document, they emphasized their need for developing a policy for a comprehensive and qualified education of teacher trainers in Turkey. Taking steps in this direction, the participants reflected their benefit from the European Commission's documents that introduce a menu of choices and hold descriptive and educational items in a flexible, adaptable, and user-friendly way. For instance, the Common European Framework of Reference for Languages (CoE, 2001) presents valid descriptions of language levels and skills in a comprehensive and user-friendly way. Likewise, a coherent and system-wide induction programs for beginning teachers could be developed using an additional European document (European Commission, 2010). All the documents were built upon the common European principles and values, and they were helpful for the participant students to understand Europe's teacher training concept as contemporary practices in Europe (Mirici, 2015). Among the documents, there was one called "*Supporting Teacher Educators for Better Learning Outcomes*" which presented an understanding of how to support teacher educators (European Commission, 2013). A booklet prepared by the British Council (2013) was also helpful to make the participant students realize different aspects of teacher education.

The Companion Volume of the CEFR (CoE, 2020) was not included in the study because it was the main content of another elective course in the Spring Semester. All in all, it might be safe to claim that the participants definitely felt accomplished and developed about the documents and the teacher education policies in Europe, also referring to the democratic citizenship competencies (Salema, 2005).

## Conclusions and Recommendations

As prospective academics, the participants gained a deep insight on teacher development policies in foreign language teaching and found an opportunity to broaden their outlook on teacher training implementations in relation with the underlying principles by completing course introduced in this study. They all got familiar with the practical knowledge on how to support novice language teachers, the components of each document, and the specific functions European-wide. They learnt the documents that are consistent with each other and the system is coherent among learning,

teaching and teacher training in general. In conclusion, the course helped them to infer that the European policy in foreign language teacher education helps language learners, teachers (pre- and in-service), teacher educators, policymakers and associations understand that success emerges from the unity. It is also an important achievement of the participants that they intended to conduct further researches on the subject.

The results of the study were based on the reflections of only nine PhD students at Hacettepe University in Ankara, Turkey, and all the European documents were not included in the study. It may be recommended that to get a larger picture of the situation, some other larger scale projects or researches be conducted covering more countries, diverse institutions, more student population, and all related documents.

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# THE BOOK "DIE KAVALIERE VON ILLUXT". THE NEW DISCOVERY FOR XXI CENTURY READER

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## ABSTRACT

The article examines the historical and literary significance of the memoirs of a Baltic German about Latgale. The space between Ilukste and Daugavpils has been little studied. The data about individual estates and their owners is fragmentary. The study is a separate part of a large regional and literary study dedicated to the Baltic Germans living in the territory of Latgale and in Daugavpils region. The aims of the study are to establish a connection between the text of the book and geographical and personal realities, as well as to reveal the relationship of the Baltic Germans with the population of Latgale from a perspective of self-reflection. Understanding "myself" in the eyes of others and "others" in one's personal perception is getting more relevant as studying these interactions on the basis of literary texts opens for understanding of the current processes in modern society. The specific tasks are to promote a national issue on the material of the given text as well as to determine a link between the memoir text and the jokes of the Baltic Germans (Pratchen), the features of which have been defined in the authorized studies.

The text is understood as an object of scientific cognition in which there are no random linguistic or substantive units. The methodology of research is based on the interpretation of a literary text as well as the synthesis of statistical analysis, immanent critique and content analysis. In the course of the study, it was possible to establish a structural and substantive link between individual episodes of the book with the Baltics jokes (Pratchen).

For the peoples who inhabited Latgale (southeastern part of Latvia) in the 18th and 19th centuries, the national issue was not decisive, especially among rural people. Difference in perception of oneself and "myself" in the eyes of others was determined by different social status: Germans are the landowners, the rest are servants and badgers. The mental character of the Baltic Germans was shaped, first and foremost, by the family upbringing and education level, commonly university. The key values were love for their native land, pride for their ancestors, honor and service to the state, and faithfulness to the word. On the basis of the life realia described in the book, it is possible to reconstruct the way of life of the people who disappeared from the map of modern Latgale.

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**Keywords:** *Baltic Germans, Die Kavaliere von Illuxt, geographical and personal realities, Latgale, Pratchen.*

## Introduction

Despite the fact that a few years ago the texts of the Baltic Germans were in the focus of attention of many researchers (Michael Garleff, Wilfried Schlau, York-Gothard Mix, Jürgen Wolff, Gero von Wilpert, Anja Wilhelmi, Benedikts Kalnačs, Māra Grudule, etc.), many issues still remain either not fully studied, or not considered deeply enough. First of all, the issues of linguistic originality and the tragic fate of the Baltic Germans, who left their homeland in 1939, were considered. In the last decade, Anja Wilhelmi has been actively involved in family issues in Northern Europe, from whose pen several works were published on the fate of Baltic women and family politics in the 18th–20th centuries (Wilhelmi, 2008). Most of the said researchers concentrate on global problems and the study of the population of large cities, leaving aside regional features and problems. There is still no significant research dedicated to the peculiarities of the life of the Baltic Germans in areas where their concentration had been less pronounced should one compare, for instance, with Riga, Jelgava, or Cesis. The study is a separate part of a large regional and literary study dedicated to the Baltic Germans living in the territory of Latgale and, wherever possible, in the region of the city of Daugavpils. As stated in the previous research, these were the families of the Tiesenhausens, Hahns, Borchs, Engelhardts etc. An examination of the Latvian newspapers dating back to the 1930s revealed that the names of the Baltic Germans appeared only in the criminal and death records. In the fiction of the Baltic Germans, Daugavpils and Latgale in general are hardly mentioned. Nevertheless, the remnants of the former Baronian estates indicate that the Baltic Germans lived here for generations. Interest in the heritage of the Baltic Germans in the region has been particularly high in the last decade owing to the active engagement of researchers at the University of Daugavpils. This article focuses on the work *Die Kavaliere von Illuxt* (1949) by Alexis von Engelhardt (Engelhardt, 1949), dedicated to the family and friends of the Engelhardts, who lived in the area of Ilūkste, 25km away from the largest city of Latgale, Daugavpils. The aim of the study is to link the text of the book with geographical and personal realia, as well as to reveal the relations of the Baltic Germans with the locals of Latgale from the perspective of self-reception. Understanding "myself" in the eyes of others and "others" in one's personal perception is getting more relevant today, as studying these interactions on the basis of literary texts gives us understanding of the current processes in contemporary society. One of the specific tasks of the research is to determine the link between the memoir text and the jokes of the Baltic Germans (Pratchen), the features of which had been defined in the authorized studies. Despite the relatively large number of Pratchen texts, they still constitute a scientific lacuna.

## Method

The text is understood as an object of scientific cognition, in which there are no random linguistic and substantive units. The methodology of research is based on the interpretation of a literary text as well as the synthesis of statistical analysis, immanent critique and content analysis in critical perception of the text. The work consists of two logical parts: the first part examines the issue of "locus" i. e., the presence of the Baltic Germans in the territory of Latgale. The second part focuses on protagonists and their interaction with the surrounding people. In the course of the study of the text, the geographical and personal details of the names and individuals mentioned were clarified, the intermediate conclusions were compared with the stated studies. The archives of Herder-Institut (Marburg, Germany) were used as additional sources.

## Results

The book of Alexis von Engelhardt *Die Kavaliere von Illuxt* (Engelhardt, 1949) can raise interest for investigation of the lifestyle of the Baltic Germans living in the territory of contemporary Latvia and, in particular, the Latgale region. The title of the book bears two important aspects of the image: locus and people. Individual episodes of the book go back to the 18th–19th centuries, the exact dates are important to the author only to enhance the effect exactness. The renaming of former German names into Latvian names is an obstacle to deeper immersion in the study for general public. The analyzed book makes it possible to give historical facts a personal character, which is particularly important for launching tourist routes through Latgale and for organizing visiting lectures in schools and higher education institutions. A significant outcome of the study is the replenishment of joke texts and fascinating stories of the Baltic Germans known as Pratchen as the structure and content of individual episodes of the book correspond to their main characteristics.

## Discussion

Alexis von Engelhardt, whose book is the object of the present research, was an offspring of a famous baron dynasty whose members were well established and respected in both Russia and Germany. The family was very big, the kinship very confusing. Numerous attempts to reconstruct the kinship relationship proved unsuccessful due to variations in spelling of the proper names both in Russian and German, which led to even greater confusion. Several members of this family hold leading civil service positions

in the Russian Empire, to which modern Latvia belonged for long time. Some Engelhardts had a literary bent as well as engaged in world history and technical inventions.

Alexis von Engelhardt was born in 1868 at Lautzen, near the city of Daugavpils, and passed away near Berlin in 1954. He was a writer, journalist and editor. His most famous works include, first of all, history studies, such as *Die deutschen Ostseeprovinzen Russlands, ihre politische und wirtschaftliche Entwicklung* (1916) and *Der König von Korsika und der Freiheitskampf der Korsen* (1928) ( in German).

It is evident from the title of the analyzed literary work, written in the German language, that there are two concepts in the writer's focus, in particular, the characters identified in the given work and referred to as Kavaliere and the locus, i. e. the town of Illuxt, today Ilūkste, which has about 2,500 inhabitants and is located 25 km from the city of Daugavpils and 250 km from Riga, the capital of the Latvia. The city is situated on the crossroads of trade routes between the West and the East, in the immediate vicinity of the borders with Belarus and Lithuania, which predefined its history and development. The first mention of the city dates back to 1550. Once a busy trade and border city it was severely damaged during the First and Second World Wars, as evidenced by numerous photographs of the old city on the Internet.

The city of Ilūkste has always been considered a multi-ethnic city. The fact that Germans resided there along with other nationalities follows from the analysis of the official home page of the city, which mentions that in 1798 in the city there was established Hauptmannschaft (Gendarmerie) for Illuxt, and the very concept and name of the city were given in German. On this basis, it can be assumed that the Germans occupied a leading position in the city, i. e. residing and actively engaging in social and economic activities. The current population census shows that the Germans among the modern Ilūkste population are not separately defined and belong to a group of representatives of different national groups, which accounts for 5 per cent of the total population of the city.

The book *Die Kavaliere von Illuxt* complemented with the title *Erinnerungen aus dem Gottesländchen gesammelt von einem Alten Kurländer* (Memories of a divine country collected by an old Courlander) consists of a short preface and eight chapters, four of which reveal the author's direct relationship with the characters depicted in the story: uncle Jasha (Onkel Jascha), uncle Reihnhold (Onkel Reihnhold) and der Letzte Maidenau (uncle Reihnhold and the last Maidenau), uncle Magnus, uncle Leopold (Onkel Leopold). A large number of relatives in the headings of the chapters gives an impression of the author's extensive affinity around Illuxt; as regards the district itself, according to the author of the book, it was commonly referred to

in jest as "Duchy Engelhardt" (Engelhardt, 1949, p. 5). With reference to the Courland Journal of Civil Status Records published in 1977, it can be argued that members of the Engelhardts are recorded in the Church of Illuxt at least seven times at the beginning of the 19th century, among the estates owned by the family are mentioned Lautzen, Brüggen and Lassen (Wildemann, 1977). These data confirm a large number of the Engelhardts.

The word Kavaliere at the beginning of the foreword to the book is provided with the synonym Edelleute (noble people, nobles), which corresponds to an article entry of a German language dictionary. The remaining chapters of the book comprising 79 pages expand the narration to the historical picture of a small town and its suburbs in the 19th century: "Die grüne Dame" (Green Lady), "Die vier Brüder Sacken" (Four Brothers the Sackens), "Pastorengeschichten" (Pastorals), "Der alte Oettingen" (Old Oettingen).

The subtitle of the book deserves special consideration: by the time of publication in 1949, the author was 81year old; with full right, he calls himself an old recruit. After a severe war, after all the loss, pain, and suffering, the author in his memories returns to the time that seemed happy and carefree.

This book may be of interest to a modern reader used to skimming the headlines as these stories are stories of old times, offering easy and entertaining way of narration. The portrayal of welfare, brief but exact characteristics of the characters and events presented, the witty descriptions of certain habits and customs are of particular importance to the inhabitants of modern Latgale, as the book recalls and describes the localities in Latvia and, in particular, Latgale. The Latvian Selling campaign of 1937–1938 led to the fact that a contemporary resident of Latgale does not associate the old names of the human settlements cited in the book with the places familiar to him. The table that follows is a table of German names, current names of the populated areas, and the level of preservation of former names.

As shown in the Table 1, there are renovated buildings that are currently being maintained as culture centres or self-government buildings. Partially preserved properties are not being used, but it is also possible to see the remnants of former dwellings and economic buildings. The Alt-Grünwald and Meddum have not survived. It should be noted that the residents of Daugavpils, currently the largest Latgalian city are not aware of the former properties; however, the development of domestic tourism in Latvia caused by the restrictions of the corona-virus pandemic in 2020–2021 has awakened interest in the history of the native region. The questions regarding the former property owners are often not answered, or information about them is very scarce.

**Table 1.** Buildings of former estates in Latgale

| Former name | Current name | Preserved extent |
|---|---|---|
| 1. Illuxt (p. 5) | Ilūkste | |
| 2. Alt-Born (p. 7) | Vecborne (district Krāslava) | partly |
| 3. Brüggen (p. 9) | Briģene (district Daugavpils) | partly |
| 4. Alt-Grünwald (p. 16) | Vecgrīnvalde (district Ilūkste) | non-existent |
| 5. Lautzen (p. 17) | Laucesa (district Daugavpils) | partly |
| 6. Dünaburg (p. 25) | Daugavpils | |
| 7. Tabor (p. 26) | Tabore (district Daugavpils) | non-existent |
| 8. Kurtzum (p. 36) | Kurcums (district Daugavpils) | updated |
| 9. Alt-Lassen (p. 48) | Veclaši (district Eglaine) | partly |
| 10. Kalkuhnen (p. 53) | Kalkūni (district Daugavpils) | partly |
| 11. Schedern (p. 58) | Šēdere (district Ilūkste) | updated |
| 12. Meddum (p. 74) | Medumi (district Daugavpils) | non- existent |
| 13. Schloßberg (p. 7) | Pilskalne (district Ilūkste) | partly |

This information can be supplemented and revived by the book Alexis von Engelhardt, which is expanding our present cognition of the lifestyle of Germans in Latgale. It should be noted that the official information on the public Internet pages is often different from the memories of Alexis von Engelhardt, which gives these records additional value.

As Alexis von Engelhardt narrates, his parents' family lived in Lautzen (Laucesa), near Dünaburg, then a large city. The estate was rich, had good soil, many gardens and fields. All food provision was stored in several storehouses (Engelhardt, 1949, p. 38). The old gardener writes about the special fragrance from sorted apples in the baroque lattice oak cabinets (Engelhardt, 1949, p. 74). The description of reception by one of the many guests mentions some of the rooms in this house. It is clear that the owners of the estates received their particularly distinguished guests on the veranda (Engelhardt, 1949, pp. 17–28). The father's working office, named Schreibzimmer, was found at the end of a long master's house. In this room, apart from the typical furniture for the room in which the records were kept, a wide Divan was located, covered with fur, which apparently served for the master's rest. This was the most quiet place in the estate, which can be read from the description of the deep, calm sleep of one of the relatives visiting the author's father. There was one spacious room in the house where one could dance. Birthdays and weddings were celebrated there (Engelhardt, 1949, p. 53). The man was 2.16 m tall being the tallest Courlander of his time. In general, the trend reported by Ants Hein, while

studying the features of the interior decoration of estates in the 19th century, has not bypassed Latgale (Hein, 2006). In addition, there is no division into non-ceremonial rooms and personal chambers, rather the rooms with a clearly limited function, such as a lobby, hall, dining room, bedroom, etc.

A description of the multitude of estates is supplemented with a description of parks, for example, in Lautzen (Engelhardt, 1949, p. 74) or Alt-Lassen (Engelhardt. 1949, p. 46). After describing the park with its long-standing leaves and oak trees in Alt-Lassen, the author moves to the description of the home library of uncle Magnus, located in a white house similar to a palace. Large fertile fields were visible from the library window, as the house itself was located on a high-level pagan hill. Alexis, a small boy, with a tremor was examining the very building of a huge library with gothic vaults, ancient phonies, weapons, archaeological discoveries, and minerals in huge closets. An elderly man could get the curious boy interested with his endless legends and tales of his home country. In the middle of one wall there was a huge fireplace, and a tall leather chair of the master was standing in front of it. In the park there was a coloured geological profile of Courland, made of various rock and soil types. The book mentions that an old stone church was seen from the library window. The biggest mystery associated with this property concerns the question of why this property belonged to the Tiesenhausen kin, as recorded in all official reference books of modern Latvia. The old uncle was childless. After his death, none of the many relatives wished to take possession of the estate, so the estate was sold (Engelhardt, 1949, p. 61). In addition, the memoir manuscripts of the Baron Erich von Engelhardt, found in the archives of Herder-Institut (Marburg, Germany), mention that in 1928 a beautiful fireplace was stolen from the Tiesenhausen's house in Latgale (Herder-Institute, Archive file Nr. DSH 110 Engelhardt 17). This is probably the case of uncle Magnus, described above, from Alt-Lassen.

The author elaborates on the description of several other estates in which close and distant relatives of the Engelhardt family lived. Special mention should be made of Alexis's closest neighbor and university friend August von Oettingen (1823-1908), Lifland Landmarchal, Governor of Lifland, and later the mayor of Riga, who lived in Meddum. A man belonging to the highest strata of society loved his provincial estate. In the book Alexis von Engelhardt there is no description of this estate as Oettingen was more frequently on duty in Riga and Dorpat, which made it difficult for old university mates to keep in touch. The estate did not survive. A local school was built from the stones of the master's house, but a beautiful old park has survived.

From the above analysis, it is clear that the book is not so much about the city of Illuxt but rather the numerous estates nearby. The city itself

also found its place in *Die Kavaliere von Illuxt.* From the memories of Baron von Budberg (Budberg 1958), it is clear that the Engelhardts have been in charge of the city and the entire Illuxt district since the second half of the 19th century, indirectly confirming the definition of "Duchy of the Engelhardts". The certificate of German descent for Rudolph Baron von Engelhardt, issued by the Courland Noble Society in 1934, lists numerous relatives who lived on the estates near Illuxt.

The town of Illuxt had its notable place on the map of Latvia, as there was a city council, court and other authorities in the town (Engelhardt, 1949, p. 6). Fairs were held in the city, which brought merchants from different close and distant places. The living room in the central square was famous for its excellent cuisine and excellent Hungarian wine for dessert. The old photographs of the city convey its originality.

Latgalian metropolitan area has always been associated with Dünaburg (Daugavpils), the largest city in the region. A five-fold mention of the city on the pages of the small book implies that Dünaburg had the power of attraction of a large city for all people in the region, including the landowners, should one speak of the necessary purchases or entertainment. In addition, the city was also a fortress, which was remortgaged and often inspected during construction by the Russian Emperor Nicholay I. One of these *visits*, presumably before the beginning of the Crimean War in 1852, is narrated in *Die Kavaliere von Illuxt* (Engelhardt, 1949, p. 44). With admiration, the author describes the appearance of the emperor, his conduct, and the few words pronounced. The importance of the fortress for the city is especially emphasized as a fortification modern for that time with a significant artillery arsenal and huge reserves of weapons and food. (Engelhardt, 1949, p. 43).

Observations made in connection with the analysis of the estates and cities mentioned in Alexis von Engelhardt are important in understanding the presence of the Germans on the territory of one small area of Latgale. According to the first official data of the first census of the Russian Empire in 1897, 1.8 per cent of ethnic Germans lived in the Daugavpils district (Benz, 1998). Residing in their own estates, the Baltic Germans supported kindred and friendly ties with each other and engaged in civil service, primarily in the cities of Dünaburg and Illuxt. The main area of their life remained the estates in which the life of several generations had passed. Not only does the author describe the life of his family, but also recalls special occasions, conduct, and manner of communication with each other and with others.

The second important aspect for the analysis of this work is people, Kavaliere, i. e. as perceived by themselves and by other people. This aspect is particularly important for the understanding of the mentality of the Baltic

Germans, who lived, in particular, on the territory of Latgale. Despite the fact that the author of the book narrates about individual representatives of his large family and friends, the analysis of the narration provides for a number of important generalizations to be made.

According to the diachronic structure of the book, the story begins with a legend of the "green lady" from the Engelhardts family and ends with the story of August von Oettingen, who was not related to that family. A unifying sense of pride in the "real Oberländer" (residents of the southern part of the country), who have the power of will and sense of honour, becomes the main point. It can be argued that the author deliberately leads the reader to the conception of common features of the Baltic Germans of Latgale by narrating specific events and characters.

By depicting the external features of the Engelhardts such as being tall, their special manner to wear broad old-fashioned coats, the author expresses the way they are perceived in another part of Latvia, in the city of Mitau (Jelgava), where a large number of Baltic Germans traditionally lived. According to the writer Eduard von Keyserlingk, quoted in *Die Kavaliere von Illuxt,* the Engelhardts produced an unforgettable impression of not being Germans in the eyes of German nationals, but rather partly Polish or Russians. Their closeness to the land is especially emphasized, hinting at the ownership of estates and noisy behaviour in society, their physical strength and a greeting with a threefold kiss in the Polish-Russian manner (Engelhardt, 1949, p. 5). It should be noted that Latgale is now considered too "Russian" which is linked to the high percentage of the Russian-speaking population and the proximity of the common border with the Republic of Belarus and the Russian Federation.

It should be noted that Alexis von Engelhardt names officers ranks and positions of the Engelhardts in the city hierarchy, highlighting their high social position and respect in all sectors of the society. Describing Onkel Jascha, the author points to the patriarchal style in the treatment of the peasants, who received advice and assistance, as well as his generosity toward them. It should be noted that no specific examples are provided. On the contrary, the author concentrates on the fact that it was common for the landowner to sexually exploit peasant women, which is why bastards, similar to the baron and to each other, appeared in neighbouring villages.

With special pride, Alexis von Engelhardt tells about his fellow countrymen and relatives who were in the service of Russian emperors. Guards officers from his family and acquaintances participated in the war against Napoleon some of them died in the Battle of the Nations near Leipzig or were wounded in the wars waged by the Russian Empire.

It can be claimed that Alexis von Engelhardt not only draws on his memories, but also uses the material of some family jokes about images

depicted. In this, his memories are attaining the stylistics and structure of the above-mentioned Baltic jokes (Pratchen). Pratchen were intended as oral narrations for a large family or/or close friends. A determining condition for the relevance of such jokes and fascinating stories was that their object and the main character had to be familiar to the audience at the time of performing the Pratchen (Kaehlbrandt, 1995). The author repeatedly describes the admiration and surprise of his vast family because of unexpected decisions and the conduct of such eccentrics. The analysis of the private collection of the Baltic Pratchen, based on numerous sources and 174 texts, showed that, unfortunately, there was no single joke among the published texts dedicated to the Baltic Germans living in Latgale. This fact clearly shows the withdrawal of Latgale from the body part of Latvia in mental sense. In this case, the only source of the Baltics jokes about Latgale is Alexis von Engelhardt.

Most of the situations in which "eccentrics" appeared represent the Baltic Germans as people of honour and loyalty to their cause. These general mental characteristics, raised from childhood, are seen both in domestic situations and in the episodes with the characters representatives of nobles and authority. The episode with the Sacken brothers (Engelhardt, 1949, p. 22) shows that no action aimed at humiliating a person's dignity would go unpunished should representatives of the Baltic Germans were in presence. In this scene, a Polish tavern visitor taunts the small stature of one of the brothers. The two trays provided by the Polack pass without consequences, because the brothers were never, sure of a deliberate action for the first time, and for the second time they left the culprit an opportunity to apologize or abandon his foolish actions. After the third trait, the Polish ridiculer was forcibly placed outside the inn. It should be noted that this is the only case when a representative of another, not German nationality, is negatively portrayed in the book. An introductory legend about Anna Sibylla, married to a Polish military officer, is an example of balance. The next chapter contains the story of a matchmaking of the son of one of the aforementioned Sacken brothers (Engelhardt, 1949, pp. 24–35). A proposed bride was a daughter of a Polish landowner who lived in Lithuania close to Dünaburg. The description of the reception, the acquaintance, the joint meal and the matchmaking show that, generally speaking, for the German and Polish landowners of that region the nationality did not play a significant role in the case of formation of the family should it lead to a possible enrichment and increase of the estate. In this example, it can be seen that communication was based on mutual respect and common interests, even though the father of the future bride, who is ill-speaking and understanding in German, pronounced four times the words "Drang nach Osten!"(German: Spread to the East), which was perceived by the

characters of this chapter with humour and without resentment. This claim can be illustrated by a quotation from Ernst Engelhardt's letter dated 1934 implying no importance was given to national differences in the rural areas (Herder-Institute, Archive file Nr. DSH 111 Engelhardt 30).

It should be noted that the slogan "Drang nach Osten!" was used by Julian Klaczko (1825–1906), a Polish journalist born in Vilna, in his pamphlet in the German language in 1849. The slogan was later taken over by the Pan-Slav Publicists, who sent their criticism against the Baltic Germans, whom they considered colonists and invaders (Henzel, 2014). It can be concluded that the Polish man was familiar with Julian Klaczko's pamphlet, which, however, did not prevent him from getting in engagement with the family of the Baltic Germans. In the description of the matchmaking, the names of numerous dishes and drinks representing various national cuisines, such as Piroggen, Gurjewskaja Kascha, Schaschlyk, Jameika-Rum, Sherry, etc. are mentioned. This diversity can be explained in terms of the lifestyle of the landowners who were open to new dietary impressions and the mixing of cultures of different nationalities living in the region. The peculiarity of Latgalian cuisine is also apparent in our days comprising all kinds of dishes that come from different national cuisines, such as German, Lithuanian, Jewish, Russian, Belarusian, etc.

With reference to Alexis von Engelhardt, it was not a custom among family and friends to issue debt receipts if some of them needed funds and sought help, eager to borrow money (Engelhardt, 1949, p. 74). The main seal was in this case the given word or agreement, which was a true honour. It was also a matter of honor to help the impoverished single family members who moved from estate to estate, where they received a bed, food, clothing and, in general, a comfortable existence. But this poor relative was required, in turn, to respect external propriety, understanding his place in the "foster" family. Mr. Maidenau violated this unspoken arrangement, for which he was permanently separated from the house of Uncle Reinhold (Engelhardt, 1949, pp. 42–47).

For the author of the memoires, the same object of pride is the episodes with August von Oettingen (1823-1908), the former Governor of Lifland and the city mayor of Riga, which took place in the days of the Russian Empire in the territory of the modern Baltic states. Speaking to the Russian Emperor Alexander II in Riga, Oettingen addressed the representatives of the Baltic knighthood in German, displeasing the Russian officials present (Engelhardt, 1949, p. 75). At the time of Russification under Emperor Alexander III Oettingen defended his right and the rights of the Baltic Germans to preserve their national identity. Alexis von Engelhardt cites a conversation between August von Oettingen and the then Minister of Internal Affairs of Russia, in which the Minister expresses his displeasure

at the protests of the Baltic Germans against conducting business only in Russian. "You, after all, are Russian!" said Minister to Oettingen. What was followed by Oettingen's witty reply: "This is new to me. We are loyal German subjects of the Russian Emperor. I have never seen a noble stallion standing in a sheepskin turn into a sheep" (Engelhardt, 1949, p. 77) (translation mine – V. T.) It should be added that love of descent, in this case, to modern Latvia, is a common place in the image of the author of memoires. For example, he recalls numerous meetings at uncle Magnus estate, who encouraged young Baltic Germans to study the history of German knighthood in the Courland and Livonian provinces of the Russian Empire and to continue the traditions of their ancestors on their native land poured with blood and sweat (Engelhardt, 1949, p. 49).

Among the stories narrated by Alexis von Engelhardt with unchangeable pride, there are also such ones, which show the Baltic Germans as representatives of privileged layers of society, such as the landowners, owners of real estate, badgers, and servants. In addition, not always the admiration of the author corresponds to the perception of the ordinary people. The legend of Anna Sibylla tells that after the death of her first husband, the landowner rode a cow like a ghost, as the peasants from her estate said. The peasants understood the sorrows of the mistress, but attached a mystical meaning to the external manifestations of mental anguish, fearing the domineering mistress.

Uncle Magnus, a lover of his native land and history, was not the only one hot-tempered character "of course" (Engelhardt, 1949, p. 54).The author of the memories gives a few examples related to this relative that depict the uncle as a violent vigilante. For Alexis von Engelhardt, a man who saw Europe, who lived in Germany of the twentieth century, these episodes are unpleasant, but he is trying to justify his uncle's brutal behaviour toward his servants as a means of "education system" (translated by me – V. T) (Engelhardt, 1949, p. 50). The author applies his favourite technique to create a literary text, namely, the situation with negative connotation is followed by a kind of insignia or resolution. In this case, this is an episode with the coachman Adamka, who did not allow himself to be beaten because of the overthrown carriage. The writer points out that Adam is a former Russian soldier, and uncle Magnus is a former knight. The situation revealed a conflict between the owner and the servant, where both considered themselves worthy of contenders. The conflict had to be resolved by duels, in line with the Knight Code. The coachman, however, cling to the mother's memory, refused to make the first shot. The story ends with uncle Magnus sending the former coachman with an accompanying letter to another relative for whom he was recruited (Engelhardt, 1949, p. 52). It is not hard to imagine that in the eyes of the servants and

the badgers, such behaviour of the master caused rejection and outright ridicule. The latter is particularly evident in the case of the construction of the railway station in the territory of uncle Magnus. Without accepting the industrial development of the country by refusing to use the railway, he became the subject of ridicule and jokes. When asked why he took a gun with him when visiting the railway station, uncle Magnus replied that he would have shot at the passengers of the train if they had started making faces at him (Engelhardt, 1949, p. 54). The cruelty and injustice in the treatment of the servants was balanced by the fact that rigid and violent offenders were fully subordinated to their clever and cunning wives, as Alexis von Engelhardt points out (Engelhardt, 1949, p. 55). The "eccentrics" of the characters depicted in many ways is borderline with madness and permissiveness, which Alexis von Engelhardt tries to show with humour and joke, for example, the habit of one of the relatives to shoot starlings with a gun at any place and at any hour (Engelhardt, 1949, p. 64). All these observations provide for the conclusion that the attitude toward such eccentrics within the family and friends was fundamentally different from that of the common people.

One story referred to in Alexis von Engelhardt stands out from the rest of the stories in that it is not about relatives, but rather about pastors in Courland. This story allows for a more generalized view of the situation of Baltic Germans in the territory of modern Latvia. The episode reveals, first and foremost, the relationship between two friends in different social positions. In the framework of the aims and objectives of the given article, it should be pointed out that the German pastor is shown far from the needs, concerns and interests of the common people, which is manifested in particular in the situation in which the German pastor, after finishing his first sermon for the German flock, continues his sermon for the Latvian parishioners without noticing that they had left shortly, and the church should be closed. Although the author tries not to focus the reader's attention on injustice or neglect of common people, the narrated text provides an overview of how the Baltic Germans were perceived in Latgale.

## Conclusions

Alexis von Engelhardt *Die Kavaliere von Illuxt* is currently the only source of jokes and fascinating stories (Pratchen) of the Baltic Germans. Based on the life realia described above, it is possible to reconstruct the welfare of the people who disappeared from the map of modern Latgale. The Baltic Germans lived in Latgale for several generations, most of them were landowners. For the peoples who inhabited Latgale in the 18th and 19th centuries, the national issue was not decisive, especially among rural

people. Difference in perception of oneself and "myself in the eyes of others is determined by different social status: Germans are the landowners, the rest are servants and badgers. The mental character of the Baltic Germans determined, first and foremost, family upbringing and education level, commonly university. The main concepts were love for their native land, pride for their ancestors, honour, and service to the state, faithfulness to the word.

## Acknowledgment

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# QUALITY MANAGEMENT CONCERNING USE OF ICT IN HIGHER EDUCATION LANGUAGE LEARNING ENVIRONMENTS: A CASE STUDY IN TURKEY

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## ABSTRACT

Globalization and technology have changed educational settings, and information and communication technology (ICT) literacy has become inevitable in this new era of teaching and learning. ICT is believed to help to transfer educational environments into learner-centered ones and to enhance the quality of teaching learning and management in education. Over the last fifteen years, Turkish education system has been undergoing some reforms both in schools and universities, trying to equip education settings with at least a projector, a computer and Internet access. The survey presented in this article examines language teachers' beliefs and attitudes towards ICT in teaching English at a state university. It aims to better understand the challenges teachers face in integrating ICT in teaching and learning and thus to search for the answer to the question 'What are the main components of quality management in ICT use in higher education language learning settings?'. A semi-structured interview and focus group discussions were used to collect data. Twenty-eight teachers participated in the survey and the results showed that the majority of the participants had positive attitudes towards the integration of ICT in language learning environments; yet some of the teachers found the practice not that easy concerning finding the most suitable materials while preparing and delivering lessons. They also stated that their lack of classroom management skills, bad student behavior hindering learning and students' lack of using ICT made the integration of ICT into education settings quite challenging and added that the lessons were quite short to implement ICT strategies appropriately. Another noteworthy result was that the majority of the teachers' understanding of effective use of ICT in class seemed rather limited and unproductive. Therefore, the teachers were looking for support from the management to provide them with the required equipment and technical support when necessary. They also needed exchange of experience in learning of ICT skills in language teaching, which all showing that quality management in ICT use needs developing. Concerning all these, the researcher suggests ideas to improve the quality management in ICT use in language learning in higher education institutions.

*Keywords: education managers, EFL instructors, ICT use in language teaching, language learning environments, quality management.*

## Introduction

Information and Communication Technologies (ICT hereafter) have made learning environments very powerful in that education settings and training courses have turned into open-space learning cycles (Burke & Fedorek, 2017; McCarthy, 2017). Therefore, education management systems are required to enhance the use of ICT and to manage the strategic changes in order that learner outcomes rise in today's modern world.

ICT is defined as a set of technological tools and resources used to communicate and to create, disseminate, store, and manage information (Tinio, 2003). ICT use is supported by the European Council as well. For example, one of the operational goals of Erasmus (European Commission, 2006) promoting the attainment of European Space for Higher Education by reinforcement of training and innovation is to support the development of contents, services, pedagogies, and innovative lifelong learning practices based on ICT.

A well-balanced ICT environment is likely to enable students to feel and stay motivated (Bilyalova, 2017) throughout the learning process. Motivation, individualization, learning in context and the activation of the learner are often a part and a parcel of a successful ICT support (Mullamaa, 2010). Wright (2008) states that academic learning accompanied by computer technology offers students much more confidence and interest in the process of exploring and learning knowledge. It also helps to create the 21st learning environments where students need to possess skills of cooperation, communication, critical thinking, problem-solving and reflection (Buchem & Hamelmann, 2011; Gunuç, 2016; Rotherham & Willingham, 2010).

In education, quality means better learner outcomes, which is possible by creating a quality culture in the institution. To achieve the desired results, education managers must question core teaching and learning processes and methods and that needs to be a shared vision throughout the whole organization, which could be achieved through good quality management skills. Quality management provides a connection between outcomes and the process by which outcomes are achieved (Frazier, 1997) and it requires autonomy, capability, and creativity (Lowther et al. (2008).

### Foreign Language Education and ICT

In the 21st century, continuous advances in technology determine how to learn and teach like in every other field. Therefore, technology integration has also gained importance in language learning. ICT integration into teaching and learning process gets far more important in non-English speaking countries because it provides learners with authentic materials inside and outside the classroom and gives learners a better understanding of the target culture allowing them to have interaction opportunities and

feedback (Golonka et al., 2015), which is the core of constructivist learning theory (Vygotsky, 1978). Then arises the challenge for the education managers and teaching staff to develop an action plan through which current understanding of second/foreign language learning and teaching can be applied and developed (Grabe & Grabe, 2005).

In a classroom, the teacher perceives and defines a teaching situation, makes judgments and decisions, and then takes related action (Chen, 2008); thus, he/she has an important role to play ensuring the successful implementation of ICT in educational environments (Çelik, 2013; Çelik et al., 2013; Gilakjani & Leong, 2012), which requires today's language teachers to be proficient in the target language and sufficiently trained to able to leverage the opportunities provided by ICT (Godwin-Jones, 2015). It is of crucial important to actively involve students into ICT integrated lessons such as by giving responsibilities such as tasks, homework, and projects. Teachers, through these processes, need to guide students in self-directed learning, as well. Self-directed learning skills enable students to take control of their learning activity through their autonomous learning (Bowers, 1987) of online content anywhere, anytime, thereby increasing education efficacy (Warschauer, 1997; Zainuddin & Perera, 2018).

The International Society for Technology in Education (ISTE, 2008) describes the effective teachers' use of ICT in class as follows:
- Facilitate and inspire student learning and creativity;
- Design and develop digital age learning experiences and assessments;
- Model digital age work and learning;
- Promote and model digital citizenship and responsibility;
- Engage in professional growth and leadership.

Higher education in Turkey has a great place in terms of teaching foreign languages. A great majority of the universities offer yearlong intensive English language classes to their students so that they will be able to follow lessons in English in their major programs, so it is important to specify the current situation of ICT integration into language learning and teaching, concerning its benefits in language teaching and learning. There is not much in the literature about English language instructors' beliefs and attitudes towards the use of ICT in their classrooms and how they integrate it, if applicable, into their lessons in higher education in Turkey. This current study also focuses on the barriers language teachers perceive or face when they are trying to integrate ICT into their education contexts based on their pedagogical and instructional beliefs and thus what educational managers could do to improve the situation for better in the frame of quality management, emphasizing the significance of knowing how to integrate these technologies into learning environments and to manage them in an efficient and effective way to level up learning outcomes.

### The Case in Turkey

In Turkey, English Language Teaching (ELT) programs include a course entitled 'Information Technologies'; yet this course focuses on how to deal with technology rather than how to implement ICT into teaching and learning environments. However, pre-service teachers need hands-on experience in designing and teaching technology integrated lessons; then the need of curricula change arises to keep pace with changes in today's technology enhanced student-centered learning environments. In primary and secondary education, Ministry of Education (MoNE, 2015) started Fatih project in 2011, which aimed at equipping schools with good infrastructure and tablets by the end of 2014 to build a national network; yet the e-content of the project displayed compatibility with the national curriculum, the syllabi, and the core materials to some extent (Kızılet & Özmen, 2017) and unfortunately not much was done for the training of teachers to implement technology into classrooms; therefore, the project has not yielded the expected results. As to tertiary education concerning state universities, technological infrastructure is much better, and some universities provide their academicians with personal computers. However, the problem of how to integrate technology into teaching practice keeps its place as an issue.

### Barriers to ICT Implementation into Language Learning Environments

ICT bring together traditionally separated educational technologies, books, writing, telephone, television, photography, databases, games, and more, bridging forms of knowledge and literacy. However, apart from these opportunities, they also bring challenges to be overcome: to embed ICT in teaching and learning environments, teacher training, curriculum structures and materials, classroom practices and the ways of assessment need to go in revision at all levels (Livingstone, 2012). Tinio (2003) also points out that "the effective integration of ICT into the educational system is a complex, multifaceted process that involves not just technology but also curriculum and pedagogy, institutional readiness, teacher competencies, and long-term financing, among others (p.5)."

University teachers and teaching staff encounter demanding challenges when they are integrating ICT into their teaching practice. They not only need to learn how to use ICT in teaching, but they also need to use ICT in pedagogically meaningful ways (Ertmer & Ottenbreit-Leftwich, 2010; Harris & Rea, 2009; Löfström & Nevgi, 2008). Löfström & Nevgi are of the view that lack of motivation could be the mere reason of not applying ICT into teaching and learning environments. Believing that changes are too fast and not having a positive view of the effectiveness of ICT are other factors which discourage teachers to use ICT in their teaching style (Bennett

& Bennett, 2003; Zare-ee, 2011). Çuhadar & Yücel's (2010) study points out that a lack of technological infrastructure, technical problems while using ICT, a lack of knowledge and experience of using ICT, not being able to follow the latest updates about ICT and a lack of self-confidence about implementing ICT into teaching practice are factors stated by pre-service EFL teachers.

As to the roles of education policy makers, they need to take good examples for embedding ICT into teaching and learning environments. For example, in Norway, ICT use is of great importance in teaching English Teacher education programs where national curricula require student teachers to master the use of ICT for teaching subject disciplines in a competent and professional manner (Almås & Krumsvik, 2007). In Colombia, in accordance to the curriculum for the Master's program in English Language Teaching, Technological Environments, one of the competences, is a crucial part of the program which facilitates the creation of autonomous learning environments by using ICT, so that each candidate in the Master's program will have to know how to use new ICT tools based on the requirements of the context, propose strategies in order to respond to the learning needs of their students in order to support them with the technological tools at hand and to understand the major challenges posed by meeting the changing educational needs of the society (McDougald, 2013). Likewise, in Chinese higher education institutions, English is a compulsory course from undergraduate to doctoral students. To improve continuously the English teaching and learning effectiveness and efficiency, some Chinese universities have developed web-based instruction systems for EFL teaching (Liu & Yu, 2012). When looking at all these examples, the ELT programs in Turkey need to renew their programs concerning ICT integration into language learning environments in order to stay in alignment in modern world's education settings.

## Method

This survey is a qualitative research in nature to ensure better understanding of the challenges the teachers face in integrating ICT in teaching and learning and thus to search for the answer to the question 'What are the main components of quality management in ICT use in higher education language learning settings?' For this purpose in mind, the following research questions are stated:

1. What are EFL instructors' attitudes and beliefs towards the integration of ICT in their teaching practice?
2. How do EFL instructors integrate ICT into their teaching practice, concerning four language skills?

3. What are the barriers which hinder EFL instructors integrating ICT into their teaching practice?

A semi-structured interview was used to examine 28 EFL instructors' beliefs and attitudes towards the use of ICT in English language teaching and their perceptions of the factors discouraging them to implement ICT in language learning environments. The participants were chosen randomly from a School of Foreign Languages at a state university in a traditional face-to-face learning environment. Data was also gathered through focus group discussions and analyzed using context analysis, which involved developing codes, categories, identifying themes and developing concepts (Denscombe, 2007). After the context analysis, selected instructors' opinions were given in quotations. In order to respect the anonymity and confidentiality of the interviewees, the quotes are given without mentioning the names. The significant parts from the focused group discussions were also placed in the study.

The researcher made face-to-face interviews and two focus group discussions in fall semester of 2020–2021 Academic Year. The researcher also consulted two other field experts about the questions on the semi-structured interview. Each interview lasted approximately 25-30 minutes and the focus group discussion lasted for about one and half hour. The interviews and discussions were recorded. Then, the recordings were deciphered and encoded after some themes. One qualitative analysis expert was asked of their opinions concerning the codes and themes respectively and a consensus was achieved based on Miles & Huberman's (1994) formula.

As to the participants and the infrastructure of the institution, the instructors were familiar with the use of ICT and each class was equipped with a computer, a projector, and a sound system as well as Internet access. Students registered at this prep school are also allowed to access the Internet with their own smart devices. Yet there are not any supporting facilities or resources such as language labs and self-access centers in the school of foreign languages where students can study individually.

## Results and Discussion

In this paper, the researcher obtained some important results pertinent to the use of ICT in language classrooms. The literature review indicated that the use of ICT enhances the learning process; yet there are some obstacles to be put out off the way, which could be realized with a good quality management. Based on the first research question 'What are EFL instructors' attitudes and beliefs towards the integration of ICT in their teaching practice?', it is seen that instructors have a positive attitude towards ICT enhanced lessons, and they think that lessons are more motivating and

attractive for students and language skills develop quicker, adding that it is very important to provide students with authentic material. Some of the responses are as follows:

> *"Embedding media technologies into my lessons are more motivating, meaningful and enjoyable for my students. ICT provides lots of different materials for us, as teachers to use in our classes. It helps us keep up to date with the latest teaching trends. It also provides individual and interactive exercises for students."*

> *"ICT makes planning easier and helps save time and energy while delivering a lesson."*

> *"ICT is very useful to find authentic material, which is really important for students to be exposed to the target language in a non-English speaking environment. Students are also familiar with the technology, so they get attracted and focus more on what's happening."*

Likewise, Park and Son's (2009) research showed that teachers have positive attitudes towards the use of computers in the classroom and they consider computer technology as a useful teaching tool that can enhance ways of teaching by offering students a variety of language inputs and expanding students' learning experiences in real and authentic contexts. According to Çobanoğlu & Yücel's (2017) study done at another state university in Turkey, EFL instructors have positive attitudes towards the use of ICT, and they integrate ICT into their teaching practice while preparing and delivering their lessons. They especially prefer to prepare attractive PowerPoint presentations containing music and visual items. As a result, the results of this qualitative study coincide with those of the other studies.

As to negative sides, a few teachers pointed out that some of the students are negatively affected by the use of technology in class. As one of the teachers stated:

> *"Some students are less willing to read and write because of the advancements in technology. For example, they prefer taking the pictures of the board instead of taking notes."*

On the other hand, some participants also think that there are some challenges for them to incorporate ICT into their teaching practice. They mostly claim that it is not easy to find suitable supplementary materials and some resources are unreliable. As stated by some of the instructors:

> *"When there are too many materials, it might take a long time to decide on the most appropriate ones."*

> *"Internet provides a wide range of resources and unfortunately some of them are not reliable. It is also difficult to choose which ones to use in my lessons."*

> *"There are a lot of materials and you need to better differentiate which ones are better and how much you need because using it too much can also be boring for students."*

Another challenge for implementing ICT into learning setting is that teachers and learners find it difficult to choose among the wide variety of Internet resources to benefit themselves the most (Postholm, 2007). Then, it is where both the teachers and learners need effective guidance to use technology in an effective and meaningful way to find ways of reducing cognitive load and to support learners in constructing meaningful knowledge. Since the technology allows access to multimedia resources, it is highly important to deliver lessons in a pedagogically useful way. Then the learners feel more relaxed to learn, and they also become more active because they learn by using technology rather than by being instructed by technology (Grabe & Grabe, 2005).

When considering the second research question, 'How do EFL instructors integrate ICT into their teaching practice?', the results revealed that instructors use a wide range of sources such as blogs, forums, websites to access authentic materials and exercises when preparing their lessons. As stated by some of them:

> *"I check some blogs and forums written by teachers from different parts of the world. I adopt those teaching ideas to my lessons."*
> *"I use the Internet to search for suitable material such as images, texts, exercises and so on. I also prepare PowerPoint presentations."*
> *"I find images, videos, interviews, documentaries, songs and news related to the topics in our course book."*
> *"Internet is a great source for finding listening tracks, videos or exercises. It is indispensable for me. I use it about every day when preparing a lesson. I google and find what I want on the net."*
> *"I prepare my lessons as PowerPoint presentations. When preparing them, I use blogs, visuals, audios…etc. I find online. It is much easier that way and practical, too, concerning weak or no Internet access from time to time."*

Apart from the interviews, in focus group discussions, it appears that most of the teaching staff encourage their students to use ICT inside and outside the class to some extent. They use some applications to attract their attention and to motivate them to participate in the lesson. They also allow their students to use online dictionaries on their smart phones and to interact with each other by playing online games. Apart from these, some of the teachers would like the students to submit their assignments through email. All the teachers use the supplementary digital material of the course books. There are some responses and comments from the instructors below:

*"I let students use their mobile phones as a dictionary."*

*"I ask students to email their written and oral assignments. Some websites like Kahoot and lyrics training are quite fun when students are bored. I-tools of the course books provide good materials as well."*

*"I use I-tools of the book. I also use YouTube videos or music during lessons."*

*"I either use PowerPoint presentations, videos or I-tools of the course book."*

*"I integrate videos, tracks, photos, speeches and so on into my lessons."*

*"I make use of PowerPoint presentations, online exercises, videos and I-tools of the course book.*

*"During the lesson I use online exercises if students need. We watch videos related to the subject they study. We sometimes watch TV series with English subtitles. Apart from these, if I need an urgent answer to a question, I look it into on the Net. I also use online dictionaries and encourage my students to do so as well."*

*"I have everything prepared, downloaded prior to my lessons. I rarely use the Internet during lessons. But when I do, it is for the use of applications on students' smart phones e. g. Kahoot and Quizlet."*

*"Websites, mobile phone applications that can be used in class, e-books and learning management systems of the course books are the ICT tools I use in my classes."*

*"I use the Internet in class, we play some online games, and students interact with each other using their mobile phones. I also use the I-tools of the course books. I use some relevant websites and pages to broaden their thoughts."*

Upon on skill-based dimension, instructors integrate ICT into their teaching practice as follows:

**Listening:**

*"I use videos, songs with gap-filling exercises, some short films with English subtitles."*

*"I try to find authentic materials. BBC, British Council and some other websites include good material such as videos, podcasts "*

*"I slow down or speed up videos. Do online listening tests. Find authentic listening material.*

**Speaking:**

*"I use photos and videos as speaking prompts. I also ask them to prepare presentations using Powerpoint or Prezi."*

*"After watching videos or looking at photos or pictures from the internet, we talk about the topic."*

*"I try to show videos including target language."*

*"Students record videos or make interviews by using their mobiles or other devices. They upload the videos on their social network profiles or send them via WhatsApp."*

**Reading:**

*"I use PowerPoint presentations to work on reading texts. They help me to better focus on a reading skill at a time."*

*"I assign students to read some texts and news related to the given topic on Internet and in the next lesson I ask them to share what they have read."*

*"I use the projector to project a reading skill exercise."*

**Writing:**

*"I show my students some sample essays. They email their essays to me. They also have a WhatsApp group as a class and they chat in English."*

*"I get my students to write film reviews after movie hours."*

*"I try to present sample pieces related to the writing as much as possible."*

*"After watching videos or looking at photos or pictures from the internet, we write about the topic."*

*"Showing online samples and writing about a topic from a visual or audio text."*

*"If students need, we examine some writing samples such as paragraphs or essays. They read some samples, and this encourages them to write. They also send their writing pieces via email, and I give them feedback on a digital platform, too."*

Comparing to teaching speaking, reading, and writing, the majority of the teachers use ICT rather effectively while teaching listening skills. A few teachers expressed that they never use ICT for the purpose of teaching writing skill to their students.

As to the third research question of this study, 'What are the barriers which hinder EFL instructors integrating ICT into their teaching practice?', the survey revealed that the teaching staff mostly complain about weak Internet access in the classrooms. They think that it is difficult to access some technical devices in classroom settings and when facing a problem, it is waste of time dealing with it. Moreover, technology might be challenging to use for some teachers. Lack of student interest at some points and bad student behavior are other challenges to overcome according to the teachers. Finding enough time to implement ICT into lessons concerning the intense curriculum is another challenge for some teachers. A few instructors also state that they do not have the required classroom management skills while integrating ICT into their teaching practice, causing them to feel uncomfortable.

*"I have poor classroom management skills while using ICT in my classes."*

*"Some students are not familiar with high-tech environments, and they have bad skills in the use of ICT."*

Some teachers also state that they have lack of interest in integrating ICT into their teaching practice and find traditional methods much more practical and appropriate for teaching English. Some of them also think that lessons are too short to implement ICT into learning settings.

Moreover, external factors such as lack of time, insufficient computer facilities, rigid school curricula and textbooks and lack of administrative support negatively influence the implementation of technology in the classroom. Internal factors such as teachers' limited digital skills, knowledge about computers and beliefs and perceptions of technology use also seem to affect significantly teachers' decision to use ICT (Park & Son, 2009). The findings of a study by Hu and McGrath (2011) indicate that limited ICT skills and pedagogic expertise are obstacles to the use of ICT in the English language teaching. According to Salehi & Salehi's (2012) study, insufficient technical support at schools and poor access to Internet and ICT prevent teachers to use ICT in the classroom. A lack of motivation, and technical and financial support are other barriers ELT teachers face when implementing ICT into their learning settings (Liu & Szabo, 2009). Shortage of class time is another important discouraging factor for the teachers to integrate ICT into the curriculum. Moreover, teachers also refrain from using ICT concerning the time factor to learn those required skills.

Generally speaking, in response to the research questions stated, the findings suggest that although teachers use a wide range of sources to integrate ICT into the teaching of English, it seems that mostly learning from ICT strategies are in use rather than learning with ICT strategies. Based on this survey, ICT is not effectively used by most of the EFL teachers, and they think that the learning management supplement of the course book gives them enough chance to integrate ICT into their teaching practice. They find it very handy in that they can project the course book on the screen, and they can cover the units and do all the exercises at a click of the mouse, including workbook and teacher's book.

When the use of ICT in teaching and learning languages is taken into consideration from the angle of education management, the education policy in Turkey needs revising. Apart from training language teachers and renovation of language teaching programs, a quality culture where an ICT policy defines and search for ways how ICT will be helpful improving teaching and learning.

## Conclusions

There is no doubt that effective ICT integration into educational settings does not depend on only one variable. The infrastructure of the educational institutions, the teachers' pedagogical beliefs and the curriculum in

progress all define the direction of the effective use of ICT in classrooms. Although instructors mostly believe the good impact of ICT use in learning environments, they need to attend in-service training and/or professional development programs to train themselves. Instructors also need to support students for ICT use in and outside class. If used effectively and efficiently, ICT can be used for self-access learning by students so that they can better improve their language skills.

This study is a relatively small-scale study with a limited number of participants only from one state university in a face-to-face learning environment by using a qualitative methodç. Therefore, further studies need to be carried out by using a mixed-method approach. Also, more research needs to be done to find out the barriers English language instructors point out to integrate ICT in their lessons and thus to propose solutions for those problematic areas. Other studies should be carried out to measure instructors' ICT competences and what is being done in the frame of quality management in other higher education language learning environments.

The ELT programs in Turkey need to be renewed by transferring into an ICT integrated curriculum, instruction, and professional development programs. Instructors are required to alter the way they teach concerning the improvements in technology so that learners are provided with new learning styles which could lead them to become more self-directed learners. This could be possible with creating a quality culture in the institution.

This study does not claim that ICT is the only and the best way to teach and learn a foreign language; however, it would not be wise not to get the benefits of integrating technology into language learning environments. Another important issue is that having the skills of using ICT does not necessarily mean that it is being put into teaching practice effectively; therefore, there is no doubt that implementing ICT into teaching and learning English depends on instructors developing their technological content knowledge and how they apply technology in the classroom as a pedagogical tool. This requires a needs analysis concerning the ICT use of the EFL instructors so that they could get proper in-service training or attend continuous professional development programs. It is also essential that related innovations be made to better applying good quality management skills throughout the whole institution and creating a shared vision to integrate ICT use into ELT programs which would pave the way for the programs of intensive language programs of the school of foreign languages to revise their curricula.

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# THE IMPACT OF THE SOCIOLINGUISTIC ENVIRONMENT ON THE STATE LANGUAGE PROFICIENCY OF CHILDREN FROM ETHNIC MINORITIES IN A PRESCHOOL EDUCATIONAL INSTITUTION

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## ABSTRACT

The article discusses the impact of the daily language choice of ethnic minority children on Latvian language skills in a preschool educational institution. The aim of the study is to explore the impact of the daily language choice of ethnic minority children on Latvian language skills in a preschool educational establishment, surveying the children's parents. Within the project LAMBA (2015–2017), the researchers Olga Ureka, Dace Markus and Anna Vulane adapted a survey elaborated by Sharon Unsworth (Utrecht Bilingual Language Exposure Calculator (UBiLEC): Questionnaire and notes on Completing the Excel file) to Latvian for surveying bilingual parents. Sharon Unsworth has developed this method in Utrecht to use as a survey for parents of bilingual children. The set of questions is included in the survey which is based on the previous experience of educators and linguists in work with children. The questions included are about children's linguistic surroundings at home, in preschool setting, in other activities and during free time. The answer options included in the tables allow to investigate parents' opinions about children language comprehension and application quality and frequency, but in the survey tables we can obtain also quantitative data about the use of language and children's linguistic environment. Employing UBiLEC, an internationally approbated survey adapted to Latvian for parents of bilingual children, the Latvian language skills of ethnic minority children are compared in the preschool groups where children daily use Latvian or Russian. The topicality of the issue is intensified by the requirement, in force from September 1, 2019, that in Class 1 of all ethnic minority schools 50% of learning must take place in the state language; therefore, it is important to make sure that preschool-age children are prepared for learning in Latvian. In recent years, there has been a tendency for the ethnic minority parents to enrol their children not only in the preschool groups taught in Russian, but also in Latvian. Parents' survey data show that the ethnic minority children who attend a Latvian preschool group are linguistically ready to continue their education in Latvian or bilingually – the same as children with Latvian as their mother tongue, but if Russian is used as a language of instruction, the lack of Latvian sociolinguistic environment becomes a major obstacle for acquisition the necessary Latvian

language proficiency. This research was done in National Research Programme "Latvian Language" Nr. VPP-IZM-2018/2-0002.

## Introduction

The aim of the study is to explore the impact of the daily language choice of ethnic minority children on Latvian language skills in a pre-school educational establishment, surveying the children's parents. As since September 1, 2019, it is established that in Class 1 the learning process takes place 50% in Latvian and 50% in ethnic minority language, acquiring also one foreign language (usually English), it is important to make sure that ethnic minority preschool children are prepared for such curriculum (*Regulations Regarding the State Guidelines for Pre-school Education and the Model Pre-school Education Programmes,* November, 2018). Until now, in Latvia, the UBiLEC method is employed only for surveying those ethnic minority parents (including foster parents and guardians), whose children attend preschool educational institutions with Russian as language of instruction. The result of our previous research based on recordings reflects the situation in preschool institutions in following way: "The results obtained highly demonstrate that, for children visiting groups using the Latvian language every day, the Latvian language skills are significantly better than the language skills of minority children visiting groups using Russian-dominated language every day" (Markus, Tauriņa, Zīriņa, 2021, p. 144). That is one of the reasons why we decided to investigate parents' opinions to the learning issues of the State language. In recent years, there has been a tendency for ethnic minority parents to enrol their children in groups with Latvian as a language of instruction. In this study, to assess how important is a socio-linguistic environment for learning a language in preschool education, besides the above mentioned surveying of bilingual parents, we compare the Latvian language skills of ethnic minority pre-school children in groups of Latvian and Russian as a language of instruction. The parents of two Liepaja preschool educational institutions agreed to the survey. There are 20 preschool education institutions in Liepaja: two of them are entirely ethnic minority preschools, eight implement both Latvian and ethnic minority programmes, but the other preschools operate in Latvian.

## Research Methodology

In Latvia, there are not many early language assessment tools; mostly they are speech tests of various scopes, based on questions about the pictures. In the scientific literature, there are also many references to the role of parental observations and surveys in determining the language skills of children, disorders or further learning strategies (Kristoffersen, Simonsen, 2012; Law, Roy, 2008; Shannon, Milian, 2002; Thal, O'Hanlon, Clemmons, Fralin, 1999; Vulāne, Urek, Markus, 2016 etc.). Withing the project LAMBA (2015–2017), the researchers Olga Ureka, Dace Markus and Anna Vulane adapted a survey elaborated by Sharon Unsworth (*Utrecht Bilingual Language Exposure Calculator* (*UBiLEC*): *Questionnaire and notes on Completing the Excel file*) to Latvian for surveying bilingual parents. The findings on problems that arose while adapting the survey have been described in publications (Markus, 2018, p. 158–159). "This survey has been tested in Latvian settings but has not been widely applied yet. The adequacy of the answers, of course, depends on the responsible attitude of the parents, but in general, the extensive first-time application of the survey in Latvia can provide new ontolinguistic and sociolinguistic discoveries in Latvian linguistics and pedagogy" (Markus, 2018, p. 166).

## Results

The respondents: 25 ethnic minority parents of children who attend the preschool groups with Russian as a language of instruction, and 13 ethnic minority parents of children who attend the preschool groups, where the learning takes place in Latvian. The content of the survey was previously coordinated with the State Inspectorate for Protection of Children's Rights, the State Data Protection Inspectorate, and the data protection specialist of Liepaja University. The parents completed the questionnaires individually in the presence of researchers.

All children involved in the study receive the required preschool education: in Latvian groups all learning takes place in Latvian, but in the Russian-speaking group Latvian is used only twice a week during Latvian language lessons (30–45 minutes), but other teaching and daily communications take place in Russian. Posters, photo corners and other visual environment-design materials also enhance the Russian language environment in these groups. No statistically significant differences were found in relation to the child's gender and parents' level of education (*p > .05*). *The summary of the survey results for the groups with Russian a*s language of instructio*n* shows that the knowledge of Latvian for these children is very poor. To the question "*How well does your child speak Latvian?*" 15 parents

answered, *"hardly any fluency"* six parents indicated *"limited fluency"* three parents – *"fairly fluent"* but only one parent answered that his/her child is *"equally fluent in Latvian and Russian"* (See Figure 1).
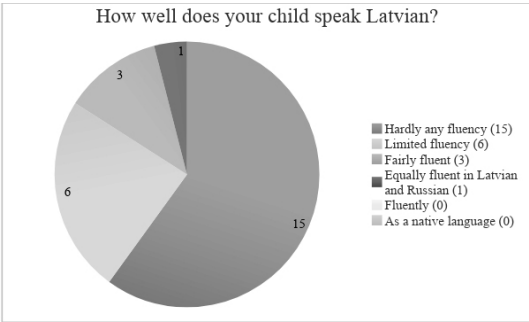


**Figure 1.** Latvian language proficiency of children from ethnic minorities in groups with Russian as a language of instruction

In the groups with Latvian language of instruction, the ethnic minority children are regularly exposed to conversations both with the teachers and other Latvian children, also the games played, and all daily issues solved in Latvian. As a result, the ethnic minority children are fully engaged with other Latvian-speaking children, therefore it is not surprising that the parents have highly valued the Latvian language skills of their children: 8 out of 13 surveyed parents admitted that their children are equally fluent in Latvian and Russian, thus it can be assumed that these children are symmetrically bilingual, while five parents even assessed their children's Latvian language skill as fluent (see Figure 2).
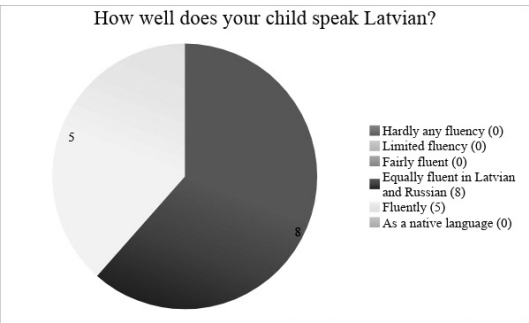


**Figure 2.** Latvian language proficiency of minority children in groups with Latvian as a language of instruction

At the same time, all surveyed parents indicated, that at home their families converse predominantly in Russian, therefore, the children who attend the pre-school group with Latvian as a language of instruction are

successful bilinguals: they speak Russian at home, but Latvian in their pre-school education institution. This was also confirmed by parental answers to the question "*How did your child first come into contact with Latvian language?*" (See Table 1).

**Table 1.** Child's first contact with Latvian language

| No | Collaboration partner | Parental answers about children from groups with Russian as a language of instruction | Parental answers about children from groups with Latvian as a language of instruction |
|---|---|---|---|
| 1. | Mother/guardian | – | – |
| 2. | Father/ guardian | – | – |
| 3. | Both parents/ guardians | 1 | 3 |
| 4. | Older brother or sister | 1 | – |
| 5. | Grandparents | – | 3 |
| 6. | Nanny | 1 | – |
| 7. | Preschool teacher | – | 10 |
| 8. | Latvian language teacher | 19 | – |
| 9. | Surrounding language | 3 | – |

In the survey, the parents indicated how well their children know and understand Latvian, thus we compared the correlation between the Latvian language skills of the children as indicated by the parents and various indicators of the language environment (see Table 1, Table 2, Table 3).

All the children of parents involved in this research were born in Latvia. In the Russian-speaking group, most children became acquainted with Latvian for the first time during the 30–45-minute Latvian language lesson (19), some (3) heard it in the surrounding environment, one child – from a nanny, one – from an older brother or sister, and only one (who was assessed as equally fluent in both languages) – from both parents, but grandparents were not mentioned at all (see Table 1). In the group where learning is conducted in Latvian, most children (10) heard Latvian for the first time from their preschool teacher, 3 children – from both parents and both grandparents, even when the home language for them is Russian (see Table 1). Thus, for both groups of children, the preschool educational institution (teachers or assistants) have had the greatest stimulus for paying attention to Latvian language.

In order to discover more about the influence of the family on Latvian language skills, we used the table, adjusted from UBiLEC survey, with the task *"Think about the people who have a regular contact with your child at home. How often do each of these people speak Latvian and Russian to your child?"* (See Tables 2 and 3).

**Table 2.** Parental answers about children from groups with Russian as a language of instruction

|  | Only Russian | Russian (almost always), Latvian (rarely) | Russian (more often) Latvian (seldom) | 50% Latvian, 50% Russian | Latvian (more often), Russian (seldom) | Latvian (almost always, Russian (rarely) | Only Latvian |
|---|---|---|---|---|---|---|---|
| Mother | 24 |  |  | 1 |  |  |  |
| Father | 24 |  |  | 1 |  |  |  |
| Sister/brother | 22 |  | 3 |  |  |  |  |
| Grandmother | 23 |  |  |  |  |  |  |
| Second grandmother | 23 |  |  |  |  |  |  |
| Grandfather | 23 |  |  |  |  |  |  |
| Second Grandfather | 19 |  |  |  |  |  |  |
| Nanny |  |  | 1 |  |  |  |  |

**Table 3.** Parental answers about children from groups with Latvian as a language of instruction

|  | Only Russian | Russian (almost always), Latvian (rarely) | Russian (more often), Latvian (seldom) | 50% Latvian, 50% Russian | Latvian (more often), Russian (seldom) | Latvian (almost always, Russian (rarely) | Only Latvian |
|---|---|---|---|---|---|---|---|
| Mother | 8 | 3 | 2 |  |  |  |  |
| Father | 12 |  | 2 |  | 1 |  |  |
| Sister/brother |  | 4 | 4 |  |  |  |  |
| Sister/brother |  |  | 3 |  |  |  |  |
| Grandmother | 12 |  |  |  | 1 |  |  |
| Second grandmother | 13 |  |  |  |  |  |  |
| Grandfather | 10 |  | 2 |  |  |  |  |
| Second Grandfather | 12 | 1 |  |  |  |  |  |
| Nanny | 2 |  |  |  |  |  |  |

Parental answers about the use of language in the family slightly differ
in Russian language groups and in Latvian language groups (see Tables 2
and 3) there are more cases when Latvian language is used in the family
(5 mothers, 2 fathers, 11 brothers or sisters, 3 grandfathers); but only one
grandmother and one father use more often Latvian than Russian (grand-
father passed away in this family). In general, the data revealed in Tables
2 and 3, illustrates that the home language of both groups of respondents
is Russian.

## Discussion

In this article, we compare the survey of parents of 25 preschool chil-
dren from ethnic minority population who learn in preschool education
groups with Russian as a medium of instruction, and the survey of par-
ents of 13 preschool children from ethnic minority population who learn
in preschool education groups with Latvian as a medium of instruction. All
children of the surveyed parents are born in Latvia. For surveying the par-
ents, the internationally acknowledged bilingual parents' survey UBiLEC,
adapted to Latvian language, was employed. Our results show that the find-
ings about Latvian language skills significantly differ depending on which
preschool group the child attends. In the groups with Russian as a language
of instruction, the children's Latvian language skills are assessed as fol-
lowing: the dominating response was "*hardly any fluency*" (15 children),
6 parents stated, "*limited fluency*" 3 – "*fairly fluent*" and only one answer
was "*quite fluent*". The responses to the question "*How did your child first
come into contact with the Latvian language?*" reveal the reasons for poor
Latvian language skills, as 19 of 25 surveyed children have heard Latvian
for the first time from their Latvian language teacher in preschool, where
the length of the session is 30–45 minutes twice a week. In the case when
a child speaks both Russian and Latvian, there is a full bilingualism at
home; this child speaks mostly Latvian to her parents but Russian to her
grandparents, as grandfather does not speak any Latvian. In the groups
with Latvian language of instruction, the results were very good: five out
of 13 parents surveyed indicated that their children are fluent in both
Russian and Latvian, while eight parents admitted that their children speak
Russian and Latvian equally fluently. Also, for this group of respondents,
the preschool education institution – the educators and other Latvian chil-
dren play an important role in obtaining Latvian language skills, as the
parents of these children have indicated that Russian dominates in their
families. This finding is reinforced when comparing the parents' responses
to the question: "*Think about the people who have a regular contact with your
child at home. How often do each of these people speak Latvian and Russian*

*to your child?"* These responses show that in the ethnic minority families with a Russian-language background, the sociolinguistic environment with Latvian as a language of instruction in preschool education institution plays an important role in the acquisition of Latvian language to prepare children for school in the state language.

## Conclusions

The conducted surveys show that a sociolinguistic environment in a preschool educational institution, in groups with Latvian as a language of instruction, plays an important role in preparation Russian speaking children for school in the state language or bilingually. The parents mention the language of instruction in the preschool educational institution, as well as the language used by the preschool teacher and other children, as the most important elements for learning a good Latvian. In the groups with Latvian as a language of instruction, the ethnic minority children speak Latvian both to the teachers and to other Latvian children on a daily basis. The children also experience the environment that is visually designed in Latvian, and fully immerse themselves in the Latvian-speaking group also learning the language. The conversations in Latvian in the family contribute to the proficiency of Latvian, too, although a real bilingualism in conversations of families of ethnic minorities is rare.

Parents' answers reflect the significance of language acquisition, but at the same time in conversations with parents we could ascertain that still large part of families consider learning of the State language in preschool institution as useless (for example, "Everyone in Latvia speaks Russian also"; "Don't forget about native Russian language"; "It is possible to learn in school"; "We don't plan to live in Latvia in the future" etc.). It would be very important to investigate the parents' attitude and to analyse language skills of staff in preschool institutions in follow-up research about language acquisition of minority children.

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# CHALLENGES AND OPPORTUNITIES OF ASYNCHRONICITY: TASK-BASED APPROACH AFTER COVID-19

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## ABSTRACT

The fast transition to fully online studies due to the pandemic made the universities around the world question many of their accepted notions on teaching foreign languages in general and English for Specific Purposes (ESP) methodology in particular. Putting stress on the synchronous remote teaching and learning has proven to yield a reductionist perspective missing asynchronicity, the dimension which makes reconsider the whole educational process.

With its shift from the sole focus on learning terminology to training skills in authentic professional contexts, the task-based approach has long excelled in meeting the diverse needs of students. Thus, the research question is how well task-based teaching (TBT) solves the problems raised with asynchronous learning in a university ESP course. The research of available literature on TBT yielded the framework for constructing an extended task applicable in the advanced medical English. The case study with 120 first-year students of medicine organised around an informational interview with health professionals demonstrated easy adaptability of the task to the asynchronous nature of the educational process. Personal observations by the course instructor, summaries of student-conducted interviews, and student written feedback proved the responsiveness of the method to the learners' needs and the potential of the approach in terms of motivation. The emphasis on self-directed learning, however, threatens the systematicity of the acquired language skills, as a more controlled teaching environment would not allow "skipping" any learning step. Additionally, TBT does not solve the problem of the voluminous teaching load.

***Keywords:*** *asynchronicity, collaboration, English for Specific Purposes, extended task, informational interview, Task-Based Approach.*

## Introduction

As the COVID-19 pandemic made universities around the world shift to fully remote studies, foreign language teaching faced an unparalleled challenge. In the lockdown situation, the technical solutions were the first to seek for, but technology is not teaching, and preparedness of teaching

personnel proved to be an even more serious matter. Furthermore, the rapid transition foregrounded many pending issues, including concerns in respect of English for Specific Purposes (ESP) methodology.

The emergency digitalisation raised a question of rationalising the needs of education as transposed in a remote context. Gathering early response, the *IAU Global Survey on the impact of* COVID-19 *on higher education around the world* (International Association of Universities [IAU], 2020) showed that only 2% of their respondents reported teaching and learning as not being affected by the pandemic, with more than half of those "immune" being virtual universities. The courses on using online teaching tools were offered to cover the gap, but the inability to shift easily "often resulted in 'learning by doing' approaches or attempting to imitate what would have been the face-to-face way of proceeding, yet using distance mode" (IAU, 2020, p. 25). So, the stress was put on the synchronous remote teaching and learning, thus, leaving the asynchronous in the margins. In other words, face-to-face activities were simply transferred online, and the focus on individual learning assessment, which so far had been (and still is) a prevailing mode in higher education, logically led to implementing additional written assignments and leaving the capacity of digital tools outside of virtual classroom unexploited. Such an approach is by no means reductionist, as focused attention to asynchronicity may significantly enrich the whole educational process. Thus, the paper examines the potential of asynchronous activities in the context of university ESP courses.

The topicality of the study is in its attempt to offer some methodology capable to stand up to the challenges of asynchronous learning, the list of which was well put by the Director of the Cambridge University Language Programmes Nebojša Radić (2020) and comprised among other things the mode of delivery, application of technology, philosophy, communication patterns, diversity, student support, and management structure. In turn, the challenges of asynchronous online learning may result in isolation, risk of apathy, lower level of retention and higher dropout rates, with the latter two being particularly dramatic in the university context.

## Asynchronicity and collaboration

Rooting in Greek, asynchronous may translate as "not together with time" ("asynchronous" "syn-" 2010), which gives a better perspective of the concept than its accepted definition of "not occurring at the same time" and refers to signals or events that occur at random instants and/or intervals. Another insight may come from programming, where synchronously running codes stop any other codes, whereas asynchronously running codes do not block other codes from running. By analogy, synchronous learning

happens in real time, whereas asynchronous learning happens on one's own schedule, offers more flexibility, but requires tighter planning.

The existing research into teaching approaches to match the potential of technology-enhanced instruction has demonstrated the possibility of successful collaborative learning in an asynchronous networked environment (Wang, 2010) and confirmed the feasibility of authentic work through the integration of student-directed research, writing-based tasks, and interactive assignments (Darling-Aduana, 2021). Creation and maintenance of collaboration through the Community of Inquiry were marked as providing an online educational environment enabling ESL students to improve their English language proficiency (e. g., Herrera Díaz & González Miy, 2017; Wu et al., 2017) and users of Global Englishes (GE) to engage in learning and construction of knowledge (Smidt et al., 2021).

Furthermore, taking place synchronously or asynchronously through the Internet, computer-supported collaborative learning (CSCL) is maintained by sharing and construction of knowledge among participants and is not reducible to individual learning (Stahl et al., 2006). Thus, to exercise the potential of collaborative learning to its fullest, student engagement in mediating ideas is paramount, and the level of transactivity, or learning by acting on each other's reasoning (Teasley, 1997), is a quality indicator of success (Weinberger & Fischer, 2006). Conducted remotely and happening both synchronously and asynchronously, transactive interactions should be carefully guided and may be fostered by discussion scripts (Lazareva, 2021; Noroozi et al., 2012; Vogel et al., 2017 ). In the absence of programming support, CSCL scripts may be exchanged for elaborated instructions marking each consecutive step and including both independent and collaborative activities. The explicitness of step-by-step instructions is corroborated by the action-oriented task-based approach (TBA) (Ellis, 2015), which is to be discussed next in the context of ESP at the tertiary level.

## ESP and task-based approach

The current uncertainty around ESP courses is caused by multiple factors, among which numerous groups of highly motivated, advanced students and outdated methodology are arguably most important. Among the certainties, however, is the need in students' exposure to professional environments and developments outside academia, with the move to fully online studies significantly problematising the situation.

Initiated in the 1980s, the task-based approach grew out of the needs of communicative language teaching and has been practiced in teaching English for Specific Purposes (ESP) at universities since its inception. Helping to organise the language education process "as the progressive transmission of stable truth" (Kramsch & Vinall, 2015, p. 14), the task-based

approach has demonstrated its high adaptability in general and to the digital milieu specifically. In fact, with its ad hoc use of focused tasks, task-based teaching (TBT) is claimed to work better online than in a classroom (Ellis, 2020). Being more conducive for incidental acquisition, this learner-centred approach encourages students to be more active in taking bigger control over discourse.

Furthemore, any task is a workplan satisfying four criteria, namely, a primary focus on meaning, existence of an information gap, a clear communicative outcome and incentive to choose linguistic and non-linguistic resources needed to complete the task (Ellis, 2017, 2020). According to Ellis (2020), different classes of learners demand different types of tasks, the array of the latter may be systematised through a set of binary oppositions such as real life vs pedagogic, input-based vs output-based, closed vs open, here-and-now vs there-and-then, focused vs unfocused, and teacher generated vs learner generated tasks. University students simultaneously fall into two categories of advanced and special purpose learners. For such groups, most suitable are output-based, real-life and open there-and-then tasks. Next, whereas for advanced learners an occasional introduction of focused tasks adapted to their needs is required, ESP learners are in need of input-based content-relevant tasks providing for their adequate functioning in a particular target domain (Long, 1985, p. 91; see also Long, 2015, p. 88).

So, with its shift from the sole focus on learning terminology to training skills in authentic professional contexts, the task-based approach has long excelled in meeting the diverse needs of various groups of learners. Thus, the research question is how well TBT solves the problems raised with asynchronous learning in a university ESP course.

## Method

### Context

The case study was organised with 120 first-year students from the Faculty of Medicine at the University of Latvia, with one of the researchers being the instructor and a participant observer as such. The ESP course syllabus comprises the introduction into academic reading, work on medical terminology and two individual reading assignments, and the final assignment of interviewing a medical professional. In general, the task of conducting an informational interview is essential for finding out more about the type of industry, company, or role the interviewer is interested in. Speaking to someone directly gives students an opportunity to test their assumptions even if they may initially think they already know all about a certain position (Clark, 2015). In the researched case, the timing is paramount as the end of the semester is the moment when students

have already experienced the actual difficulty of medical studies and may start questioning the appropriateness of their career choice. Thus, the aptly framed interviewing task may become authentic work going beyond the narrow context of language studies.

## Task

The conducted research of available literature on TBT helped to formulate the framework for creating an extended task (Ellis, 2015) applicable in teaching advanced medical English. Organised around the process of interviewing a medical professional, the task cycle consisting of pre-task, task and post-task was built according to the four principles of TBT.

The assignment incorporated several steps of micro-evaluation, with a series of pre-tasks including brainstorming the list of questions, relevant terms and consolidation on the basics of interviewing. After this, the actual interview was conducted with a medical practitioner of the student's choice in the language available to both parties, and then written answers to each of the selected questions were summarized in English. The following post-tasks comprised the reflective phase at which students provided feedback on the peers' interviews, reflected on the whole procedure as a group and individually, watched the three filmed in-depth interviews one of the students had voluntarily filmed, praised the respective interviewees (i. e. doctors) by specifying and detailing their successful performance. The task emphasis on praise intended to encourage the students to focus on the subject matter rather than their mistakes. Both the communication of the interview results and documentation of the process took place in English as requested.

## Research procedure

Employing a qualitative approach, this study sought to understand how well TBT solves the problems raised with asynchronous learning in a university ESP course as the given assignment being performed by students according to their self-selected schedule and using messaging and other means of asynchronous communication when performing the bigger part of the extended task. To answer the research question, the current study used student written feedback comprising summaries of conducted interviews and answers to reflection questions. To check the credibility of findings, the observation and field notes made by the instructor throughout the course were used.

Due to the pandemic situation, the collection and analysis of data happened remotely. The students gave the instructor/researcher their permission for the anonymous use of the data of their feedback as well as her notes taken during their focus groups for research.

First, the multiphased content analysis of students' feedback on the completed task was performed. The selection of keywords and semantic fields for identification in the corpus was guided by Radič' framework (2020), and they comprised such concepts as *time, tools, communication, collaboration, instructions, self-actualisation* and *personal growth*. Out of the seven questions of the guided feedback, the analysis was conducted on the answers to only two questions in the questionnaire, and they were "Would you recommend other students to conduct such an interview?" and "What would you do differently next time?" Of the total 120 participants, only 53 respondents voluntarily posted their answers to the shared Google sheets document specially designed for the purposes of the research; thus, the resulting corpus comprised 53 answers to the two questions each (4,489 words in total). The units identified in the corpus subsequently underwent qualitative analysis. The results of the content analysis were further validated by the observation notes taken in passive participation in small group online student discussions after their submission of the assignment.

The provisions to maintain the confidentiality of research data were implemented, including the retention of the collected data without any identifiers and keeping individual participation anonymous. The collected data were stored in password-protected computers and accessible solely to the researchers.

## Results

As the study aimed at exploring how well task-based teaching (TBT) solves the problems raised with asynchronous learning in a university ESP course, further the results of the content analysis and its validation are presented in line with the methodology described above. It must be noted that when presenting the results, the original language of the students' answers is retained.

The topic of time was the most frequently touched upon in the answers the students provided. Although determined by the structure of the second question, next to pure formal reference in approximately half of the cases, the other half suggested a certain willingness to practice interviewing under a different set of conditions and/or proceed with English language skill development. In line with this, students juxtaposed "this time" and "next time" to indicate that they were interested in processing the material produced by the group in pre-tasks but not included in the final list of their interview questions.

The second most common use of time referred to the COVID-19 period as a challenge and mostly addressed the specific situation in the medical field which students had become aware of when accessing doctors. The

lack of time medical professionals had due to the pandemic caused students' respect and certain discomfort in proceeding with interview arrangements under such restrictions. Individual mentions of time-related issues concerned the ability to conduct the interview only at night and in early morning hours during the doctor's shift; occasionally an interview was taken outside the doctor's work hours. Students were also concerned of giving interviewees "time to ponder over the answers" which might suggest the level of students' engagement with the task.

Another big topic in relation to the concept of time was students' own lack of time and time management issues raised in group work. Related was the complaint that the interview task was assigned at the end of the semester [in fact, in the middle of November 2020] when the students' workload had already accumulated.

Under the effective epidemiological restrictions, the discussion of digital tools in general and different ways of conducting an interview in particular had a lot of prominence in the provided feedback. The emphasis was on the need for a face-to-face interaction or at least a video session, though some students had decided to interview doctors over a phone (which was also marked as an individual achievement), via messaging (Whatsapp, Facebook Messenger) or even by writing the questions on the paper. In some cases, the choice of interviewing tool/method defined the level of personal confidence in communicating ("I highly doubt I'd see the interviewee in person, but if my confidence could be boosted in future, I'd like to see the interviewee face to face"). One student observed that without seeing the interviewee "I think some of the context for the answers was lost". Not meeting face-to face and communicating through Whatsapp messages was mentioned as an obstacle to group work too.

Concerning communication patterns, most students reported improvement of their communication skills in general and in some cases specifically professional communication skills. There were also several cases when students admitted having learnt new terminology. In several responses, students also emphasized the role of preparation ("I would plan my questions better") in conducting a smooth and successful interview.

Next, mentioning diversity in the feedback, students mostly related it to the work mode, i. e. group work vs individual one, with supporters for both types. The diversity in character traits transpires in the identification of both student and interviewed doctor as introverts or "not very sociable" personalities, whereas the opposite referred to the interviewee only, the one who "wanted to tell me everything". The other binary oppositions met among the answers are young and experienced as well as a relative ("practice such journalistic skills with close people") and a stranger, with the benefits found in each case. There was also a diversity of doctor

specialisations and the contrast between "interviewing a doctor, [whose] speciality is interesting or from [the] field you want to study in the future" and the one who was simply available for interviewing.

In relation to group work, there were students who would have liked to choose their group based on existing friendships ("Working in a group with unfamiliar people slowed down the progress"). Others, however, found that "work in a group made a studying routine a bit more entertaining". In several answers students pointed out that sharing and comparing answers of different doctors to the set of questions was interesting. In a couple of answers, the same was said about working in groups on preparing the questions for the interview: "everyone had their own idea about what the questions should be".

Concerning management issues discussed in the feedback, there are two prominent topics apart from group settings and time management discussed above. Firstly, it is the provided instructions, which students found "rather complicated [...] for the structure of *put out* [the set] requirements" and "at first it was hard to understand the steps". And "after going through step by step I finally made it all done." During the focus group discussions the students frequently referred to the way they had followed the hints and how the hints had been helpful had assisted in the task completion. Another, quite an interesting aspect concerned the settings of the interview. Those students, who had managed to visit their doctors at the place of practice, were obviously happier about the overall experience and others mentioned hospital as a desirable place where they would like to complete such an assignment not only because of their interest in the authentic context, but also to conduct the interview "in a hospital or other environment so that the doctor I interview would feel more comfortable". The students' responses show that they were able to cope with a complex seven-step task in the expected degree of detail and were aware of the needs of the interviewee during the interview, which had been one of the issues addressed in the pre-tasks.

For the purposes of this paper, Radič' (2020) global competition and marketing skills are looked upon in the context of students' personal growth, which was another very frequently and emotionally mentioned topic in students' feedback. Students referred to gaining experience in conducting interviews both in a narrow sense of local experience and in a broader sense, i. e. as a moment of overcoming their communication anxiety ("benefit was that I had to get over my fear of talking over the phone and social anxiety in general" "although, it was awkward and uncomfortable I was able to get over my fear of talking with people" "I also got out of the comfort zone and asked questions, led a discussion that is not so easy, especially about medicine, where the person you are interviewing is a

professional"), gaining confidence through overcoming difficulties ("it can be useful in order to deal with some difficulties" "It [...] gave me encouragement" and showed "what kind of things you should pay more attention to to get there and become the best version of yourself"), drawing professional inspiration and confidence in the correctness of the chosen field ("[the doctor's answer] made me happy, because for a minute I thought that I am thinking like a doctor already" "we talked about doctor profession as a professional colleague" "it can help you to understand if you want to do this job" "makes me want to learn more for myself not for good grades or because professors say"), managing their thinking process and arriving at new insights ("chance to practise planning my thoughts to get to a certain result" "I did not realize how important is the practice itself in real-life situations" "communicating with groupmates raised in me new questions and viewpoints on problems"). Several students admitted that in addition to the questions selected in the group, they had asked questions that interested them personally, which was also implicitly expected after the list of questions had been finalised. In fact, the set was meant to become the backbone of students' semi-structured interview, but it was a difficult idea for some learners to grasp. Finally, one student presented general philosophical insight on addressing difficult issues: "The interview is a great opportunity to get to know about things you were afraid to ask, I would recommend other students not to be afraid of asking *some* [certain] questions (not only as part of the interview)".

However, for some students, the challenge turned out to be excessive: "I understand that work in group is an important skill, but it wasn't easy for me." Other difficulties mentioned also concerned the level of anxiety and the difficulty to find doctors as well as the time-consuming assignment. Students emphasized the need for more specialised interviews, suggested conducting interviews in pairs and complained about the unequal distribution of work in groups. No language barriers were cited in the examined corpus.

## Discussion

Analysing the findings listed above, it becomes clear that the use of time related concepts testifies to an on-going self-reflection of students' on their performance during the interview. By its very nature, the bigger portion of the task is to be conducted asynchronously, thus, making students take into account real-life restrictions and limitations. Moreover, the evidence is for positive correlation in collaboration between the teacher and students and interview success as well as transactive interactions among students and raising the efficiency of completing the task. Further, the task led students

into thinking about the role of technologies and routine choices in communication when working asynchronously as well as raised their awareness of the diversity of communication styles.

The discussion around the topic of diversity revealed that in asynchronous learning students are left all by themselves with their own choices, thus, the degree of the recommended autonomy has to be monitored. As seen above, on the one hand, group support is a helpful tool to prevent isolation and stimulate skill development and knowledge acquisition, on the other hand, it may also become overwhelming due to unequal distribution of work and/or inability to cope with choices made by their group.

The students' answers show that various issues related to fears and lack of confidence can be successfully addressed through asynchronicity as there the necessary scaffolding is present. Besides, having arrived at these individual insights, they are able to contribute to the diversity of opinions in their groups. Overall, the task provides for ecological validity and students have ample opportunities to act close to an authentic professional environment.

Summing up the results of the qualitative research, there was hardly any mention of language acquisition per se. However, as TBT is focused on meaning making, logically, learning ESP, students are mainly focusing on the communicative goal rather than a foreign language for its own sake.

Thus, the results of the study demonstrate that TBT mostly helps to overcome the problems raised with asynchronous learning in a university ESP course. However, detailed step-by-step instructions and tutor involvement are necessary to ensure successful task completion.

## Conclusions

The analysis of the bulk of evidence received through content analysis of the student feedback allows to draw the following conclusions:

- the instructor/researcher's observation notes on the case study organised with 120 first-year students of medicine and substantiated by 53 student feedback submissions demonstrated easy adaptability of the task to the asynchronous nature of the educational process;
- the method is responsive to the learners' needs and has a high potential in increasing students' motivation;
- the emphasis on self-directed learning may endanger the systematicity of the acquired language skills; therefore, a more controlled teaching environment is beneficial as it would not allow "skipping" any learning step.
- the success of the assignment depends on tight guidance, with guided instruction carefully worked out and piloted in advance;

- as of now, TBT does not solve the problem of the voluminous teaching load;
- future assistance might be provided through the introduction of CSCL scripts, whose presence will allow for more flexibility in combining students from different though related fields.

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# LINGUISTIC LANDSCAPE SIGNS IN E-TEXTBOOKS: TEACHING LANGUAGE AS A COMPASS FOR EXPLORING MULTIMODAL TEXTS, MULTILINGUALISM, AND DIGITAL RESOURCES

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## ABSTRACT

Rapid technological development and the growth of educators' and students' digital skills have allowed e-textbooks to take root in different school subjects' pedagogical practices.

This article's aim is to compare two e-textbooks – *A Guide for Exploring City Texts* (Berra (Burr), 2020) and *Linguistic Landscapes in English Language Teaching: A Pedagogical Guidebook* (Solmaz & Przymus, 2021) – in terms of their technological and pedagogical frameworks and to discuss the benefits and disadvantages of using a language e-textbook which heavily utilizes linguistic landscape signs.

The comparison shows that the e-textbooks' main technological advantages are hyperlinking, bookmarking, highlighting, annotating, and searching. Their content uncovers pedagogical concepts they both share: (1) authenticity, (2) resourcefulness, (3) connectivism, (4) a focus on text genres. Language in both textbooks is understood in the context of semiotic resources, so knowledge and skills in one language are inextricably linked to awareness of other languages, semiotic consciousness, and multiliteracies. The learning process in both e-textbooks is designed in a way that students interactively create and contribute knowledge and apply them in various real-life situations.

There are a few drawbacks of the e-textbooks. First, their current technological do not allow for changing the order, length, or content of chapters, subchapters, or sections. Second, a lack of space for writing answers in e-textbooks, which can be frustrating for students. Third, none of the e-textbooks provides content for the entire study year/course, language level, or national subject standard.

***Keywords:*** *e-textbooks, first language, linguistic landscape, multilingualism, multiliteracies, on-line educational resources, second language.*

## Introduction

Rapid technological development, changes in human socialization habits, and the growth of educators' and students' digital skills have allowed e-textbooks to take root in different school subjects' pedagogical practices. E-educational resources played a particularly important role during the COVID-19 pandemic, as they greatly facilitated the reorientation of the learning process toward online schooling in many parts of the world, including Latvia: These resources allowed educators to teach students learning from different locations and ensured the continued quality of learning practices.

However, the development of and research into e-textbooks are still in their infancy. Principles for creating e-textbooks have not been sufficiently evaluated; as yet, more attention has been paid to educators'/students' experiences and satisfaction with e-textbooks (e. g., McGowan et al., 2009; Sun & Flores, 2012; Al-Qatawneh et al., 2019). Some research exists regarding critical analysis of e-textbooks' content, form, and interactivity; results indicate contradictory views on the effectiveness of e-textbooks (e. g., Choi et al., 2011; Gu et al., 2015; Gueudet et al., 2018; Pepin et al., 2016; Vītuma, 2019).

To understand e-textbooks, two definitions of textbooks are important. Jurman (1999) notes: "A textbook is part of methodologically didactic materials, cooperat[ing] with the teacher in the education process." In this sense, textbooks are largely intended for teachers who read, accept, and implement the methodological path proposed by the author(-s), and then for students in an educator-led learning process. Nose (2003) also remarks: "A textbook is a book that has been designed specifically for the needs of school education. It is a guide toward other sources of knowledge, toward discovering new knowledge." Thus, the successful e-textbook both meets the principles of a good learning material – by including purposeful content based on certain pedagogical theories and subject curriculum – and facilitates the creation of new methods for their practical use by encouraging innovative teaching approaches and techniques.

Another issue important to this article is the inclusion of meaningful illustrations in language e-textbooks – that is, illustrations that could be involved in the language learning process. Although it is relatively difficult to illustrate a language itself, the inclusion of images as learning resources in language textbooks is a well-established practice. Illustrations can show the use of language in different discourses. The study of such images' content, meanings, and pedagogical purposefulness is the focus of much research. Such images are often described in the context of the cultures of the target language (e. g., Yuen, 2011; Chapelle, 2016; Ziad & Ouahmiche,

2019). One issue that has not been addressed sufficiently in the analysis of language textbook images is the pedagogical role of images including texts from public or partly public spaces – linguistic landscape signs (hereinafter LL signs). Advertisements, direction signs, official announcements, instructions, and graffiti are a few examples of LL signs.

Chapelle (2020) and Burr (2021) have examined more than 50 textbooks of French and Latvian containing images with LL signs. Although the studies differ in their audience, the pedagogical goals of the sampled textbooks (respectively, students of French as a foreign language in the US; students of Latvian as a first, second, and foreign language mainly in Latvia), and in the research focus (respectively, Québec's cultural narratives; language awareness and sociolinguistic topics), the findings show similar features in the functioning of the images. Both scholars conclude that LL signs often have a passively illustrative function in language textbooks, without direct guidance to teachers/students on how to exploit them in the learning process. Textbooks most often do not include questions or tasks for engaging students in exploration and critical analysis of the images, nor do they encourage students to conduct empirical research of LL signs in students' known environments.

However, the last two years have seen the publication of two e-textbooks which use LL signs as their main starting point for teaching both language-teaching methodology and individual language and language-related topics. The first is *A Guide for Exploring City Texts* (*Ceļvedis pilsētu tekstu izpētē* in Latvian) (Berra (Burr), 2020), and the second is *Linguistic Landscapes in English Language Teaching: A Pedagogical Guidebook* (Solmaz & Przymus, 2021).

The aim of this article is to compare these two e-textbooks in terms of their technological and pedagogical frameworks and to discuss the benefits, challenges, and disadvantages of using a language e-textbook which heavily utilizes LL signs.

With respect to e-textbooks, language teaching, and LL studies, this article provides an extensive survey of these e-textbooks. The sections of this article are as follows. First, a classification of e-textbooks; pedagogical directions of LL research; the Multiliteracies Framework; and principles of e-textbook content analysis are presented. Second, a comprehensive comparison of the e-textbooks is provided. Third, pedagogical benefits, challenges, and disadvantages are discussed. Finally, main conclusions are drawn and future research questions introduced.

## Method

Since the author of this article did not find other examples of e-text-books with a focus on LL signs, the article discusses two e-textbooks as its research samples:

- **Sample 1**, *A Guide for Exploring City Texts*, 240 pages (Berra (Burr), 2020),
- **Sample 2**, *Linguistic Landscapes in English Language Teaching: A Pedagogical Guidebook*, 248 pages (Solmaz & Przymus, 2021).

Preparatory work was done before a critical comparison of the e-text-books. First, theoretical literature about the typology and technological aspects of e-textbooks was studied. Second, the research regarding LL pedagogy was reviewed. Third, the methodological framework used to guide the pedagogical work with both e-textbooks was explored. Finally, criteria for the content analysis of the textbooks were defined. Each of these steps is described in detail in the following subsections.

### Theoretical literature about e-textbook typology

E-textbooks are mainly classified into three groups, according to their technical specifications and the variety of learning strategies they provide (e. g., Lee et al., 2012: 156; Lokar, 2015: 102; Dobler, 2015: 483; Gueudet et al., 2018: 541–542):

1. **Traditional (also integrative, digitalized) e-textbooks** are identical to printed textbooks and can be linked to other e-educational resources. Technical features are limited to highlighting, commenting, and using alongside other texts or online resources.
2. **Enhanced (also evolving, living, or rich) e-textbooks** with content through various media (e. g., video, podcasts, blogs, and print) and with social networking capabilities (e. g., sharing notes). The user can typically navigate to specific chapters or sections from the table of contents, zoom on images, and click on external hyperlinks.
3. **Interactive e-textbooks** combine features of traditional and enhanced textbooks and provide interactive content (e. g., 3D figures, interactive progress checks, games, and savable video responses).

Traditional and enhanced e-textbooks mainly are monolithic, consisting of a single large block in frequently used formats (*txt, html, chm, pdf, epub*). These e-textbooks are less designed for use in combination with other learning materials because their contents are not modular in construction. Educators cannot re-design them or edit the content, for instance, change the order of a relevant e-textbook's parts (e. g., a collection of exercises, texts, images, and project ideas), add, replace, or delete some parts (Lokar, 2015: 104–105; Gu et al., 2015: 28).

**LL studies for teaching language**

LL research began at the end of the 20th century. Over time, LL studies have become varied and complex (overview in Shohamy, 2019). A recurring theme in LL studies is the use of LL signs in language learning. So far, attention has centered on using the LL for contextual input in teaching a second language (e. g., Sayer, 2009; Gorter & Cenoz, 2017; Malinowski, 2019; Malinowski et al., 2020). Researchers and instructors have often linked language learning to raising one's linguistic, cultural, and sociopolitical awareness of a target-language's speakers' environment. However, insufficient attention has been paid to the link between LL research and the creation of methodologies and textbooks. This gap is especially evident when it comes to first-language teaching.

**Methodological framework of the e-textbooks**

Authentic material is not only important in the development of an e-textbook which utilizes LL signs; the use of such materials also provides a pedagogical framework for teachers which allows (1) LL signs to be systematically integrated into the teaching process, (2) clear and logical continuity of texts and activities throughout the e-textbook, (3) further deepening of language knowledge and skills, and (4) further development of essential capabilities such as critical thinking, cooperation, civic responsibility, creativity, and multiliteracies.

Purposefully encouraging students to share their prior experiences and knowledge; empirically experience language/speech situations; research contexts; functionally and critically analyze texts; and create new ideas, texts, and knowledge are the successive pedagogical steps of the Multiliteracies Framework (Cope & Kalantzis, 2015) and the Bridging Activities Framework (Thorne & Reinhardt, 2008). These were applied in practice in the development of both e-textbooks. This methodology is detailed in both e-textbooks (Berra, 2020: 21–53; Solmaz & Przymus, 2021: 10–36).

**Content analysis of the e-textbooks**

The qualitative approach to e-textbook research is based on seven criteria:

1. Type of e-textbook
2. Audience
3. Structure
4. LL signs and references to databases with LL signs
5. Other intertexts
6. Tasks and topics associated with LL signs
7. Languages.

## Results

Both e-textbooks are results of international projects. Sample 1 was one of the publications of the individual, three-year postdoctoral project "Linguistic Landscape of the City as a Multifaceted Resource in the Baltic States: Linguists', Entrepreneurs' and Students' Perspectives" (2017–2020). Sample 2 was the product of the intercontinental project "Linguistic Landscapes in English Language Teaching," or LLinELT (2019–2020).

Neither is called an e-textbook; Sample 1 is called "a popular-scientific edition in linguistics," while Sample 2 is called "an (interactive) e-book." Nevertheless, they refer to lessons or workshops for prospective teachers (students) and to learning in the language classroom, and thus can be considered e-textbooks. The word *guide/guidebook* in each's title functions as a reference to textbooks' recommendatory nature; both propose practical samples (tasks, activities, and lessons) for teacher education and language learning in the classroom.

The next subsections show the commonalities of and differences between the two e-textbooks.

### Type & technical features of e-textbooks

Both samples are enhanced e-textbooks (according to Lokar, 2015) as they allow the user to navigate to specific sections from the table of contents and contain hyperlinks to online resources.

Sample 1, unlike Sample 2, provides an option to zoom on images. In turn, Sample 2 has standalone sample-lessons containing high resolution images with/of LL signs in its third section.

Sample 2 includes clickable video screenshots in three of its sections, linking to short clips about theoretical concerns regarding and pedagogical ideas for the inclusion of LL signs into language-teaching practice; practicing educators, prospective teachers, and researchers are included in the clips.

Both e-textbooks are open-access educational materials. Both materials can be downloaded as a *pdf* file and used on an electronic device (laptop, tablet, or mobile phone).

### Audience

The e-textbooks' main audience are both parties involved in education: educators and students. Similarly, researchers who are interested in language pedagogy, the study of public communication, language policies and ideologies, and multimodality will find these e-publications to be useful and will be inspired by other researchers' insights on interdisciplinary theories and practical experiences.

Sample 1 is mainly useful material for Latvian as a first language (respectively L1) teachers (including prospective teachers) and methodologists to obtain (1) an overview of the latest linguistics theories and language-teaching approaches and techniques, (2) ideas for the implementation of Latvian national subject standard's sections "Language and Society" and "Media, Language, and Influence" in pedagogical practice.

Another target group is high school students, who may strengthen their knowledge of Latvian grammar, language functions in public communication, and language-use practices, improve their understanding of sociolinguistics development in Latvia, and develop research skills by compiling and critically analyzing language data. Although the e-textbook emphasizes the L1 perspective, study work is also possible in student groups with mixed levels of Latvian language skills; some parts of the e-textbook particularly are suitable for teaching Latvian to minority language students in Latvia.

Researchers will find this book useful for learning the LL research process and sample analyses of several multimodal signs.

Teachers of English as a second language (respectively L2) and foreign language, or EFL (including prospective teachers), are the main audience for Sample 2. However, "the materials and ideas put forward in this book can be adapted into different L2 teaching and learning settings" (Solmaz & Przymus, 2021: 4). Several ideas tested by prospective teachers (book's contributors) are adaptable to teaching L1 at different ages (e. g., creating one's own classroom rules, acquiring cultural awareness through LL signs, and understanding the contextual uses of modal verbs).

This e-textbook, more than Sample 1, highlights the process of educating teachers both in national and international professional seminars and in face-to-face and online courses.

Young researchers in sociolinguistics and language pedagogy will particularly appreciate their peers' mini-research papers included in the book that relay prominent LL research themes and individual translanguaging practices caused by the expanded use of English around the world and its admixture with other foreign/local languages. The included papers also direct students to develop their scientific writing skills, for instance, showing them how to formulate objective and research questions, how to describe their methodology, and how to analyze data and summarize main findings.

## Structure

Sample 1 contains seven parts: (1) Introduction, (2) Conceptual and Methodological Framework of the Edition for Educators, (3) Coverage of a Theoretical Framework or High School Students and Emerging Researchers, (4) City Texts Under a Research Magnifying Glass for High School Students,

(5) Diving Deeper: Languages in Society and Sociolinguistics (chapter for high school students and emerging researchers), (6) Afterword, and (7) Recommended Literature.

The main body of the e-textbook consist of three parts: a theoretical and methodological part for educators, a theoretical and methodological part for students, and a practical part for students. Later, the fourth chapter is divided into four subchapters which are designed around LL signs: restriction and prohibition signs (19 pages in length); advertisements (46 pages); posters (35 pages), and graffiti (34 pages). The subchapters are structured considering the knowledge processes model of the Multiliteracies Framework (see in 2.3.). Each subchapter has five main parts:

1) a list of pedagogical benefits (or learning outputs, e. g., *Learned information about design trends of posters in different periods* and *Self-created eye-catching poster*) and keywords of the subchapter (or learning objectives, e. g., proper nouns, transliteration, uppercase letters, and abbreviations for Posters),

2) study work on the main concepts of the subchapter (respectively, first thoughts and definitions of LL signs and their associated terms, e. g., an advertisement, to advertise, commercials, misleading advertising, or advertisers),

3) a set of tasks designed around LL signs, arranged in four or five thematic subsections; each task has several questions that successively help students complete the task and address different perspectives (e. g., various social actors, different cases of language use, linguistic attitudes, several benefits of advertisements),

4) a summary and self-assessment tasks (open questions, tests, and/or rating scales), with questions for self-reflection,

5) references.

Sample 2 consists of eight sections featuring either theoretical or practical information about the introduction and implementation of LL-centered activities in English language classrooms: (1) About LLinELT Project, (2) The Pedagogical Model, (3) Literacies-Based Sample LL Lessons, (4) LL-Inclusive Practices, (5) Digital Symposium on Linguistic Landscapes: Keynote Talks and Panels, (6) Linguistic Landscape of My City: Mini Research Papers, (7) Sample Databases of Linguistic Landscapes, and (8) Bibliography.

The e-textbook combines methodological recommendations, language lesson plans, video of conference papers, and a compilation of databases valuable for pedagogical purposes (and brief descriptions of the databases).

Sample 2 contains 29 mini-samples of language lessons (each subsection is three pages long) based both on a content-based topic (e. g., Astronomy, Halloween, Modern Art Works, Multilingualism, and Black Lives Matter)

and individual groups of LL signs by their placement (e. g., airport signs, subway signs, shop signs, T-shirt inscriptions, and COVID-19-related signs). Each of these subsections has a recommended language level and has a strong internal structure comprising six steps:

1) introduction (for teachers) to the topic and a short description of the lesson,
2) target vocabulary with simple definitions,
3) questions for students, to activate their experience and knowledge and discuss the topic,
4) questions for two or three image/text analyses,
5) digital resources for post-analysis practices, each indicating its mode (text, video, image),
6) three or four ideas for students' individual research, creative works, or group activities.

## LL signs and References to databases with LL signs

LL signs from Latvian cityscapes, some indoor places (e. g., museums and libraries), newspapers, and the internet relevant to each subchapter are consistently included in Sample 1. Their number in one subchapter varies from 24 to 47 LL signs.

The theoretical and methodological chapters include other types of LL signs (e. g., store signs, direction signs, and plaques with business names) as well to show the diversity of LL signs and research topics and to discuss theoretical and methodological issues. The included LL signs represent Latvia's linguistic landscape (excepting two prohibition signs which are from the US).

The e-textbook irregularly provides references to the author's database of LL signs from the Baltic States and the author's blog, the national archive of photos with LL signs, a pictogram repository, road sign database, thematic homepages on social networks, forums, a digital poster repository, and printed publications useful for pedagogical purposes. As a supplementary material for students' independent work, a list of pictograms in various public places in other parts of the world (e. g., toilets, airports, and hotels) is given.

In case of Sample 2, the cover of the e-textbook already shows its focus; two photographs with written texts from public spaces give a hint to non-experts what *linguistic landscape* (LL) and *LL signs* mean. The e-textbook contains LL signs from different countries (mainly the US, but also Turkey, India, Australia, UK, and Canada), the outdoor and indoor LL, and the virtual LL. Examples include airport signs, tourism signs, shopping mall signs, restaurant signs, inscriptions on T-shirts, protest signboards, and graffiti.

The location of the LL signs (via Google Maps) has been added to some of the photos.

Each sample lesson has two or three images with/of LL signs the choice of which is based on relevant thematic topic, not on LL sign type. Videos depicting LL-inclusive practices show authentic photos with/of LL signs, virtual walks exploring texts in different places (via Google Maps), and students' drawings with/of LL signs as a result of English learning activities in classroom.

This e-textbook provides a well-structured and clear overview of online resources that can be useful in the learning process. Such lists (e. g., open access repositories of movie posters, book covers, brand logos, menus, concert tickets, or graffiti) are given both in the description of each sample lesson and in a separate chapter of the e-textbook.

### Other intertexts

Sample 1 demonstrates a great variety of texts related to each type of LL sign. Various texts by genre are included in the e-textbook: scientific and popular-scientific publications (conference theses, quotes and fragments from articles, covers and content of the latest sociolinguistics books), reference literature (city guide, entries from dictionaries and encyclopedias), legal texts (excerpts from laws and regulations), informative texts (news, posts, and instructions), literary texts (poems, fragments from fictions, dramas, and documentaries), folklore texts (sayings and folk songs), and critiques (reviews and comments on the internet).

Links to additional resources are also provided: for instance, e-educational materials (grammar reminders, language rules, and video lessons), online reference literature (recommendations and digital language tools), informative texts (statistics, video interviews, and movie descriptions), scientific and popular-scientific texts (videos of public talks and *PowerPoint* presentations), legal texts, and city websites. Mostly, the resources are explicitly labeled with prompting phrases such as *If you want to know more about X, read/watch/listen....* Such phrases guide students' self-directed learning and unobtrusively offer different learning strategies.

In turn, Sample 2 includes separate, full-text papers in written and video format: theoretical contributions and practical studies on LL by researchers and teacher candidates. Sample lessons do not include other texts alongside LL signs, but they do incorporate links to some informative and literary texts, educational materials (e. g., TED Talks, articles, stories, movie trailers, lists, classroom activities, and worksheets).

**Tasks associated with LL signs and languages topics covered**

Each practical subchapter of Sample 1 contains the following types of tasks:

1) warm-up tasks that introduce the topic and the specific type of LL sign (e. g., creating a mind map with associations, students sharing their experiences with specific LL sign types or communication situations),

2) tasks with terms, to comprehend the terms' meaning and use in different disciplines and languages (e. g., comparing the definitions of *advertisement*, writing ones' own definitions),

3) tasks on typical linguistic features of LL signs (e. g., imperatives on prohibition signs, metaphors in advertisements, clock time on posters, means of self-representation in graffiti),

4) tasks on language choice motivation and criteria,

5) tasks for the analysis of the use of several languages, comparing the functions of languages, the amount of information in all languages and its purposefulness,

6) tasks on semiotic resources used to express meanings in LL signs (e. g., analysis of women's role representation in advertisements),

7) tasks of extending the context of LL signs (e. g., socially relevant topics, interethnic tensions, and language ideology),

8) tasks on the relationship between the author and audience,

9) tasks for exploring the description, perception, and interpretation of LL signs in literary, informative, and entertaining texts,

10) tasks for clarification of the methodology and findings of LL analysis in popular-scientific and scientific texts,

11) creative tasks (e. g., creating posters, preparing tutorials, writing poems, and sketching),

12) project works (LL research in school, city, village, and on the internet),

13) self-assessment tasks.

Language topics of the e-textbook are related to linguistic terminology and methods – certain text genres and text types (e. g., public talk, dispute, review, essay), lexical groups and language styles (e. g., proper nouns, slang, figurative language, metaphors, and scientific language), typical grammatical forms, syntactic constructions, and principles of LL-sign text creation – and to issues regarding sociolinguistics and language policy (e. g., multilingualism, language prestige, language laws, and linguistic attitudes).

Mini lessons of Sample 2 include vocabulary lists, communicative tasks based on LL signs, and ideas for creative works and student research; the lessons exclude grammar tasks. Grammatical forms and syntactic

constructions relevant to each communicative situation are implicitly practiced through conversations about images (e. g., the expression of time and place in describing an airport signboard image).

Questions about images with LL signs include not only reading texts in the target language (English), sharing associations and thoughts on LL signs' content and form, but also metalinguistic talks about various meaning-making resources (e. g., scripts, languages, colors, and pictograms) and their role and functionality in self-representation, communication, and social processes. Thus, language topics such as linguistic diversity, translanguaging, societal use of various English forms around the world, and English as a lingua franca are covered.

### Languages

All texts included in Sample 1 are in their original languages (e. g., local languages – Latvian, Latgalian, Livonian, and Russian; foreign languages – English, German, and French). Many terms and their definitions are given in several languages; for instance, translations of the word *ainava* 'landscape' are provided in seventeen languages.

The main text of Sample 2 is in English, with authentic examples – LL signs and findings from LL studies – in other languages or undeterminable languages as well.

### Discussion

This comparison of the two e-textbooks is ambitious in the sense that it perhaps would not be proper to compare L1 and L2 teaching materials. Each has its own purpose, its set of techniques and activities to be used, and its unique intended results. Nevertheless, the intention of this article is to show a variety of ways to work practically with LL signs, emphasizing that LL signs and the LL approach fit wonderfully into both L1 and L2 learning processes and that several ideas overlap or are adaptable from one language teaching practice to the other.

The comparison shows that e-textbooks' main technological advantage is hyperlinking, or instant movement from the e-textbook to an online resource and back, if there is an internet connection. Users will appreciate technical features such as bookmarking, highlighting, annotating, and searching.

The evaluation of the e-textbooks' content uncovers some pedagogical concepts they both share:

1) **authenticity**, which manifests itself in unmodified examples of language use (including LL signs), in the play and analysis of communicative situations, in the non-idealization of the language situation,

in solving real-life problems, and in respecting students' identities, experiences, and opinions,

2) **resourcefulness**, which allows educators/students to choose from e-textbooks and recommended e-learning resources that which is needed for specific pedagogical goals and differentiation of the learning process according to ability and learning strategies,

3) **connectivism**, which applies to both micro- and macro- learning levels: the theoretical, methodological, and pedagogical parts of e-textbooks; e-textbooks and other thematically/genre-related resources; several e-textbook authors'/editors' works; various texts included in the e-textbooks; educators'/students' work on communication (public, semi-public, and private); places for students' pair/group work; co-operation between students and members of local communities; classroom and outdoor learning activities, and interdisciplinarity (e. g., combining several school subjects),

4) a **focus on text genres**, which on the one hand centers on various LL signs (included in the e-textbooks – photographed, found on the internet, or drawn by students), and on the other hand thematically, linguistically, and semiotically expands users' views on the LL signs, contextualizes and discursively challenges the signs.

The pedagogical beliefs and methodological preferences of e-textbook authors and editors can be seen through these concepts. Language is understood in the context of semiotic resources, so knowledge and skills in one language are inextricably linked to awareness and competences of other languages, semiotic consciousness, and multiliteracies. Texts as complex linguistic practices are analyzed in the contexts of communicative, cultural, socio-political, and ideological processes.

The learning process in both e-textbooks is designed in a way that students do not passively absorb knowledge, but interactively create and contribute knowledge and apply them in various real-life situations. This process is gradual and systematic based on the phase's/stage's principle. However, although both e-textbooks offer work with LL signs, each has its own starting points and goals. In Sample 1, each topic flows from a certain type of LL sign, while in Sample 2, the topic is what determines which type of LL signs fit in an individual learning activity or lesson. In other words, Sample 1 shows how to analyze language, meanings, and semiotic resources in LL signs, texts, and discourses related to LL signs, while Sample 2 shows how to include LL signs in different communicative topics for learning a language.

Understandably, learning L1 differs from learning a foreign language; therefore, the first approach allows one to talk about more complex texts, tasks, and discussion topics in the learning process. In Sample 1, the

strategies, techniques, and means for creating LL signs and perceptions, analyses, and interpretations of LL signs by various social actors are extensively developed and scrupulously discussed with students. Interrelated texts meet the principles of deep reading. Similarly, sociolinguistics terms and topics are explored more deeply than in Sample 2.

An important difference between the e-textbooks is the language of the main body. Sample 1 is in Latvian; Sample 2 is in English. The latter thus has a broader range of potential readers and users. However, from a student perspective, multilingual practices and translanguaging are more promoted in the Sample 1.

There are a few disadvantages of the e-textbooks as well. The current technological features of the e-textbooks do not allow educators/students to change the order, length, or content of chapters, subchapters, or sections. Users should be aware that both e-textbooks can be downloaded to an electronic device, but registration for the *Adobe Acrobat Pro* paid service may be required to use all the tools and technical features of the *pdf* file. There is always a risk that technical errors can occur, e. g., with websites that no longer exist.

From a student perspective, the lack of space for writing answers in e-textbooks can be frustrating. In the case of Sample 1, written tasks do not have space for answers (tables are exceptions), even if individual parts of the e-textbook are printed.

The amount of information on one page is crowded, which makes it burdensome to read on an electronic device. This applies to the theoretical parts of both e-textbooks and to the practical part of Sample 1.

Regarding the organization of teaching work, it must be acknowledged that none of the e-textbooks provides content for the entire individual study year/course, language level, or national subject standard in high school.

## Conclusions

The compass metaphor in this article's title intends to demonstrate the function of a genre-focused e-textbook: as a tool to show one or more methodological way of conducting purposeful conversations with students about the diversity of semiotic resources, multimedia, and languages in today's world, to critically evaluate these diversities in various texts, and how to use all available resources responsibly. These metalinguistic conversations are especially important for the development of students' linguistic and multimodal awareness and the improvement of their multiliteracies.

E-learning resources have great potential to develop their habit of using digital language tools in everyday language practices, to critically evaluate

information available online and to draw students' attention to valuable and high-quality open-access resources on the internet.

This comparison and discussion also have limitations, due to the small number of samples. The analysis of two e-textbooks (and two with different aims, at that) does not allow the results to be generalized. However, the article reveals some significant pedagogical benefits for the development of language e-textbooks with a focus on LL studies and LL signs. This revelation could be useful for planning and developing new e-educational resources which integrate various authentic texts, including LL signs.

Future research on language e-textbooks should examine the connectivity of different e-educational materials (both technologically and in their content) and their suitability for longer-term (semester- or year-long) courses. Practical research describing experiences using an e-textbook with a focus on LL signs would also be a useful contribution as regards the development of similar e-textbooks.

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# MUSIC TEACHERS' COMMUNICATION WAYS HELPING PRESCHOOL CHILDREN TO ENGAGE WITH LEARNING OBJECTS AND TO EXPLORE THEIR CRITICAL ASPECTS

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## ABSTRACT

This article aims to reveal the variation-theory-grounded ways that music teachers use to communicate with pre-school children and direct their attention to learning objects (sounds of music) and the critical aspects of learning objects (music sound qualities) while listening to music. Variation theory is a novel didactic approach in the musical education of pre-school children. A learning study based on the theory of variation as a phenomenographic approach and a strategy for a lesson study as a form of participatory action research were employed. While conducting the empirical research, attempts were made to identify the ways in which music teachers communicate with children, which are grounded in variation theory and direct children's attention to learning objects and their critical aspects. The research distinguishes two groups of ways of music teacher communication that encourage children to listen to music: music teacher communication that directs children's attention to feeling, understanding and discerning the learning object, i. e., sounds of music (group one) and the critical aspects of learning objects, e. g., pitch, duration of music (group two). These ways that apply variation theory are new and enrich the didactics of early music education.

*Keywords: early childhood, learning object, music education, qualities of musical sounds, variation theory.*

## Introduction

From the perspective of contemporary learning paradigms, didactic research on early education is among the most relevant in the growing area of scientific research. Recently, an obvious focus has been observed on dialogue communication in education, specifically the interaction between teacher and child. Dialogue communication creates conditions for children to engage in educational activities, to direct their attention toward learning object, to think, act and explore together with the teacher and other

children as well as to reveal accumulated experiences in different ways. Having envisaged possibilities for communication between teacher and child and between children (Cohrssen et al., 2014; Gjems, 2010; Pramling & Pramling Samuelsson, 2011; Pramling et al., 2019), researchers have also shown the importance of communication in the process of children's music learning. The teacher-child interaction as multimodal communication establishes possibilities for teachers to involve infants with music theatre performances (Barbosa et al., 2021). Research shows that teachers apply a range of communication ways to encourage children to sing, listen to music or play the piano; live music performances ask children questions, demonstrate agreement or disagreement, discuss music, comment, instruct, apply different means of communication (Gouzouasis & Ryu, 2015; Kultti, 2013; Zitkeviciene, 2018). Through verbal communication, synaesthesia, body movement and singing, children create musical meanings, share their musical experiences and develop their understanding (Wallerstedt, 2013; Zitkeviciene & Monkeviciene, 2020).

An innovative trend in the modelling of learning processes is based on the theory of variation, which emphasises the relevance of directing the child to the learning object and its critical aspects. Variation-theory-based education allows children to discover new knowledge, create meanings, develop their own understanding and notice changes in their understanding. As a mediator between the child and the learning object (Veraksa et al., 2016) and by applying the contrast pattern of variation, the teacher employs ways of communication to model contrast situations in which children feel, perceive and discern learning objects and their critical qualities and reflect on their knowledge through this contrast.

After introducing the theory of variation, Wallerstedt (2010) analyses how a teacher can encourage children to feel and understand the learning objects of music, e. g., the music metre. Other researchers (Zitkeviciene, 2018; Zitkeviciene & Monkeviciene, 2020) have applied patterns of variation theory seeking to reveal how music teachers' communication with children enables the latter to feel, perceive, understand and discern qualities of musical sounds (pitch, duration, timbre) and to demonstrate their own knowledge. However, didactic studies applying the theory of variation to early music education and analysing ways of teacher-child communication in music activities have been scarce so far. The aim of the research presented in this article is to explore ways of communication between music teachers, who use the contrast pattern of variation theory, and children that direct children's attention to learning objects and their critical qualities while listening to music.

## Methodology

A learning study (Lo & Marton, 2012; Marton & Tsui, 2004), which is based on the variation theory as a phenomenographic approach (Marton, 2015, 2018), and a lesson study as a form of participatory action research strategy (Stigler & Hiebert, 1999) were employed in this research. The learning study provides opportunities to model the communication ways of music teachers as mediators between children and the music being listened to, directing children's attention to the learning object, i. e., musical sounds, and to the critical aspects of the learning object, i. e., qualities of musical sounds. The model of a learning study was adapted to young children's learning through musical activities in early childhood education (Ljung-Djärf et al., 2013).

A two-cycle learning study was planned and implemented. The musical activities assigned to each cycle were performed by three teachers working in different groups of children. In each musical activity, teachers applied all other pre-modelled or spontaneously emerging ways of communication for teachers as mediators between children and the music being listened to. These communicative encounters were designed to direct the children's attention to the object of music learning and to help them feel, understand and discern the object of music learning (musical sounds) and its critical aspects (duration, pitch of musical sounds).

### Sample of the research

Three music teachers working in different kindergartens in Vilnius, Lithuania, participated in the research, who were chosen using criterion-based selection (Bitinas et al., 2008). The following criteria were considered 1) the music teacher's openness to innovations; 2) the music teacher's experience to conduct action research; 3) the music teacher's ability to collaborate with researchers in a constructive way; 4) good relationships between the music teacher and children as well as their parents; 5) spacious premises tailored to musical activities. All the three music teachers selected for the research complied with the aforesaid criteria, had a good personal and professional contact with one of the researchers. Three groups of children from the same age group (i. e., 5-6 years), who the music teachers worked with, were chosen and 65 children in total participated in the research.

### Ethics of the research

The requirements for information, voluntary consent, confidentiality, and the use of data for research purposes were followed in planning and conducting the study. The collected data were used only for the purpose of the study. Consent for the children's participation in the study was obtained from their parents.

**Data collection and analysis**

The data for the learning study were collected from videos recorded during children's musical activities. During the review of the recordings, different essential episodes of musical activities were selected for analysis. This selection method was grounded on the critical incident technique. The selected critical episodes were transcribed verbatim on the basis of video recordings. Each participant in a musical activity was coded, and participants' verbal language, gestures and body expressions were written down in the transcription material. The analysis of research data mostly focussed on the music teachers' ways of communication, which were used to direct children's attention to the learning object and critical aspects of the learning object.

**Results**

The analysis of critical episodes of musical activities organized by music teachers distinguished music teachers' ways of communication with children, which enabled them to direct the children's attention to the pitch qualities (high/low) and duration qualities (short/long) of musical sounds. The process and character of analysing critical episodes are disclosed by the analysis of the first critical episode (Table 1).

Telling the fairy tale, the music teacher suggests remembering the song and singing it together in the first critical episode. Singing serves as a mediator between the learning object and the children. Attention is directed to the learning object using the doll of Little Red Riding Hood, a fairy tale character, via her intentions to sing the song, her walking as if jumping in the air as demonstrated with hands and arms and her cheerful and playful, as if singing, voice using different intonations.

To direct the children's attention to the critical aspects of the learning object, contrasting qualities of musical sounds (high and low musical sounds), on the basis of the contrast pattern of variation theory, the music teacher creates associations with high and low musical sounds through the images of birds and a bear: she speaks in a high voice when referring to birds and uses a low voice and hand and arm movements (swinging to the sides) to imitate a bear, offering a challenge to the children ('Let us, children, listen to how the birds and then the bear do that'). This shows that she is waiting for an answer by demonstrating a ('frozen') facial expression and using a (contiguous) voice.

Using their voice, words and singing, children express their engagement with the learning object of musical sounds; guess the character of the fairy tale by watching the teacher's body movements and voice intonation; and employ different body movements and different voice intonations to demonstrate the critical aspects of the learning object, i. e., high and low musical sounds.

**Table 1.** The First Critical Episode: Music Teachers' Communication Directing the Children's Attention to the Learning Object and Its Critical Aspects.

| | | |
|---|---|---|
| 18 | T | *So, Little Red Riding Hood was walking through the woods, when suddenly an idea to sing something merry came to her head* (T says in a more cheerful voice as if singing). *And she remembered a well-known song, 'Two Roosters'* (further holding a doll in her hands, T shows her cheerfully walking as if jumping in the air). *Do you know this song?* (employing thoughts, movements, face mimes, different intonations, hand movements of the fairy tale character; the doll of Little Red Riding Hood directs children to the learning object, i. e., musical sounds). |
| 19 | C | *Yeeees* (expressing engagement in the learning object by voice or verbally). |
| 20 | T | *Let us all sing this song* (directing to the learning object by singing). |
| 21 | C | (Children together with the music teacher sing the song) (through singing, children engage with the learning object, i. e., musical sounds). |
| 22 | T | ((After singing the first verse of song, the music teacher continues her story). *So, Little Red Riding Hood decided to sing this song. And, you know, the little birds heard her sing* (T pronounces the word 'little birds' in a continuous and thinner voice) *and they say, 'Little Red Riding Hood, we also know this song. And we want to sing it...'* (in the thinnest, most cheerful voice possible) *... Little Red Riding Hood heard how the birds sang and started dancing together with them...And later* (T says in a continuous voice), *when the birds sang, you know* (T says in a lower voice)*, this song was heard by* (a short pause*) a very nice ... big-footed ...* (the music teacher says in a lower voice and swinging to the sides imitates a bear and with a 'frozen' facial expression and waits for the children to answer who else heard the song) (facial expression, hand and arm movements, demonstration of contrast of pitches (high/low sounds) and words (singing of birds and bear direct children to the critical aspects of the learning object, i. e., qualities of high and low musical sounds). |
| 23 | C | (Several children react to the question of the music teacher quickly) … *bear* (according to movements of the music teacher voice intonation, the children guess the character of the fairy-tale, which is associated with low musical sounds). |
| 24 | T | (The teacher continues her fairy tale) *...which also wanted to sing the song. Let us listen, children, how birds and then bear do that* (following the contrast model of variation theory, the music teacher directs the children's attention to the critical qualities of the learning object, i. e., high and low musical sounds, with the help of words (birds/bear), which are associated with a thin and high or low and gruff voice). |
| 25 | C | (While listening to the music composition, the children try to demonstrate birds and bears, adapting their movements to the music they are listening to. Imitating the birds, the children use cheerful and thin voices, and movements of the bear are followed by low voice intonations) (different body movements, contrasting voice intonations demonstrate the critical aspects of the learning object, high and low musical sounds). |

*Note.* Numbers represent the locations of critical episodes in the succession of episodes; T represents a music teacher; B1, B2, etc. represent boys; G1, G2, etc. represent girls; C represents the responses of several children at a time.

## Systematisation of Results and discussion

The analysis of critical episodes of musical activities organised by the music teachers distinguished two groups of ways used by music teachers to communicate with children. The first group (Figure 1) includes ways of communication that help to direct the children's attention to the learning object, musical sounds.

The systemised results show that the teacher directs the children's attention to the learning object directly, by singing, singing intonations and using toys that 'sing'. However, frequently, teachers attract the children's attention to the learning object of musical sounds indirectly, creating meaningful associations or providing hints, e. g., encouraging the production of short squeaky sounds like a chicken or asking questions about the long wings of swans. Squeaking and shortness create associations with short sounds, while slowness and flapping with wings refer to a slow tempo, features which are associated with music. Emotional statements, exclamations and questions also direct children's attention to learning objects, in this case musical sounds, because music evokes strong emotions in children (Fig. 1).
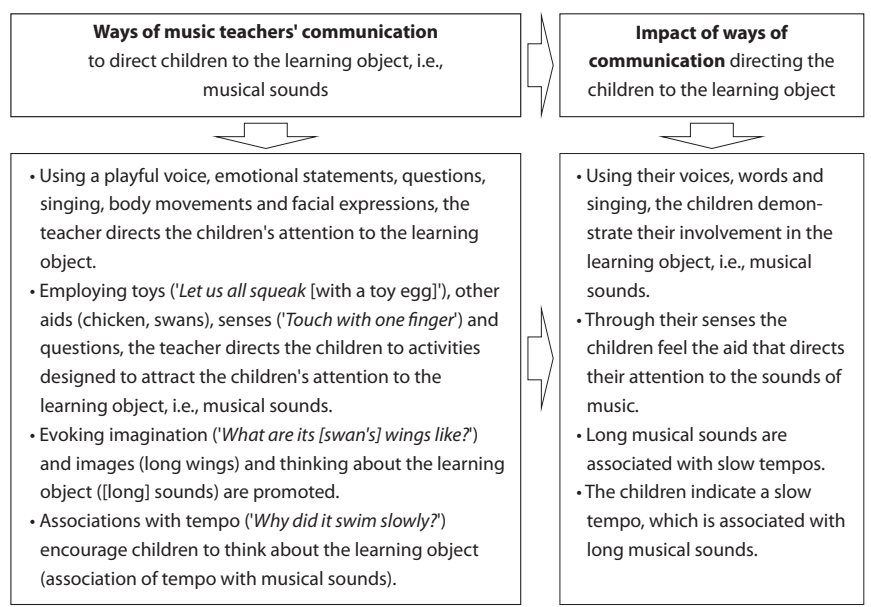
| Ways of music teachers' communication to direct children to the learning object, i.e., musical sounds | Impact of ways of communication directing the children to the learning object |
|---|---|
| • Using a playful voice, emotional statements, questions, singing, body movements and facial expressions, the teacher directs the children's attention to the learning object. <br> • Employing toys ('*Let us all squeak* [with a toy egg]'), other aids (chicken, swans), senses ('*Touch with one finger*') and questions, the teacher directs the children to activities designed to attract the children's attention to the learning object, i.e., musical sounds. <br> • Evoking imagination ('*What are its [swan's] wings like?*') and images (long wings) and thinking about the learning object ([long] sounds) are promoted. <br> • Associations with tempo ('*Why did it swim slowly?*') encourage children to think about the learning object (association of tempo with musical sounds). | • Using their voices, words and singing, the children demonstrate their involvement in the learning object, i.e., musical sounds. <br> • Through their senses the children feel the aid that directs their attention to the sounds of music. <br> • Long musical sounds are associated with slow tempos. <br> • The children indicate a slow tempo, which is associated with long musical sounds. |

**Figure 1.** Ways of music teachers' communication to direct children to the learning object

The second group of ways used by music teachers to communicate with children help to direct the children's attention to the critical aspects of the

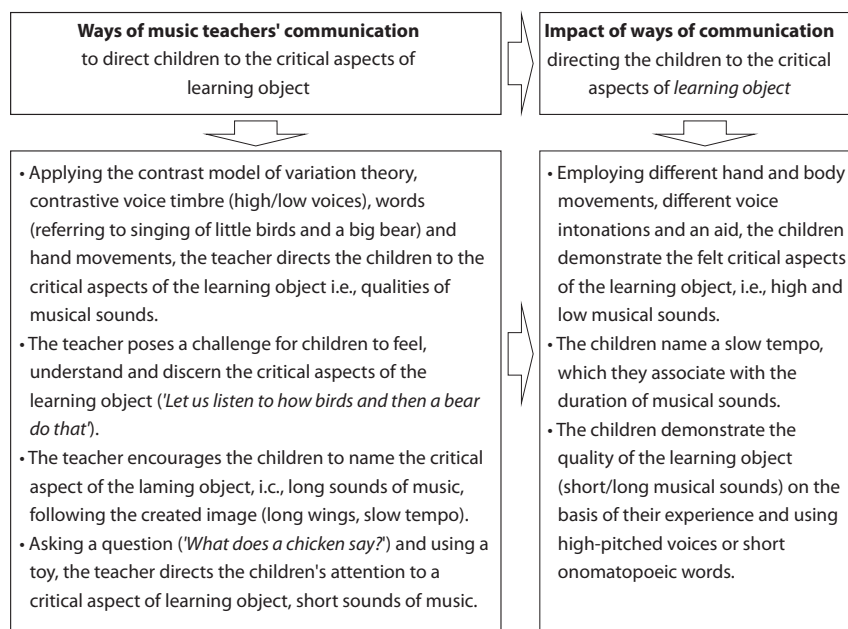learning object, i. e., duration of musical sounds (short/long) and pitch (high/low) (Fig. 2).



**Figure 2.** Ways of music teachers' communication that direct children to the critical aspects of learning objects

The contrast model of variation theory was used by teachers to reach the established goal. They demonstrated contrastive qualities of musical sounds using contrastive timbres of voices. They selected objects with high or low voices and with body parts and movements that are long and slow or short and fast; they evoked children's images and referred to the contrastive 'singing' of the selected objects. Children's reaction and engagement show that all this contributed to their feeling of the contrastive qualities of musical sounds.

Ways of music teachers' communication to direct children's attention to the learning object and its critical aspects by applying the contrast pattern of variation theory in music education have not been investigated so far. The results of the conducted research enrich the direction of research by Wallerstedt (2010, 2013) and Barbosa et al. (2021).

**Limitation of the research**

The obtained results cannot be generalised because the criterion-based sample (the Learning study was carried out only in 3 early age education institutions, and only in Vilnius) rather than a non-probability one was

selected for the conducted research. However, they are useful discerning certain new didactic tendencies and foreseeing further possibilities for developing this didactic trend.

Only one area of musical activity, i. e., listening to music, prevailed in the research. Variation-theory-grounded ways of the music teacher's communication with children were not tested in other interrelated musical activities (singing, rhythmisation, playing, improvisation, etc.). A broader scope of research could have opened up more possibilities for theoretical and empirical substantiation of peculiarities applying variation-theory-grounded ways of communication with children employed by music teachers in early childhood education.

## Conclusions

This qualitative research distinguished two groups of ways of music teachers' communication that encourages children to listen to music:

- Ways of music teacher communication that direct children's attention to the learning object: employing a playful voice, toys, a visual aid, singing, a concentrated facial expression; using senses; evoking imagination and images; associations; and using body movements.
- Ways of music teacher communication that direct the children's attention to feeling and understanding the critical aspects of the learning object: using contrasting voice timbre, hand/arm movements that represent sound qualities, stagnant facial expressions; asking questions that direct children's attention to different sound qualities; using toys that symbolise a respective sound quality; posing challenges to the children.

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# TRANSVERSAL SKILLS FOR THE IMPLEMENTATION OF COMPETENCE APPROACH DURING A MUSIC PEDAGOGY PROCESS AT PRIMARY SCHOOL

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## ABSTRACT

Expertise-based (competence) approach is one of the approaches in pedagogy which in the 21st century can be applied to develop important value-based knowledge, skills and habits. Transversal skills help learners to use knowledge in a real-life context, be ready to take on responsibility for their own learning, constituting a complex achievement, and strengthening the link between knowledge and personal experience. These skills can be acquired by purposefully integrating them with the core skills in all subjects, music including. Transversal skills include such components as: cooperation, creative and entrepreneurial ability, civic participation, critical thinking and problem solving, digital literacy, and self-guided learning skills. It is essential to bring the above-mentioned skills into focus in music pedagogy – to substantiate them theoretically and give a practical guidance how they can be seen in a pedagogical reality and develop them within the frame of music teaching in primary school.

**Research aim:** to describe and substantiate how to enhance the development of transversal skills by applying competence approach during a music pedagogy process at primary school.

**Materials and methods:** this paper will provide the analysis of theoretical literature and education documents on the competence approach, examine possibilities of developing transversal skills in music at Music Primary School. Theoretical findings will be brought into foreground in connection with the pedagogical experience obtained while teaching at Jazeps Vitols Latvian Academy of Music and giving music lessons in general education institutions.

**Keywords:** *transversal skills, cooperation, creative and entrepreneurial ability, critical thinking, digital literacy, self-guided learning skills, competence approach, music pedagogical process at primary school.*

## Introduction

Transversal competences have been identified as vital to 21st century life and have been given a prominent place in the knowledge society and

lifelong learning (Larraz, et al., 2017). Transversal competences are also understood as 21st century skills and are necessary for citizens to be successful and competitive in the global labour market, as well as to be responsible and contribute to society (Ananiadou & Claro, 2009). Therefore, Latvia continues the initiated reform of the content of education at all levels of education, moving to the expertise or competence approach.

Expertise-based or competence approach involves a vision of what kind of learners we would like to see – responsible and active public figures, self-confident personalities who respect and care for themselves and other people, creative doers and experts on development for whom learning has become a habit, and loyal to their country. Implementation of expertise-based approach requires a complex learner's performance which comprises knowledge, skills and habits (Oliņa et al., 2018). To achieve the set aim, the educational content needs regularity and integrity for creating a uniform understanding about the components of educational content.

The implementation of the expertise-based approach facilitates the development and improvement of basic skills which interchange in different combinations with the transversal skills, crossing subject borders and covering the whole study process. Within the frame of music study content, the major parts of music study content remain constant. They include such content components as:

1. Practical music making and creative activity, comprising: singing, scansion, beating rhythm, playing musical instruments, composing music and improvisation;
2. Mastering language of music to understand staff notation, the importance of music expression means for creating images, as well as familiarizing oneself with various staff of performers during the process of listening to music;
3. Learning music culture, historical styles and genres of music, as well as studying composers and their compositions in a creative activity, listening to and learning to understand music (Fenhane et al., 2019).

The transversal skills have to be acquired purposefully, systematically and step by step in all subjects, including music. Zane Oliņa is of opinion that transversal skills encompass a tool for thinking and doing or an aggregate of strategies for a purposeful and effective action, so that the learners could thoroughly study and acquire the educational content, gaining in the result deeper and more comprehensive knowledge. The development of transversal skills is simultaneously also a significant goal of education, so that the learners would be able to act similarly in new, unfamiliar real-life situations (Oliņa et al., 2018). Transversal skills help learners acquire knowledge, skills and habits, thus constituting a complex achievement and strengthening a link between knowledge and personal experience.

This issue is important at all levels of education, including primary school, as the acquisition of transversal skills provides the basis for sustainable education. The goal of sustainable education is a person who lives not only in harmony with nature and other cultures, but also knows how to fully realize himself in society and the economy, ensuring the long-term and prudent use of resources. Such a person understands local problems, can see them in a global context, understands and respects other cultures, maintains healthy relationships at all levels of society, promotes economic development, thus promoting social sustainability (Medne & Jansone Ratinika, 2019). In the context of Latvian education, the possibilities of continuous skills development in music education have not been analysed so far, pedagogical experience in the implementation of the competence approach in the subject of music at the primary school stage has not been analysed and theoretically substantiated. Analysing the research problem and topicality, the aim of publication was determined to analyze and theoretically substantiate the way how to foster the development of transversal skills by implementing the expertise-based approach to the subject of music in a primary school (grades 1 – 6) and how the transversal skill can be integrated with the basic skills of acquiring music.

## Research Methodology and process

The study on the promotion of transversal skills in music lessons in primary school has been implemented in a qualitative methodology and an interpretive research paradigm. The interpretive research paradigm was chosen because its fundamental idea is to accept the relativist ontology (i. e., people have different interpretations of social reality and its phenomena) and the subjectivist epistemology (i. e., people construct knowledge of social reality phenomena, experiencing and interpreting them) (Creswell, 2007). Within the framework of this research, the dimension of relative ontology is formed by the analysis of theoretical literature and documents regulating education of the Republic of Latvia on expertise (competences) approach, in the context of transversal skills development in the subject of music. In turn, the axis of subjective epistemology is formed by the actualization of theoretical findings in connection with the pedagogical experience gained in conducting pedagogical practice at the Jāzeps Vītols Latvian Academy of Music and conducting music lessons in general education institutions.

The category of description form has been chosen to represent the content and form of the research. A set of transversal skills was chosen as the description categories: cooperation, creativity, and entrepreneurship, critical thinking and problem solving, digital skills, and self-directed learning

skills. The categories of descriptions reflect the diversity of understanding of a phenomenon at the collective level rather than the individual level. The phenomenon in this study describes each transversal competence.

## Enhancing the Development of Transversal Skills at Music Lessons in Primary School

Transversal skills encompass a wide range of different skills: skills of cooperation, creativity and entrepreneurship, of critical thinking and problem solving, digital literacy and self-guided learning. The most essential skills that can be properly developed at teaching music are creativity and entrepreneurship, as well as cooperation. Creativity and entrepreneurship are a process during which new ideas useful for a human or a group of people emerge, while entrepreneurship enables to put these ideas into practice, achieving one's own and cooperation aims (from materials *Skola2030[School2030])*. The development of these skills can be fostered by joint music making and music learning where the learners are given the opportunity to implement their creative ideas. Cooperation manifests itself in the interaction between music teacher's teaching and learners' learning, which is promoted by involving learners in an active musical activity. Musical activity includes such kinds of activity as listening to music, musical-rhythmical movements, singing and scansion, plying musical instruments, and these activities are being related to the acquisition of a music language and cultural values, thus improving learners' knowledge, skills and attitude to music. Cooperation during the process of joint music making manifests itself as a skill of listening, interaction, a creative experiment and response to the impulses of music. Therefore, when making music collectively, it is essential to listen to the melody, and to hear oneself and other participants' playing and singing. This testifies to the fact that skills of cooperation in a joint music making are closely related to learners' musicality and its development. It is vital to understand that the quality of music making can be affected not only by the level of learner's musical abilities and skills, but also by the interpersonal communication, which contributes to creating a psychological comfort (Vilde, 2013). Therefore, during the educational process, it is advisable to ask learners to take into consideration one another's opinion, to adjust one's own activity and way of communication to those of other people, since this contributes to a positive cooperation for achieving common goals.

At setting pedagogical goals, learner's individual features should be taken into account by the teacher (Zariņš, 2003). Practice shows that learners may have different interests, skills and developmental level. For each learner, musical development occurs in its own tempo and at the level

achievable by them, consequently, the results will always differ. This is why the process of musical pedagogy requires adopting an individualized and differentiated approach where learners' typical differences, interests and needs are taken into consideration. Individualization and differentiation of musical activity are being brought into focus because they provide broader opportunities for the development of learner's individual abilities, improvement of learner's knowledge and skills and their self-realization during music studies (Vilde, 2009).

A creative self-expression is the ability to express one's perception of life, understanding and oneself in this world. At music lessons, learners can express themselves as music performers, listeners or composers of music, and as experimenters. The diverse learners' activities during music studies promote expressing their individual potential in music, i. e. the skill of singing, beating rhythm, playing musical instruments, improvising, and composing melodies and rhythms (Vilde, 2010). Consequently, to provide learners with creative self-expression opportunities, a teacher has to organize music studies in such a way that every learner should be given the opportunity to broaden their experience and to demonstrate it to other people in a creative activity. Dainis Zariņš considers that only a creative activity gives infinite opportunities for the development, since knowledge and skills acquired by music making create an impact on human's thinking and attitude, which shows also in the activities of other spheres and processes (Zariņš, 2003).

Critical thinking and problem solving are skills by means of which learners can express and substantiate their attitude based on reliable facts, can face challenges, offer solutions and undertake implementing ideas (from materials of *Skola 2013)*. Critical thinking is necessary, for example, at acquainting oneself with the wide world of music. The artistic content of music may reflect cultural values of single persons, groups or the whole society – norms, traditions, symbols, moral and system of viewpoints as well as a life style (Campbell, 2018).

Within the framework of education, critical thinking is interpreted as the understanding about productive thinking, as a pedagogical approach or as an aggregate of learning and teaching methods whose aim is to promote independent thinking, considering it to be the opposite to a mechanical memorizing, repetition and use of ready-made models. Critical thinking can also be interpreted as a method of forming judgements for the adoption of meaningful and responsible decisions in both educational and social fields (Rubene, Svece, 2018). The nature of critical thinking is an understanding-oriented way of thinking which during the pedagogical process is fostered by asking questions, when learners are encouraged to think, express and substantiate their attitude. In theories (Vigotskis, 2002), language is

viewed as an essential element of a human's thinking process, since trough language we think and obtain information. Therefore, a dialogue held between two learners or between a teacher and a learner contributes greatly to the exchange of opinions and to obtaining new information accumulated at exploring the world around us, including that of music. By means of a dialogue, a teacher may stimulate learners to analyze music and learn music expression means, as well as express their feelings and judgements. For this to happen, questions in a dialogue are to be asked by degrees and purposefully – starting with already known and understandable concepts and passing over to new and unclear notions, thus directing learners towards acquiring new information (Vilde, 2013). Robert Fisher thinks that a good question is a question that gives intellectual stimulation. This contributes to provoking a cognitive conflict which, in turn, helps children move to a more advanced developmental stage. A good question can provide children with a structural support for the acquisition of new knowledge (Fišers, 2005).

To enhance the development of critical thinking, it is advisable to employ a three-phase model which includes phases of stimulation, comprehension and reflection (Pavula, 2008). Such model is especially appropriate for developing the skill of analyzing music (heard) which encompasses the ability to focus on listening to music and perceive expression means and character of music. This is the skill enabling to identify specific features of music by ear, to define and compare those which are related to understanding a music language and concept (Vilde, 2013). During the phase of stimulation, it is essential to promote learners' cognitive activities, stimulating them to acquire something new on the basis of a previously acquired material. For instance, before listening to a composition, to focus learners' attention and perception, it is necessary to give assignments on listening to music, giving them directions – what is to be listened to, what is to be paid attention to and where the answers to questions can be looked for. The phase of comprehension is an independent learners' activity – learners attentively listen to and analyze the music heard according to the given criteria (e. g. tempo, dynamics, musical instruments etc.), compare it with other compositions, learn to creatively use the obtained information in a new situation. During the phase of reflection learners, supported by a teacher, evaluate the obtained information, draw conclusions, and substantiate their attitude.

Results achievable by critical thinking and problem solving involve a vision that learners purposefully explore, analyze, assess and combine different kind of information and situations, understand their context; they also identify and formulate the problem, offer their solutions to it and decide to implement them (Skolēniem plānotie sasniedzamie rezultāti caurviju prasmēs, 2018).

Digital literacy is a skill of a responsible use of digital technologies in a daily life for obtaining, employing and creating knowledge, as well as a skill to fulfil tasks and solve problems, jointly use the content created by themselves and other people, safely communicate and cooperate with other people in a digital environment. Digital literacy includes the ability to critically and constructively use information in technology studies and during leisure time – to cleverly use the opportunities given by the technologies, use them with great responsibility and create one's own digital solutions (Oliņa et al., 2018). A meaningful use of information technology tools and resources contributes to more effective learning, since the digital environment allows looking at the specific problem from diverse aspects. In a digital environment, it is possible to create works and construct knowledge by learning from examples of good practice (Abbott, Townsend et al., 2009; Daniela, 2018).

Including digital means in the process of music studies along with traditional teaching materials makes it possible to up-date educational environment, use innovative and interactive teaching methods and individualize the teaching process – to customize education content to every learner's level of knowledge and individual needs, providing a feedback. During music studies, this skill gets improved by teaching learners to use digital technologies for the acquisition of knowledge and skills of music with great responsibility and effectively. At planning and conducting music lessons, it is advisable to use technologies and digital resources not only for the visualization of educational content, but also for constructing and modelling knowledge, for a collective and individual music making as well as for creating new works.

To implement the expertise-based approach, it is essential to develop self-guided learning skills which in music studies are applied in accordance with learners' age and content of education. Theories interpret self-guided learning as a process during which learners are able to activate and use tools that regulate thinking, emotional states and behavior in order to systematically direct themselves towards achieving study goals (Aleven & Azevedo, 2013; Cleary, 2018). To develop this skill, it is necessary to involve learners in the process of planning music studies, as well as of monitoring and assessing learners' work.

In a self-guided learning process, an important role is given to the phase of planning teaching/learning work, when the aim, understandable for learners, is set, tasks and strategies are offered so that the learners would exactly know how they will learn and what they will gain from it. To ensure the implementation of this process, it is vital to formulate learning strategies for achieving the aim adequate to learners' level of education, to offer steps for fulfilling the task and clear assessment criteria, as well as to

promote the involvement of learners in working out these criteria and in assessing learning/teaching work and its outcomes.

During the phase of monitoring, learners implement the plan discussed before and move towards the set aim, making use of learning strategies. In this phase, it is important that learners themselves should monitor their learning and progress in fulfilling assignments. In the phase of assessment, learners learn to comprehend how successful they have been at achieving the educational aim, and which methods have helped them to do it. Therefore, the role of self-evaluation carried out by the learners during the educational process is very great, since doing this, the learners acquire skills of assessing the way they have learned as well as their achievements in music according to the established and well understandable criteria. Self-evaluation enables the learners themselves to find answers to such questions as: is the aim achieved? What helped and what hindered this process? What can be done to improve the learning outcomes? If learners themselves assess the work they have done, their cognitive abilities and skills, related to the process of music making, get promoted – skill of singing, beating rhythm, improvisation. This can be achieved, if singing songs by degrees or notes, beating rhythm and composing accompaniment etc., learners themselves learn to discover mistakes and correct them (Vilde, 2013).

Planning, monitoring and evaluating are effective, if learners are actively involved in reflection. Theories interpret reflection as the process of thinking oriented towards awareness, analysis and understanding about one's deeds, behavior, language, experience, feelings, abilities and attitudes while looking for a solution. Both as a process in which one evaluates one's actions from various aspects and learns from evaluation, respectively, in reflection the child develops both his/her ability to evaluate his / her wishes and actions, and the ability to reflect on the result (Medne, 2019). The analysis of a pedagogical experience allows concluding that reflection helps learners to deeper understand their learning, to see its strong and weak sides, as well as be aware of and control their own behavior, emotions, to improve their attitudes and mutual relationships, and to understand values. Consequently, reflection encompasses all stages of self-guided learning. During the pedagogical process, reflection can be encouraged by questions, for example, at the stage of planning – what is my aim? What strategy shall I use? How much time and resources shall I need? At the stage of monitoring – Do I understand what I am doing? Shall I manage to achieve the aim? Do I know how to use resources? At the stage of evaluation – What helped me and what hindered to fulfil the assignments? Do the results correspond to the set aims? By promoting learners' cognitive activity, reflection is being stimulated, which in general is essential when expertise-based approach is adopted. The summary of

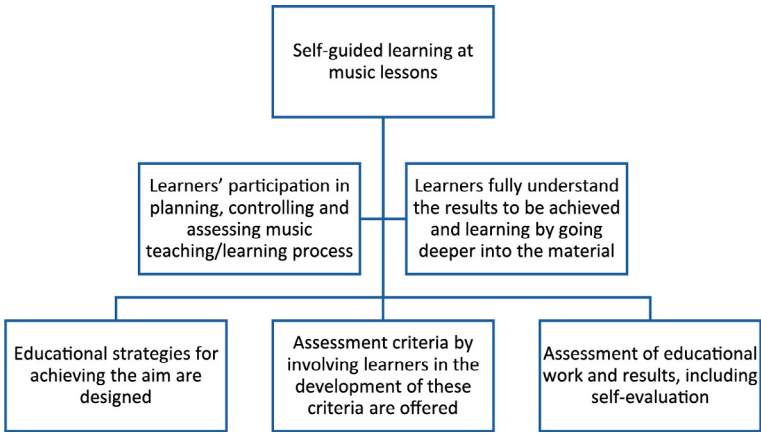findings on self-guided learning components in the pedagogical process is given in Fig.1.



**Figure 1.** Components of promoting a self-guided learning

## Results

The analysis of transversal skills and the way the development of these skills can be fostered in the process of music pedagogy, as well as conducting and analysis of music lessons at primary school lead to the conclusions as follows, Expertise-based or competence approach:

The most essential transversal skills in music studies are creativity, entrepreneurship and cooperation. At music lessons in primary school, the development of these skills is fostered by music making, where learners are provided the opportunity to implement their creative ideas. At music lessons learners may show themselves as music performers, listeners or music composers as well as experimenters.

Critical thinking helps learners understand and evaluate the context of musical culture, images and content of a composition. The nature of critical thinking is an understanding-oriented way of thinking which during a pedagogical process can be facilitated by questions, when learners are encouraged to think and express their attitude and substantiate it.

Digital literacy includes the ability to critically and constructively use opportunities offered by technologies, employ them with full responsibility and create new digital solutions of one's own. During music studies, this skill is improved by teaching the learners to effectively and with great responsibility use digital technologies for reinforcement of their knowledge and skills of music, as well as for a collective and individual music making.

In the process of self-guided learning, it is essential for learners to reflect on learning, i. e. to express their opinion about learning activities and outcomes, participating in the process of planning, monitoring and assessment. To purposefully implement a self-guided learning process and get good results, learners have to analyze learning situations, set meaningful learning goals and determine which learning strategy is most suitable for them.

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# PEDAGOGICAL POTENTIAL OF MENTAL PRACTICE IN TEACHING BRASS INSTRUMENTS AT UNIVERSITY

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**ABSTRACT**

At any level of musical education, it is very important to improve one's musicianship skills, which can only be achieved through consistent training and playing their musical instrument. Physical training is a very important part of the learning process; however, its combination with mental practice has been proved to be much more effective. Although such an approach is important at all levels of musical education, the paper addresses it in the context of higher education. Thus, the aim of this study is to determine the pedagogical potential of mental practice in the process of teaching music in higher education. The research was implemented in two stages. First, a survey was conducted to gather information about the respondents' habits when learning musical pieces. At this stage, the study involved 68 brass students from different universities around the world between the ages of 19 and 25. The second stage of the research comprised the development of the program of mental practice (PMP) with structured observation as a method and 7 participants from Latvian and Norwegian higher music education institutions. The obtained results allow to conclude that the inclusion of mental practice in the practicing routine significantly improves the overall level of concentration and stability both in the process of training and during performances. Mental practice also provides an opportunity to increase the duration of training as well as enhances the overall effectiveness of practicing and concentration during performances.

**Keywords:** *effectiveness of practicing brass instruments, learning brass instruments, mental practice, music pedagogy, music performance perfection, musical mind, pedagogical process in higher education.*

## Introduction

It is important for any musician, both student and professional, to improve their instrument playing throughout their professional activity, and it can only be achieved through a consistent process of playing a musical instrument. It is a continuous work, which requires not only physical

but also mental energy; moreover, as in sports, the specific nature of this profession is in showing one's best performance on stage. Therefore, no matter how powerful (or not so powerful) a performance might be in the practicing process, the demonstrated result is paramount. To achieve the best result, one needs to develop their own technique how to prepare for different types of performances. It is noted that although physical training is a very important part of learning to play a musical instrument, still, the combination of mental and physical practice is much more effective (Pascual-Leone, 2001).

In contrast to mental practice in sports, where the subject has been studied much more extensively, mental practice in music education is a relatively new approach and received recognition only in the second half of the 20th century. There has been an increasing emphasis not only on playing the instrument, but also on the importance of mental processes that take place in the mind during the play – allowing the body to play automatically, allowing the flow, allowing the mind to be free from any kind of thought during a performance (Green, Galwey, 1987). Although in recent years the popularity of this topic among musicians has grown, this approach is still alien to many music schools and higher education institutions. The aim of the research is to study the potential of mental practice in the learning process of playing brass instruments.

## General description of mental practice and its' potential

The preparation to perform a musical composition generally requires a long period of systematic development of technical and artistic skills, the development involving both mental processes and motor skills. Therefore, in the process of skills development, their systematic and ergonomically correct training is a topical issue, because systematically repeated activities in a safe environment strengthen the habit, which in the performance situation (including its stress) is revealed in an enhanced way. Habitual behavior is the most enduring one, and it is a fundamental part of a person's ordinary and professional life. The process of learning a composition is also determined by habitual behavior, with habits of systematic exercise being persistent and difficult to change. Systematic exercise is an important aspect that includes both physical and mental aspects: practice with an instrument (physical) and practice without an instrument (mental). Although physical practice is the most well-known method of improving musical performance, mental practice has also increasingly been accepted as a method of musical performance enhancement (Mielke, 2016). The rationale for using mental practice in music includes its help in improving learning and memory, enhancing training effectiveness, overcoming

technical difficulties and developing skills, raising sensory awareness, promoting interest in music, focusing on performance, increasing self-confidence and endurance on stage, promoting greater control over negative emotions or emotion management, establishing connection and presence with the audience, and gaining maximum experience (Williamon, 2006).

Mental practice is one of the simulation methods. In combination with practice, mental practice is an effective way of learning. Although it cannot completely replace physical training, it can be used very effectively in situations where physical training is not possible for various reasons. Allsop and Ackland (2010) also emphasize that mental practice is a useful method to prevent the possibility of injuries resulting from repetitive physical practice, as high frequency and duration of physical practice are among the factors causing injury.

Higher education is not only the acquisition of specific competences and qualifications, but also the process of developing human talent, emotional intelligence and personality (Medne & Jansone-Ratinika, 2019), so the potential of learning methods at this level of education is a significant issue. Analyzing the concept of potential in the context of learning, Mörz (2011) concludes that due to the lack of a definition of this concept, one might think that the concept of potential is not particularly important in the learning process. However, in scientific and popular literature, both human potential and the potential of a method are often used (Mörz, 2011). On the basis of his research, Mörz (2011) claims that learning in itself is a form of potential. In turn, Fedorinova and colleagues conclude that today the essence of the concept "potential" for education is new, so it is not possible to provide a detailed literature review on this topic. In the context of learning, the authors emphasize that the concept "potential" is seen as something that creates and develops qualitative certainty, namely the ability of a method to influence both the quality and nature of engagement and its outcome (Fedorinova et al., 2015).

Thus, the potential of mental practice as a learning method in music includes both mental and physical aspects for the dynamics of qualitative certainty, with the possibility to extend the duration of training and increase its effectiveness in the moments when the body is physically tired but the mind is focused and able to function.

## Steps of mental practice in the daily practice process

In the research process, five successive steps were identified to structure the content and form of mental practice and its potential.

*Step 1 of mental practice is sound.* Steenstrup (2017) emphasizes the phonetic creation of a sound image, or imagining the sound in the mind, which is especially important when playing brass instruments. The sound means

a phonetic image, a desired sound of the instrument, which includes all the musical aspects such as tone, timbre, pitch, dynamics and *vibrato*. The stronger the phonetic image, the clearer the message in the brain that will be sent to the physical structures involved in playing the instrument.

*Step 2 of mental practice is movement.* The play of any musician is based on their habits and requires new stimuli or mental concepts to change them (Nelson et al., 2006). Playing brass instruments involves many movements that are not very suitable (non-ergonomic) for the human body. As in sports, imaginary movements in music are sometimes much more effective than physical ones, and mainly so because the performance in the mind can be 100% perfect, 100% ideal and 100% simple – the result that can rarely be achieved in the real physical world; mistakes need not be learned in mental practice (Steenstrup, 2017).

*Step 3 of mental practice is Centering.* The ability to concentrate is an important aspect that often determines the quality of a performance. Persistent attention over a long period of time is essential in the process of mastering a musical composition in order to achieve the optimal or even maximum performance quality (Greene, 2002). The way to improve the concentration skills is a process called Centering – a technique that aims to control emotions, that is to regulate energy and apply it in a way that is useful and productive.

*Step 4 of mental practice is interpretation and story.* The composer has a clear idea of what the story of the piece is and what each note means, but in the notation this link disappears (Dahl, 2017). It is important to be aware that it is not possible to perform a composition with an original idea, it can only be recreated from one's own experience, with one's own story. The benefit of a story created by the performer is not only in the interpretation of the composition, but also in the processes that take place in the mind during the performance (Greene, 2002).

*Step 5 of mental practice is imagination.* The goal of mental practice in music is to achieve the best possible performance, so it is important to train the performance itself (Immonen et al., 2012). When performers are able to see themselves in a "perfect" performance situation in their mind, they gradually begin to believe that they are capable of a real successful performance (Weinberg & Gould, 2003). This phenomenon can be explained by the Pygmalion effect, which is a form of positive self-fulfillment demonstrating how expectations affect performance (Niari et al., 2016).

Analyzing the findings about mental practice, its meaning and forms, it can be concluded that:
- in combination with physical training, mental practice is one of the most effective methods of music learning,
- using mental practice can change behavior,

- incorporating elements of mental practice in the daily practice process helps to extend training duration and maintain or even increase its effectiveness.

## Method

For the implementation of the research, a mixed research design was chosen. Since it was equally important to identify the specifics of the industry as a whole and to recognize the potential of mental practice, the study made use of a sequential explanatory design of mixed method research and was carried out in two stages.

A survey was chosen for the implementation of **the first stage of the research**. The objectives of the survey were: (1) to identify the specifics of the industry, (2) to obtain information about the daily practicing process and habits of playing brass instruments, (3) to process data, to obtain information about the use of mental practice in daily practicing process and stage performance. The survey consisted of closed-ended questions, using both nominal scales, where features do not have different levels, but different qualities, and sequential scales, where features are assessed subjectively and can be divided into ranks. As the survey was based on the theoretical findings concerning mental practice, the set of questions consisted of 6 groups: *general information, sound, movements, concentration, interpretation and imagination*. Before starting the distribution of the questionnaire, a sample of respondents was selected on the basis of the following parameters: (1) the respondent plays a brass instrument, (2) the respondent practices regularly, (3) the respondent studies or has been studying music at least at the level of secondary vocational education. The questionnaire was distributed internationally, namely, to players of brass instruments in Latvia, Norway, and Denmark. A total of 68 respondents of all levels of education (Bachelor's, Master's, and doctoral) took part in the survey (first stage of the research) filling in the questionnaire designed and distributed in both Latvian (28) and English (40).

For the implementation of **the second stage of the study**, a structured observation method was chosen and 7 participants from Latvian and Norwegian higher music education institutions were involved, the method characterized by a preparation period when systematic observation maps or tables corresponding to the research questions are developed. In this study, it was a program of mental practice (PMP), and it was not the researcher who was chosen as an observer but the person being studied. Such a method of data acquisition is predicated on the subjectivity of the musical performance and its evaluation, with performers being the most capable of feeling and describing the changes in their play. Prior to the start of the

research, there was conducted a purposeful selection of a group of partici-pants, with their parameters meeting the following requirements: (1) play-ing a brass instrument, (2) training the instrument regularly, (3) being a student at a higher music education institution. Before the start of the study, the participants were introduced to the theoretical basis of the men-tal practice plan, as well as instructed to include mental practice in their daily practicing process, with the PMP divided into five successive steps of sound, movement, Centering, interpretation and imagination. Each par-ticipant had the right not to choose one of the steps or to terminate their participation in the research at any time. The second stage of the study ended with a qualitative open questionnaire. All participants took part in the research voluntarily; the data of both surveys are anonymous. Both stages of the research were integrated in the part with the interpretation of research results.

## Results

### Description and analysis of the Results of the first stage of the study

The method of descriptive statistics was used for the analysis of the data obtained in the first stage of the study. This method is the basis for further research and is supplemented by data processing in the data processing program SPSS.

The first aim of the survey was to identify the specifics of the indus-try through obtaining general information about the respondents' daily training habits. Summarizing the results, it is obtained that 63 out of 68 respondents admit that in their practicing process, in addition to playing the instrument, they use other methods, with the most popular ones being breathing exercises used by 52 respondents, listening to recordings (52) and singing (49), while practicing of a composition mentally was applied by 36 musicians, which is 53% of all respondents. Only 24 of the respond-ents devote more than 30% of their daily practice time to abovementioned methods.

As the questionnaire was designed according to the 5 steps of mental practice, the answers to these specific questions were grouped accordingly.

Step 1 *Sound.* Hearing an accurate pitch of the sound before playing it the majority of respondents assigned high (40) or medium (22) importance. To the question "Can you sing a melody before playing it?" the respond-ents fully agreed (40) or answered "sometimes" (28). Listening to record-ings (46), singing (49), playing a melody on the piano (43) and imagining a melody in the mind (56) where the methods for imagining the right pitch of the sound before playing it.

Step 2 *Movement.* More than half of those surveyed (39) find it monotonous to hold their instrument. When asked about tension, they feel it almost all the time of the practicing process (20) or sometimes (44), and only a few (4) do not feel it at all. Yoga and meditation as well as a massage to reduce muscle tension are mostly used by the English-language speaking respondents, while in the Latvian survey, there are more respondents (8) who do not use such methods. The majority imagine their movements (of fingers, hands) at the moments when physical training is not possible (54), and only a few (14) never do it.

The questionnaire did not contain direct questions on *Centering*, given the experience that this term is not popular among musicians; however, when asked about practicing yoga or meditation, 37% of respondents answered in the affirmative. When asked in depth about their commitment to the instrument, again, there was a significant difference between the answers in Latvian and English. None of the Latvian-speaking respondents who have practiced yoga or meditation (9) believe that these methods would significantly affect their play. At the same time, none of those answering in English believe that they do not affect playing the instrument at all, and they marked yoga and meditation as causing a high (5) or low (11) impact. For evaluating the effectiveness of their practicing, two thirds of the respondents rate it at 50–90%, and although a small number (18) value it below 50%, high ratings between 71–100% are also common (27). Another question related to concentration was the focus during the performance, where 95% of the respondents rated it at 50–100%, while the most common answer was 71–90% (25).

In the part of *interpretation*, the respondents were asked about the connection of a piece with a story, colors or pictures, and it was confirmed by the majority of the Latvian respondents (22), but only 21 out of 40 among the English-language ones. All of the respondents who responded to this question in the affirmative are able to maintain full or partial focus on the stories, images or colors they create.

In the last stage of the questionnaire, *Imagination*, it was clarified whether the respondents tend to simulate their performance, to which 48 out of all participants gave a positive answer, admitting that they do it often (25) or sometimes (23). In their turn, 54 respondents tend to live through a performance in their mind. For the option of "imagining a positive result" there is a significant difference between the respondents answering in Latvian and in English, with only 5 of the former but 18 of the latter imagining a positive result when simulating a performance.

At the next step of the research, the survey data were processed in the data processing program SPSS, where the correlation analysis was used to find out whether or not there is a correlation between different sets of

features. The program helped to obtain 8 results under these conditions (Table 1).

**Table 1.** Respondents' responses about the use of other methods

| Respondents | Using more than 30% of other methods | 71–100% of training effectiveness | 71–100% of concentration during performance |
|:---:|:---:|:---:|:---:|
| 1 | 5 | 6 | 6 |
| 7 | 4 | 6 | 6 |
| 27 | 4 | 5 | 6 |
| 38 | 4 | 5 | 5 |
| 41 | 4 | 5 | 6 |
| 44 | 4 | 5 | 5 |
| 51 | 4 | 5 | 5 |
| 59 | 4 | 5 | 5 |

In the course of further research, it was necessary to find out whether using more than 30% of other methods affects training efficiency and concentration when performing. Thus, there were offered zero ($H_0$) and alternative ($H_1$) hypotheses and calculated the correlation coefficient (Table 2):

$H_0$:   incorporating mental practice into the learning process does not improve training effectiveness and concentration during performance,

$H_1$:   incorporating mental practice into the learning process improves training effectiveness and concentration during performance,

**Table 2.** Correlation calculation

| | | efficiency | concentration |
|:---|:---|:---:|:---:|
| **efficiency** | correlation coeff. | 1 | 0.577 |
| | *p*-value | | 0.134 |
| | number | 8 | 8 |
| **concentration** | correlation coeff. | 0.577 | 1 |
| | p-value | 0.134 | |
| | number | 8 | 8 |

Since $r = 0.577$, a definite positive correlation is identified, and it can be concluded that with a probability of 95%, the null hypothesis can be rejected, and the alternative hypothesis accepted; there is a moderate relationship between training efficiency and concentration during

a performance. Asking similar questions and processing data in other groups, it was concluded that there is a moderate relationship between training effectiveness and concentration in each of them. The highest correlation coefficients were in the fourth question about the plan before the start of training (0.595) and in the sixth question about the simulation in the mind (0.592). The lowest correlation coefficients were in the third question on imagining movements (0.500) and in the fifth on the connection of images with interpretation (0.500).

Analyzing the results of the first stage of the research, it is possible to identify several trends related to the aspects of playing brass instruments. As a first tendency, there should be mentioned a relatively low daily length of practice sessions in most cases, and although a direct question on the justification of practice duration was not asked, the response to other questions can be seen as indirect answers. Both the monotonous holding of the instrument, which is mentioned among other non-ergonomic movements in more than a half of the respondents' answers, and the tension, which is often or sometimes felt by 94% of the respondents, could be the main reasons for the practice duration. This conclusion is also confirmed by another result of the questionnaire, and it is that 92% of respondents include other, not requiring to hold the instrument methods in their practicing process.

An important aspect of playing a brass instrument to be emphasized is sound, with most respondents noting that hearing or imagining a sound before playing it on the instrument is of great or moderate importance, as well as the ability to often or sometimes sing a melody before playing it on an instrument. There were no negative answers to the latter question. From these results it can be concluded that they are sounds and their accurate hearing which are the basis of playing brass instruments as a whole, and there should be paid attention during the training process.

## Description and analysis of the Results of the second stage of the study

In order to test the relevance of theoretical findings in practice, at the second stage of the research a statistical or null hypothesis was formulated on the basis of the research question and the results of the first stage, and it was as follows: the inclusion of mental practice in learning improves training efficiency and concentration. An alternative hypothesis was also accepted, namely, the inclusion of mental practice in the learning process does not improve the effectiveness of training and concentration during performance. The results of the second stage of the study were analyzed using continuous comparative analysis, and the aim of the second stage was to process the results and accept or reject the null hypothesis accordingly.

The duration of the research was between 7 and 20 days, depending on the participant's possibilities and wishes, with no observation or counseling taking place during the time. The study ended with a questionnaire consisting of 28 questions mostly related to self-assessment, so during the processing of the results, a table was created (Table 3) with the answers of each of 7 PMP participant (A, B, C, etc.). As the PMP was developed in the five steps, the final questionnaire highlighted those steps of sound, movement, Centering, interpretation and imagination.

**Table 3.** Evaluation of Program of Mental Practice

| | A | B | C | D | E | F | G |
|---|---|---|---|---|---|---|---|
| Amount of days | 11 | 18 | 18 | 14 | 7 | 20 | 20 |
| Practice time before PMP (h) | 2.5 | 2 | 1 | 3.5 | 2 | 3 | 2.5 |
| Practice time during PMP (h) | 2.5 | 3 | 1 | 4 | 2.5 | 3.5 | 2.5 |
| % of PMP included in daily practice time | 20 | 33 | 20 | 12.5 | 20 | 20 | 20 |
| Sound (evaluation, %) | 70 | 90 | 78 | 100 | 12 | 50 | 70 |
| Movement (evaluation, %) | 50 | 90 | 65 | 100 | 26 | 60 | 60 |
| Centering (evaluation, %) | 30 | 60 | 84 | – | – | – | 30 |
| Interpretation (evaluation, %) | 40 | 70 | 79 | 100 | 42 | 50 | 76 |
| Imagination (evaluation, %) | 30 | 95 | 67 | 100 | 65 | 70 | 70 |
| Concentration before PMP (evaluation, %) | 50 | 65 | 55 | 90 | 20 | 20 | 60 |
| Concentration during PMP (evaluation, %)) | 100 | 75 | 80 | 100 | 29 | 45 | 73 |
| Concentration during performance (evaluation, %) | 70 | 60 | 90 | 110 | 76 | 70 | 60 |
| % of performance potential | 60 | 75 | 80 | 95 | 14 | 70 | – |

The table clearly shows the answers of each participant, with each step that the participant had included to their training process before taking part in PMP, are marked in light gray. The numbers in each of the fields represent how the participants rated their performance, while the "–" sign means that the participant did not take that particular step. The PMP steps after which the participants felt significant improvement of their practicing process or performance, are marked in dark gray.

As in the first stage, the questionnaire was designed in six parts, including five PMP steps and general information. Participants were also asked to evaluate the PMP and express their views on it. In the first part, obtaining information about the participants' training habits, it was found that the duration of training before the start of the program varied from 1 to 3.5 hours. During the study, four participants managed to find additional time to devote to the exercises developed within the program, while the others took away time from their regular practice time.

The most successful and positively evaluated were the first two steps of PMP, namely, sound and movement, after which all participants saw positive changes in their play. In the first step, the participants imagined the best possible sound of their instrument, later trying to approach this ideal in a real performance. All participants saw improvements in their playing in a short period of time, most often as early as in five days, with improvements in tone quality, intonation, phrasing, register and sound accuracy. In turn, the performance at the second step differed between the participants – some preferred singing and physical movements without an instrument, while others imagined both movement and sound. Similarly in the implementation of this step, all participants saw improvements, admitting that it helped to become aware of their body as a whole and pay more attention to easier maneuvering without tension, correct body position and more control. The third step, which offered Centering exercises, was chosen not to be performed by three participants, while the rest described this step as the most difficult of all because it required a lot of mental energy, however they believed that training this step over a longer period of time could help improve their concentration. The next step was interpretation, in which the participants approached its very creatively, making stories and building images for their pieces. To some extent five of the participants had done it before, with four of them acknowledging that the stories they had created played an important role in performing the musical composition. In the final phase of the study, the PMP participants were asked to perform a piece they had practiced during PMP. Six of the seven participants were very positive about the performance, emphasizing a better degree of preparedness, a higher ability to concentrate and more freedom on the stage. Importantly, absolutely all of the participants rated

their concentration after participating in the PMP higher than before its start, as well as in five cases, the concentration during the performance was evaluated at 70% or higher.

Summarizing and analyzing the results of the second phase of the study, it is concluded that the alternative hypothesis can be rejected and the null hypothesis can be accepted, and it is that the inclusion of mental practice in the learning process improves training efficiency and concentration during performance.

## Conclusions and Discussion

Analyzing the results of the empirical part on the potential of mental practice in the process of music learning, it can be concluded that the inclusion of mental practice in the daily practicing process has a positive dynamics of training efficiency and improved concentration overall. In general, in both stages of the study, several pronounced trends were observed in connection with the supplementation of daily practice with elements of mental practice, with the first two of the five PMP steps – sound and movement – were rated the highest. According to the results of the survey, the brass instrument players consider sound and hearing it in the mind before playing as one of the most important factors in the instrument playing. Training this step, the PMP participants saw the biggest improvement in terms of tone quality and phrasing, though with overall stability. Further, movements and their various combination with singing, sound imagination, finger or hand training without an instrument or imagining them mentally were also highly evaluated and recognized by the PMP participants as playing an important role in both preparing for a performance and overall body control and stress reduction. The third step of the PMP, Centering, was considered the most difficult and in some cases useless as at first, no impact on the training process can be felt. Although the desired result was not achieved, those participants who chose to train this step also want to continue learning it, which suggests that it is an important aspect of the potential of playing instrument. Positive dynamics was felt in the interpretation and imagination steps, with the analysis in the first stage of the research, as well as in its second stage, demonstrating the impact of the steps on both the effectiveness of training and the quality of performance. Then partial fulfillment of the mental practice requirements could be explained by the fact that learning a composition involves habitual behavior and it is difficult to change it, although the respondents consider the change effective.

Overall, the participants in the PMP study saw a number of positive improvements in their practicing process, the main ones being better

organization, higher concentration and better control over the body. Due to time constraints and a large amount of information, many of the PMP steps were not fully developed in individual practice, however, all PMP participants expressed a desire to continue working on them individually. Analyzing the results of the research, it can be concluded that mental practice contains pedagogical potential and is a resource in playing brass instruments:

1) mental practice in combination with physical practice is one of the most effective learning methods that can increase training efficiency and concentration, assist in changing behavior, increase training duration, promote better control of mental processes in general, as well as help to avoid injuries that occur during training,

2) the inclusion of a program of mental practice (PMP) in the daily practicing process significantly improves the overall level of concentration, stability in both practicing and performance, as well as provides an opportunity to increase the training duration,

3) identifying the potential of mental practice, it was concluded that the inclusion of mental practice in the learning process improves the effectiveness of training and concentration during performance.

Although the study found a significant correlation between the inclusion of mental practice in the daily practicing process and the improvement of training efficiency and performance quality, due to the limitations of this study, its results are not generalizable and can be only considered as trends. Thus,

- the topic is not sufficiently understood in the relevant (brass instruments) sector,
- no industry-specific theoretical literature was found on mental practice in playing brass instruments,
- only one study was found on the potential of mental practicing for playing brass instruments,
- in the first stage of the study, there was no direct link between the questions in order to establish the relationship between the use of elements of mental practice and the effectiveness of training / concentration when performing,
- there was only a small number of participants in the second stage of the study ($n = 7$),
- both overall time for the implementation of the second stage of the study as well as additional time for the participants to devote to PMP were limited,
- in the second stage of the study, various important performance-related factors, such as stress, health state, physical fitness, and audience size, were not taken into account.

Further research could continue the discussion of the raised questions, and it should expand on such dimensions of the study as the number of participants and the allocated research time. Secondly, the PMP methods should be divided into time periods, and the amount of information to be acquired in each of the steps should be limited. The third is participation in the training of the program participants, thus expanding the boundaries of this research.

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# DRAWING AS A RESEARCH METHOD IN THE PROCESS OF ART HISTORY STUDIES

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## ABSTRACT

Drawing as a research method in the process of art history studies can help to expand and deepen knowledge about several components of the art content: the form, material, structure, technology, individual means, contextual meaning and place. Hand drawing stimulates the imagination, enhances wellbeing, sharpens the mind and trains the hand. It improves visual literacy and increases visual competence. This method acts as a source of discoveries and additional evidence of exclusive values. A historically significant part of the studies was copying, which nowadays has turned into a sea of easily perceptible (external, superficial) appropriations and creates an impression of quality (created by unique primary sources), but which is false and superficial. The aim of this study and the fundamental idea that has also evoked the questions of this research is that drawing is a research method that activates creativity and allows the implementation of successfully original ideas in the process of art history studies. Drawing as research method is significant in all levels of education because using effective independent learning strategies and methods is even more topical for the student than the pupil.

This article analyses 1254 drawings from a cohort of 38 second-year art students in the study of Art History (3 ECTS, no individual persons are involved in the research, nor are the personal data of individuals used). They are evaluated from the perspective of learning outcomes, including six criteria in the evaluation rubric divided into three methodology groups: imagery method of expression, imitation method of expression and discovery learning method. The study applies the qualitative-empirical research method. The results suggest that drawings from important (in art history) and qualitative (through open access collections in virtual space) examples form a link of innovative qualitative benefits from the knowledge phase of short-term memory to the cognitive phase and long-term memory with deep personal motivation.

***Keywords:*** *art history, copying, drawing, remote learning, visual literacy.*

## Introduction

The aim of this study and the fundamental idea that has also evoked the questions of this research is that drawing is a research method that activates creativity and allows the implementation of successfully original ideas in the process of art history studies. Drawing as a research method is significant in all levels of education because the skill of using effective independent learning strategies and methods is even more topical for the student than the pupil.

Since John Ruskin and Viollet-le-Duc in the 19th century, drawing has been at the foundation of art studies (Ruskin, 2019, Viollet-le-Duc, 2014). Drawing by observing – from nature, from models, and from imagination is an integral part of academic art studies. A different situation appears in the process of teaching art history. The historically established tradition is that it is necessary to describe the artworks in words because the originals of paintings were not accessible to many people. This has created a considerable dissonance between texts and pictures, and it, in turn, the challenge – not losing the essence of art when teaching history. Indeed, the descriptions of artists' biographies have always been significant. Still, nowadays, such sources as descriptions of artists' lives by Giorgio Vasari first published in 1550 or the book by Karel van Mander about the Dutch painters published at the beginning of the 17th century are highly appreciated (Vasari, 1912–14, Mander, 1969). Remarkable stories have been written about the colouring of artworks which was important when colour reproductions were not available, yet the 20th-century research on colour theory and colour psychology prove how subjective the perception of colours is. Heinrich Wölfflin's objective classifying principles were equally influential in developing the formal analysis in art history in the early 20th century (Wölfflin, 1991). Many interviews and other written work by art theoreticians and artists, painters are summarised in three volumes covering more than 1000 pages of which the latest one comprises excerpts of the most important texts of the 20th century (Art in Theory, 1900–2000. An Anthology of Changing Ideas, 2002). However, these texts are not particularly suited to improve the hands-on artistic activity. The emerging artists seek visual samples, but this road to the ocean of pictures requires explicit guidance, a roadmap, a guide to these unique values. The process of drawing is one of the ways how to implement this guidance. Therefore, the significant publications for this research should be mentioned. Firstly, Eileen Adams and Jennifer Cromley present evidence of the value of drawing as a medium for learning, as the drawing-to-learn is a specific learning/reading strategy studied across many domains (Adams, 2017, Cromley et al., 2020). Secondly, the

question about visual literacy. Here the most significant example is the work by Gunther Kress and Theo van Leeuwen, as they talk about changing contexts of text and image in study practice. They are the pioneers of systemic-functional semiotics of the visual culture (Kress & Leewuen, 2006). And, thirdly, the theoretical framework is supplemented with the practical experiences of Howard Riley and his publications about *Drawing as Driver of Creativity* (2017, 2019).

The topicality of the research has also been augmented by personal practical experience. Since 2016, three visual literacy weeks have been organised at the University of Latvia in cooperation with the European Network for Visual Literacy, and 24 creative workshops for art teachers have taken place in the framework of these weeks. The principal idea gained from teachers' reflections after the sessions is that visual literacy is rooted in the skills to observe and that drawing (also copying and photography) develops the quality of vision and allows improving the metacognition, which, in turn, can make the planning and monitoring of thinking processes and learning better. Although it is not an innovative discovery, it still proves both the importance of this competency and the evidence to insufficient attention during the teaching/learning process. This idea is also confirmed in the message given by the *Common European Framework of Reference for Visual Literacy*: visual literacy as a cognitive process is significant for improving different skills – create, present, communicate, use, realise, perceive, analyse, interpret, judge, experiment etc. And *vice versa*, it promotes human information processing, which is essential for learning; it develops human attention, language, thinking, problem-solving skills, creativity, decision making and others that are relevant in the context of the present research. Drawing (sketching, copying) is essential for the teaching/learning content, and the personally found artefacts activate personal interest and increase motivation, as also expressed in the European prototype. Visual literacy, a competency that is relevant for school subjects such as art, design, or art education, consists of two basic dimensions: producing of- and responding to images/objects (Wagner & Schönau, 2016). Producing and responding incorporates skills and actions that develop imagination. Visualisation of terms and concepts of art theory relieves their perception and improves stable understanding, but creative experiments with the content and form assign a personally topical value to the studies. It is crucial in the acquisition of art history that it functions convincingly as the creative acquisition of the visual legacy, not the studies of texts – ekphrases (a literary description of or commentary on a visual work of art) or long narratives (Rose, 2017) and that the acquisition process engages the highest cognitive processes – problem-solving, judgment, motivation and memory (Šķilters, 2019).

The increase of the importance of ideas and the process in modern art has proved that the most intrinsic justification of creating art (any invention) is the ability (talent) to find an original idea, to notice the problem and to be "obsessed" with it. Contemporary art has demonstrated that the emergence of an original idea is not primarily connected with being able to do, but with thinking; this closely connects with the strategy that we more frequently call design thinking. This has been outstandingly implemented by, for instance, the architect Frank Gehry, who starts the creation process of his new object with free sketching improvisations, for example, *Foundation Louis Vuitton* (Taylor-Foster, 2014).

The summary of these ideas has found the public space in the documents, the sample programme developed by the Latvian education reform project *Skola 2030*. These ideas are also expressed in many webinars, embodied in the professional development courses, and since 2020 the introduction of the reform ideas has started in general comprehensive schools of Latvia.

According to the aim of the research performing the quantitative and qualitative analysis of data and interpreting the data with the criteria developed per the concept of visual literacy, it is possible to set the following research questions:

1. Why is it not enough only to listen and look?
2. Does hand-copying develop academic skills? Does it raise the visual (seeing) intelligence?
3. What should be the right mix (related to the target) of the drawing content – from memory, from nature, from a model?
4. What limitations do the digital visual sources set?

## Method

### Drawing and remote learning

It is not a custom to make drawings when studying art history. It used to be a needed practice to ensure remembering an artwork or a picture that was not accessible in any other way. It is unnecessary now because while talking or showing something on the big screen, students have already found it all on their tablets or phones and sometimes even have read something special in parallel. By doing so, they prove that they need direct involvement, personal action. It could be drawing. From experience, as described in the introduction, it is possible to discover that drawing can be good to memorise, to see deeper or notice more. So, in this case, it would be free copying. It is becoming more and more important nowadays, and it is done by almost everyone who is engaged in art studies in general. And digital resources make it possible. Their possibilities are now limitless;

we can digitally explore details, nuances, fragments that we had no idea about in the pre-digital age. When we wonder about the year 2020 experience with remote learning what this hybrid space "takes away" the answer is it takes away the physical, sensual feeling. We do not feel the object unless we have already seen it in nature (then it is a reminder). But, when working with a foreign object, drawing creates a sense of reality. It creates a new object that is subjectively personalised. Mine. New. Important. Freeform evaluations written by students at the end gave proof of it.

## Research design Methodology

It is essential to note that it is impossible to perform quantitative research in art pedagogy if the aim is to state some socially, aesthetically and emotionally significant manifestations in the teaching/learning process when the core object of study is artworks. In this case, it is utterly important because the research analyses visual data. These are copies of personally significant pictures created by students individually during the remote learning process. A qualitative empirical approach can be considered a well-established strategy for researching in visual art studies (*Qualitative researching with Text, Image and Sound*, 2000) and representatives of German art pedagogy school Georg Peez (2001) and Ulrike Stutz (2015) have published relevant ideas about this.

The sample of visual data in this research consists of 1254 drawings (no individual persons are involved in the research, nor are the personal data of individuals used) from a single cohort of 38 second-year bachelor art program students (the average age of 20 years) in the study of Art History (3 ECTS). They are evaluated from the perspective of learning outcomes. External features (assessment by observation) including six criteria in the evaluation rubric divided into three methodology groups:

- Discovery Learning Method – to derive concepts, interpret terms, use original principles, add observations, analysis of events and assign personal meaning,
- Imitation Method – repetition – the visual mnemonic that forms the content of a memory mind map,
- Imagery Method – achieve longer focusing – spiritual representation of information in pictures, diagrams (charts) or iconic forms (Tab. 1).

**Table 1.**  Structure of result analysis

| Tasks | Method of expression | Criteria | External features |
|---|---|---|---|
| **1. Knowledge** | **Discovery learning method** | Thematic | architecture, sculpture, everyday life, costumes, portraits, graphic arts |
| | | Didactic | learning, information, explanations, logic, sequence, irony, comparison |
| **2. Skills** | **Imitation method** | Aesthetically | masterful, tasteful, careful, beautiful, ethical, easy to perceive, technically well executed |
| | | Stylistic | precise copies, the influence of a unique "handwriting" stylistic unity |
| **3. Visual literacy – competence** | **Imagery method** | Subjectively | surprising, exciting, emotional, original, attentive, personal |
| | | Wittily | comments, modern interpretation, funny, open, personally significant |

The study course Medieval Art History aims to master medieval art of Western Europe, familiarise with the main monuments of medieval architecture and visual art, and analyse artworks created during this period, emphasising the stylistic differences of the key periods of the Middle Ages. Objectives and learning outcomes corresponding to the aim define the choice or the division of the three above mentioned methods:

1. Knowledge and understanding about:
   - specific architecture-related terminology, concepts and their explanation;
   - development styles of European art history – Romanesque and Gothic art.
2. Skills to analyse, synthesise and evaluate:
   - to explore and analyse independently medieval artworks;
   - to critically analyse architecture as a type of art and ideological form of expression;
   - to use professional terminology and to discover interaction with topical, modern issues.
3. Competence:
   - to formulate independently and substantiate with arguments the personal opinion about architecture and visual artworks and their importance;
   - to explain the significance of medieval art by providing supporting arguments;
   - to purposefully select and independently make a collection of technical drawings to reflect the scope of the recommended content.

According to the three groups of tasks presented in Table 1, the exact method is selected for each group. Methods, following the principles based on the theory of education science, guide the student sequentially to the competency level, starting with acquiring knowledge, improving skills, and leading to personally significant benefits that acknowledge the competency, or in this case, a concrete level of visual literacy.

Thus, the analysis of visual data (drawings) is carried out applying the strategies of the coding system, the codes being defined by the tasks to be performed and the individual way (scale of criteria) how they are realised.

This empirically collected visual material can be analysed only with means characteristic to the qualitative research method (Peez, 2001). As students freely chose their visual research methods, it is impossible to determine what they first paid their attention to. It is only possible to conclude what dominates in these drawings. When subjectively assessing a visual material, it is necessary to find a maximally feasible coding system; it should stem from the content, aims, objectives, and learning outcomes of the subject (Rose, 2012).

## Results

Therefore, starting the work, first, the means of quantitative cognitive method should be applied that helps to gain the general overview. At first, it was established that 38 students had submitted 1254 works (or collections of drawings), thus 33 works per student on average. This was the recommended amount of work defined in the course requirements. Of 38 students, 16, or 42.1%, had chosen the traditional A4 format, but 18 students had chosen the A5 format that is 47.4%. Although the difference is not significant, this still is almost a half, which means that not all consider the usual and generally accepted (the traditionally required, the most widely used) A4 format appropriate and a format friendly for the creative expression. The remaining 4, or 10.5% of all students, had used untraditional (bigger or smaller formats), which, in this case, is not a significant percentage yet confirms the necessity of freedom in creative expressions.

### Discovery learning method

The next quantitatively established possible result refers to the discovery learning method, enabling students to realise the knowledge acquisition needs. Thus, the first group of learning outcomes – they consolidate knowledge about the specific architecture-related terminology, find out personally significant concepts and get a more accurate notion about the development styles of European art history – Romanesque and Gothic art. The first

criterion of this group of methods – thematic – applies most directly to this, and using the respective clear codes – architecture, sculpture, everyday life, costumes, portraits, graphic arts (Table 1), we can obtain an accurate account of each individual's interests because every work corresponds to some of the codes; thus all 1252 can be coded.

The interest in everyday life (478) and costumes (237) is dominant. Architecture (214) and sculpture (150) form the next group. The least represented are portraits (95) and graphics (80). Such a proportional division that corresponds to the medieval material itself serves as evidence of both the dominant interest and the willingness to see in the respective visual material of the historical artefacts the link with today, thus forming a friendlier contact with history in their notions (Fig. 1).



Discovery learning method of expression (thematic criteria)

478 · 237 · 214 · 80 · 150 · 95

■ Everyday life ■ Costumes ■ Architecture ■ Sculpture ■ Portraits ■ Graphic arts
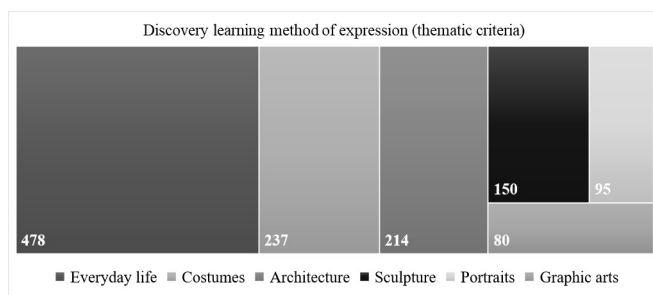
**Figure 1.** Discovery learning method of expression (thematic criteria)

There is enhanced interest in architecture and sculpture, proving that it is problematic to understand the structures of three-dimensional objects in verbal narratives. These indicators attest to the willingness to explore, learn, and remember precisely voluminous, spatial, and complex objects. The next criterion of the discovery learning method corresponds entirely to memorising. This is the didactic criterion, according to which students with this material of drawn copies implement the knowledge acquisition needs. The respective codes – learning, information, explanations, logic, sequence, irony, comparison – already partially duplicate each other (for example, information and explanation) and form the spectrum attributable to this discovery learning method. While looking through the submitted works, it was possible to state that 800 (63.8%) works, all in all, concerned the first three codes, and only 250 were such in which sequence, irony or comparison could be noted. The remaining 454 (36.2%) works were hard to be classified as belonging to this group, which means that students had been creatively or emotionally carried away by interpretations. Those works will be commented upon discussing the third or competence methods.

**Imitation method of expression**

Looking again through all the drawings by the features of the second group of tasks that include the demonstration of skills and, respectively, is the imitation method, it should be concluded the expression of both criteria – aesthetical and stylistic – was found in 689 (54.9%) works, which could be described as the artistically high-quality evidence of personal taste, talent and skills (Fig. 2). Regarding the context of this category in general, this is a very high indicator and confirms students' skill to explore and analyse independently medieval artworks, to analyse architecture critically as a type of art and ideological form of expression (in 26 works) and to use the professional terminology in their comments. The selection of these works could be performed, applying the codes attributable to the aesthetic criterion – masterful, tasteful, careful, beautiful, ethical, easy to perceive, technically well executed. But the evaluation of the stylistics had equally great importance in the analysis process of drawings. Using such codes as – precise copies, the influence of a unique "handwriting" stylistic unity, the author's skill to form a set of drawings corresponding to common stylistics was established. Many drawings were surprised with the demonstration of precise observation skills, which, exploring artworks visually, is one of the main skills and this was discussed at the beginning of the article. However, as this category is attributable to skills that are an important set of outcomes in the education process, then the respective 54.9% seem to be too small an indicator. As this group forms the visual, most important learning material, then it leads to the conclusion that stricter tasks with concrete requirements and explanations are needed here. For instance, what should be considered when copying (also interpreting with a definite aim in mind) some artwork. Being the skills-related tasks, they ask for certain artistic skills, a sense of style and accurate work. The concreteness of requirements would have given better results in this group.

**Imagery method of expression**

Moving to the third group of tasks makes it conclude that seemingly low indicators of the skills group do not significantly affect the final outcome as it could be anticipated. It allows concluding that both the codes of the first and second criterion should be changed for the skills or imitation method group.

The third group of tasks that corresponds to the imagery method has two criteria – subjectively and wittily. They are attributable to the group of tasks in which there dominate independently formulated and well-argued (visually or textually) opinions about the works of architecture and visual art. Purposefully chosen and independently formed, sometimes

very original (11 authors of 38, or 31.6%) collections of drawings that reflected both students' understanding and specific (at times, surprising) skills and imagination that purposefully demonstrated the scope of the reviewed content, were established here. To formulate the results of this group, the following codes were used – surprising, exciting, emotional, original, attentive, personal, comments, modern interpretation, funny, open, personally significant. All in all, 967 works corresponded to these codes. Although by the criteria and codes, it seems that here the greatest subjectivity is possible, yet the totality of works leads to concluding the opposite. Freedom, creative expression, imagination, and humour are very principal ways of implementing the teaching/learning process; they open a new world, make it personally meaningful, and give life to studying the art history course (Fig. 2).
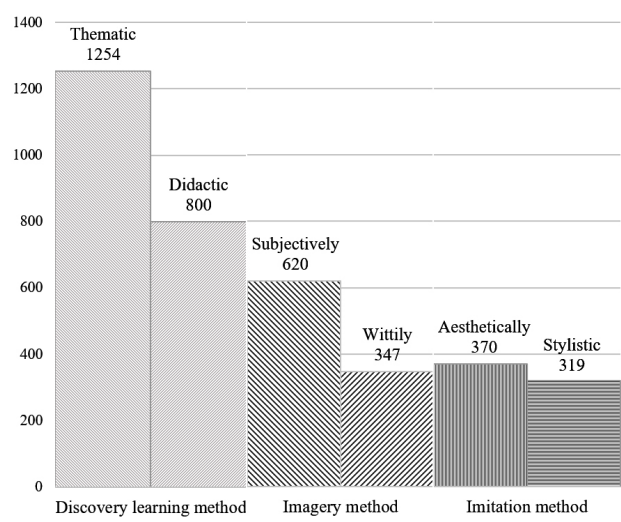


**Figure 2.** Comparison of all three methods of expression

The totality of these works proved that 77.1% of students had reached the level of competency and visual literacy that corresponds to the aims of the study course. Students have got acquainted with the principal medieval architecture and artworks and can analyse them visually. It should be mentioned that many works correspond to at least two methods and several criteria. The overlapping of different expression methods that in each group constitutes approximately one-third of works, corresponds to the above mentioned 77.1%. The most important is the set of works in which the manifestation of all three expression methods can be observed. It is well presented in Fig. 3.
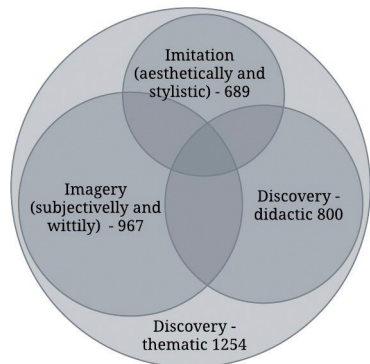
**Figure 3.** Overlapping of the three methods of expression (a total of 1254)

The darker section in the centre corresponds to 6% of all works, which means that it is challenging to create drawings that correspond to all possible criteria. As stated, the imagery method and its related criteria form the most significant part of works and, accordingly, prove that students willingly use their imagination; they are somewhat subjective, critical and wish to be witty. It is not possible to demonstrate this in traditional art history studies and forms of testing.

Freeform evaluations written by students confirm that they are motivated and interested in using such teaching/learning methods also in future, even without having it as a task. The importance of the method in the teaching/learning process and students' personal gain was attested by words that dominated in their texts, such as art (48 times), very (47 times), drawing (37 times), picture (22 times), interesting (22 times), helps (16 times), understanding (12 times), memory (11 times), explore (10 times), creative (8 times), liked (8 times), knowledge (8 times), teaching/learning (7 times), to think (7 times), acquisition (6 times), awareness (6 times) and excellent (5 times). The overall benefit, in general, can be described quoting a student's words who agreed that his words are published without a name: *For me, the most important in the study process is exactly the visual materials because not always years and names stick to my memory. A picture that I have explored in depth or even better, copied, stays in my memory for life. Besides, the association also with the year and name is formed that together with the drawing remain in my memory.*

## Discussion

Several traditionally accepted statements of the pedagogical methodology for the so-called theoretical courses should be revised as the result of the research. The proportion of the verbal, presenting, and practical

classes should be changed because the real benefit from practical actions is assessed insufficiently in the education process. Due to restrictions caused by the pandemic, seeking new teaching/learning forms and methods, a way how to motivate students for learning, how to evoke interest about the content of the study course and assign it personal importance was revealed. However, this experiment only opened up a group of questions for the discussion to answer the following:

1) do learning tasks (formulation of results and assessment criteria) provide an opportunity for:
   • creative expression,
   • gaining experience,
   • developing curiosity,
   • use of imagination.
2) do learning tasks (course content and independent work) provide an opportunity for:
   • problem-solving,
   • identifying oneself,
   • innovative discoveries.

The actualisation of these questions in a broader time dimension would also change the attitude to the theoretical courses in the process of art studies where, until the present, strictly separating them, a general notion about the heterogeneous subordination of theory and practice, and their importance in the study process is being formed.

## Conclusions

Answering the first research question – Why is it not enough only to listen and look? The content of art history, in distinction from other theoretical subjects, offers unique visual material that is the core content. Practical action requires careful investigation that can be complete only precisely copying what is seen or the original drawing, or measurement in nature, or the scrutiny of pictures enlarging them digitally and accurately copying should be applied in studying it.

Indeed, art bachelor students can draw, but during the first introductory lesson without using any visual samples, invited to draw by heart, from memory what came to their mind thinking about the Middle Ages, almost all drawings were similar, relatively a low level of academic quality. These drawings were naturally naive, primitive and resembled those that could be drawn by anyone. At the end of the term, the quality of the submitted collections of drawings (virtuosity of the hand in the drawing, precision, linear accuracy) was very high, which serves as evidence that hand-copying develops academic skills. From this point of view, it raises the visual

(seeing) intelligence because the comments added to many works mentioned exactly the surprise about what students had noticed during the copying, about what they had not thought about at all before the exploring.

Answering the third question – what should be the right mix, related to the target, of the drawing content – from memory, from nature, from a model, it is possible to prove that equal proportional relation between drawings from memory, from nature and from a model is the ideal version. This proportion was observed in the collections of works of those 11 (31.6%) students that received the highest assessment. These were purposefully chosen and independently developed thematically, at times, very original collections of drawings that reflected both students' comprehension and specific (at times, surprising) skills and the imagination purposefully demonstrated the scope of acquiring the reviewed content. This is the evidence that interest and engagement with this task were evenly maintained during the term because every impulse (from memory, from nature, from a model) was linked to some of the ideas of medieval art or interpreted it.

Digital visual sources are of great importance in the acquisition process of art history; its significance can be compared to examining the original. Looking at the original painting in the museum, the costume in the display-case, the building in nature, there are often some natural limitations (distance, light, size, vantage point, peculiarities of the surface) that do not allow exploring the work in full. Therefore, the digital environment has brought unique possibilities in this study course. They should be acknowledged and used. One of the virtual space challenges is the seeming hurry with which we use it in our everyday life. The copying task prolongs the time needed for examining, encourages delving into and gives a possibility to see specific features which then (often during the whole life) are searched for as already known, they are easier found in the surrounding environment and always allow remembering what has been acquired in the study course as a personally significant value.

So, it is possible to conclude that drawing is a way of thinking that activates creativity and allows the implementation successfully original ideas in the results of the study process.

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# COMPREHENSION OF THE DESIGN PROCESS IN TEACHER EDUCATION

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## ABSTRACT

Design and technologies are being introduced as a new general education school subject in Latvia instead of the home economics and technologies subject. However, the main focus in the new subject is on comprehending the process of design and design thinking, there is little research done on how to teach the design process in general education and no research on how to teach design process for future teachers of design and technologies in Latvia. Many scholars pay attention to the process of design and teaching it. In this study, the authors have researched several studies on the design process types and components. The research question was formulated as follows: What kind of problems could arise when implementing the concept of the design process in teacher education. The pilot research was carried out in two student groups (N1 = 28; N2 = 12). The method of analyzing student's diaries' content was applied. The diaries were analyzed according to van Dooren and colleagues' (2014) theory of generic elements in the design process. It was concluded that students prefer to use a guiding theme and domains. The main domains in students' opinion are product materials, form and space, and color. As the most important characteristics of the products in students' opinion are technical quality, product functionality, and creativity. Internet resources and books were the most commonly used resources. Students could pay more attention to documenting the design process and sketching and evaluate other criteria of the product quality. The obtained results will be taken into account in the teaching process and the future research of the design process acquired in teacher education.

*Keywords: design and technologies, design process, generic elements in the design process, phases of the design process, product design, teacher education.*

## Introduction

In the newly introduced teaching subject design and technologies instead of home economics and technologies in the general education in Latvia, the main focus is on the design process and design thinking. Many scholars pay attention to the design process and teaching of the design process. Van Dooren and colleagues (2014) have researched the design process in design teacher studies, Porko-Hudd and colleagues (2018) have studied

the design process in craft subjects in Finland, Aflatoony and colleagues (2018a, b) have presented results of their research in Canada secondary schools. Dazkir and colleagues (2013) have illustrated the inspiration process in designer studies, Sawyer (2018) has researched the creative process in art and design studies. In this study, the authors researched several scholars' opinions on the design process types and components and their connection. The aim is to find the optimal approach for the teachers' education of design and technologies.

## Literature review

If we compare the previous teaching subject home economics and technologies with the new subject design and technologies in Latvia, one of the main differences in the activities of the students is that the old subject focuses on the creative activity, which starts with an idea, then continues with the visualization of the idea, making of the product and ends with an evaluation, whereas in the newly introduced subject the focus is on the design process, which includes such sub-activities as identifying needs and opportunities, finding ideas and choosing a solution, planning, making, assessing, testing, developing and implementing (Noteikumi par valsts pamatizglītības standartu, pamatizglītības mācību priekšmetu standartiem un pamatizglītības programmu paraugiem, 2014; Noteikumi par valsts pamatizglītības standartu un pamatizglītības programmu paraugiem, 2018).

Porko-Hudd and colleagues (2018, 34) consider that craft, design, and technology education is a channel through which people can see the potential of sustainable consumption and how they can develop their skills and make something specific. It is the possibility to make sustainable products for specific needs, which are "meaningful, aesthetic, of good quality and made for the need and aim to increase well-being from the beginning of basic education". Hur and Beverley (2013) highlight that craft has a significant role in developing a sustainable design. Aflatoony and colleagues (2018b) describe design thinking as a collaborative, problem solving, and human-centric approach. Designing can be seen also as a complex, personal, creative, and open-ended skill (van Dooren et al., 2014). As Sawyer (2018) points out, a cultural model of teaching and learning in both design and art schools is the studio model, where the central concept is the creative process.

Freimane (2015a) concludes that primary school pupils can acquire design thinking, creating design products, and design process training methods successfully. The findings of Freimane (2015a, b) illustrate that the development of empathy, systemic thinking, respect of purpose, visual imagery and associative thinking, performance modelling, craft skills, and the impact of technology is necessary to democratize design thinking.

Hasso Plattner Institute of Design at Stanford (2011), Doorley and colleagues (2018) suggest a five-step design process inviting to empathize, define, ideate, prototype, and test. It offers several teaching and learning methods. In this approach, the focus is on empathy – understanding people for whom the design is created. Aflatoony and colleagues (2018b) use this approach, and their findings show that the teacher has to evaluate four main characteristics when students are designing a new product: design terminology, steps of the design process, focus on the first four steps, improved knowledge. They also consider that during the course students pay more attention to the user's feelings and problems, and their empathy is being developed. The authors indicate different levels of group work describing the issues, for instance, a problem of equal collaboration, time management, concentration as well as a leadership problem. The authors examine students' homework: concluding the design process, they consider that students have different understandings of the design process. For example, some students miss certain steps, some do not understand the necessity to define the problem, etc.

Carroll and colleagues (2010) clarify that the design thinking process consists of the following phases: understanding, observing, setting point of view, ideating, prototyping, and testing. During the first phase, students research different sources related to design issues. In the second phase, students observe how people behave and interact, ask them questions, and reflect. During the first two phases, students develop empathy. During the third phase, setting a point of view, students synthesize what they learned before. In the ideating phase, students generate many different ideas. Prototyping is making sketches or two- or three-dimensional objects. In the testing phase, students conclude what works and what doesn't on user feedback basis. Then students can improve the sketch or the object. The authors see the design thinking process as exploring, connecting, and intersecting.

McLachlan and colleagues (n.d.) indicate eight stages in the design process: define, identify, brainstorm, select, prototype, test, iterate, communicate which is most similar approach to those proposed in the new standard and programs for the technology domain of general education in Latvia. (Noteikumi par valsts pamatizglītības standartu un pamatizglītības programmu paraugiem, 2018).

Freimane (2015b, 76) recommends making a pre-research, where the problem and idea are examined from different perspectives, such as context, possibilities, tendencies, values, needs, aims, and methods of creative thinking, by using literature and analog designs. After that, the design tasks are defined. Then, the research, action plan and visualization are primarily followed, including sketches, interviews, analysis of contexts, 3D, then prototyping, implementing, and the final stage is the completion of the

product. In her research Freimane (2015, b) focuses on the direction of sustainable social welfare of the design process.

Findeli (2001) states that the old understanding of the act of design is as follows: a problem is identified (situation A), and as a result, the solution is imagined and described (situation B). As opposed, he presents a new logical structure of the design process by writing that instead of a problem there is state A of a system, and instead of a solution, there is state B of the system. The designer and the user are part of the system. The designer should understand the dynamic structure of the system.

In design teaching, van Dooren and colleagues (2014) describe five generic elements of the design process: (1) experimenting or exploring and deciding, (2) guiding theme or qualities, (3) domains, (4) frame of reference or library, (5) laboratory or (visual) language – sketching and modelling. An effective secondary school design thinking curriculum includes experiential activities, real-world applications, and characterized consequences (Aflatoony, 2018a). They can be explored by using several teaching methods, such as observation activity, visit of a practicing designer, interview activities, bodystorming in the groups, where the students are acting out scenarios by using role-playing, field trips, reflections, discussions, regular sketching, and analysis of sketches and others. (Aflatoony et al., 2018a) Sketching is not only a way of presenting results. In fact, sketching and modelling make it possible to discover new ideas. The process of sketching often involves discoveries; the thought is different when it becomes concrete in a sketch or model (van Dooren et al., 2014, p. 13; Laamanen, 2012). Bresciani (2019) divides visualization into seven traits: structural, restrictiveness, content modifiability, directed focus, perceived completion, outcome clarity, visual appeal, and collaboration support which affect cognition, communication, and collaboration.

In the teaching of design process James (2017) focuses on students' self-awareness, mindfulness, and cognitive development as well as empathy as opposed to the artefact. She convinces that a person can use only real problems analyzed from different viewpoints. The discussion implies that research, observation, and pausing before any attempt at problem-solving are very important/ cinematic. Reitan (2014) focuses on learning-by-watching to improve design education in both compulsory and academic design education. It would help to create reflective practitioners and more sustainable design.

Dorst and Cross (2001) conclude that analysis, synthesis, and evaluation repeat in the design process according to both the development of the problem and the development of solutions. They consider that ergonomics, technical aspects, business aspects, creativity are the criteria for evaluation of the design process.

Laamanen (2012) focuses on the idea generation phase in the craft design teaching process for future teachers. She concludes that utility is the basic purpose of craft-making in the craft design process, but there is not enough support for the students in the idea generation phase. Social support and open-ended tasks are necessary for the idea generation step. It is also important to organize working practices that promote self-efficiency and self-generated learning. In her experience, the mind map is a good starting point for idea generation. She emphasizes the importance of collecting visual and material as well as textual sources for the generation of ideas. Dazkir and colleagues (2013) describe the sources of inspiration in the design process for novice design students. Although their research shows that students did not appreciate the provided sources for inspiration and ideas, i. e., cultural values of certain nations and countries, they believe that at the beginning of the design study process the students need an assignment where a specific source of inspiration along with the instructor's guidelines is included.

Hur and Beverley (2013) explain how the designer and user can collaborate in the design process from the very beginning to make sustainable fashion by using idea generation toolkits. The authors demonstrate two ways of doing this: real co-design activities and opportunities to work online.

Graham and colleagues (2007) describe the deterministic design as a reasonable process where designers report what needs to be done (functional requirements), how it can be done (design parameters), why it will work (analysis), who else has done similar work (references), and what are the risks and possible countermeasures. They also emphasize the importance of collaboration indicating that after individual work follows peer-review evaluation process (PREP), and then the team (3-5 people) brainstorms. However, Vasconcelos and Crilly (2016) argue that it is difficult to say whether the best results come from individuals working alone or from group work, or on what should the size of these groups be.

Goucher-Lambert and Cagan (2019) explore design works according to four criteria: feasibility, novelty, usefulness, and quality. All criteria are rated on an anchored scale from 0 (low) to 2 (high).

There are different approaches to the design process, but throughout the approaches, it is characteristic that it is seen as a creative process. We can see the design process as a non-linear process because in each step we can go back. For instance, in the production process, we might also generate new ideas for later use. Furthermore, the authors of this article believe that testing should be done already in the work process to prevent mistakes. Planning is an important step; however, it is emphasized but not singled out as a separate step in the existing subject. It is necessary to try

different ways and find the most appropriate ones for learning design in general schools and universities for future Design and Technologies teachers in Latvia.

## Method

Two types of structured diary forms were created. One was developed according to the approach proposed in the new standard and programs for the technology domain of general education in Latvia regarding the design process: identification of needs and opportunities, finding ideas and choosing a solution, planning, making, assessing, testing, developing, and implementing (Noteikumi par valsts pamatizglītības standartu un pamatizglītības programmu paraugiem, 2018). The diary form was offered to future primary school teachers to develop a product design of their choice. The form was filled by 28 future primary education teachers, and each student's diary had a unique code from S1 to S28 (one code for each student).

The second diary form was developed according to Freimane's (2005b) theory of the design process. It covers three components: preliminary research (definition of the problem, identifying needs and wants, developing the required tasks), research, sketching, identifying the skills to develop, establishing assessment criteria, analysis of the design process, sample, and final product assessment. This type of form was offered to future *home economics and technologies* teachers in four different textile craft and methodology courses. The empirical study was conducted at a time when the new design and technologies teachers' sub-program was still being developed. Therefore, the design process approach was implemented within the framework of *home economics and technologies* teachers' sub-program to try out and prepare for the new approach as well as prepare students to teach the new subject. The students were assigned to create and design a product in their relevant course of study: weaving, knitting, crochet, print, and batik. 12 forms were filled by 12 students, and each student's form had a unique code from MT1 to MT12 (one code for each student).

These diary forms were analyzed according to van Dooren and colleagues (2014) and the five generic elements of the design process they described: (1) experimenting or exploring and deciding, (2) guiding theme or qualities, (3) domains, (4) frame of reference or library, (5) laboratory or (visual) language – sketching and modelling. Each of these components had an accorded table with various columns including the main elements of these components. The coded responses were organized in rows, and each code was marked with a cross if the according respondent's diary included an element of the components. Altogether 5 tables were created according to van Dooren and colleagues' (2014) five generic elements of

the design process. To assess the sketches, criteria and level descriptions made by Syrjäläinen and Seitamaa-Hakkarainen (2014) were used.

The pilot research in two student groups (N1 = 28; N2 = 12) was carried out between February 2019 and January 2020.

The method of content analysis of student diaries was used. The diaries were analyzed according to van Dooren and colleagues' (2014) theory of generic elements in the design process.

## Results

### Experimenting: exploring and deciding

The results show that the majority of future primary school teachers mention exploring, whereas significantly fewer students mention experimentation and decision-making. Mistakes along the process, which are characteristic of any creative process, are only mentioned by a few students.

The diaries sourced from *home economics and technologies* teachers show similar results. Exploring is mentioned in almost all diaries, decision-making is mentioned in half, and experimentation – less than half of the diaries. Only 3 students discuss difficulties in the process and mistakes, stating that the product's final result can be completely changed from the idea (see Table 1).

**Table 1.** Experimenting: exploring and deciding

| Criteria | Experiment-ing | | | Exploring | | | Deciding | | | Mistakes | | | Changed idea |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Times men-tioned | 0 | 1–2 | > 2 | 0 | 1–2 | > 2 | 0 | 1–2 | > 2 | 0 | 1–2 | > 2 | Number of times |
| N1 = 28 | 19 | 8 | 1 | 2 | 25 | 1 | 17 | 11 | 0 | 22 | 6 | 0 | 3 |
| N2 = 12 | 8 | 4 | 0 | 2 | 8 | 2 | 6 | 6 | 0 | 9 | 3 | 0 | 3 |

### Guiding theme or qualities

The first 7 columns were added before analyzing the diary forms, the names were given to the qualities as the research progressed. In all diaries, students of the primary education teacher program mentioned a guiding theme, 13 students identified it as singular, 5 topics were mentioned by 2–3 students. 3 students mentioned interior decorations, 3 students mentioned hand puppets, 3 mentioned toys, 2 gifts, and 2 – recycled material use. For instance, student S6 wrote that the guiding theme – the use of recycled materials – was determined by the materials available to her at home:

> *S6 Since there were already many different pieces of fabrics at home, I realized that I could make a sustainable blanket.*

The most popular evaluation criteria mentioned are the technical execution of the product (21 students), functionality (15), and creativity (13). 7 students mentioned color composition, 6 students mentioned the application of previous sketches, 4 students mentioned the visual outcome of the result as a criterion. Other criteria – the product's reflection in the theme, using different materials, presentation, etc., were mentioned by 3 or fewer students.

For example, when evaluating the manufactured bag, student S5 paid special attention to the quality of the technical performance:

> *S5 Evaluation criteria for assessment of the bag: The machine stitch is straight, the handles are sewn symmetrically and carefully, the textile mosaic is neatly sewn onto the fabric bag….*

All diaries from *home economics and technologies* teachers mentioned the guiding theme. As an important criterion for quality, all 12 students mentioned the technical execution of the final product, almost as many mentioned color coordination (11) and the final result (10). Creativity was mentioned by 9 students, 7 students added functionality, 6 – application of previous sketches. The blend of materials, volume of work, and complexity were mentioned less. 2 students mentioned fitting in the timeframe given for the production as a quality criterion, and one student mentioned sustainability (see Table 2).

**Table 2.**  Guiding theme and qualities

| | Guiding theme mentioned | | | Qualities mentioned | | | Qualities mentioned | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0 | 1–2 | >2 | 0 | 1–2 | >2 | The technical execution of the product | Reference to previous sketches | Creativity | Functionality | Reference to theme | The final result | Presentation of the final product | Use of different materials | Blend of materials | Complexity | Color composition | Sustainability | Fitting in the time frame |
| N1 = 28 | 0 | 1 | 27 | 0 | 11 | 17 | 21 | 6 | 13 | 15 | 3 | 4 | 2 | 2 | 1 | 1 | 7 | 2 | 0 |
| N2 = 12 | 0 | 0 | 12 | 0 | 1 | 11 | 12 | 6 | 9 | 7 | 1 | 10 | 0 | 0 | 3 | 1 | 11 | 1 | 2 |

**Domains**

Firstly, 5 main columns with 5 main domains were created: (1) form and space, (2) material (3) function, (4) physical context, and (5) social, cultural, historical, and philosophical context according to the research done by van Dooren and colleagues (2014). The number was increased during the research according to the content units discovered in the students' diaries. Each student has mentioned around 2-6 of the units. The most popular descriptive units of the primary school teachers are the use of materials (22), followed by color (11), three-dimensional form (9), and function (8). For instance, one of the students wrote in her diary that initially, she researched from what materials the products available in stores are made of; in this particular case, it was a mask:

> *S2 Choosing materials, exploring the material face masks are made of in stores.*

Another student emphasized in her diary that the chosen material affects the quality of the product:

> *S9 Before starting a creative work, it is necessary to reflect and justify the choice of materials so that the work is of high quality and applicable. I find out which materials, additional materials, and tools will be needed for the work.*

Only three students directly mentioned cultural context, one of them including traditional Latvian culture and its context.

*Home economics and technologies* students chose material as the most defining characteristic unit (all 12 students), the next most popular unit is color (11), then the three-dimensionality and function (both 7). The texture is mentioned in the 6 diaries. 4 students mention traditional Latvian culture and its context (see Table 3).

**Table 3.** Domains

| Domains | Color | Form 2D | Space 3D | Materials | Choice of materials | Combination of materials | Blend and composition of materials | Texture (flat) | Texture | Function | Harmony of form and content | Traditional Latvian culture and its context | Other cultural contexts | Physical context | Technique |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| N1 = 28 | 11 | 2 | 9 | 22 | 9 | 6 | 3 | 1 | 0 | 8 | 2 | 1 | 2 | 2 | 5 |
| N2 = 12 | 11 | 4 | 7 | 12 | 3 | 5 | 7 | 6 | 5 | 7 | 5 | 4 | 0 | 1 | 1 |

## Use of various resources

24 out of 28 primary school teachers noted that they had used one or more resources. Most students had used internet resources (17) and books (13), only 5 students had used magazines, 5 – video materials, and 1 used museum archives. Less than half – 6 *home economics and technologies* students mentioned internet resources, only 3 had used books and 2 – magazines. One student mentioned researching and observing the professor's teaching aids (see Table 4).

**Table 4.** Use of various resources

| Resourc-es | Not men-tioned | Internet resources | Books | Maga-zines | Video | Museum archives | Teaching aids |
|---|---|---|---|---|---|---|---|
| N1 = 28 | 4 | 17 | 13 | 5 | 5 | 1 | 0 |
| N2 = 12 | 0 | 6 | 3 | 2 | 0 | 0 | 1 |

## Sketching and modelling

22 students of primary education mention drawing sketches. Only 10 students have enclosed the sketches in their diaries. 6 students have added one sketch, 1 student has added two sketches, two students have enclosed three, and one student – five sketches. One of the sketches is very detailed, well-explained, and includes sizing.

Most of the *home economics and technologies* students' diaries contain sketches (10), eight of them have 4–8 sketches, the rest have fewer. Mostly black and white with relative detail and form variety. Many have explanations in text, descriptions. Three sketches are colorful, one has very intricate details and form variants. One diary features a knitting pattern along with the sketches. See Table 5 and Fig. 1-2.

**Table 5.** Sketching

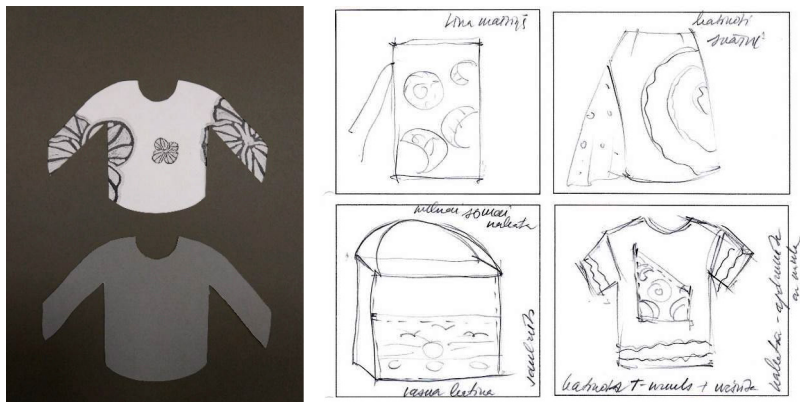| | Number of the sketches | | | | Quality of the sketches | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Sketches are mentioned, but not visible | 1 | 2–3 | ≥ 4 | Simple lines without details | Simple lines with some details | Details are more elaborated | Solutions of many details are shown | Sketches with variations of the forms and details | Sketches are with descriptions |
| N1 = 28 | 12 | 6 | 3 | 1 | 3 | 3 | 3 | 0 | 1 | 1 |
| N2 = 12 | 2 | 0 | 2 | 8 | 1 | 3 | 2 | 1 | 3 | 6 |

**Figure 1-2.** Sketch examples made by students M1 and M3

## Discussion

When interpreting the results of the research, it should be taken into account that students do not have experience in documenting the design process, because so far, in the existing subject home economics and technologies it was not planned. Analyzing the students' diaries according to van Dooren and colleagues' (2014) 5 generic elements of the design process, it can be concluded that all students mentioned only 2 generic elements in the diaries: guiding theme or qualities and domains. Students of primary education could choose the theme themselves. The most popular guiding themes mentioned by three students of primary teachers were interior decorations, hand puppets, toys, two students' guiding theme was gifts and recycled material use. The main domain mentioned by both groups was material, then color and form, and space. The emphasis on the material and color can be understandable because for the products made by the students, textiles were mostly used as materials. There are a wide variety of textile materials, both in terms of origin and finish. In turn, the importance of form and space can be explained by the fact that the use of textiles allows creating a variety of forms: both two-dimensional and three-dimensional works.

The work was hampered by the fact that future primary school teachers study part-time and contact lessons were scheduled for specific groups of students for one day. In turn, *home economics and technologies* students study full-time. The study is also limited by the relatively small number of students.

In the future, it will be necessary to study how to promote the acquisition of students' skills in documenting the design process, assess the importance of experimentation, and seek to understand the meaning of sketches.

Students should also learn not to be afraid of admitting mistakes. This means that in the future, the documentation of the design process should be continued, paying special attention to the rationale for documenting the design process in general, as well as experimentation, exploration and decision-making, use of various resources, and sketching and modeling, as not all students mentioned these generic elements. It would be necessary to develop more structured forms for documenting the design process, as well as to include the documentation of the design process as an evaluation criterion.

## Conclusions

As the new reform is implemented in general education schools and teacher education, and there is the shift from *home economics and technologies* as a subject to *design and technologies*, more methods of teacher education and successful preparation must be researched. In their professional work, many teachers use the experience gained in school and university. In this case, such general education experience does not suffice, hence the need to ensure comprehension and research of the design process and methods of teaching it.

While researching *home economics and technologies* students' diaries, it can be concluded that greater attention needs to be paid to the documentation of the design process. Thus, the students practice using precise terminology, observing and defining all aspects related to the product creation and their significance. For example, the functionality of the product design was mentioned only in 7 of the diaries of the future *home economics and technologies teachers*, whereas real textile products were usable and fully functional.

It can also be concluded that greater attention should be paid to experimenting with materials, elements of techniques and techniques themselves, sketching, and detail. There should be various forms of design and versatile content research. Such evaluation criteria as a reference to original sketches, blend of materials, unity of composition should also be recognized as important. Regarding the resources, students' attention must be drawn to the research of real design and art pieces in museums, archives, and exhibitions.

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# IMAGINATION IN THE CREATIVE SELF-EXPRESSION OF STUDENTS IN SECONDARY SCHOOL LITERATURE CLASSES

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**ABSTRACT**

The paper's aim is to make topical the role of imagination in thinking processes and learning cognition and in the creative self-expression of students in secondary school Literature classes. The paper summarizes theoretical pedagogical and psychological findings about imagination in cognitive activity and links them with the author's practical experience in the work of a secondary school Literature teacher. The research issue is how to stimulate imagination in secondary school students' cognitive activity during literature classes, thereby promoting their creative self-expression and self-experience. This issue is topical when contemplating the formation of a creative personality and a skilled, creative reader. The role of imagination is regarded from three viewpoints: the relation of imagination to the development of thinking; the role of imagination in creative self-expression and self-experience of students; creative exercises in secondary school literature classes as imagination stimulators. In the learning process related to artistic cognition, connection between scientific and artistically directed cognitive activity is relevant because the development of a free and creative personality requires linking of critical thinking, imagination and emotional attitudes, which in turn forms creative self-experience of students, the ability to use knowledge, skills and attitudes acquired in the learning process of diverse life situations. Creative problem tasks in Literature classes are one of the pedagogical means to encourage students to look for connections between different science fields, topics, facts, events, objects, phenomena, images and draw independent take-aways and conclusions, as well as encourage students to express themselves creatively. The research methods: literature analysis, content analysis, self-experience analysis, survey.

**Keywords:** *cognition, creative exercises, imagination, literature studies, self-experience, self-expression.*

## Introduction

The year 2020 has brought changes in the learning process, due to the pandemic, learning takes place remotely in several class groups, therefore the role of many basic categories of pedagogy is becoming more important

in the remote learning process. The tasks of the learning process in general are also becoming more relevant at this time of economic and social change. How to raise motivated, curious students who are ready to face the unpredictable tasks of tomorrow? The educational success is no longer mainly knowledge content reproduction but rather the practical application of knowledge in new situations. Therefore, it is necessary to stimulate curiosity, the ability to find connections between ideas, which requires knowledge not only in one, but between different areas (Fadel, Bialik, & Trilling, 2017). Researchers of digital childhood admit that representatives of digital generation have less ability to imagine and fantasise; however, they have more developed skills to sort out information (Rubene, 2016). There is a need to unlock thinking potential of students and to develop their analytical skills, for them to be able to cope with tasks set by changing social environment and global challenges (Rubene, & Svece, 2019, p. 406). Consequently, it is important to identify the basic categories of pedagogy and to trace their role in the modern education process where remote learning currently plays an important role. Thus, it is important to look both theoretically and practically at the imagination as the ability of creative thinking and the role of imagination in the cognitive learning activity in secondary school literature classes.

## The Relation of Imagination to Thinking Development

According to T. Buzan, the brain has five major functions: receiving, storing, analysing, controlling, outputting: the brain outputs received information through thoughts, speech, drawing, movement, and all other forms of creativity. These processes are complex and are still being studied because the neural connections in the brain do not allow such a sharp separation of the functions of the brain cortexes. Further research has shown that "when people were encouraged to develop a mental area they had previously considered weak, this development, rather than detracting from other areas, seemed to produce a synergetic effect in which all areas of mental performance improved" (Buzan, 2008, p. 16).

T. Chernigovskaya indicates that, it is important, especially during remote learning, to organize cognitive activities in learning in such a way that the learning becomes a conscious process, that students develop open-mindedness, that knowledge and skills become a part of long-term memory which is related to imagination and the ability to form association chains. "If we lie down on the sofa for six months, we won't be able to stand up. It's the same with the brain: it has to work hard. Hard work is the key word. It must always be difficult for your brain. Read a book difficult for you, watch a film that you don't understand, or enjoy a performance where the director's message is unclear. To understand that, you will think

a lot, read reviews, and look for information. The brain will be loaded with work and thus it will develop. You don't have to look for tips to improve your brain. The life itself is a tip" (Chernigovskaya, 2020).

L. Vygotsky studies the psychological development of a child from birth to adolescence. He focuses on the characterization of imagination in the studies of 20th century psychologists (such as T. Ribot, W. Wundt, J. Piaget) who describe the objective basis of imaginary processes: the connection of imagination with experience, with past impressions and language. L. Vygotsky points out that the analysis of imaginary processes in its complex forms and the analysis of thinking processes in general show that: the development of both thinking and imagination processes in children is related to the development of language (speech); logical and imaginative thinking develop in parallel in close conjunction; when we observe the forms of imagination associated with creativity and focused on reality, we can see that the line between realistic thinking and imagination disappears and the imagination becomes an absolutely necessary moment of realistic thinking. Cognition of reality is not possible without imagination, without the ability to distance oneself from reality, from those specific impressions that form our notions of reality (Vygotsky, 2003, p. 651).

L. Vygotsky concludes that the most important difference between reproductive imagination and memory is that the imagination does not repeat certain preciously obtained impressions in the same connections and forms, but it builds new connections from these previously acquired impressions, resulting in a new, unprecedented image. New imaginative combinations arise from new constellations that are new relations between elements (Vygotsky, 2003, p. 638).

In the search for essence of imagination in philosophy, p. Ricoeur notes that imagination can be reproductive (imitative) and productive (creative). Imagination materialises through language, understanding of text and creation. Ricoeur emphasises the significance of reading, particularly of reading fiction, as it develops ability of "seeing as" and metaphorical thinking. "Seeing as" is linked to philosophical concept of language game, because it involves surprise of discovery (creation). Therefore, psycholinguistics could cross the line and link the sensual and emotional perception of image with the semantic and conceptual perception of image (Ricoeur, 2003, p. 252).

In the context of L. Vygotsky's research, it is significant to find that a very big step in the children's imagination development takes place in connection with the children's speech development. Thus, it can be concluded that the development of speech is correlated to the development of imagination. A child acquires the opportunity to express in language what does not coincide with the objects of direct reality or the perceptions of reality. The child can freely talk about their impressions. Vygotsky points out that

it is important to focus in more detail on the emotional aspects of imagination development. Often, one or another scene in a child's imagination seems unrealistic from a rational point of view, but they are real from an emotional point of view (Vygotsky, 2003, p. 648). D. Siegel indicates that it is essential to study how and why personal feeling of world is so important for individual's health and relationships. And how can we respect this feeling in the learning process? (Siegel, 2017).

L. Vygotsky underlines that only in adolescence does a child comes to thinking in concepts. However, the ability to form concepts, the verbal expression of concepts and the application of concepts to processes do not all take place simultaneously in child's development. The process of transferring concepts is more difficult, i. e., extending the concept to other different things, when the separation and synthesis of features in concepts has to meet with other specific features and when they are given in other specific situations and proportions. The transitional character of adolescent thinking becomes especially evident when we observe and functionally research the adolescent's use of concepts not in a ready form, but in action, because it is only in function and use that the true nature of the concepts reveals itself. By studying a concept in action, we discover evidence of adolescent characteristics in their intellectual activity as a whole and also of their personality and world-view development. Given that transition from thought to concept and word is hard because learning cognition requires a complex way of conveying thought, adolescents sometimes complain about the imperfection of words, that it is not possible to express their thought into words (Vygotsky, 2002, p. 180).

L. Tateo indicates that "imagination is a fundamental psychological higher function that elaborates meaning by linguistic and iconic signs, related to memory" because with the help of imagination one reveals the hidden meaning of words, signs, text, subtext (Tateo, 2015, p. 3).

L. Tateo systematizes the features of imagination is :
- related to memory, to problem solving, playing a crucial role in the scientific thinking, art, and societal change as well as in education and promotion of wellbeing;
- not in opposition with rational thinking and reality" they complement each other, imagination is also fundamental to guide the future oriented behavior both at individual and collective levels;
- a phenomenon that cannot rely on laboratory experiments or on language-based methods such as interviews" because in the processes of imagination, reality is related to abstract associations, while associations and images are related to reality (Tateo, 2015, p. 2).

Thus, the imagination is a function of advanced thinking, which is related to both the linguistic and iconic sign aspects, related to memory,

fantasy and intelligence. Imagination plays a key role in science, art, and in social and emotional attitudes, in relation to education and the well-being of society as a whole (Tateo, 2015, p. 1).

Imagination can appear in any of these five sensory modality types: it can be perceived visually, by hearing, movement, smell or taste. For most people, visual perception the strongest, thus imagination appears mostly in visual form. Over time, different imagination technique types have evolved, related to different individual representative perception types (visual type, auditory type, kinaesthetic type) (Ozoliņa Nucho, & Vidnere, 2011).

Imagination is a self-programming tool. Adventures create feelings which condense in the imagination. In turn, the imagination creates feelings, and feelings lead to action. We form the imagination from our sensory impressions and perceptions, and these are the basic abstractions of our beginning. Imagination is the embodiment of spontaneous ideas which have the ability to point to new objects and connections by analogy (Vidnere, 2015, p.14).

Imagination is "an internal, private level of mental activity that is not accessible to an outside observer" it is real and its course and the consequences of the process are important. (Nucho, Vidnere, 2004, p. 129). Use of methods that stimulate imagination, for example, visual and verbal expression, develops problem-solving skills in everyday life, in the arts and research.

## Imagination in the Students' Creative Self-Expression

Imagination is significant in students thinking development, as it enables linking experience with new information, plan actions, by imagining the outcome, and suggest hypothesis for one's researches.

A. Špona indicates that "self-experience is knowledge, skills, attitudes acquired and evaluated in life, which have become personally important values" and points out that creative self-experience is linked to the fact that the knowledge, skills and attitudes can be used in a variety of life situations and that the means of developing creative self-experience problem and research-based learning (Špona, 2006, p. 161).

Problem-based learning consists of the general cognitive process regularities, the ability to see contradictions in a problem, to reveal possibilities of resolving contradictions, which is related to creative thinking. It is important that students develop a desire to look for connections between facts, events, things, phenomena, they should be encouraged to make independent decisions. Self-experience gained in learning process is a great human value. Through cooperation everyone, be it a school or university student, teacher or teaching staff, gains self-experience, and that is the dialogical character of educational process (Špona, 2018, p. 19).

E. Maslo reminds that attitudes towards learning change in late teens, leading to differences in learning. This particular age is a transition period in biopsychosocial development. The learning process has an impact on these processes, so it is important to take into account that at this age thinking becomes more critical, selective and independent, abstract and systematic, students like to generalize, looking for the principles and laws behind the facts. These students are aware of the connections of the world, they observe the world and make their own conclusions about it (2003, p.67). Learning is self-expression and self-realisation. If individuals do not have an opportunity to express themselves during the class, they do not know what to do in order to develop purposefully. Freedom means free will and self-realisation. Students will gain competence only through their own conclusions. We make conclusions by reasoning and by interaction between teachers and students (Špona, 2018).

21$^{st}$ century learning process is related to the evaluation of the relationship between teaching and learning. The teacher is encouraged to be more of a facilitator of learning than a disseminator of knowledge. It marks the transition to a process-oriented learning task that focuses on students' acquisition of knowledge and its application in action. It is a gradual transition from control of the learning process to students' self-assessment of their learning task. The main tasks of the learning process are aimed at promoting and guiding students' thinking and action attitudes, stimulating the interest of learning and facilitating thoughtful learning (Vidnere, Bogdanova, 2019).

J. Anspaks draws attention to the fact that one of the problems of art pedagogy theory and practice is:

- to supplement the understanding of the cognition peculiarities in the learning process;
- to discover the possibilities of the cognitive process in artistically oriented cognition action and creation;
- to study the conditions for the development of personal creative abilities in the process of artistic cognition. (Anspaks, 2004, p. 94)

Consequently, the discovery of the peculiarities of scientific and artistic cognition and their interaction in the development of one seamless, creative personality is very relevant in art pedagogy (Anspaks, 2004).

E. Husserl has studied how objectivity is reflected in subjective consciousness and he points out that it is important in learning cognitive activity to respect how an individual experiences, feels the world in his inner experience, because we have to deal with reality so far as it is perceived, imagined, observed, conceptually meant (Husserl, 2002, p. 166). This is in line with L. Vygotsky's view that the imagination should be seen as a complex form of individual mental brain activity, that combines several

functions in their peculiar relationships. To describe such complex processes that go beyond the notion of *function*, the notion of *psychological system* which includes inter-functional connections and relationships could be used (Vygotsky, 2003).

Similarly, Heidegger connects imagination with both consciousness and emotion and points to the role of artwork, culture and cultural policy in general, because it can be said metaphorically that an artwork reveals the existence of the existing first of all and secondly, an artwork becomes an object of experience and, as a result, life becomes an expression of human life (Heiddeger, 1998, p. 158). Individuals cannot act creatively if their imagination is not being developed with emphasis on the link between imagination and its source – objective reality.

The Latvian education reform project School 2030 (Skola 2030) includes creativity in transversal competences which are critical thinking and problem solving, creativity and entrepreneurship and self-directed learning. Creativity in any education field is about nurturing freedom and creative thinking of students. Entrepreneurship is inconceivable without a person's self-confidence, daring, accepting a challenge, creating innovative solutions. Critical thinking requires attention and flexibility to take into account different points of view that differ from conventional thinking and evaluation models. Problem solving is precisely problem solving because existing patterns of action and behaviour are not effective, therefore new ones need to be created. In turn, self-directed learning involves the awareness and purposeful development of the students' individual abilities and interests. It is important to understand the nature of creativity and the difference between fostering creativity and drilling texts. As creativity is a complex and controversial phenomenon, its promotion in the learning process requires a special approach which differs from the classical understanding of learning as the acquisition of knowledge or skills (Briška, & Kalēja-Gasparoviča, 2020).

S. Congram are the successors of C. G. Jung's ideas and they apply Jung's active imagination theory in their practice, where imagination is helping a person to discover deep aspects of their self. Jung associates active imagination with the deepest unconsciousness where images have a life of their own. In order to put this process of active imagination into practice, students were offered various creative exercises with elements of art, dance, poetry and masks. During the course of their research S. Congram concludes that imagination is essential in the personal cognition activity, self-expression and self-actualization. Imagination-enhancing activities can both raise and lower students' self-esteem, therefore it is important to inform students about the importance of the process, not about how to do the exercise right or wrong. Artistic learning takes place in relations between a person,

nature and the society, it takes place through experience, through the body, offering a wide range of learning and gaining self-confidence. The teacher becomes a coordinator in this learning process, because one has to feel when to intervene, when to support, when to initiate a temporary break in order for the student to perform healthy self-reflection. Teachers' tasks are the following:

- develop imagination incentivizing exercises;
- create an appropriate learning environment;
- cooperate with students to build trust and support;
- respond to the needs of students, because it is difficult to plan this creative work in advance (Congram, 2008, p. 14).

## Creative Imagination Exercises in Secondary School Literature Learning

There are several stages in solving creative problems: seeing, isolating, formulating a problem and finding a hypothesis (task solving idea), testing it, a verbal (written) presentation of the results obtained in the solution. Almost every step requires overcoming contradictions in the creative activity of performing literary tasks. There is no and cannot be only one correct solution to the creative problem in the study of literature, because it is related to the understanding of art, ethical aesthetic truths and values (Rudzītis, 2000, p. 121).

Solving literary problems requires both creativity and experience of creative activity. Rudzītis points out that a problem arises here: can creative work be taught? And he himself gives the answer that students can be given guidelines for cognitive activity, demonstrated examples, explained situations; however, the main focus should be on fostering the development of relevant abilities (imagination included), while keeping in mind that they are formed only in appropriate artistically oriented cognitive activity. The task of the teacher is to purposefully manage the literature learning process to offer students creative exercises (Rudzītis, 2000).

Imagination is not only a person's unique ability to see what is not directly seen or said, but also the basis of all inventions and innovations. Hence its value is immeasurable, it allows us to get to know and learn from the experiences of many people we have never met in life (Gotlieb, Jahner, Immordino-Yang, & Kaufman, 2016). M. Kūle and R. Kūlis has pointed out in her research the positive role and the risks of technology in cognitive processes: The cultural values of the technological age change the perception of space and time, as well as human relationships which are formed faster and, unfortunately, become more superficial (Kūle, & Kūlis, 2020, p. 419).

The development of young people's imagination is related to their skills in the technological age to create alternative perspectives, as well as emotional attitudes. These imagination abilities manifest in the creative thinking process, offering a different approach to problem solving or organizing activities. Imagination fosters both a creative and critical attitude towards new learning content, fosters the ability to find connections between previously acquired and new knowledge, and offers new ways to use the newly acquired knowledge in the future. Students' school success and lifelong creativity are facilitated not only by the cognitive skills measured by Intellectual Quotient tests but by other cognitive and social-emotional attributes. Therefore, imagination is very important because it allows students to comprehensively, in the coexistence of part and whole, understand what they are learning. As a result, school-related exercises become more personal, more meaningful for students, more related to life and more connected to their future adulthood (Gotlieb, Jahner, Immordino-Yang, & Kaufman, 2016).

Research in pedagogy and psychology highlights the role of imagination in thinking processes, as well as the interrelationships between the development of imagination and language (speech), indicating that in adolescence conceptual thinking is developed, concepts being the basis of the most complex connections and conclusions. Initiated by an emotional impulse, the imagination arranges the facts of an individual's experience in a new order. This arrangement appears as a fantasy image, an idea, a conception. Then the person understands and evaluates the new idea. If it is found to be significant, a decision is made to implement it (Briška, & Kalēja-Gasparoviča, 2020, p. 8).

The main important thing to understand today is that information has no value without people. There must always be someone who can interpret it. "The same word, the same concept, the same scenario mean absolutely different things depending on who speaks, who listens, what is shown, what education those people have, what was said before that, and why that was said" (Chernigovskaya, 2020).

In learning cognitive activity, it is important to offer the opportunity to look at the results to be achieved and the issues from different points of view. Creativity involves new approaches and alternatives, including the significant use of challenge, chance and provocation as creative impulses in the thinking process. Independence, responsibility, initiative and creativity are related to interdisciplinarity, cooperation and cultural education in the learning process, where understanding the meaning of the text read, use of reasoning in reading and writing, imagination, recognizing topicality, ability to learn independently are all essential. It is openness to new experiences that, owing to cooperation, directs students towards their subjective search for meaning.

## Methodology and Results

The following methods are used in the research: literature analysis, content analysis, self-experience analysis, survey.

In the 2019/2020 school year, as part of remote learning, 11th grade students were offered a creative visualisation exercise after reading Part One of the J. W. von Goethe's play Faust. This was one of several exercises given at the closing of a theme. After the exercise was done, a content analysis was performed on students' work and their self-analysis, a survey was organized and a survey data analysis was performed. The exercise was based on stimulation of imagination: visualization by symbols and written explanation of thoughts. The criteria for assessment were the uniqueness of idea, understanding of the overt meaning and hidden meaning of the text, and use of images, metaphors and symbols.

The exercise given to students was the following: after having read the Goethe's Faust, using a white paper sheet and a black line, they had to:
1. create a visualization of the play's idea, revealing something that they had found significant about the play subtext, its problems discussed, the relationships between the characters;
2. use play-related characters and symbols in the visualisation;
3. make topical some significant quote from the play text;
4. explain their idea in a written comment.

The completed exercises were handed in via Microsoft Teams platform in the form of photographs of the creative visualisations and a Word document with commentary on their work and a table where all main characters of the play and their interrelationships were described. In order to present an illustrative example, four of the visualisation works have been added to the present article (Image 1, 2, 3, & 4). Students have consented to the use of their works in the publication provided the authors of works remain anonymous.

Each work is accompanied by a descriptive commentary on the idea contained in the drawing. For example, one student writes: "Goethe's play Faust is a story of a conflict of soul between good and evil. The question is – which is stronger. Because throughout lifetime, we solve these problems by constantly making choices, growing in spirit. The growth leads to breaking of unwanted ties and fight for freedom. The scissors in my drawing symbolize the human reason that cuts ties with wrongful choices. It happens sooner or later – everyone ventually gets on the right track and everyone has the right to make mistakes along the search for the truth" (Visualisation 1).
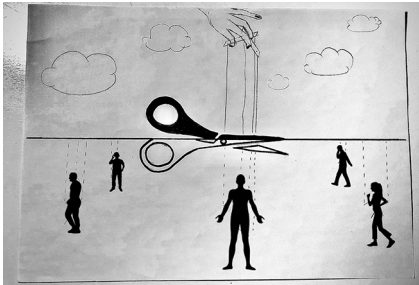
**Image 1.** Visualisation 1



**Image 2.** Visualisation 2

After completing the exercise, the students participated in a Google survey with the following questions:

• Did the creative exercise help to better understand the content of the literary work? (see Fig. 1)
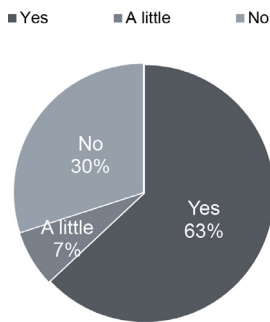


**Figure 1.** Question 1. Did the exercise help you to better understand the content of the literary work? 83 responses

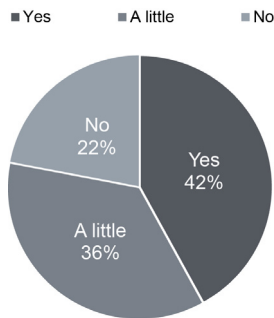• Did this exercise encourage you to think about issues that are relevant to you and society? (see Fig. 2)



**Figure 2.** Question 2. Did the exercise encourage you to think about issues that are relevant to you and society? 83 responses

- Describe what you found valuable in this exercise!
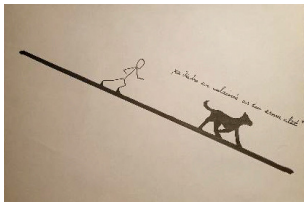


**Image 3.** Visualisation 3
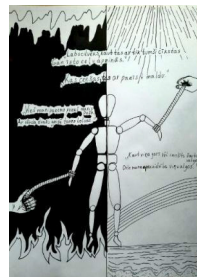


**Image 4.** Visualisation 4

- What are your suggestions for more successful work in literature classes?

A total of 83 secondary school students (16 to 18 years of age) participated in the survey, having performed a creative visualization exercise during the study process after having read the literary work.

In this study, pupils' freely expressed self-evaluation responses were categorised into two groups: positive evaluation and critical evaluation. Then, performing a qualitative content analysis, the conclusions are summarized in the table "Strengths and weaknesses of creative visualization tasks". The survey collected the following positive student responses: "I enjoyed the task execution process"; "I had to think outside the box in order to complete the exercise more successfully"; "Developing my imagination will make it easier to read and understand this type of work next time"; "I would like to read more books to have more experience and skills to be able to imagine, visualize and understand how to use different signs and symbols"; "The exercise helped me to better understand the text, as I had found Faust was difficult to read. I like that you can not only read, but also comprehend more through drawings and thus train your imagination"; "I had the opportunity to think about the symbolic meaning of the characters. It is an in-depth analysis of the text and its connection with our visual work"; "The value of the exercise is the ability to compare plays and modern values"; "I like to discuss and analyse both books and creative works together"; "The conditions of the exercise about the white page and the black line were interesting. This made me go deep into the text and find the hidden symbols"; "The instructions were very broad, so the possibilities of execution were endless. I like to listen to the teacher's thoughts on stories and plays"; "It is worth looking at how others portray and understand the same quote. I like reading together and discussing it after"; "This exercise develops imagination and reveals how others understand the same book"; "The exercise allowed me to think irrationally and made me go deeper into

the text. Valuably, this visualization is a kind of text analysis that makes you think differently and look at the text from a different point of view"; "The exercise encouraged me to go deeper into the text, understand it fantasise about its content"; "In my opinion, it was valuable to draw, think and develop my own unique idea that stimulated my imagination. It is rare to do something similar on a daily basis, so I thought it was valuable".

There were also critical and negative comments in student self-assessments: "Interesting pastime but this won't be useful to me in the future"; "We should read less because I believe we already read a lot this year"; "Many are not really interested in all this, let's be honest. Personally, I really like to listen when you, Teacher, talk about a literary work or a show play, a film. Then I become interested in these works, there is a greater desire to read them"; "It is difficult for me to perform such Literature exercisess"; "I would suggest slowing down"; "For me, this exercise did not stimulate my imagination, only irritated my nerves. I believe that it is always better to get information by doing practical things"; "I would like less work, more listening"; "I would enjoy literature classes more if I could choose for myself what to read".

During remote classes for this particular exercise related to experience students used traditional visualization methods (drawing or collage) and submitted their works as photographs. However, students like to use graphic design software as well; therefore, they should be given a chance to use their digital skills which have been obtained during and after classes.

The results are summarized in the following table *Strengths and Weaknesses* (Table 1).

**Table 1.** Strengths and Weaknesses of the Creative Imagination Tasks

| Strengths | Weaknesses |
|---|---|
| - Develops creativity, stimulates the imagination;<br>- Helps reveal text content, subtext;<br>- Relation to philosophy and other science fields;<br>- Connection s of the text with emotions and values;<br>- Allows to leave one's comfort zone;<br>- Creative self-expression;<br>- Images and symbols help better understand the literary work;<br>- An opportunity to share ideas and be inspired when orally presenting comments;<br>- During the oral analysis, a dialogue is formed with the teacher and classmates;<br>- Mutual cooperation and support, taking into account the needs of students;<br>- Develops deep reading skills. | - Relevancy of the texts;<br>- The texts are not always interesting from the student' point of view;<br>- Too little time to complete the exercise;<br>- Sometimes in the oral evaluation of the creative exercise performance, performance and opinion of just a few students take the stage;<br>- Visualization exercises should be varied to avoid repetition;<br>- The role of creative exercise in cognitive learning needs to be more clarified and justified;<br>- Appreciate creative thinking and achievement of each student. |

Advantages and disadvantages of the creative exercise identified by students match the theoretical conclusions, namely, creative imagination exercises in literature studies enable creative self-expression through visualization and language – justification of one's idea. Such exercises give an opportunity to interact with classmates and teacher, and they make students think about the process of thinking and deep reading thus uncovering the interdisciplinarity of the exercise. The risks remind that the chosen literary work should be topical for students, the purpose of the exercise should be well-grounded, appropriate time for completion of the exercise should be given, and performance of each student should be valued.

## Conclusions

Imagination is a component of learning cognitive activity that promotes forms of thinking: analysis, synthesis, generalization, and creativity. Imagination does not repeat past impressions in the same connections and forms, it builds new connections from the previously acquired impressions, resulting in a new, never-seen-before image. New imagination combinations arise from new relationships between elements.

Research in pedagogy and psychology has also highlighted the role of imagination in thinking processes, as well as the interrelationships between the development of imagination and language (speech), indicating that in adolescence thinking continues to develop in concepts that are the basis of the most complex connections and conclusions.

Creative exercises in literature classes are one of the pedagogical tools to incentivise students to look for connections between different science fields, topics, facts, events, objects, phenomena, images and to draw independent conclusions, realisations, as well as to encourage students to express themselves creatively. Stimulation of imagination is one of the goals of literature studies.

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# THE CONTENT OF TODAY'S MUSIC SUBJECT CURRICULUM FOR GRADES 1–3 IN THE CONTEXT OF MONTESSORI EDUCATION PRINCIPLES

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**ABSTRACT**

The use of an improved curriculum and a new approach in the teaching-learning process of the comprehensive schools in Latvia determine the topicality of the study. The aim of the study is to identify the Montessori education principles and the keywords that describe them, as well as to compare them with the content of learning topics in today's music subject curriculum for grades 1–3. The following research questions were raised to achieve this aim. RQ1: What are the Montessori education principles and the keywords that describe them? RQ2: What keywords describe the principles of Montessori education are mentioned in the content of learning topics in the music subject curriculum for grades 1–3? twenty-two academic articles that are published in the EBSCO database between 2010 and 2021 were used to define the principles of Montessori education. As a result of content analysis of the academic publications, the study identified three principles of Montessori education: Student's discoveries and finding creative solutions, collaboration and learning by doing. The study determined the frequency of using the keywords describing the Montessori education principles in number (N) and percentage (f%) by using document analysis, content analysis, and visual representation of the relationships between the identified keywords in the word cloud. The study found that the content of learning topics in the curriculum of music subject dominated by keywords that describe the Montessori education principles, such as creativity and learning by talking. The study results provide an opportunity to understand the features that are in common between Montessori and traditional education in the content of the music subject curriculum.

*Keywords: learning* music, Montessori education principles, primary education, the content of music subject curriculum, the 1$^{st}$ –3$^{rd}$-grade students.

## Introduction

In the modern world, changes are constantly taking place, driven by globalization, climate change, technological development and other factors. The education system cannot ignore the problems that exist in the

world. That is why there is a growing debate about what education should be in the 21st century. The topicality of the study was determined by the fact that this year is the first school year, when the first, fourth and seventh classes of the Latvian primary schools are offered to implement curricula and approaches that meet the new basic education standard. Music is one of the school subjects that belong to the field of cultural awareness and self-expression. The improved curriculum and the new approach adapt music learning to each child and enable the student to acquire what will be practical in life. Alternative education theories, which have already emerged in the 20th century, adapt the learning process to each child and promote the acquisition of life-useful knowledge and skills. Therefore, the idea that arose in this study to compare Maria Montessori principles of education with the content of today's music subject curriculum.

Maria Montessori began to implement her cherished ideas about 114 years ago in the Italian education system. Nowadays, Montessori education is one of the alternative education directions, which has many advantages over the traditional education system. For example, the Montessori educator L. Pavlovska writes in the preface to the Latvian-translated Montessori book *The Absorbent Mind* that alternative education is the most appropriate response to the changing and dynamic realities of the 21st century (Montessori, 2019). Montessori school teachers, leaders and Montessori education researchers believe that Montessori education promotes creativity, innovation, teamwork and resilience (Ungerer, 2017; Roemer, 2012) and is a constructivist approach to education (Colgan, 2016). Furthermore, it is a holistic form of education in which children learn as they should learn (Pailoor, 2014). Montessori education is a child-centred educational approach.

There have been several studies conducted to demonstrate the advantages of Montessori education over traditional pedagogy. For example, the Brown & Lewis study compared the learning achievements of 3rd-grade students in mathematics and reading. There was no significant difference in mathematics achievement, but Montessori school students showed significantly higher scores in reading (Brown & Lewis, 2017). Peng & Md-Yunus have also compared the learning achievement of the 1st–3rd-grade students who were learning mathematics, language and social studies according to the Montessori curriculum, with those students who were learning the same subjects but according to traditional education. The researchers concluded that there were significantly higher learning achievements in language for all 1st–3rd-grade students who have learned in the Montessori curriculum. However, only the 1st-grade students showed higher learning achievements in mathematics, but none of the students had higher learning outcomes in social science (Peng & Md-Yunus, 2014). In their turn, Kayili & Ari

conducted a study involving children aged 5–6 in Montessori pre-school and traditional pre-school to find out their readiness to start school. Researchers concluded that the Montessori method has a positive impact on pre-school children's readiness to attend school. Furthermore, it is more effective than the current pre-school education program (Kayili & Ari, 2011).

The aim of the study is to identify the Montessori education principles and the keywords that describe them, as well as to compare them with the content of learning topics in today's music subject curriculum for grades 1–3.

## Methodology

To reach the aim of the study two research questions were set:

RQ1: What are the Montessori education principles and the keywords that describe them?

RQ2: What keywords describe the principles of Montessori education are mentioned in the content of learning topics in the music subject curriculum for grades 1–3?

The study was conducted between November 2020 and May 2021, and based on a qualitative research design, in which the results reliability is described by the depth and breadth of the description. A content analysis of academic articles published between 2010 and 2021 in the EBSCO database was used to determine the principles of Montessori education and their keywords. The full-text publications only were selected according to the keyword. The keyword Montessori principles were initially used to select the articles, according to which ten publications only were sorted out, but none of them was relevant to the study objectives. Therefore, it was decided to use the keywords, Montessori approach and Montessori method to select the appropriate publications. The keyword Montessori approach finds 50 full-text articles in the EBSCO database, of which five publications involved in the study, and the keyword Montessori method selected 403 publications, of which 17 publications were used in the study (see Table 1).

**Table 1.** Number of publications used in the study (N)

| Database | Keywords | Number of full-text publications (N) | Number of publications used in the study (N) |
|----------|----------|--------------------------------------|----------------------------------------------|
| EBSCO | Montessori principle | 10 | 0 |
| EBSCO | Montessori approach | 50 | 5 |
| EBSCO | Montessori method | 403 | 17 |

The academic publications that reflected Montessori principles in special education (11) and theology (7), as well as the articles that were not written in English (19) and did not analyse the principles of Montessori education (404), were not included in the study base. The analysis of twenty-two academic articles identified the principles of Montessori education and the keywords describing them. The publications were analysed by using content analysis. In addition, the obtained results were illustrated in figures.

To determine what principles of Montessori education and the keywords describing them are mentioned in the content of learning topics of the music subject curriculum for grades 1–3 (Fenhane, Fyodorova, Godiņa, Nelsone & Vilde, 2020), two research methods were used: document analysis and content analysis. The word cloud was created to illustrate the document content and describe the different relationships between keywords that make up the text. The keywords that describe the principles of Montessori education were compiled and quantified by determining their numerical (N) and percentage (f%) frequency. A table was structured to illustrate the obtained results.

## Results and Discussion

The principles of Montessori education are implemented at different stages of education and in several subject areas. However, it must be acknowledged that the Montessori approach is studied mainly in the preschool education system and less at the early stages of primary education. As a result of the content analysis of academic articles, the study identified three principles of Montessori education. The first principle of Montessori education is expressed in the following keywords: discovery, investigation and experimentation, learning by experiencing, learning from experience, meaningful experience, independence, self-selected activities, choice in work activities, freedom of choice, encourage creativity, development creativity, which characterize the student's discoveries and finding creative solutions based on the student's independent learning, the opportunity to choose and the creative activity. This learning approach creates interest, curiosity and a desire to learn (see Figure 1).

The second principle of Montessori education is expressed in the following keywords (working in a team and collaboration, collaborative knowledge creation, communication, cooperation, school environment, self-control, attention control, meaningful learning), which characterize the collaboration among students on the one hand and the collaboration between students and their teacher on the other hand. Collaboration can be used in group work to deal with real-life problems together.
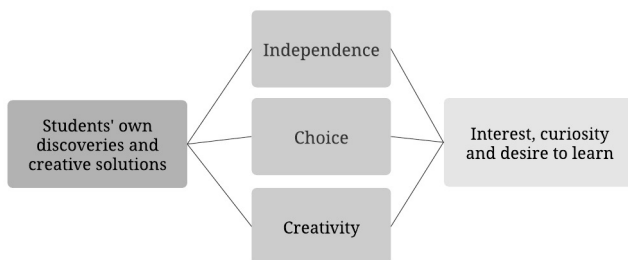
**Figure 1.** Keywords describing the student's discovery and creative solution in the context of Montessori education (author's construct)

The environment in which collaboration takes place is not insignificant. It must be created to encourage students to concentrate and enable them to control their learning. Focusing on action promotes student's development, while control helps manage one's behaviour and emotions. Collaborative learning is one of the ways that allows a student to learn meaningfully (see Figure 2).
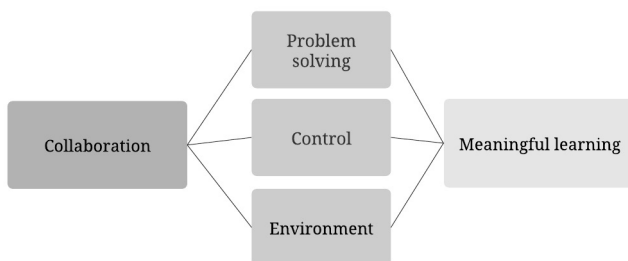


**Figure 2.** Collaboration and the keywords that describe it in the context of Montessori education (author's construct)

The third principle of Montessori education is expressed in the following keywords (practical life exercises, freedom of movement, learn by talking, deep listening, learning through performing, learning by experiencing), which describe the student's learning by doing, mind development by moving, talking, performing and experimenting. Learning by doing can be promoted by active involvement in several activities and self-regulated learning (see Figure 3).

Several studies have also examined the implementation of the keywords describing the principles of Montessori education in the pedagogical process. For example, researchers (Livstrom, Szostkowski & Roehrig, 2018; Rinke, Gimbel & Haskell, 2013; Negru, 2012) have found in their study that students between the ages of six and twelve enjoy group learning, and this is one of the best ages to foster collaboration.
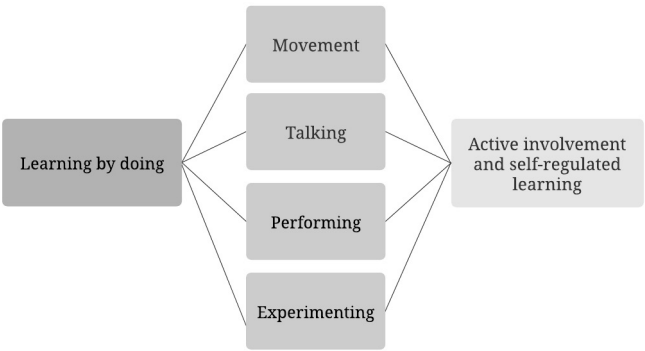
**Figure 3.** Learning by doing and the keywords that describe it in the context of Montessori education (author's construct)

On the other hand, Dorer has studied the independent learning of primary school students and concluded that it can be promoted in three ways. Firstly, the learning process should be implemented to provide a student with the opportunity to make teacher-guided discoveries. Secondly, the students should be encouraged to talk more in the classroom: inventing definitions, rephrasing ideas, explaining their thought processes. Thirdly, the students should be able to choose between two tasks, which must be of the same degree of difficulty but different (Dorer, 2018). Çakır and Yalçın highlighted that the child's ability to choose creates their curiosity (Çakır & Yalçın, 2020). The choice allows students to perform the tasks they can complete and provides them with an opportunity to learn according to their inner potential and expectations. Montessori education is also focused on encouraging students to find creative solutions. Roemer believes that creativity in the Montessori approach is provided by: the opportunity to seek innovative solutions both in groups and individually; a balance between skills development and challenges; educators' belief that all children can succeed; supporting and encouraging students (Roemer, 2012).

To answer the second research question, the existence of the keywords such as independence, choice, creativity, problem-solving, control, environment, movement, talking, performing, and experimenting were identified in the music subject curriculum in context with the three principles of Montessori education (student's discoveries and creative solutions, collaboration, and learning by doing) (see Table 2).

As a result of content analysis, it was determined that creativity is the most common keyword in the music subject curriculum. The 1st–3rd-grade students create sound paintings and improvise simple melodies in free form. The expressions of creativity are simple for the first graders, as they compose rhythm lines or produce an accompaniment with sounding gestures.

**Table 2.** Principles of Montessori Education

| Principles of Montessori education | Key words | Grade 1 | | Grade 2 | | Grade 3 | |
|---|---|---|---|---|---|---|---|
| | | **N** | **f (%)** | **N** | **f (%)** | **N** | **f (%)** |
| Students' discoveries and creative solutions | Independence | 2 | 4.9 | 2 | 5.3 | 1 | 2.1 |
| | Choice | 4 | 9.8 | 1 | 2.3 | 2 | 4.2 |
| | Creativity | 11 | 26.8 | 10 | 26.3 | 15 | 31.2 |
| Collaboration | Problem solving | 3 | 7.3 | 4 | 10.6 | 3 | 6.2 |
| | Control | 3 | 7.3 | 2 | 5.3 | 1 | 2.1 |
| | Environment | 2 | 4.9 | 3 | 7.9 | 2 | 4.2 |
| Learning by doing | Movement | 3 | 7.3 | 2 | 5.3 | 2 | 4.2 |
| | Talking | 8 | 19.5 | 8 | 21.1 | 15 | 31.2 |
| | Performing | 2 | 4.9 | 2 | 5.3 | 3 | 6.2 |
| | Experimenting | 3 | 7.3 | 4 | 10.6 | 4 | 8.4 |

In the second and third-grade classroom, the expressions of creativity become more and more impressive. The second graders create accompaniments to songs using the acquired rhythms, sound levels and improvising of winter moods. The third-grade students compose an accompaniment for compositions and songs in period and rondo form with rhythm instruments and create rhythm ostinato. Visual arts are also used for creative expressions to illustrate the rondo form.

As a result of content analysis, it was determined that students learn music subject not only by making music but also by talking. The 1st–3rd-grade students tell about their music experience. In the first grade, the students explain how a solo song differs from a choir song and discuss the most appropriate means of musical expression for the performance of the song. In the second grade classroom, the students talk about how the image and mood of music change, what character can be created using voice, music instruments and musical-rhythmic movements. In the third grade, learning through conversation almost doubles compared to the first and second grades (see Table 2). The 3rd-grade students not only discuss the choice and use of the means of musical expression in the process of staging the songs but also discuss the ideas of creative work and the implementation steps of the final production, and the progress of demonstrating the performance, the findings obtained and the contribution of each student to the joint work. In the 3rd grade, students begin to learn to evaluate the values expressed in the compositions, express their views and listen to different opinions.

The keyword choice is mentioned in the first-grade music subject curriculum more than in the second and third grade. In the 1st grade, students

are allowed to choose the most suitable songs for celebrating the Latvian holidays and a song, a poem and a fragment of prose corresponding to Mother's Day. In the 2nd grade, as in the first grade, students choose the musical instruments needed for accompaniment. In the 3rd grade, students are allowed to select text or images to create sound paintings. The study revealed that there is not a significant difference in the frequency of use of other keywords that describe the principles of Montessori education for the first and third grades. In the music subject curriculum, independence is manifested in evaluating one's performance, musical experiences and achievements in music culture. Problem-solving is characterized by finding new solutions in making music, but with movements, students can imitate the music tempo, reproduce the melodic line of a composition, perceive a motive and a phrase and sing songs with rhythmical movements. The students are allowed in music lessons to experiment with different sound instruments, elementary music instruments and voice, to understand the sounds formation and the major and minor system. In addition, learning by doing enables students not only to play music actively but also to know the traditions of celebrating Christmas in practice and create rhythm instruments from natural objects and reusable materials.

The music subject curriculum provides the students with an opportunity to learn through performing. For example, in a music lesson, the students demonstrate a performance depicting Christmas scenes, and they are going on mask marches with role-playing, singing songs and playing an accompaniment. Collaboration is one of the main principles of Montessori education that can be demonstrated by playing musical instruments together, staging performances in groups and observing the conditions of collective music-making. The students should be encouraged to arrange the learning environment by picking up and putting musical instruments in the provided place and controlling their behaviour and emotions to collaborate in music lessons successfully.

Music is as important as other school subjects in Montessori education. Rajan believes that, according to Montessori education, the students learn music through listening to, recognizing and imitating the sounds of bells, experimenting with piano, marimba and xylophones, as well as collaborating and communicating (Rajan, 2016; Rajan, 2010). Learning music helps to know different cultures, which develops empathy and creates a greater understanding of the world around (Duckworth, 2006). The principles of Montessori education are still present and relevant in the context of today's music subject curriculum.

## Conclusion

Three principles of Montessori education have been identified in academic articles published over the past decade: the student's discoveries and creative solutions, collaboration and learning by doing. The first principle of Montessori education is characterized by keywords such as independence, choice and creativity. The second one is determined by the keywords problem solving, control and environment. In turn, learning by doing is described by the keywords movement, talking, performing and experimenting.

All keywords that describe Montessori principles were identified in the content of learning topics of the music subject curriculum for grades 1–3. However, the dominant keywords were creativity and learning by talking. The creativity is realized in music lessons by improvising with voice and sound tools and creating performances. In addition, to promote students learning by talking in the classroom, the students should have the opportunity to speak about their music experiences, discuss with each other the idea of creative work, the steps taken to implement the final product, the demonstration of the performance, the findings obtained, and the value expressed in the composition. The study results provide an opportunity to understand the features that are in common between Montessori and traditional education in the content of the music subject curriculum.

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# VISUAL LITERACY IN THE CONTEXT OF DIGITAL EDUCATION TRANSFORMATION

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**ABSTRACT**

The evolution of digital technologies and the use of visual media in our everyday life highlights the necessity to educate visually literate individuals. The Organisation for Economic Co-operation and Development (OECD, 2018) has launched the Future of Education and Skills 2030 that emphasizes that due to the digitalization into all areas of life, digital and data literacy are considered to be core foundations and being literate in this context requires the ability to comprehend, interpret, use and create textual and visual information in various formats, contexts and for diverse purposes (making meaning based on encoding and decoding signs/sign systems). The concept of visual literacy has been studied for several decades, however, it is a relatively new study area within a digital environment in Latvian media and education context. By bringing attention to the practice and reporting students comprehension and competency within the domain of digital visual literacy, the author reports the findings of a study that examined the competence of the sub-domain of visual literacy, applying Inquiry Graphic (IG) as a framework for the analysis. The purpose of this paper is to contribute quantitative and qualitative data to the domain of visual literacy amongst the Riga Art and Media school final year students and conceptualize visual literacy in the process of digital education transformation, proposing further research on academic practice and pedagogical tools to improve a person's visual literacy and visual media competence in a digital environment.

**Keywords:** *visual literacy, digital visual literacy, media literacy, vocational education, visual semiotics.*

## Introduction

In the era of digital transformation, the importance of images and visual media in contemporary culture is changing the perception of what it is to be literate in the 21st century. Distance learning has made a significant step in the digitalization of the learning process and materials. If students are taking an active part in all dimensions of life, they will need to navigate through uncertainty, across a wide variety of contexts: in time (past, present, future), in social space (family, community, region, nation, and world) and digital

space (Organisation for Economic Co-operation and Development, [OECD], 2018). Exposed daily to visual media does not necessarily mean that individuals can critically view, use, and produce visual content (Avgerinou, 2009, Brumberger, 2011, Messaris 2012, Matusiak, 2020). Comparing the importance of visual literacy among other literacy types, it is highlighted as one of the most essential for 21st-century learners considering the digital contexts and the use of digital visual media tools (Matusiak, 2020; Messaris, 2012; Avgerinou, Pettersen, 2011, Kedra, Zakeviciute, 2019). Digital Education Action Plan (2021–2027) issued by European Commission includes guidelines to adjust education and training for a digital environment. Understanding the risks and opportunities of digital technology, educators are responsible to introduce and guide students through safe and meaningful uses of digital technology by educating individuals to develop the ability to critically approach, filter, assess information, and be more resilient against manipulation. The Republic of Latvia has developed Youth Policy Guidelines (2021–2027) identifying key policy initiatives to improve digital competence, including media literacy, of young people promoting meaningful participation in the digital environment.

Latvian National Reform of School Education foresees that the European Social Fund project Competence Approach to Curriculum (School 2030), implemented by the National Center for Education is to develop, approbate, and subsequently implement general education content and learning approach that provides the knowledge, skills, and attitudes needed for 21st Century. Since year 2020 schools in Latvia gradually started to implement curricula and approaches in accordance with the new standards of primary and general secondary education. Within the project transversal competencies which help to acquire knowledge by different learning techniques are defined. Those transversal competencies include digital literacy and critical thinking, both including sub-competencies of visual literacy and media literacy. There is an interconnection of visual and media literacies – now that the ability to produce and reproduce images has been extended to the masses through technology, visual literacy, and media literacy can connect on an aesthetical level as well as the level of medium (Chauvin, 2003). According to Kedra (2018), visual literacy is used as one of the skills belonging to media literacy, digital literacy, or multimodal literacy, suggesting that in the context of contemporary digitally mediated visual communication visual literacy should get individual recognition.

This paper aims to analyse the comprehension of visual literacy amongst the Riga Art and Media school final year students, developed accordingly to evaluate the competencies within the sub-domain of 'responding' to digital visual imagery and conceptualize visual literacy in the context of the digital education transformation.

## Theoretical background

The founding definitions of visual literacy were formulated in the pre-digital era. During the sixties the concept of visual literacy gained a comprehension upon a growing impact of television amongst society, especially the younger generation. Debes (1969) has introduced the first definition of visual literacy defining that visual literacy refers to a group of vision-competencies a human being can develop by seeing and at the same time having and integrating other sensory experiences stating that the development of these competencies is fundamental to normal human learning. According to Debes (1969), by developing visual literacy, it allows a person to critically interpret the visible actions, objects, symbols, natural or man-made, that he encounters in his environment.

Since then visual literacy has been conceptualized and defined in multiple ways across different disciplines and contexts, considering its multidisciplinarity and its conceptual diversities within the specific field. Considering the attempts to create a unified theoretical framework, Kedra (2018) argues that while there is a great emphasis and contribution to the theoretical aspects of visual literacy, it is insufficient for visual education practitioners. As a response, Kedra (2018) proposes to focus on the practical application of visual literacy theory into education by identifying the skills that a visually literate individual should possess and demonstrate, especially in the context of visually mediated communication, digital technologies, and new media. Kedra (2018) states that visual literacy is not a naturally occurring competency, acquired while frequently encountering images of various kinds. Based on Kedra (2018) review of visual literacy definitions published between 1969 and 2013, types of visuals within visual literacy definitions are images, media, messages, symbols, visible actions, objects, and visual literacy concept combines skills in visual reading (interpreting, meaning-making), visual writing skills (using or creating images) as well as visual thinking and learning abilities and other visual literacy skills.

Contemporary definitions of visual literacy are oriented towards visual literacy within a digital environment highlighting the use of digital media, digital imagery, digital symbols, digital messages, and other digital visual communication tools. A conceptual framework of digital competence developed by (Avni, Rotem, 2016) consists of a synergetic complex by eight fields of digital literacies including digital visual literacy which is the ability to critically read, interpret, analyze and to produce meaning from information and messages presented in visual form, by communicating and transmitting visual messages effectively.

According to Avgerinou and Petterson (2011), the main components of visual literacy theory are visual perception, visual language, visual learning,

visual thinking, and visual communication. Considering the digital context, Lackovic (2020) explains how signs make meaning to a human mind and relate it analytically to digital photography. Lackovic (2020) proposed semiotic analysis emphasizes the symbolic interrelatedness between perception, materiality, abstract concepts, thinking, and knowledge, suggesting that academic agents could teach and research complex and interrelated nuances on how signs make meaning to cultivate critical and post-digital semiotic awareness. Moreover within this conceptual framework of digital competence, imagery (including photographs) is defined as visual text. This approach continues to emphasize the visual language, which is structured and can be processed in similar ways as other linguistic forms. This approach roots back to Barthe's (1977) ideas within semiological theory about photography having its linguistic powers. Barthes discusses a relation between a signifier and a signified and the meaning of denotation and the connotation of any system of signs, including visual images. To comprehend the complexity of picture meanings, Barthes has inquired about the distinction between the denotation and connotation of a picture. A denotation is a direct explanation of the displayed object in the picture while connotation is the associated, immediate cultural meanings derived from what is seen. Lackovic (2020) emphasizes that the connotation level is where the interpretative diversity starts to become more distinct. Further socio-cultural meanings of denotative descriptions are assigned to the photograph by interpreters. Aiello (2020) discussed contemporary approaches to visual semiotics focusing on the cultural and social contexts in which images are made and consumed, arguing that traditional semiotic analysis doesn't offer enough analysis for the critical aims of imagery. In the times of digital reproduction, it is above all important to follow where images are published, what is their original source and the context of use. Similarly, Messaris (2012) has reflected on the ways visual media has evolved, focusing on two major technological changes in visual media – the powerful techniques for the digital manipulations of photographs and the invention of the computer-generated photo-realistic imagery – and the cultural transformations following those changes. Throughout his research Messaris (2012) had discussed the psychology of perception and how meaning is constructed through images, highlighting the impact of digital media on visual communication.

Comprehension of visual literacy concept in this work is linked to the ideas developed in the European Network for Visual Literacy (ENViL) research manuscript Towards a Revised Model of the Common European Framework of Reference for Visual Competency, which defines that visual literacy includes two dimensions – the process of creating visual material and responding to visual material. The generic components of visual literacy in the sub-domain of producing visual imagery are the competency

to generate visual ideas; the competency to do visual research; the competency to make visual images; the competency to present one's images; the competency to evaluate one's images and image-making processes. The sub-domain of responding to visual imagery includes the competency to look at images; the competency to research images; the competency to evaluate images; the competency to report about images (Schonau et al., 2020). Avgerinou and Pettersson (2019) define that visual literacy skills are specified from responding perspective as reading/decoding/interpreting visual statements; from creating perspective as writing/encoding/creating visual statements and the third perspective – thinking visually. The competencies of a domain of visual literacy two sub-domains – creating and responding – function along with the more generic personal, methodological, and social competencies. These represent all types of competencies that play a role in any action or (learning) situation and that are relevant for all school subjects (Schonau et al., 2020). Similarly, Avgerinou (2009) suggests that schools should take advantage and seek methodologies for incorporating visual literacy instruction into everyday curriculum.

## Visual literacy in educational practice

Considering the digital education transformation, the daily use of visuals within education remains increasingly relevant. As digital technologies are a necessity nowadays for managing an educational process, visuality plays a crucial role in studies as much as in everyday communication and leisure. Lackovic (2020) argues that associating pictures only with mass thinking and media persuasion is a primitive way of thinking. It has contributed to undermining pictures in education. Kedra, Zakeviciute (2019) indicates that visually-based teaching empowers learners by opening new possibilities for sharing. High-quality visual education requires skilled and visually literate teachers. Blummer (2016) introduced some visual literacy initiatives in academic institutions illustrating best practices implemented in the study process of academic institutions. For example, universities for enhancing students' visual literacy focused on the development of workshops and digital tools; the creation of visual literacy tutorials, discussing the ethical aspects of digital photography; creating websites that provide students an introduction to the grammar of visual design, including visual examples and possibilities to practices visual analysis and interpret imagery; providing students with standard visual literacy vocabulary, the creation of visual arguments, utilizing film, television, and photography to promote visual literacy, providing education programs and courses. All of the efforts served to focus attention on the importance of visual literacy competencies in higher education, but as the main conclusion – all the initiatives lack a unified instructional approach.

Riga Art and Media School is a vocational educational institution, where students acquire professional qualifications and the development of professional skills. During the 4-year study process in the Photography design program, students are introduced to the basic processes related to photography, including the technical aspects of photography, digital photo processing, scenography, various graphic and multimedia design programs, latest technologies, and alternative techniques in photography. While there is a great emphasis on the technical side of producing photographic content, many aspects of visual literacy are not included in the study program and it is under the responsibility and initiative of educators to cover all visual literacy competencies in their subjects.

## Method

The study adopted a mixed method, combining qualitative and quantitative data. The methodology includes 1) questionnaires to gather demographic data and information about participants understanding of visual literacy concept and its components; 2) visual analysis collected as qualitative data during the individual interviews and later processed within an Inquiry Graphic (IG) framework.

Inquiry Graphic (IG) model is a semiotic analytical framework for doing research with photographs. IG provides a framework for different image interpretations which are based on interpreters' previous experience, education level, cultural background, value systems, and other influencing factors. IG helps to bring the example of semiotic tools in media corresponding with visual literacy theories about the complexity and power of visual language, meaning its descriptive interpretations as denotation and connotation descriptions. Lackovic IG model is based on the sign interpretation method – Triadic Model – created by Peirce (1931-58), one of the founders of semiotic tradition. For the analysis, three characteristic parameters are distinguished – Representamen (the digital photographic form), Object (what the photo resembles), and Interpretant (photographic meaning). The steps of inquiry graphics (Lackovic, 2020) consist of: 1) digital materiality (embodied representamen); 2) descriptive interpretations as denotation and connotation descriptions; 3) object of inquiry (conceptual/research/thematic object, what the photograph refers to in conceptual and theoretical inquiry terms).

The methodology included the use of visual evidence. According to Matusiak (2020) the use of visual evidence is common in studying visual literacy. Researching visual literacy data can be collected in different forms of representation. In addition to textual and numeric data, researchers choose to use visual resources in the research process and collect data

in visual form. (Matusiak, 2020). Visual evidence includes photography, historical archival imagery, contemporary media images, manipulated imagery, video stills, computer graphics, etc.

This study aimed to examine the understanding of the visual literacy concept among the Riga Art and Media school Photography design program final year students, by analysing student responses to visual material considering the content and the context of the chosen imagery according to (Lackovic, 2020) Inquiry Graphic (IG) model. For this study, the author conducted interviews based on visual evidence with 27 students-final year graduates of the Photo-design specialty of Riga Art and Media school. Data were collected from January to February 2021. Students were informed about the research during the study process and those who agreed to participate in the interviews, agreed to the data processing in the online application form.

The primary data collection techniques included: 1) questionnaires to gather demographic data and information about students' understanding of visual literacy and some of its characteristic components. Questionnaire consist of 7 questions: demographic question, closed-ended questions, open-ended questions and Likert scale questions; 2) visual evidence, collected and organized for a display by the researcher. The visual imagery was collected from an internet news and private media sources. Respondents (Interpreters) were asked to describe the image in the context provided; 3) Interviews provided qualitative data on visual literacy skills (visual reading skills) and vocabulary according to Lackovic (2020) Inquiry Graphic model.

## Results

The results are based on the analysis of two sources of data: questionnaire responses and visual analysis. The questionnaire responses indicate that 19 participants are familiar with the concept of visual literacy, from which 12 participants are familiar with both (Latvian and English term of it) while 8 are familiar only with an English term and 7 participants replied of not being familiar with visual literacy concept or term at all. When asked to evaluate the importance of digital visual content in the education process, 23 replied that it is very important, 3 replied as important, and 1 moderately important. From the responses about digital image processing programs they manage, all participants indicated Adobe Photoshop, almost all indicated Adobe Lightroom, some participants listed other programs as CaptureOne, FastStone, Paint, Snapseed, Microsoft Images, DarkTable, Affinity, GIMP, Corel Draw, Boris FX, Picasa, Portrait un Body Pro, Affinity AI, Afterlight, PicsArt, Snapseed. While Adobe Photoshop and Adobe Lightroom are study tools, other programs are mainly self-taught.

11 participants think that knowledge acquired at school of image-making and post-processing nuances is very important for a more critical assessment of visual online media content, 8 indicate that it is important, 5 respondents indicate it as medium important, and three participant responses indicate small or no importance at all. When asked if they know how to verify the origin of digital images (for example by using google reverse image search), 21 participants knew (from them only 8 have actually used it), while six participants didn't know about this or other similar tools. When asked if they manage their own photography metadata, everyone knew how to do that, but less than a half (16 respondents) reported doing it regularly. Respondents were provided with an image Fig 1. and asked if they can trace and identify what kind of portraits are those agreeing with one of the possible answers: 1. real portraits from the photo banks; 2. nonexisting portraits, created by artificial intelligence; 3. photographs of casting agency models; 4. couldn't trace the source.
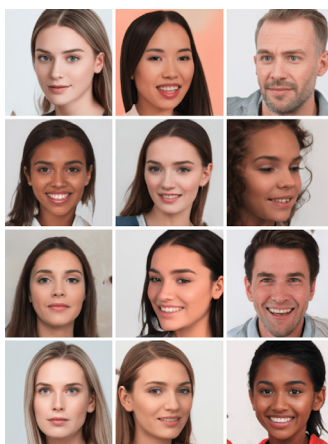


**Figure 1.** Image downloaded from the website https://generated.photos

As a result, 10 respondents replied as they are casting agency models, 9 identified those are nonexisting portraits, created by artificial intelligence, 7 marked those as real portraits from the photobanks, while one respondent didn't have an opinion.

During the interviews, the respondents were asked to make a statement based on the visual evidence and to conduct the visual analysis of the provided visual imagery. Embodied representamen, in this case, was a digital image, a screenshot from the Latvian online news media channels. The Fig. 2 dispalys the combination of two screenshot imageries– from two different news channels, portraying a politician.

**Figure 2.** Screenshot from two local news channels: tvnet.lv and rus.tvnet.lv

Respondents were asked, if different image use change the perception of the news content? Majority (24 respondents) agreed with a statement that the same persons portrait, presented by using different visual language, evoke different emotions and this changes the perception of news content. One respondent replied that, even though it evokes different emotions to the viewer, it doesn't affect the perception of the content. While two respondents didn't see a difference, why two images could create a different perception of the news content.

Further, the findings on visual reading are provided with an Inquiry Graphic (IG) as a framework for the analysis. Participant (Interpreter) response to digital image content is transcribed into two categories:

1) descriptive interpretations as denotation (D) and connotation descriptions (C) – object description, associations, symbolic meaning, feelings that arise from seeing the image;

2) object of inquiry (meaning, what the photograph refers to in conceptual and theoretical inquiry terms, according to the interpreter) – assumptions, statements, interpretation.

Fig. 3. displays a screenshot image from a local news channel portraying a dark military protection helmet covered with snowflakes and a faded cityscape for a background and a textual headline – "Russia is ready to disconnect from the Internet, Medvedev says". Interpreters were asked to describe the image accordingly to the headline.

The visual analysis consist of the denotation (D) descriptions together with connotation (C) descriptions and statements, interpretations of the digital image as conceptual object, as well as vocabulary used for image description.

Foto: TASS/Scanpix/LETA

**Figure 3.** Screenshot from the local news channel: tvnet.lv

According to responses 2 interpreters used only denotation (D) description naming the object (helmet) or a person wearing a helmet, 1 interpretent didn't develop any descriptions, 14 interpreters applied connotation (C) descriptions, using such vocabulary as "*gives/creates a feeling of distancing/alienation/isolation*" and "*symbolizes/represents closure/protection/seclusion/isolation/control*" while 8 interpreters used both – denotation (D) and connotation (C) descriptions, including the ones like "*being behind the mask means no one sees me and no one hears me*" "*helmet hides privacy*" "*helmet refers to control*" "*It symbolises seclusion, being distanced*, "*Mask as a symbol for hiding, protection, resistance*".

From 27 interpreters 17 described the photograph as conceptual object, expressing their assumptions, attitudes, statements and interpretations like "*if person is outside of social networks, he is less recognisable and, and less informed*" "*Indicates a full information control by the state*" "*Indicates the possibility of protests and unrest*" *Being without internet would mean disturbed communication which would leave everyone in its own bubble.*" Two interpreters marked the image as inappropriate.

## Discussion

Digital education transformation foresees the management of the educational process by using digital visual tools. The role of educators is to introduce students to the complexities of digital visual media and guide the process of cognition and education of visual literacy competencies, including both – 'responding' to digital visual imagery and 'producing' digital visual imagery. The study was conducted by interviewing Riga Art and Media school final year students to learn their comprehension of the main components of the visual literacy concept and terminology, as well as their ability to describe a digital photograph at the denotative and connotative level and as an object representing a certain concept.

The findings of this study reveal that many respondents were not familiar with the visual literacy concept. It reflects the notion of the vocational study program that is mainly targeted to enhance technical skills in photography, leaving many other aspects of visual literacy not covered during the study process. Almost every respondent agreed that digital visual content in the education process is very important. All participants indicated Adobe Photoshop as the main image processing program they have been using. Less than a half of respondents admitted that knowledge acquired at the school of image-making and post-processing nuances is very important for a more critical assessment of visual online media content, others indicate it as important or medium important or having no importance at all. The answers suggest the learning content might not be associated with everyday life situations. Asked if respondents know how to verify the origin of digital images (for example by using google reverse image search), more than half knew about the tool and only few actually new how to practically use it. A good tendency is students' understanding of photographic metadata, though less than a half of respondents reported managing metadata regularly for their photographs.

Digital images circulating in online media can be described in different levels – due to their digital materiality, description at denotative and connotative level, and as an object of inquiry. Inquiry Graphic (IG) is a very applicable approach to reflect on the findings on visual reading skills by students that helps to assess not only the various descriptive interpretations but also to get an insight into students' perception of photography as a conceptual object. This study shows that in interactions with digital imagery, students' ability to read images as information resource varies. None of the interpreters limited their answers only to the denotative meaning as most common answers included the combination of both, decoding images with denotative and connotative description. Most common descriptions were built upon its connotative meaning, expressing the associations, feelings, and symbolic representations of the objects in the photograph. More than a half-developed their connotative descriptions towards photograph as conceptual object, expressing their assumptions, attitudes, statements, and interpretations, thus forming their personal opinion that is composed solely on image interpretations within a given context.

According to Messaris (1994) there are visual compositional tools (for example, the angle of view) used to affect viewers perceptions of the power of a person in an image. The relationship between form and meaning is one of the most regular basis of visual communication.

Supporting the use of visuals within education and provide students with a method that would help to analyse different visual imagery could promote a more critical view of digital imagery students are exposed daily.

Lackovic (2020) discusses that "photographs can act as thinking tools, as semiotic scaffoldings and semiotic bridges between abstract concepts and the physical world in an educational inquiry" (p. 444). The role of educators would be to encourage learners and introduce them to a diverse set of methods and tools to explore the complexities and plurality of concepts and visual signs that embody them. Blummer (2015) suggest that within an educational setting it is nescessary to teach visual literacy, visual literacy principles, copyright issues and guide students in the interpretation of political and scientific images.

Providing a specific media imagery in this research was intentional resonating to the Lackovic (2020) idea that digital photographs that appear on the media, such as insitutional websites or news media act as superimposed conceptual object. According to Lackovic (2020) "By doing this superimposing of concept over image, the image-concept artefact or ensemble becomes a scientific-pictorial symbol, as the photograph gains a conventionally assigned meaning for the purpose of that specific inquiry. There are no adequate or right pictures for abstract concepts or media claims. All photographs and signs need to be first objects of inquiry, and not given objects of truth. This inquiry orientation challenges the assertion of truth claims, in education, just as much as in public discourse." (p. 457)

The qualitative approach chosen for this study presents limitations to interpretations and generalizations of results. However, a qualitative study conducted within a specific educational setting provides the information on the comprehension of visual literacy and also reveals patterns and the vocabulary applied for the image analysis. The usage of visual evidence and visual methods are especially important in the visual literacy studies. Collected data in this research showed that the theoretical knowledge may be ineffective unless there is a knowledge and practical application of it everyday and especially in education setting. Further research could provide more in-depth analysis of sub-comptencies of responding to diverse set of visual material within a framework of Inquiry Graphic (IG) model.

## Conclusion

Visual literacy has been conceptualized and defined in multiple ways. Contemporary visual literacy theories mainly refer to the visual literacy competencies (responding to visual imagery and producing visual imagery) within the digital environment by emphasizing the use of digital media, digital imagery, digital symbols, digital messages, and other digital visual communication tools.

As distance learning has made a significant step in the digitalization of the learning process and materials, a unified institutional framework

and pedagogical methods and tools developed within a framework are important to support and navigate educators to implement digital literacy, media literacy, and digital visual literacy learning strategies within a study process.

Information acquired within a research contributes new knowledge about the understanding of visual literacy concept amongst final year Photography design students (future media professionals) at Riga Art and Media School. Many respondents were not familiar with a concept or terminology, indicating the visual literacy concept as a novelty within an educational inquiry. While there is a great emphasis on the technical side of producing photographic content at a study level in Riga Art and Media school, many aspects of visual literacy are not covered within the study program. The majority of the focus group participants confirmed the importance of digital visual imagery in the study process and supported the idea that the knowledge acquired at the school of image-making and post-processing lead to a more critical assessment of visual media content.

Semiotic tools in visual literacy strategies refer to the complexity and multilayered aspects of visual language. Digital images circulating in online media can be described in different levels – due to their digital materiality, description at denotative and connotative level, and as object of inquiry.

From the visual analysis part the main conclusion is that more than half of respondents developed meanings of the photograph as a conceptual object, expressing their assumptions, attitudes, statements, and interpretations, thus forming their personal opinion that is composed solely of image interpretations within a given context.

A digital photograph is a visual message itself rather than an illustration for a text and being visually literate would help to navigate through the complexity of photographic meaning that has been constructed within an image, as well depending on a context of use. Further research should be conducted on academic practice and pedagogical tools to improve a person's digital visual literacy and visual media competence in a digital environment.

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Image from the AI generated photograpy website. 02.02.2021. Retrieved from: https://generated.photos

# RESEARCH STRATEGY FOR THE EVALUATION OF STUDENTS' SUCCESS IN THE PROJECT "INNOVATIVE EDUCATIONAL ROBOTICS STRATEGIES FOR PRIMARY SCHOOL EXPERIENCES"

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## ABSTRACT

Educational robotics has been used for a relatively long time to promote the development of students' computational thinking, but in most cases, such activities are offered as extracurricular activities to students who are interested in robotics and programming or in specific study programmes in higher education. Despite the fact that Seymour Papert developed the programming language LOGO to change the way children learn to use technology as early as 1980, this concept is still not widely used in compulsory education. It should be kept in mind that the inclusion of robotics in the learning process can not only contribute to the development of competencies such as programming and the integration of different components, sensors and actuators but also support the learning of mathematics, physics and chemistry in an innovative way. To support the development of innovative solutions for teaching educational robotics to primary school students, the ERASMUS+ project "Innovative Educational Robotics Strategies for Primary School Experiences" (No. 2019-1-IT02-KA201-063073) was launched, aiming to develop a variety of teaching materials for both students and teachers, to create educational robots for two levels of complexity, and to include these activities in the compulsory schooling process for primary school students. In the initial stage, students acquire basic knowledge of robotics, and at the second level of difficulty, the focus is on marine robots. In order to evaluate the results achieved by all these activities, a design-based research model has been developed that uses several complementary research methods, and this paper describes this model, showing how it organizes data acquisition and uses them to improve materials to offer scientifically proven activities.

***Keywords:*** *educational robotics, robotics-based learning, research methodology, design-based research, marine robots.*

The Selby and Woollard framework (2013) is based on the idea that robotics lessons develop computational thinking skills through a variety of competencies, which are summarized in the table above.

Educational robotics also helps to develop the skills of the 21st century. As society and technologies develop, the world faces a new challenge – how to prepare students for jobs that do not yet exist, how to develop skills in students that will be required in the future labour market. This question is especially topical in the context of Industry 4.0, which significantly changes the content of human work, leaving routine tasks to robots (Benešová & Tupa, 2017). The most desired future skills have been defined by the World Economic Forum (2016), considering that special attention in education should be paid to the development of such skills as complex problem solving, critical thinking, creativity, people management, coordinating with others, emotional intelligence, judgement and decision making, service orientation, negotiation, cognitive flexibility.

The Latvian education system is also focused on the development of the skills of the 21st century. A competence-based approach is being introduced in Latvia, where the content of education is designed to provide students with the opportunity to develop the skills necessary for the future, including the skills of working with technologies. However, the introduction of competence-based content in the context of educational robotics in practice is not so easy and rapid, because the introduction of educational robotics in the learning process is associated with various problems that affect the success of learning.

There are various problems that teachers encounter when using educational robotics in the learning process. First of all, it is the lack of teachers' competence, because in order to work with educational robotics, teachers themselves must understand how robots work and be able to program them (Kim et al., 2015). Secondly, there is a lack of methodological support that would help teachers to integrate educational robotics into the learning process in a meaningful way (Alimisis, 2013). Thirdly, a problem that is often mentioned is the lack of time, because in order to organize the learning process using educational robotics, teachers need more time to prepare for lessons (Khanlari, 2013).

Despite the various problems, educational robotics is becoming more and more popular in Latvia, and more and more teachers are starting to use robotics in the learning process. Therefore, it is important to evaluate the success of students in learning with educational robotics, in order to be able to improve the learning process.

With the growing popularity of robotics in the world, a massive robotics movement has developed that organizes robotics competitions and offers new ideas for using robotics to develop various competencies. However, despite the popularity of robotics, there are still only a few countries where it has crossed the boundary between compulsory education and out-of-school activities. Robotics activities are in most cases organized either in the form of projects or as after-school educational activities. The aim of this project is to develop teaching materials for teachers to acquire the skills of working with educational robotics, and this tactic has been chosen to ensure that teachers themselves change from people 'doing Logo' to becoming 'the spirit of Logo' (Papert, 1999; Scaradozzi et al., 2019a).

In the next phase of the project, teachers have to work with primary school students to teach them certain competencies. The project partners from Università Politecnica Delle Marche are also developing new robotics kits for students to use in their activities. In the initial stage, students need to acquire basic skills in working with robots, anticipating that they are acquiring specific knowledge, and this type of activity also contributes to their learning motivation. In the second phase of the project, students have to work with a more complex robot, learning the skills to work with a marine robot. In such activities, students gradually construct their knowledge and also acquire additional knowledge about the effects of water pressure on various mechanisms and learn information about the purposes for which a marine robot can be used, thus promoting awareness of environmental sustainability (United Nations Development Program, 2015) and ensuring the sustainability of knowledge (Daniela & Strods, 2019). Nowadays, with the development of various technologies and digital solutions, it is important to think not only about the development of computational thinking (Bocconi et al., 2016) but also about the possibilities that robotics knowledge can provide and, in this case, knowledge about the marine ecosystem (Scaradozzi et al., 2019b).

## Project context

The project aims to work with primary school students to help them develop computational thinking in its initial stages and, in later stages, to work with a marine robot and develop specific skills. This arrangement of activities is purposefully planned, stipulating that students must first acquire basic knowledge about robotics, and this knowledge can later serve as a basis for constructing new knowledge.

The project involves 6 countries – Italy, Latvia, Greece, Ireland, Croatia and Malta – but activities with students were organized in 4 countries – Italy, Greece, Croatia and Malta – so the knowledge tests for students were translated into Italian, Greek and Croatian to ensure that students could

understand the questions asked and were able to answer them. Maltese students answered the questions in English, as English is one of the official languages of Malta, so translation was not necessary.

The second part of the project's activities is focused on teacher training to prepare them to work with educational robotics activities, and the classes were organized into two successive parts. In the first part, the teachers learned the basic principles of working with the basic robotics kit developed for the needs of the project, and in the second stage, they acquired the skills to work with the advanced robotics kit. In addition to learning how to work with the robotics kits developed for the project and how to teach computational thinking and motivate students to become more involved in learning, teachers also had to develop lesson materials to teach students how to use robotics.

## Research design

For this project, a design-based research (DBR) model has been chosen (Frey, 2018; Pitso, 2015), which is characterized by successive evaluation cycles where activities are developed, tested and refined and results are evaluated in a real learning context. As a result of this project, a curriculum is being developed for teachers so that they can be prepared for work with primary school students to scaffold the development of computational thinking during educational activities. In parallel, teaching materials for students and research methodologies are being developed that teachers can use to make sure that their activities meet the objectives set for the lessons. DBR was introduced by Brown (1992) and Collins (1992) as a response to critics that laboratory research lacks ecological validity or the ability to approximate real classroom situations.
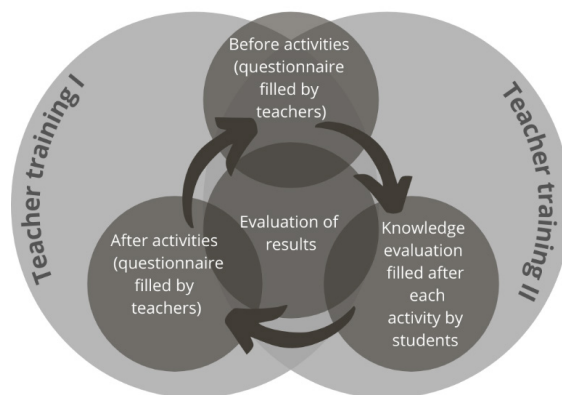


**Figure 1.** Design-based research model for the project

A specific research design (see Figure 1) was developed for the project, where all activities take place in real time with real project participants, and these activities are measured straight away in order to draw data-based conclusions and immediately decide on the necessary modifications.

### Research tools used

In order to assess both the materials developed for teachers and the competencies acquired by teachers during the lessons organized in the project, several tools were developed, where teachers had to complete a knowledge test after learning each knowledge concept so that researchers could make sure that the developed materials were relevant and can serve as scaffolding tools for students in learning with educational robotics. Two tools were also developed for teachers to assess students' computational thinking before and after project activities.

In order to teach students educational robotics with the specific kits developed for the project, 10 learning topics were introduced. To allow researchers to verify students' progress, students had to answer 10 to 18 questions after each learning topic to check both their motivation to learn and the knowledge acquired by them.

All questions were the same for all participant countries to ensure that data can be compared and analyzed in later stages. All questions were entered on the Kahoot website. This tool was chosen for a variety of pedagogical reasons, firstly because of its wide range of features, functionality and design, as it is simple, easy to use and age-appropriate so as not to make primary school students feel bored. It can simultaneously act as a testing and learning assistant to engage and simultaneously support learning. Also, this tool's extensive progress analysis is a great helper for the teacher during the learning process.

### Expected outcomes

It is expected that a set of materials will be created in the final phase of the project that can be used both together, performing sequential activities, as well as individually for project results to be used in combination with other types of activities. All developed materials will be freely available and will be as follows:

A training course for teachers will be developed that will consist of two parts: in the first part, teachers will learn the basic principles of working with the basic robotics kit developed for the project; in the second part, they will acquire the competence to work with the advanced robotics kit. The training course can be taken for both full-time and remote learning activities.

Teaching materials will be developed by teachers to work with primary school students to work with the robotics kits created in the project to

support the development of computational thinking and understanding of marine robotics.

Research tools have been developed that can be used in other contexts.

Scientific articles on the results of the project will be developed in order to acquaint a wider academic audience with the research methods used and the results obtained.

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# PHYSICAL EDUCATION ROLE IN LITHUANIAN PRIMARY SCHOOLCHILDREN PHYSICAL LITERACY FORMATION

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## ABSTRACT

Lifelong engagement in physical activity (PA) may be increased and secured by achieving a sufficient level of physical literacy (PL) during childhood. **The aim** of this study is to assess if the level of physical activity (PL Domain 1), fitness (PL Domain 2), motivation and confidence (PL Domain 3), knowledge and understanding (PL Domain 4) of primary schoolchildren is sufficient. In addition, to investigate whether physical literacy of the 3rd grade students differ in relation to Physical Education (PE) being taught by their respective General teacher. For this purpose 9–10 year old students of four different classes of the same cohort ($n = 93$) of one of the school in second biggest city of Lithuania were recruited. The findings of this cross-sectional pilot study indicates that PA and physical competence for most of participants were of average or higher level, however, majority of them have not yet reached an acceptable level in such PL domains as Motivation & Confidence and Knowledge & Understanding. Significant differences ($p < 0.05$) comparing by class were found in Knowledge & Understanding, and in physical fitness domains. We may conclude that lower motivation, confidence and knowledge in PE determines lower physical literacy of primary schoolchildren. Furthermore, differences revealed in such PL domains as knowledge and understanding as well as physical fitness with regard to the different class and their respective general teacher may indicate the importance of the educator's role and implemented PE curriculum for attaining the sufficient level of physical literacy of primary schoolchildren.

*Keywords: children, healthy lifestyle behaviour, physical activity, physical education, physical literacy.*

## Introduction

Physical literacy (PL) is a concept that has been growing very fast and recently gained a momentum in many different countries (Spengler, Cohen, 2015). It has been proposed as a foundation for the development of skills, knowledge, and attitudes that are essential for lifelong participation in physically active lifestyle (Whitehead, 2013). Supporting physical literacy

in the growing years is crucially important considering the rising levels of physical inactivity (Reilly et al., 2004) and the prevalence of obesity (Ogden et al., 2016) among children. The main goal of PL to increase life-long engagement in physically active behaviors is very appealing knowing how critical the movement and exercising is for children's health and well-being (Poitras et al., 2016).

Physically literate persons should be motivated and confident to take part in various forms of physical activity, have physical competence, knowledge, and understanding of the importance of maintaining physical activity throughout the lifetime (Whitehead, 2013). Research showed that physical activity helps to increase some health benefits such as reducing the risk of cardiovascular disease, diabetes, and cancer (Warburton et al., 2006). Accordingly, the promotion of physical literacy could help to increase physical activity in children which could help to develop some health benefits (Gately, 2010) and even increase academic performance (Guo et al., 2012). The fundaments about the importance of physical activity to lifelong health and well-being should be developed during school years (Whitehead, 2013). That is why education is very essential for physical literacy development (Hyndman, Pill, 2018). This makes it particularly important to clarify the meaning of physical literacy, ways of developing it and the likely consequences of promoting it.

In primary school, the main competences and attitudes are achieved and formed: a child who has mastered the fundamental movement skills has a higher chance of becoming physically literate and having a long lasting interest in a physically active lifestyle (Whitehead, 2013). As they progress during this stage there should be an increase in discussions towards the importance and the benefits of physical activity for the body. A lot of responsibilities during this stage of physical literacy development fall onto Physical Education (PE) teacher's shoulders, however parents, family and peers play an important role as well (Whitehead, 2013). Physical Education helps to develop physical competences making children move effectively, efficiently, and safely (Roetert, Jefferies, 2014). However, the main outcome of PE should be the focus on physical literacy – an essential basis for overall child development – and not merely on physical competencies. A complex of variables such as physical competence, daily behavior, motivation and confidence, knowledge and understanding constitute physical literacy which should serve as a goal for PE in helping to build a strong foundation for a child to participate in physical activity and stay healthy over the lifespan (Sum et al., 2016). Since physical activity behaviors are being established in early years (Edwards et al., 2018), the lifelong engagement in PA may be increased and secured by achieving a sufficient level of physical literacy in childhood.

The aim of this study was to assess if the level of physical activity (PL Domain 1), health-related physical fitness (PL Domain 2), motivation and confidence (PL Domain 3), knowledge and understanding (PL Domain 4) of primary schoolchildren is sufficient. In addition, to investigate whether physical literacy of the 3rd grade students differ in relation to PE being taught by their respective general teacher.

## Methodology

In total, ninety three 9-10 year old students of four different classes of the same 3ʳᵈ grade cohort of one of the school in second biggest city of Lithuania were recruited: Class A ($n = 24$), Class B ($n = 24$), Class C ($n = 23$), and Class D ($n = 22$). They had two weekly PE lessons regularly, taught by their respective General teachers, sharing the same sport facilities and equipment. According to Canadian Association of Physical Literacy (CAPL) Manual (Healthy Active Living and Obesity Research Group, 2013). Canadian Assessment for Physical Literacy: Manual for test administration. Ottawa: Children's Hospital of Eastern Ontario Research Institute., the four domains of schoolchildren physical literacy are to be estimated: (1) Daily Behaviour Domain, (2) Physical Competence Domain, (3) Knowledge & Understanding Domain, and (4) Motivation & Confidence Domain (Healthy Active Living & Obesity Research Group, 2013). Few modifications were applied to the original CAPL Protocol due to inability to follow it precisely (details provided in subsequent chapters). All measurements and surveys were conducted by the same Principal Investigator and completed in November 2019.

### Daily Behaviour Domain

For Daily Behaviour Domain investigation, the data on an average daily steps, self-reported sedentary time, and self-reported number of days a week a child engages in moderate to vigorous PA (MVPA) is to be examined, constituting 32 points of the total 100 points of PL score (Longmuir et al., 2015). In this study, the Netherland Physical Activity Questionnaire (NPAQ) was used to assess what activities children prefer to do in their free time (Janz et al., 2005). The questionnaire is to be filled by a parent or legal guardian. It includes seven statements that help to evaluate children leisure time preferences and every day activity choices rather than intensity, duration or frequency of PA (PL Domain 1). The NPAQ score may range from 7 (low physical activity) to 35 (high physical activity).

### Physical Competence Domai*n*

According to CAPL (Longmuir et al., 2015), the Physical Competence Domain is evaluated by following tests and measurements: PACER shuttle run, overall obstacle course, grip strength, plank, Body Mass Index (BMI) percentile, waist circumference, and sit & reach (the results of which constitute another 32 points of PL score). However, for this study Physical Fitness Test Battery for Children (Fjørtoft et al., 2011) was used to evaluate health-related physical fitness (PL Domain 2). The methodology is easy to apply because the tests do not require additional hardware and are easy to administer. It helps to measure not the separate elements but the overall physical competence of children which gives a holistic view of the problem. The tests measured explosive power, arms and leg muscle power, cardiovascular endurance capacity and coordination of children. Every participant had to perform five tests related to their daily motor activities such as jumping, running and throwing, i. e. standing broad jump, jumping 7m distance on one and two legs, 1 kg medicine ball push and 6 min endurance run. To exam whether physical competence results of boys and girls met minimal, average or maximal level, the Reference scales of Lithuanian schoolchildren (Česnaitienė et al., 2016) were advised. In addition, body height (cm) and body mass (kg) were assessed to calculate BMI ($kg/m^2$). Children were dressed in light clothing and wearing no shoes. Height was measured to the nearest 0.1 cm using a Stadiometer (SECA 213) in a standing position with shoulders relaxed, facing forward with head and back facing the wall while body mass was measured to the nearest 0.05 kg using a regular weight measuring scales.

### Motivation and Confidence Domain

The Motivation and Confidence domain was assessed using the Children's Self-Perception of Adequacy in and Predilection for Physical Activity (CSAPPA) Scale (Healthy Active Living & Obesity Research group, 2013). It was used to measure children's perception of their abilities to perform physical activities successfully and their predilection towards participation in physical activities. Also, questions asking about the "reasons to be physically active" and "reasons not to be physically active" were combined to create a perceived benefit to barrier ratio towards physical activity. Question No. 4 was related to their activity levels compared to peers and question No. 5 assessed children's skills level compared to peers. The whole Motivation and Confidence domain score (range –1.5 to 18 points) was comprised from CSAPPA adequacy score (range 1.5 to 6 points), CSAPPA predilection score (range 1.5 to 6 points), benefits to barrier ratio (range –4.7 to 4 points), question No. 4 (range 0.1 to 1 points) and No. 5 (range 0.1 to 1 points). Validity for this CAPL assessment protocol was established

through the Delphi process (Francis et al., 2016). The score from the Motivation and Confidence domain (PL Domain 3) was calculated (max. 18 points of the total 100 points of PL score) and assigned to one of the four categories: Beginning, Progressing, Achieving and Excelling (Francis et al., 2016).

**Knowledge and Understanding Domain**

To measure what knowledge and understanding children have in physical and health education (PL Domain 4) a self-reported questionnaire with 14 questions was used (the CAPL manual for test administration established by the Healthy Active Living and Obesity Research group, 2013). For example, children were asked to indicate the maximum amount of screen time that is recommended for their age group and to select the correct definition for terms within the health curriculum (e. g. cardiorespiratory fitness, muscular strength or endurance). Also, their perceptions towards health and the usage of safety gear during different activities. Validity for this CAPL assessment protocol was established through the Delphi process (Francis et al., 2016). The score from the Knowledge and Understanding domain was calculated (collecting another max. 18 points of the total 100 points of PL score) and assigned to one of the four categories: Beginning, Progressing, Achieving and Excelling (Francis et al., 2016).

**Statistical analysis**

The conducted information was processed using mathematical-statistical methods. These analyses were undertaken with SPSS 22.0 version. Descriptive statistics including mean and standard deviation ($\pm$ SD) were used. Normality of parameters was controlled by one-sample Kolmogorov-Smirnov test ($p > 0.05$). Data normality distribution was determined using skewness and kurtosis. The assumption of homogeneity of variances was tested through Levene's test and has been met. The variances were equal. To compare variables by physical literacy stages (Beginning, Progressing, Achieving, Excelling), gender and class (General Teacher) the one-way ANOVA was used and Tukey post hoc tests were used to indicate which groups are different from each other. The significance level was set at $p < 0.05$.

**Results**

The anthropometric and physical activity characteristics of primary school children are presented in Table 1. The significant difference between boys and girls was obtained in their body height, i. e. boys were taller compared to girls (141.3 $\pm$ 7.3 vs. 137.4 $\pm$ 6.4 cm, respectively; $p < 0.05$).

According to the World Health Organization (WHO) recommendations (2007) for children aged 5 to 19 years old, the BMI (kg/m$^2$) results of the participants (PL Domain 2) were of normal level (18.8 ± 4.7 and 17.9 ± 3.1 of boys and girls, respectively). The mean score of leisure time physical activity (PL Domain 1) of primary school children was 25.6 ± 4.7 points (of max. 35), and no significant differences by gender were found. (Table 1).

**Table 1.** Participants' anthropometric characteristics and physical activity data (presented as mean ± SD)

| | Boys (*n* = 59) | Girls (*n* = 33) | Total (*n* = 92) |
|---|---|---|---|
| *Anthropometric characteristics* | | | |
| Height (cm) | **141.3 ± 7.3** | **137.4 ± 6.4\*** | 139.9 ± 7.2 |
| Weight (kg) | 38.1 ± 12.2 | 33.9 ± 7.6 | 36.6 ± 10.8 |
| BMI (kg/m$^2$) | 18.8 ± 4.7 | 17.9 ± 3.1 | 18.5 ± 4.2 |
| *Physical activity* | | | |
| | (*n* = 53) | (*n* = 32) | (*n* = 85) |
| NPAQ score (points) | 26.3 ± 4.6 | 24.6 ± 4.8 | 25.6 ± 4.7 |

NOTE: BMI – body mass index; NPAQ – the Netherland Physical Activity Questionnaire

The findings of physical competence for most of primary schoolchildren were of average or higher level according to the Lithuanian primary schoolchildren reference scale (Table 2). In leg muscle power, arm muscle strength and cardiovascular endurance the results were of average level, and in explosive power it was meeting a minimum level of physical fitness, only.

**Table 2.** Primary schoolchildren health-related physical fitness (PL Domain 2): levels according to Lithuanian primary schoolchildren reference scales

| Physical fitness component | Test | Total (*n* = 86) | Physical fitness level |
|---|---|---|---|
| Explosive power | Broad jump (cm) | 126.2 ± 21.6 | Minimum |
| Leg muscle power, coordination | Jumping 7m distance on one leg (s) | 3.2 ± 0.7 | Average |
| | Jumping 7m distance on two legs (s) | 3.4 ± 0.6 | |
| Arms muscle strength | Medicine ball push (m) | 4.6 ± 1.1 | Average |
| Cardiovascular endurance | 6 min run (m) | 881.2 ± 153.7 | Average |

The results from the Canadian Assessment of Physical Literacy Motivation and Confidence score indicate that participants were only at the beginning and progressing stage (28.9% and 71.1%, respectively). Similarly, the majority of the respondents have not yet reached an acceptable level of physical literacy in Knowledge & Understanding domain: 6.6% and 53.8% of participants were only at beginning and progressing stage, respectively; although 29.7% have reached an adequate level, and 9.9% even the highest level of physical literacy (see Table 3).

**Table 3.** The evaluation of primary schoolchildren (n = 91) Motivation & Confidence and Knowledge & Understanding domains: distribution by scores assigned to a respective interpretation category by Canadian Assessment of Physical Literacy (CAPL) protocol (Francis et al., 2016)

| PL category<br>CAPL domain | Beginning<br>(*n, %*) | Progressing<br>(*n, %*) | Achieving<br>(*n, %*) | Excelling<br>(*n, %*) |
|---|---|---|---|---|
| Motivation and Confidence (*PL Domain 3*) | 27 (29.7%) | 64 (70.3%) | – | – |
| Knowledge and Understanding (*PL Domain 4*) | 6 (6.6%) | 49 (53.8%) | 27 (29.7 %) | 9 (9.9%) |

Note: PL – physical literacy; CAPL – the Canadian Assessment of Physical Literacy

Comparing the physical literacy of primary schoolchildren results in four different domains by a class (their respective General Teacher), the significant differences ($p < 0.05$) were found in two of the PL Domains, i. e. Physical Competence (PL Domain 2) and Knowledge & Understanding (PL Domain 4) (Table 4). The measurements of the overall physical competence of children revealed several significant differences and problematic issues among the four classes, particularly in leg muscle strength and cardiorespiratory endurance (lowest results in class B) and arm muscle strength (lowest results in class D). The score in knowledge and understanding of boys and girls in class A was the highest of all groups, and significantly differed compared to their counterparts in classes B and C (11.68 ± 2.06 vs. 9.57 ± 2.64 and 9.71 ± 1.95 points, respectively). Other PL Domains such as daily behaviour (physical activity) and motivation and confidence were not signifficantly different with respect to the class (General Teacher).

**Table 4.** Physical literacy of primary schoolchildren comparing by Class/
General teacher (mean $\pm$ SD)

| PL domain | Class A ($n = 24$) | Class B ($n = 24$) | Class ($n = 23$) | Class D ($n = 22$) |
|---|---|---|---|---|
| *Daily Behaviour* | | | | |
| Physical activity level (NPAQ score/ points) | 25.32 $\pm$ 4.16 | 26.05 $\pm$ 4.45 | 25.9 $\pm$ 4.61 | 25.25 $\pm$ 5.78 |
| *Physical Competence* | | | | |
| Broad jump (cm) | 128.87 $\pm$ 20.79 | 124.58 $\pm$ 26.99 | 128.21 $\pm$ 19.87 | 123.30 $\pm$ 17.48 |
| Jumping 7m distance on one leg (s) | 3.03 $\pm$ 0.35 | 3.50 $\pm$ 1.09 | 3.08 $\pm$ 0.49 | 2.95 $\pm$ 0.69 |
| Jumping 7m distance on two legs (s) | 3.45 $\pm$ 0.35 | 3.72 $\pm$ 0.61 | **3.06 $\pm$ 0.49**[b] | 3.38 $\pm$ 0.54 |
| Medicine ball push (m) | 4.89 $\pm$ 1.24 | 4.82 $\pm$ 0.95 | 4.96 $\pm$ 1.09 | **3.83 $\pm$ 0.98**[a,b] |
| 6 min endur- ance run (m) | 926.44 $\pm$ 143.03 | **765.66 $\pm$ 157.02**[a] | **899.2 $\pm$ 117.1**[b] | **935.83 $\pm$ 136.01**[b] |
| *Motivation & Confidence* | | | | |
| CAPL score (points) | 9.35 $\pm$ 1.62 | 9.58 $\pm$ 1.99 | 9.28 $\pm$ 1.02 | 9.41 $\pm$ 1.57 |
| *Knowledge & Understanding* | | | | |
| CAPL score (points) | 11.68 $\pm$ 2.06 | **9.57 $\pm$ 2.64**[a] | **9.71 $\pm$ 1.95**[a] | 10.06 $\pm$ 2.89 |

Note: PL – physical literacy; NPAQ – the Netherland Physical Activity Questionnaire; CAPL – the Canadian Assessment of Physical Literacy; [a] – significant difference from Class A; [b] – significant difference from Class B; [c] – significant difference from Class C; in Bold – level of significance $p < 0.01$

## Discussion

Our research aimed to assess if the physical literacy level of primary school children is sufficient using such components as physical activity (*PL Domain 1*), fitness (*PL Domain 2*), motivation and confidence (*PL Domain 3*), knowledge and understanding (*PL Domain 4*). The levels of these elements and the relationships between these variables in primary schoolchildren were analyzed to test the hypothesis that the physical literacy of primary school children is of average level and that it differs

in relation to PE being taught by their respective general teacher. The findings of this cross-sectional pilot study indicate that PA and physical competence for most of primary schoolchildren were of average or higher level according to the Lithuanian primary schoolchildren reference scale. Also, a significant difference were noticed in physical fitness domain, particularly in leg and arm muscle strength and cardiorespiratory endurance with regard to a class (general teacher). Our hypothesis was confirmed since children's physical literacy level appeared to be of average level and there was a significant difference in knowledge and understanding as well as physical fitness with regard to the different class and their respective general teacher.

Being physically literate means to value and take responsibility in physically active lifestyle choices. Physical activity behaviors are being established in early years of life (Edwards et al., 2018). As parents note, few of the most affecting factors that would help to increase physical activity of their children is better conditions for exercise in schools (80.1%), more active people that surrounds them (75.2%) and stronger education towards physical activity importance and benefits for health (70.1%) (Strukčinskienė, Raistenskis, 2012). In our study the physical activity analysis using the NPAQ instrument indicated no significant differences in primary schoolchildren neither by gender nor by class with a quite high mean score of $25.6 \pm 4.7$ points (the range is of 7 to 35). The research conducted in Brazil, which measured children's physical activity using the same questionnaire, revealed that the recommended amount of daily health-enhancing physical activity – 60 min/day of moderate to vigorous physical activity (MVPA) – was achieved by the majority (73.2%) of the participants (Bielemann, Reichert, 2011). In contrast, only 18.6% of boys and 9.8% of girls living in urban areas were meeting the WHO recommendations based on the results of a previous study aiming to evaluate Lithuanian school children physical activity level (Volbekienė et al., 2007).

In this research, participants performed five different health-related physical fitness tests such as standing broad jump, jumping 7m distance on one and two legs, 1 kg medicine ball push and 6 min endurance run to assess their explosive power, arms and leg muscle power, cardiovascular endurance capacity and coordination. The results were compared to the reference scales of Lithuanian primary schoolchildren (Česnaitienė et al., 2016) and were of average level mainly. During the past two decades the change in physical fitness of school-aged children in Lithuania has demonstrated negative trends, especially in aerobic capacity (cardiorespiratory fitness) which declined about 50% (Venckunas et al., 2017). Accordingly, the muscular strength and endurance, flexibility, and especially cardiovascular

endurance of children are significantly associated with their total weekly physical activity minutes (Chen et al., 2018).

The findings of physical literacy in Motivation & Confidence and Knowledge & Understanding scores indicate that participants were only at the beginning and progressing stage (28.9% and 71.1%; 6.6% and 53.8%, respectively). Knowing that individual's motivation for and confidence in exercising usually declines the most during adolescence (Eather, Morgan, 2013), it is concerning, considering that the levels of motivation and confidence are already low at primary school age. As mentioned before, education is very important for this age group (Whitehead, 2013; Hyndman, Pill, 2018). A study revealed that children who were instructed by professional physical education teachers were more motivated and confident, and were even meeting achieving and excelling stages in physical literacy (Law et al., 2018). Another research found that when children have the power of choice, they experience autonomy, which increases their intrinsic motivation to participate in physical activities they enjoy now and in the future (Roemmich et al., 2012). It was very effective among girls and showed that when girls were able to choose their activity, they were motivated to participate in physical activities equal to boys (Roemmich et al., 2012).

One limitation of this study was that levels of physical activity were measured using self-reported questionnaires despite the fact it being validated and used in other studies. Also, other modifications were applied to physical competence domain, e. g. different musculoskeletal fitness tests were performed and the overall obstacle course as well as Progressive Aerobic Cardiovascular Endurance Run (PACER) were not measured. Some modifications were applied for motivation and confidence as well as knowledge and understanding questionnaire to adjust to Lithuanian children exercise habits and climate differences, e. g. different activities were chosen in the 11$^{th}$ question (i. e. instead of snowmobiling it was changed to snowboarding). Due to that it was not possible to replicate the original version of the Canadian Assessment of Physical Literacy model. Nevertheless, the strength of this study might be supported by the fact that in Lithuania the phenomena of physical literacy is not yet well investigated. For future perspectives, it is necessary to search for solution to validate the CAPL assessment tools for Lithuanian population investigating physical literacy.

## Conclusions

We may conlude that lower motivation, confidence and knowledge in PE determines lower physical literacy of primary schoolchildren. Furthermore, the differences revealed in such PL domains as knowledge

and understanding as well as physical fitness with regard to the different class and their respective General teacher may indicate the importance of the educator's role and implemented PE curriculum for attaining the sufficient level of physical literacy of 9–10 year old boys and girls.

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# THE IMPORTANCE OF EDUCATION
# FOR SPORT SCHOOLS STUDENTS

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**ABSTRACT**

The main task of vocational education institutions is to implement the relevant knowledge and skills, alongside the acquisition of primary or secondary education. In the context of sports schools, the main emphasis is on achieving results in tournaments, games, and competitions. However, in parallel with the implementation of the sports field, the task of sports schools is to promote the opportunities and desires of students in the field of education. The author points out that too much emphasis is placed on the realization of sports goals, without paying attention to the accents of students' personal development – for example, the importance of education.

The aim of the research is related to the actualization of education in the context of sports schools. Two main guidelines are emphasized – the interest of sports schools in educating students, as well as the athletes' own opinion about the education and its connection with sport. Within the framework of the research, the author wants to analyze the obtained data correlations. For example, the relationship between students' current progress and their desire to continue their studies at university. Analyze the results and make recommendations to improve the situation.

Data were collected from three professional sports schools in Latvia – Vidzeme and Riga region. The total number of respondents is 147. The survey was conducted anonymously, with respondents aged 13–16 years.

Data processed using Windows SPSS and Microsoft Exel programs

**Keywords:** *education, learning achievements, sport, sport schools.*

## Introduction

In today's society, the sphere of education is becoming more and more important. Nations are investing additional resources to reorganize education systems and make them as meaningful as possible. Reforms are being implemented that require both educators and students to adapt.

Various changes also affect the field of sports education. The topic of educating athletes or activities in parallel with sports training and competitions is becoming more and more topical. The main document on

the subject is the European Union's dual career guidelines (European Guidelines… 2012). It mentions some factors related to the combination of education and sports but focuses on the initial stage, or the involvement of mainstream schools in the training process. Athletes have the right to combine training with sport, as this promotes their personal development and works to enter both the labor market and the highest possible level of the sport (Tessitore et al., 2021).

The foundation of the sports pyramid is related to youth sports. The share of academics or sports boarding schools in the Latvian education system is not pronounced. More often, the function of sports education is performed by professional sports education orientation institutions or sports schools. Such a model is especially implemented in the regions. However, cooperation with mainstream schools is essential for sports schools to be able to function successfully as dual careers.

Croatian researchers in sports education point out that the countries of the European Union have different understandings of the legal, ethical and practical side of the sport. There is a strong correlation between the level of prosperity of the nation and the connection of education with sports. There are different levels of educational institutions – vocational schools, general education schools, universities – each of them has its own specifics, which is also equated in the context of dual-career (Capu-Jogonica et al., 2012).

Given that there are different models for the development of physical education in the European context, each country must be able to create its unique system. As mentioned above, the Latvian sports education system is not based on academies, but sports schools. Most of them are founded by local governments, thus financial resources are obtained from state grants. However, there is a growing tendency to create private sports schools, which are entitled to be founded by sole proprietors with the basic idea of making a profit (Sport Law, 2017). The corresponding trend related to the establishment of private sports schools is more related to the development of sports in major cities, as well as to the field of team sports. The most pronounced example is football.

The primary task of sports schools is related to the acquisition of the program of the respective sport. Their content is aimed at achieving specific results, criteria or participations. The requirements can vary significantly when comparing different sports, but the main idea is the same. The criteria of the youngest students envisage that the number of groups is more inclined towards quantity, while the main task of the largest training groups is the achieved results (The procedure … 2017). However, the author wants to emphasize that the tasks of sports schools are not only related to the achievement of concrete results. At the same time, both the management and the coaches must be able to provide several other

functions – transport to competitions or tournaments, availability of equipment, as well as personal development. It is the latter function that can pose the greatest challenge in the context of sports schools, as there are relatively many possible developments. One of the primary – education.

The relevant process of updating education in the context of sports schools can be done in different ways. The basic function should be performed by the school management, which chooses the available directions accordingly, to be able to successfully integrate education into the training process. One of the tasks of this study was related to athletes' perceptions of individuals who may influence their choices in combining sports and learning. Parents were noted as the most common choice, but coaches were the second. Consequently, management activities should be oriented towards the education of the persons or groups of persons concerned. The range of activity of the head of the institution is relatively wide. The driver must have several characteristics, at the same time perform several actions:

- Leader and leadership;
- The leader as a symbol;
- Mediator;
- Observer;
- Information distributor;
- Representative;
- Troubleshooter;
- Resource Manager, etc. (Wajdi, 2017).

In the context of dual careers, education managers should pay additional attention to two lines of action: disseminating information and observing. The management of sports schools should inform the coaches about the possibilities of updating the connection of education with daily training. There are several recommended actions. For example, showing success on the part of athletes. This type of practice is performed in the Latvian Basketball Union, when players who are unsuccessful in at least one subject are not allowed to participate in the youth national team. A similar system would also be recommended in the practice of sports schools, as it promotes the motivation of athletes to learn at a semi-high level.

From the management sphere, the next steps are related to the monitoring function. To the extent possible, observe, analyze and, if necessary, regulate the relevant process. It must be borne in mind that this type of action must have clearly defined objectives. The regulation of young athletes about the training process must be coordinated with the parents. It is necessary to explain the basic idea of a dual career, as well as the main benefits of involving sports schools in the field of education. Further actions depend on the communication between the school management and the coaches, the types of activities and believes (Tekavs et al., 2015). The

control or supervision function can also be performed by the management of the institution without the involvement of coaches as intermediaries.

The process of sports schools related to the field of education in the Latvian education system is in close co-operation with general education schools. Both types of educational institutions must be accommodating in terms of combining education and sports. It is possible that the new educational project "Skola 2030" ("School 2030"), which is implementing changes in the content of education, will have an additional positive impact. The main idea is to create interdisciplinary links, self-directed learning skills, as well as to promote critical thinking. The author draws attention to the fact that relatively large changes are also focused on the field of sports in general education schools. Instead of the current subject "Sports" the subject "Health and Physical Activity" will be studied in the future. The biggest change is related to the deeper integration of the health aspect in the learning process, as well as the emphasis on sports in leisure time (School2030, 2016). One of the biggest challenges for sports educators could be related to the actualization of sports activities in everyday life. The author believes that it is a vital function in the field of sports pedagogy – to promote the cultivation of a sporty lifestyle in the daily life of students. One of the potential directions of development is cooperation with sports schools, which can promote students' common understanding of the field of sports.

Today, the term "sport" is associated with a wide range of variations. The Sport Policy Guidelines document for the period 2021-2027 sets out the main priorities for sport. The fact that a relatively large emphasis is placed on youth and high-achievement sports is to be welcomed. However, there is no process of actualization of education, which is often defined as a dual career (Sports policy… 2021). The relevant document explains rationally and logically that additional resources will be involved in sports activities, while also focusing on high-performance sports. The author of the study points out that there is a lack of a unifying factor that can be defined as a dual career, using its various manifestations. This type of process needs increased attention at national level. It is in the interests of countries, including Latvia, to create a structured system that promotes various types of dual careers. The process provides several vital directions that can have a positive impact on a country's prosperity:

- Improving general public health;
- Raising the level of education;
- Psycho-emotional state of society;
- Economic aspect;
- More developed sports education system.

Of these benefits, all are vital in the context of national development. Each of them is necessary for the state to be able to get the maximum

benefit from the dual career process. The author of the study points out that several of these aspects are closely related. For example, the economic and health spheres. If students understand the basic guidelines of a healthy lifestyle from the very beginning, then their work will be of better quality. The general public will make less use of medical services offered by the state, as well as various types of exemptions related to health conditions. The process is linked to the population of any age, as it increases productivity, while reducing public spending on health care. This type of progress needs to be updated already at the age of general education schools. Changes in the context of educational content have already been mentioned. In the context of the subject "Health and Physical Activity" sports educators need to integrate relevant topics to promote the overall well-being of the country. Vocational guidance institutions have less responsibility for the process, as participation is not mandatory. Consequently, some young people do not receive this type of education.

Among the previously considered positive effects of dual career development, the improvement of the quality of sports was also mentioned. The Dual Career Guidelines (Dual carreer… 2012) developed by the European Union mention as one of the main points in the updating of athletes careers after the end of professional sports. This type of process can facilitate the involvement of specific individuals in the process of sports pedagogy, which in turn can improve the overall quality of the sport. Unfortunately, there is no systematic process of integration of former athletes in the respective sport in Latvia.

As indicated in the European Commission's report on Physical Education in European Schools, there are a number of other factors involved in this process. Along with the educational and daily training process, students must also learn:

- Principles of fair play;
- Mutual respect;
- Work ethic;
- Aesthetic culture, etc. (Sport education… 2013).

Relevant principles are also noted in other international sports policy documents. For example, the White Book on Sport (White book…2007), which also mentions factors related to the principles of equality. This type of issue is also considered in other subjects, so the author points to the possible interdisciplinary link, where it is possible to analyze global issues. In this way, students can be given a relevant idea of the problems of racism, gender equality or other topical issues addressed in sports policy documents. However, Lithuanian scientists point out that sport ethical norms are different – in the contex of coach and athletes. Athletes have a lower tolerance level for the basic principles of sport ethics compered to their

coaches (Kardišauskas, 2015). It can be attributed to the different levels of education that coaches and athletes have.

## Research

Three professional sports education institutions were involved in the study. The total number of respondents reached 147 (a questionnaire was sent to 178 athletes). Respondents were selected at random basis. The survey period is the period from June to August 2020. The age range of the respondents is 13–16 years. The author points out that the relevant age group has been chosen appropriately because in it athletes have an opinion about the possibilities to combine training with sports at a semi-high level.

The quantitative survey method was chosen because in this way it is possible to get a broader idea of the situation in the respective field. The main tasks of the research:
- Understand the thoughts of athletes in relation to the possibilities of combining sports and education;
- Find out whether educational institutions pay attention to the possibilities of combining sports and learning;
- To find out what additional factors can contribute to athletes' desire to combine training and sports.

The respondents involved in the study are students of three sports schools representing the Northeastern part of Latvia – Vidzeme. Consequently, there may be regional differences in the possibilities for combining training and sports.

The author of the study would draw attention to the importance of various additional aspects that can significantly affect. Of course, in order to successfully combine sports and education functions, several additional factors are needed – infrastructure, high-class coach, or development opportunities for a particular sport in the country.

However, additional attention should be paid to the human factor. The dual-career process mainly involves groups of four people – parents, school management, coaches, as well as training partners, who can also be members of the school at the same time. Within the framework of the study, the respondents indicated a convincing tendency towards the statement related to the support persons – the family or parent factor has the greatest influence (Fig. 1.).

As mentioned above, the majority of respondents (n-83) indicated that the family factor plays an important role in the process. The second most common answer was aspect by the coach (n-40). In turn, training members were marked as the third answer – (n-23). Only one respondent noted that school management has the greatest impact.
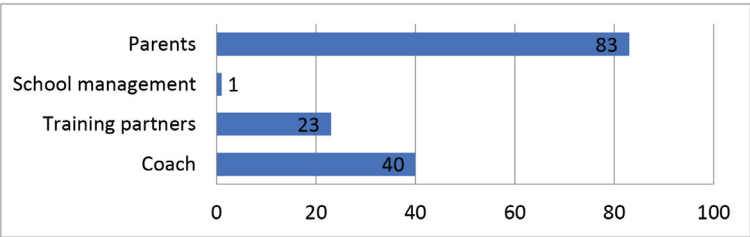
**Figure 1.** Influencing factors related to the possibilities of combining sports and training

The author draws attention to the fact that school management activities in the context of dual-careers remain relatively unnoticed, as they are related to organizational functions – to educate coaches or to discuss with other schools about possible directions of cooperation. As a result, young athletes benefit from other people, such as coaches. However, the activities of the school management have a great connection with the education of coaches in dual-career issues (Ābeļkalns, Kravalis, 2020). Firstly, the process needs to be updated, as a large proportion of sports professionals place a relatively high emphasis on achieving sporting achievements.

There are relatively many variations in combining the educational and sports functions. Influencing factors are related to school goals, teachers 'competence, as well as the level of students' interest. However, several unifying aspects will fit into any direction of dual career development. For example, the development of work ethic or the process of development of the overall personality.
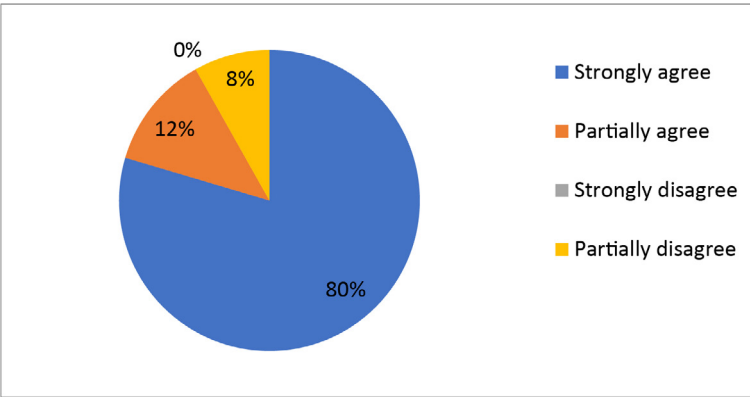


**Figure 2.** Statement: "I develop my personality through the sports education"

During the quantitative survey, the author of the study highlights one statement, the results of which indicate a relatively good trend. Most respondents answered in the affirmative to the statement whether sport helps them to develop their personality. 80% answered *Strongly agree*, while 12% indicated *Mostly agree*. This shows that due to different circumstances, young athletes can see the benefits of the training process in terms of mental development. Of course, it can be speculated that relevant personality development does not always help to achieve higher learning outcomes. However, it should be taken into account that the learning process of athletes is relatively more complicated compared to other students. The higher the level in sport, the more effort is needed to be able to successfully plan one's responsibilities. In some educational institutions, high-level athletes are assigned a mentor or tutor to help them plan their activities successfully. This is often related to the communication function. The mentor conducts daily discussions with educators or coaches to successfully help the athlete to combine training with training, camps, and tournaments. Although this type of practice is more relevant to the level of higher education, this type of support can also be integrated into mainstream schools with an emphasis on sport.

The relevant area in terms of planning one's time and fulfilling one's responsibilities is closely correlated with the statement highlighted in the study about personality development called the sports prism. The author interprets the obtained results as proof that young athletes can better plan their time through daily training while promoting the development of their personality.

The study used a program Windows SPPS, which provides a better understanding of the correlations (Bivariate Pearton Correlation) of the results of interrelated statements. The author highlighted one of the obtained correlations. The emphasis is on the level of learning achievement, which is often relatively secondary. Both educational institutions and representatives of the sports field place too little emphasis on updating the quality of teaching, being satisfied with a successful assessment.



**Figure 3.** Correlation between statements about the level of education

The selected statements are related to the impact of sport on the learning process, as well as the overall level of learning achievement. According

to the obtained answers, the obtained correlation (0.566 with a P-value of 0.71) indicated that a relatively strong correlation was observed. Respondents who learn at a high level daily indicated that sport is one of the main factors contributing to their learning achievements. The author points out that this type of correlation can be assessed as positive. Athletes with high learning achievements recognize that with the help of sports they can better mobilize themselves and perform all the necessary tasks.

However, the author points out that the level of respondents related to the field of sports is relatively different. Although the survey was conducted in a professional sports education institution, the current Latvian system does not tend to achieve high-level sports achievements in such institutions. The criteria that need to be met for a training group to be taken to the next level are often relatively easy to meet. As a result, vocational sports schools also perform the function of interest education, which is not aimed at achieving specific results. Theoretically, this type of activity should be carried out by general education schools, which would provide students with additional sports activities after the acquisition of the compulsory curriculum. This would help to improve the overall physical condition of children, as well as avoiding various potential threats related to addictions or problematic behaviors. This is not often the case in the Latvian education system, as general education schools invest additional financial resources in other types of interest education, such as dance or song groups. The second additional aspect that prevents vocational sports education institutions from moving to a high-level sports field is related to the total number of students in the institution and the funding attracted from it. This contributes to additional motivation to enroll more and more students, with less winning towards high-achievement sports. Taking into account both of the above factors, the correlation obtained about the impact of sport on the overall level of learning achievement can be twofold. For some respondents, participation in a vocational sports school can only be a way of spending free time.

The author of the study highlights another of the obtained correlations. It is related to the ability of young athletes to combine sports with training without additional burden, while actualizing the overall development of the personality.



**Figure 4.** Correlation between statements about personality development

Respondents who can easily perform the tasks of both a sports school and a general education school have also pointed out the positive impact of sports on the overall development of the personality. This is evidenced by the obtained correlation (0.674) with a P-value of 0.46, which is significant.

The obtained correlation shows the best side of the sport funkcion. However, it should be noted that the respondents provided their answers with the appropriate interpretation. Athletes may have acquired a high level of workability in other types of daily activities. For example, doing daily chores or being influenced by the example of a family.

## Discussion

Researching and analyzing various studies on the actualization of sports and education, it can be concluded that the common position is positive. By performing regular sports activities, it is possible to promote the social function of young people (Bailey, 2006). However, one of the most important aspects that affect the quality of the process is the provision of information. A sports coach or sports teacher plays an important role in educating athletes. However, the ways to get a teacher involved in the educational process are different. For example, by implementing a reporting system where athletes report progress. The second support measure involves the provision of general information that promotes a common understanding and sense of responsibility in the field of education for athletes. It can be implemented without explicit evaluation or reporting criteria (Welch et al., 2021).

Dual careers can take many forms. It should be noted that the main influencing factor is the purpose of the process. Sport in the educational process can be – priority, secondary or variable. The sports process, such as training, competitions, and tournaments, is defined as a priority activity in sports academies or boarding schools, where two pieces of training a day are performed in the daily routine, in parallel with the acquisition of compulsory subjects. Institutions of this type are not widespread in the Latvian education system, with more emphasis on vocational schools. However, in several sports abroad, boarding schools or academies are the main tools that promotes the development of professional sports. Institutions of this type ensure the development of national sports at the highest level, as they are strongly focused on high-achievement sports (Malm et al., 2019). Professional sports have reached a high level nowadays and it is relatively difficult to be a professional athlete. An individual who wants to become a professional athlete must have one distinct or even several, traits or character traits that can help in a particular sport. Most often, it is related to the existence of talent, which manifests itself in different ways – understanding of the game, general physical fitness, work ethic, etc. However, both young

people who will become professionals and young people who will not be able to do so need an education. The risk arises because young athletes in this type of academy place great emphasis on the field of sport. As a result, a situation may arise, the level of training becomes unsatisfactory, while the lack of talent, or other reasons, fails to pursue a professional athlete's career. This can negatively affect the further development of the personality in the psycho-emotional field. It is relatively more difficult for an individual to enter a higher education institution, which in turn influences the further development of the field of work. However, the second, smaller target audience that becomes professional athletes must also be taken into account. Although professional athletes can secure their financial situation until the average age of 35, a further plan is also needed. Unfortunately, there is an increased risk that athletes will not be able to find meaningful further employment after an active professional career because they do not have the necessary knowledge, skills, or other aspects.

Another way to use sport is to integrate it into the daily learning process. The main goal is personal development through the use of sport as one of the priority development tools. This type of process has been relatively little studied by sports spectators, as the primary focus is on high-level sports achievements. They are relatively easier to evaluate and may attract more attention from the surrounding community. However, by researching and focusing on the process of sports integration, which helps to promote young people's personalities, it is possible to reach a wider range of respondents. Different types of physical activities that help to develop both emotionally and physically are most often included in the curriculum of general education schools. In the Latvian education system, the project "Sport class" is being implemented, within the framework of which children engage in additional physical activities. Their content may vary due to available infrastructure or other ancillary conditions. For example, 2020/2021. 1788 students of the 2nd–3rd grade in the school year participated (Reihmane et al., 2020). Schools used additional sports lessons, swimming pool and physiotherapist visits as the main sports activities.

There are a number of important aspects to consider when pursuing any of the dual-careers. First, an analysis needs to be made of how the relevant process can be ensured by the institution's management. The management of schools or sports clubs is often seen by respondents as a relatively insignificant factor in the development of dual-careers in a particular institution. Coaches or other sports professionals who have direct contact with athletes are more often the focus. However, it should be in mind that the main idea and the way forward is with the management. People in the field of management must be able to analyze the potential development direction of a particular institution related to the integration of education in

the sports process. Given the importance of coaches' understanding of the subject, it would be important to educate these professionals on dual-career guidance. The Latvian education system is experiencing a change in various fields, including sports pedagogy. The younger generation of coaches more often understands the importance of education and the connection with the field of sports. This specific nuance must also be taken into account in the management context. There is a high probability that various types of innovations and better will be received by sports coaches who have relatively recently graduated from university.

An important aspect of overall development in the process of actualizing sports and education is the family factor. Often the parents of the young athlete are the determining factor that can change the common position in connection with the actualization of education (Ābeļkalns, Kravalis, 2020). Parents can influence the learning process in both positive and negative directions. This aspect must also be taken into account in the context of school management, as parental education is as important as coaching education.

## Conclusion

The general public sentiment regarding the need to combine sports and education is becoming more and more positive. The public, including athletes, is aware of the potential dangers of placing too much emphasis on sport. This trend can also be observed in the study, as the overall assessment of the respondents' answers is positive. Young athletes understand the need for education, as well as there is no clear tendency about the negative impact of sport on learning achievements.

The management function, which facilitates the relevant educational process, is of great importance. This is a difficult stage, as there are several parties involved – athletes, coaches, teachers, parents, and the school management itself. The author of the study points to an important nuance. In the Latvian education system, the dual-career process in the context of general education schools is more often associated with two educational institutions, in the context of one athlete. Thus, from the side of general education schools, teachers and school management are involved, while in the field of sports school – coaches and school management. An additional factor – the athlete's parents.

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# NEUROCOMPUTING FOR THE RESEARCH OF SUSTAINABLE REGIONAL DEVELOPMENT OF PHYSICAL CULTURE, SPORTS AND TOURISM IN THE CONTEXT OF ENSURING THE QUALITY OF HUMAN CAPITAL

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**ABSTRACT**

In today's world, human capital is one of the key indicators of a country's sustainable socio-economic development. We have used neurocomputing tools to study the current state of physical education, sports and active tourism in the context of ensuring the quality of human capital, in order to preserve the population's health and increase life expectancy. The relevance of research in this field is determined by the importance of physical activity for the development of human capital, which is one of the central internal factors of countries' economic potential. Human capital also plays an important role in ensuring national security and sustainable regional development. We have performed a cluster analysis of physical culture and sports data in Russian regions using the tools of neural networks, one of the branches of artificial intelligence. The proposed approach based on neurocomputing and neural network modeling can be helpful in informing strategy proposals and measures aimed at enhancing the sustainable development and the role of physical culture, sports and tourism to ensure the quality of human capital.

*Keywords: physical culture, sport, human capital, tourism, neurocomputing, neural networks, cluster analysis.*

## Introduction

In today's world, one of the key indicators of a country's sustainable socio-economic development is human capital (Lonska and Mietule, 2015; Kuznetsov, 2012; Liu, 2015; Visvizi and Daniela, 2019). The quality of human capital is increasingly influenced by physical culture and sports (Abelkalns at al., 2014; Letiagina, Grinevich, Gutko, 2019), which are effective resources for economic development in different countries (Beutler, 2008). At the same time, the steady and healthy development of the sports

industry can promote regional sustainable development (Yang, Xu, Yang, 2020).

Russian economy's innovative development requires a qualitative leap in the recognition of the importance of the human capital's role in the socio-economic activities of its regions and the country as a whole. One of the characteristics of human capital is a healthy lifestyle of a country's citizens, which ensures longevity of its population. In this regard, it is important to create the necessary conditions for the development of physical culture and sports in order to engage various segments of the population in mass physical culture and sports activities on a regular basis (Letiagina and Kolodeev, 2021; Letiagina, Perova, Orlova, 2019).

It should be noted that physical culture and sports not only promote the population's health by improving its physical development level, but they also serve to develop mental activity (Gorbunov and Dubrovsky, 2002), thus improving the quality of human capital.

Based on the data of the Ministry of Sports of the Russian Federation (Ministry of Sport of the Russian Federation, 2019), Figure 1 shows the engagement in physical culture and sports activities of the population aged 3 to 79 in Russia's federal districts in 2019.
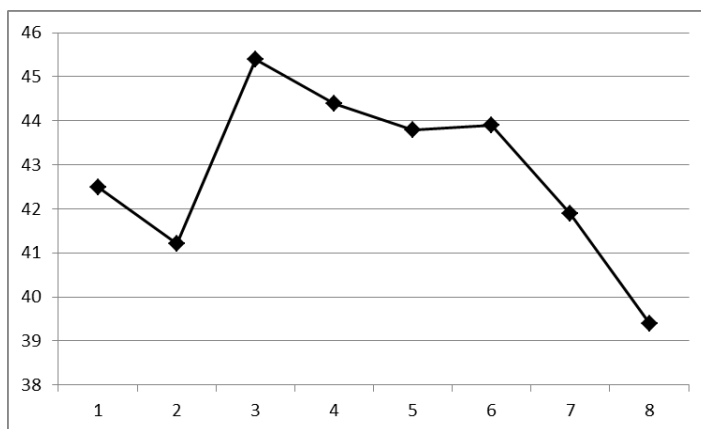


**Figure 1.** Population aged 3 to79 in Russia's federal districts engaged in physical culture and sports in 2019, %: 1 – Central Federal District, 2 – Northwestern Federal District, 3 – Southern Federal District, 4 – North Caucasian Federal District, 5 – Volga Federal District, 6 – Urals Federal District, 7 – Siberian Federal District, 8 – Far Eastern Federal District

Competitiveness enhancement in the field of physical culture and sports and the preparation of highly qualified athletes are among the priority areas for the development of physical culture, sports and active tourism in the Russian regions. These priority areas include:

  a) involving as many people as possible in systematic physical culture and mass sport activities;
  b) further development of the infrastructure of physical culture, sports and active tourism using public-private partnerships;
  c) development of the sports reserve and top performance sport;
  d) improvement of the Human resource policy (HR policy) in the field of physical culture and sports.

In this regard, a cluster analysis of the development of physical culture and sports in Russian regions in the context of improving the quality of human capital is particularly appropriate.

## Materials and method

In this paper, in the context of ensuring the quality of human capital, we study the activities of Russian regions in the field of physical culture and sports, based on the statistical data of the Russian Ministry of Sports for 2019. (Ministry of Sport of the Russian Federation, 2019):

  X1 – number of sports facilities per 100 thousand people, (units);
  X2 – percentage of the standard unit capacity of sports facilities (%);
  X3 – share of people who practise physical culture, sports and active tourism (aged 3 – 79 years) (%);
  X4 – staff (persons);
  X5 – athletes who received sporting titles and categories (persons);
  X6 – total expenditures on physical culture and sports (thousand roubles).

These indicators characterize the effectiveness of Russia's regions in the field of physical culture and sports.

To study how regional clusters are formed in relation to physical culture and sports, we used in this paper an innovative approach – artificial intelligence, namely, neural networks as one of its branches. A particular type of neural networks, Kohonen self-organising maps (SOMs) (Kohonen, 1982; Kohonen, 1990), was chosen for the study. This type was chosen because of the following features of such neural networks (Perova and Perova, 2018; Letiagina, et al., 2020; Carboni, Russu, 2015): a) there are no model limitations when analysing multidimensional statistical data; b) SOMs do not require any external intervention in the learning process; c) their learning algorithms allow projecting multidimensional input data space with the account of topology into either two-dimensional space or into three-dimensional space. This enables visualisation of the results obtained. In addition to visualisation, self-organising maps provide for efficient implementation of data clustering with the use of information technology.

Data clustering is the partitioning of a set of objects (in our case, the regions of the Russian Federation) into clusters representing compact areas. When dividing a set of objects into clusters (providing a clustering solution), the following conditions must be met (Balabanov, Strongina, 2004):

- each object can only belong to one cluster;
- objects within one cluster are similar to each other in terms of the indicators under consideration;
- objects from different clusters are essentially dissimilar.

## Results & Discussion

In this paper, the clustering of raw data based on neural network modeling was carried out using Kohonen SOMs implemented in the Deductor analytical package.

As a result of neural network modelling, Russian regions in 2019 were distributed into five clusters. The number of Russian regions in such clusters is shown in Table 1.

**Table 1.** Number of Russian Federation regions in regional clusters

| Cluster | No. 1 | No. 2 | No. 3 | No. 4 | No. 5 |
|---|---|---|---|---|---|
| Number of regions | 4 | 41 | 25 | 8 | 7 |
| Number of regions, % | 4.7 | 48.2 | 29.4 | 9.4 | 8.2 |

The data in Table 1 show that there is a significant differentiation of regions by clusters. At the same time, it is important to note that the indicators studied had a different impact on the formation of regional clusters (Table 2).

**Table 2.** Significance of indicators in forming regional clusters, %

| Indicator | Cluster number | | | | |
|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 |
| X1 | 82.6 | 96.3 | 2.7 | 100 | 85.5 |
| X2 | 74.3 | 91.8 | 100 | 38.7 | 99.9 |
| X3 | 31.8 | 56.1 | 99.8 | 88.8 | 100 |
| X4 | 53.8 | 92.1 | 63.7 | 100 | 67.2 |
| X5 | 65.1 | 98.0 | 41.8 | 100 | 85.2 |
| X6 | 100 | 98.2 | 86.7 | 99.0 | 41.5 |

The composition of regional clusters in 2019 is presented in Table 3.

**Table 3.** Composition of regional clusters

| Cluster | Regions |
|---------|---------|
| No. 1 | Nenets Autonomous District, Vologda region, Karachay-Cherkessia Republic, Chechen Republic. |
| No. 2 | Bryansk region, Ivanovo region, Kostroma region, Kursk region, Orel region, Ryazan region, Smolensk region, Tver region, Yaroslavl region, Komi Republic, Arkhangelsk region, Kaliningrad region, Leningrad region, Murmansk region, Republic of Kalmykia, Astrakhan region, Republic of Dagestan, Kabardino-Balkar Republic, Stavropol region, Republic of Mari El, Udmurt Republic, Perm region, Kirov region, Nizhny Novgorod region, Samara region, Saratov region, Khanty-Mansiysk Autonomous District – Yugra, Republic of Altai, Republic of Khakassia, Krasnoyarsk region, Novosibirsk region, Omsk region, Tomsk region, Republic of Buryatia, Republic of Sakha (Yakutia), Kamchatka krai, Primorsky krai, Amur region, Magadan region, Sakhalin region, Chukotka Autonomous District. |
| No. 3 | Belgorod region, Vladimir region, Voronezh region, Kaluga region, Lipetsk region, Tambov region, Tula region, Republic of Karelia, Novgorod region, Pskov region, Republic of Adygea, Volgograd region, Republic of Mordovia, Republic of Tatarstan, Chuvash Republic, Orenburg region, Penza region, Ulyanovsk region, Kurgan region, Tyumen region, Yamalo-Nenets Autonomous District, Republic of Tyva, Altai krai, Kemerovo region, Khabarovsk krai. |
| No. 4 | Moscow region, Moscow, St. Petersburg, Krasnodar region, Rostov region, Republic of Bashkortostan, Sverdlovsk region, Chelyabinsk region. |
| No. 5 | Republic of Crimea, Sevastopol, Republic of Ingushetia, Republic of North Ossetia-Alania, Zabaykalsky krai, Irkutsk region, Jewish Autonomous region. |

Table 4 provides statistics on the average values of the considered indicators of physical culture and sports development for individual clusters and the overall average indicators for Russia.

It follows from the data in Table 4 correlating with the data in Table 2 that:

1. The indicators "Number of sports facilities per 100 thousand people" (X1), "Share of people who practise physical culture, sports and active tourism (aged 3–79 years)" (X3) and "Athletes who received sporting titles and categories" (X5) exceed their national average values in the regions of clusters No. 3 and No. 4.

2. The indicator "Percentage of the standard unit capacity of sports facilities" (X2) exceeds the national average values in the regions of cluster No. 3.

3. The "Staff " indicator (X4) is higher than the national average in the regions of Cluster

4. The indicator "Total expenditures on physical culture and sports" (X6) exceeds the national average values in the regions of clusters No. 1 and No. 4.

It should be noted that in the regions of cluster No. 2 the values of the indicators are below the average for the Russian Federation.

**Table 4.** Average indicators for clusters and overall average indicators for the Russian Federation

| Year | Cluster number | Average values | | | | | |
|------|----------------|------|--------|--------|-------|-------|------------|
| | | **X1** | **X2** | **X3** | **X4** | **X5** | **X6** |
| 2019 | 1 | 1328 | 49.25 | 40.425 | 2337 | 6349 | 52981151.19 |
| | 2 | 2797 | 53.456 | 40.971 | 3347 | 9698 | 4935637.77 |
| | 3 | 3823 | 71.732 | 45.664 | 3536 | 16898 | 4672985.71 |
| | 4 | 11840 | 54.762 | 45.15 | 18900 | 47472 | 21838600.33 |
| | 5 | 1784 | 37.296 | 28.257 | 2318 | 4912 | 6013379.12 |
| | Average for the Russian Federation | 3797 | 57.4 | 42 | 4734 | 14819 | 8798974.73 |

## Conclusions

The sustainable regional development of physical culture, sports and tourism have a global transformative impact on the development of territories and the quality of life of the population. We have study the activities of Russian regions in the field of physical culture and sports, used an innovative approach – artificial intelligence. By applying the cluster analysis method based on neural network modelling to study the activities of Russian regions in the field of physical culture and sports, we have simulated five clusters that have similar or comparatively favourable conditions for sustainable regional development of physical culture, sports and tourism in the context of ensuring the quality of human capital. We have revealed marked differences in the size of clusters, which reflects the ametric nature of Russian regions' activities in this field. The regions that are promising in the development of physical culture and sports in terms of the indicators studied have been identified. These are the regions mainly in clusters No. 3 and No. 4 showing the highest indicator values: Moscow, St. Petersburg, Krasnodar region, Republic of Karelia, Novgorod region, Republic of Tatarstan, Tyumen region, Yamalo-Nenets Autonomous District, Altai krai, Kemerovo region, Khabarovsk krai and others.

The results of our research have practical relevance and can be used in the strategic planning of regional development in the field of physical culture and sports for future periods. This will contribute to an increase in human capital, one of the priority internal factors of Russia's economic potential.

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# THE PHYSICAL ACTIVITY LEVEL AND REACTION TIME DURING COVID 19 PANDEMIC

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## ABSTRACT

The outbreak of the COVID-19 pandemic has a huge global impact in terms of public health, economic activities, employment, psychological and social life. The educational system had to adapt to the conditions imposed by avoiding the spread of coronavirus among pupils and students. The purpose of this study is to find out if the level of physical activity influence the reaction time using dominant and non-dominant hand. We collected data from 83 students (age ranged between 15–24 years; $M = 49$, f = 34) who participated to the study voluntarily. To measure physical activity index we have used three items about type of physical activity performed, frequency and duration. In addition, to measure reaction time we have used Reaction Time Test and Aim Trainer Test. Each student completed and assessed himself the questionnaire and the tests online. Data were recorded and analysed in SPSS (version 20.0). The level of physical activity relieved that 18,1% of subjects are very active, 26,5% are active, 20,5% have an acceptable level of physical activity, 12% are insufficient active, and 22,9% are sedentary. The values of reaction time for both tests are fastest for subjects with insufficient level of physical activity for dominant hand. The sedentary person are fasted reaction time with non-dominant hand in Reaction Time Test, and the very active subjects are fasted reaction time in Aim Trainer Test. The results has limitations, conducted by speed of Internet connection, and type of devise used in performing tests.

***Keywords:*** *COVID, health, physical activity, reaction time, student, tests.*

## Introduction

Physical activity includes all forms of active recreation, participation in sports activities, as well as activities carried out within the school curriculum and around the house and garden (Nae, 2016). Regular physical activity is beneficial for both the body and the mind. Generally, physical activity may reduce high blood pressure, help maintain optimal weight balance, lower the risk of heart disease, stroke, type 2 diabetes, and various types of cancer (Lavie et al., 2019 Jiménes-Pavón et al., 2020). In addition,

physical activity improves muscle power and increases balance, flexibility, and well-being (Cooper et al., 2020; Foster, Armstrong, 2018). Among children, regular physical activity helps support healthy growth and development and reduce the risk of disease onset; through regular exercising, children may develop fundamental movement skills and they may build social relations (Landry, Discoll, 2012).

The COVID-19 pandemic has influenced the physical activity of most population and it has decreased the opportunities of practicing regular physical exercises in fitness centres and gyms, parks, stadiums, or other locations (Kaur et al., 2020). Local public health authorities have provided regulations concerning the restrictions on the number of persons able to attend, use the equipment, as well as safety and hygiene measures to respect by the persons who wish to carry out a type of outdoors physical activity. Furthermore, physical health services providers have adapted to the current situation and they have offered online classes, in order to assist the persons who chose to carry out physical activities at home, individually. In this situation, the physical activity of pre-university and university students was affected, given that schools and universities had to teach online classes. Before the emergence of this pandemic, studies have highlighted that young people included the use of Internet as an important aspect of their lives; they reported using the Internet several times a week (Laposis, Petsiou, 2017; Tremblay et al., 2014). After the spread of the virus, schools closed their gates and had to provide online teaching, to help stop the pandemic from evolving. This transition to online teaching had an impact not only on teachers, (who had to modify their lessons) but on University students, too, who had to adapt to a new learning setting.

The purpose of our study is to determine whether there are any associations between the level of physical activity and the visual reaction time during the COVID-19 pandemic.

## Methodology

The present study includes a sample of 83 students aged 18–25 years old, school students and university students. The study was conducted in the period January-February 2021 before the exam session of the university students and the inter-semester holiday of pre-university students. We mention that in this period, the subjects carried out their educational activities online. Potention respondents were electronically invited to participate through social media platform and email list servs of students. Students were directed to an online form directly from email or social media post. The form contained explanation regarding physical activity questionnaire, as well as links to accessing the tests regarding the reaction time. The tests

were self-administrated. In order to assess the level of physical activity, the questionnaire regarding the Physical activity index adapted after Dumitru (1997) was applied; it comprises three items: effort intensity by the type of physical activity, frequency of activities, and effort duration, each with four or five choices. The evaluation was conducted based on the score obtained for each item, by applying the following formula: intensity $\times$ duration $\times$ frequency.

In order to determine the reaction time, we used the Reaction Time Test (RTT) and the Aim Trainer Test (AT), for both the dominant hand (DH) and the non-dominant hand (NDH), developed online to measure abilities with brain games and cognitive.

Reaction Time Test consists in clicking as fast as possible on a screen as the colours change, with different messages for each: red colour – *waiting green*, green colour – *click,* blue colour – *click to keep going*. We recorded the reaction time as the green colour emerged, which occurred five times during the test. After the last click, the screen displays the average obtained. Subjects were asked to perform the test using both the dominant and the non-dominant hand, as well as to fill the forms with averaged calculated automatically by the web page

Aim Trainer Test consists in touching 30 targets featured on the screen as fast as possible. At the end of the test, time in milliseconds is displayed.

The above-presented research tools were introduced in a Google form, with reference to the webpage for the tests in an online format. The form was transmitted using the internal communication platforms (webex, meet, mail) along with filling instructions for self-administration. Participation was anonymous and voluntary, using their own device (namely, desktop, laptop with a mouse, laptop with touchpad, telephone).

The data filled out in the form were collected automatically in an Excel document. In order to analyse the data, SPSS version 20.0 was used. Descriptive analysis, Independent Samples test for equality of mean, and One Way Anova Multiple Comparison were used for the statistical analysis. The level of statistical significance was set at $p < .005$.

## Results

Based on the statistical analysis of results concerning the physical activity index (IAF), the point average shows that the subjects scored an acceptable level (54.50 points). Whereas differences were found between the points obtained by gender, age, or status, the mean results range within the limits of the interval specific to the reasonable level of physical activity. Table 1 details the results concerning the physical activity level of the subjects. Hence, 18.1% have a very active lifestyle; 26.5% have an active

lifestyle, being characterised as active and healthy; 20.5% have an acceptable lifestyle in terms of physical activity; while 12.0% and 22.9% respectively, have sedentary and almost sedentary lifestyle.

**Table 1.** Physical activity level

| Physical Activity Index | | Descriptive statistics | |
|---|---|---|---|
| Score | Evaluation | N | % |
| 81–100 | Very active | 15 | 18.1 |
| 61–80 | Active and healthy | 22 | 26.5 |
| 41–60 | Reasonable | 17 | 20,5 |
| 21–40 | Relatively sedentary | 10 | 12.0 |
| ≤ 20 | Sedentary | 19 | 22.9 |

Table 2 shows the descriptive statistics for RTT and ATT performed by dominant and non-dominant hand in relation with age.

**Table 2.** Descriptive statistics of reaction time by age

| Age | N | RTT (ms) | | ATT (ms) | |
|---|---|---|---|---|---|
| | | DH | NDH | DH | NDH |
| 15–18 | 42 | 267.10 ±90.75 | 308.18 ±141.07 | 638.90 ±198.51 | 827.83 ±226.49 |
| 19–24 | 41 | 293.00 ±79.26 | 295.70 ±92.09 | 651.65 ±197.65 | 793.73 ±224.35 |

Independent Sample t-test for equality of means revealed non-significant differences in RTT among age groups ($p > .005$ for DH and NDH). Also, non-significant differences were obtained for ATT ($p > .005$).

Based on descriptive statistics (Table 3), there were found statistical differences in RTT and ATT for both dominant and non-dominant hands among gender ($p < .005$).

**Table 3.** Descriptive statistics of reaction time by gender

| Gender | N | RTT (ms) | | ATT (ms) | |
|---|---|---|---|---|---|
| | | DH | NDH | DH | NDH |
| Male | 49 | 262.45 ±68.65 | 271.37 ±74.30 | 603.35 ±195.97 | 759.12 ±179.07 |
| Female | 34 | 310.26 ±98.43 | 348.12 ±154.04 | 716.44 ±209.67 | 897.65 ±224.88 |

Table 4 shows that the relatively sedentary subjects recorded the best results in both tests with the dominant hand (DH), namely an average of 232.62 ms and 634.00 ms, respectively, while the sedentary subjects were

the fastest in RTT with the non-dominant hand (NDH). The most active subjects recorded the best time in ATT with NDH (761.07 ms).

**Table 4.** Reaction time average by physical activity level

| Physical Activity Index | N | RTT (ms) | | ATT (ms) | |
|---|---|---|---|---|---|
| | | DH | NDH | DH | NDH |
| Very active | 29 | 304.58 | 336.69 | 634.62 | 761.07 |
| Active and healthy | 17 | 293.65 | 290.71 | 712.12 | 836.18 |
| Reasonable | 9 | 286.44 | 293.78 | 677.78 | 767.00 |
| Relatively sedentary | 13 | 232.62 | 280.62 | 634.00 | 812.08 |
| Sedentary | 15 | 265.87 | 275.67 | 634.73 | 931.40 |
| Total | 83 | 282.04 | 302.81 | 649.67 | 815.87 |

Upon applying the multiple comparison with Post Hoc Tests, we obtained statistically significant differences of the reaction time with DH between the sedentary and the active subjects, between the insufficiently active and the active subjects, and between the very active subjects and those with an acceptable index of physical activity. The mean of users of the Human Benchmark website is 284 ms, a higher value than that recorded by our subjects who used various devices (mobile phone, desktop, laptop with a mouse and without a mouse) with different processors. The author of the tests applied remind that the mobile devices tend to be slightly slower on touch compared to clicks. Furthermore, the measurement of the reaction time is affected by the lag of computers and monitors. Thus, Table 5 features the reaction time average of subjects by the device used.

**Table 5.** Reaction time average by technology

| Devices | N | RTT (ms) | | ATT (ms) | |
|---|---|---|---|---|---|
| | | DH | NDH | DH | NDH |
| Cellphone | 14 | 315.00 | 386.36 | 624.07 | 719.87 |
| Desktop/laptop | 52 | 247.75 | 267.97 | 593.65 | 793.27 |
| Laptop-touchpad | 17 | 349.12 | 351.53 | 816.71 | 989.71 |
| Total | 83 | 279.86 | 304.99 | 644.47 | 821.07 |

The calculated average highlights that users who accessed the tests from a desktop or a laptop with a mouse obtained the best reaction times in RTT (DH = 247.75 ms, NDH = 267.97 ms, and in ATT with DH = 593.65 ms), except for ATT with the non-dominant hand; the phone users obtained the

best average score (719.87 ms). Other studies have found that the variety of devices may influence the measured reaction time, thus leading to differences of 10–100 ms for one answer (Plant, Turner, 2009).

## Discussion

Similar findings regarding physical activity at students' level were obtained by other authors, too (Schmidt, Pawlowski, 2021; Bădău, Bădău, 2020; Leuciuc et al., 2020; Lese, 2014; Făgăraș et al., 2015; Radu et al., 2015) both before and during the COVID-19 pandemic. Online learning has become a necessary strategy for teaching in the pandemic (Chen et al., 2020), but we must take in consideration that most people changed their lifestyles by transforming classical active activities into physically passive online activities (Bădău. Bădău, 2020; Jukic et al., 2020).

Recent studies in this context of pandemic shows that students become more autonomous in reading, and in understanding guidance in online learning (Popa et al. 2020), male students are technologically better equipped than female students (Batez, 2021), and also are mostly physical active comparative with female students, and has better reaction time also (Leuciuc et al., 2020).

During the pandemic reported that daily sitting time increased from 5h to 8h per day (Zheng et al., 2020). This may be explained by staying home, online teaching, online and multiplayer games, social media socialisation (Lesser, Nienhuis, 2020; Zheng et al., 2020). One of the benefits of the increase of screen time during pandemics include cognitive skills development (Barr, 2017; Barr, Copeland-Stewart, 2021). On the other hand, reaction time can be improved by 0.125 after regular training (Şenol et al., 2020). The evidence of other researcher show us that athletes or active students had better results in reaction time comparative with those who did not do sports (Temur, Bayton, 2019; Şenol, et al., 2020). Future investigations may add supplementary evidences in sedentary students reaction time based on good reflexes as a result of the increase of screen time.

Conclusive evidence shows that the results obtained in web-based tests are generally comparable to those generated by traditional way (Germine et al., 2012; Hilbig, 2016). In different areas as sports, academic, and other tasks of daily life, reaction time is a relevant variable (Metin et al., 2016). Previous research relieved that those who did more hours of physical activity showed less reaction time (Reigal et al., 2019) and groups divided according with type of sports performed support the idea that sports practice could be a useful activity to develop reaction time (Cojocariu et al., 2019; van de Water et al. 2017; Kirk, Grey, 2017).

## Conclusions

The study conducted during the COVID-19 pandemic provides important information regarding physical activity and the reaction time obtained after the online assessment, using their own devices for accessing and solving the tests. Hence, the students with a high index of physical activity (active lifestyle) obtained the lowest values of the reaction time in both hands, except for the non-dominant hand for the test involving the 30 targets to aim. On the other hand, we obtained a positive consequence of the sedentary students on the reaction time, because they obtained the best scores, which reflected the unfolding of other activities involving activities with the hands.

Whereas the study may have several limitations, findings indicate subjects' behaviours in this particular situation, entailing a lower level of physical activities and an educational process involving more screen time. Thus, in the self-assessment of physical activity index, subjects tend to overestimate their potential, reason for which we recommend the use of devices recording physical activity. Secondly, the data were collected online through self-assessment and we entrusted the subjects with the appraisal. Not least, participants used their own technology to accomplish the tasks required by the tests proposed, which were influenced by Internet speed, by the processor and the variety of devices. In the future, we recommend similar conditions for accessing online tests.

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# FEATURES OF MARKETING ACTIVITIES OF THE FOOTBALL CLUB "NIZHNY NOVGOROD"

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## ABSTRACT

The relevance of the research topic is due to the fact that marketing in sports is an effective component of sports management, just as it is in other areas of management. Sports marketing has its own specific features based on the characteristics of a particular sport, and this article deals with football marketing. The purpose of this article is to reflect the results of the study of a sports club's marketing activities. The object of the study is the regional football club "Nizhny Novgorod"(Russia). The main objectives of the study are to identify the factors that attract the fans' interest to the football club, to attending matches and purchasing club merchandise. Based on a survey of Nizhny Novgorod residents, a study of football fans' needs in the region was carried out and the target audience of the FC "Nizhny Novgorod" was determined. The results of the survey show that the fans are poorly motivated to attend football matches with the participation of this club. The potential of modern promotion methods such as social media marketing (SMM) is used insufficiently. There is a need to make a more active impact on football consumers in the region, to intensify the work with the fans of the club, to improve the quality and design of the club's merchandise. As a result of our research, a series of measures have been developed aiming to involve fans in the club's life, both on match days and between matches. These measures include: promoting season ticket sales, more effective use of the home stadium on match days, active work to attract families with children, organising family leisure at the stadium, stadium tours, activities outside the stadium – weekend events in the city's parks. The value of the research findings presented in the article lies in identifying the need to create the conditions for a football feast based on football marketing methods, aiming to attract fans to the club.

*Keywords:* fan, football club, football marketing, marketing, sports club activities, strategy.

## Introduction

Nowadays, football is the most spectacular sport and this is the reason – why it attracts so many sponsors. There is a lot of competition in the world of football, and teams that are just starting to gain in popularity are in

a difficult position. In the Nizhny Novgorod region, our team's situation deteriorates every year and the number of people interested in the team's success, those who buy its merchandise and attend matches, is decreasing. The team has virtually no fans and is far from ranking high in Russia.

The interest in studying the features of marketing in sports is presented in the textbook by Obozhina (2017), as well as in a scientific article by Bagdatovich et al. (2017). In the textbook of Myakonkov et al. (2020), the material on the industry specifics of developing a marketing strategy in the field of sports is described in detail. The domestic and foreign experience of forming models of marketing productivity and systems for evaluating the effectiveness of sports marketing is widely covered in the textbook of Oiner (2021). Aspects of the development and promotion of a sports product, features of communications in sports, the secrets of effective sponsorship and the creation of bright sports brands, as well as approaches to managing sports products in a volatile and uncertain economic environment are described in the textbook edited by Beech and Chadwick (2010). Prokhorenkova (2017) describes the features of the non-commercial sphere of sports marketing. In a scientific article, Samatov (2020) describes a model of future physical education teachers for activities in the field of sports marketing. Tarighi and Hamidi (2017) identify factors that influence the development of marketing opportunities for student sports.

The study of the role of marketing in football was reflected in a series of books by Kopyshov, who worked in all Russian football leagues. In particular, he identifies the main groups of consumers of a football product (Kopyshov, 2013) and describes how the club should interact with them. Kopyshov made a significant contribution to the development of measures to improve the effectiveness of marketing activities of football clubs in Russia and reflected them in his textbook "Football marketing for the Second League" offering an effective model for the development of the commercial service of a football club (Kopyshov, 2015, pp. 22–26).

The football club "Nizhny Novgorod" which is the object of the study, has not been considered in the works of contemporary authors, as it was formed only in 2015. Its first name was "Volga-Olimpiets". The colours were white and blue. In 2016, due to the reorganisation of the non-profit partnership FC "Volga-Olimpiets" into an autonomous non-profit organisation "Football Club "Olimpiets" FC "Volga-Olimpiets" was renamed to FC "Olimpiets" on 3 June 2016. Having changed the name, the team continued to rely on Nizhny Novgorod football players. Thus, Anton Khazov joined the ranks of "Olimpiets" Nikita Nikolaev and Dmitry Polyanin, who had been playing for Nizhny Novgorod clubs since 2007, transferred to FC "Olimpiets" from FC "Volga". In the summer of 2018, it was decided to change the name of the team. FC "Olimpiets" sent a request to the National

Football League for renaming FC "Olimpiets" to FC "Nizhny Novgorod". The Nizhny Novgorod stadium that was built for the 2018 FIFA World Cup has been the team's home stadium since 2018 and has high potential as a modern sports infrastructure facility in the city and the Nizhny Novgorod region. Its maximum capacity is 45,000 people. The average attendance of the stadium in 2019 was 10,000. In June 2019, Nizhny Novgorod Stadium was transferred from federal ownership to regional ownership. Nizhny Novgorod Region Governor Gleb Nikitin approved a business plan for the operations of the Nizhny Novgorod Stadium. Currently it is managed by the Directorate for Sports and Entertainment Events, a state-owned entity of the Nizhny Novgorod region. According to the official website Government of the Nizhny Novgorod region (2019, January 15), the emphasis is placed on the sports use of the facility, but other uses are also envisaged, including recreation and leisure.

## Research method

The study was focused on the audience of the football club "Nizhny Novgorod". The practice of football marketing shows that there are far more demotivational than motivational factors in Russian football at the moment. This suggests that, firstly, the psychology of Russian football consumers has not been fully studied, and there is a lot of room for research ahead. Secondly, the motivational factors already in place are very poorly communicated to the potential visitors of football matches. Apparently, the stereotype that football is just a sport and nothing more is still strong.

The factors that contribute to attending football matches at the stadium include: joy (one can have fun and relax, negative life emotions go away when a person is watching a match); communication (a feeling of unity with people close in spirit); family (an opportunity to spend time with one's family and watch football at the same time); tonus (a FC "Nizhny Novgorod" match is a whole complex of leisure activities aimed at restoring well-being and performance of a healthy but fatigued person). It is these factors that need to be cultivated among potential match fan. Thus, when building a strategy to attract visitors to football matches, it is necessary to offer more than just a beautiful football game. Everything should be done to ensure that the city's residents who attend a football match could satisfy their need to communicate with their loved ones, to relax, to have fun, to enjoy an open-air event, to release the negative emotions accumulated during the week. Subsequently, meeting these needs would provide the most stable income for the football club.

In order to best describe the target audience of the club and to identify the needs of a football fan, we conducted a survey among the residents of

Nizhny Novgorod. 300 people were interviewed. The survey was conducted among friends and through social networks. Among those surveyed, 53% were women and 47% were men. The average age of more than 50% of respondents was between 18 and 29 years, 29% of them were 35 years old or older. Only 24% of those surveyed had children. In terms of their social status, those surveyed were students and professionals. Almost 30% of those surveyed had an average income of 30,000–50,000 roubles (340–570 euros). Only 16.3% of those interviewed had a fair income of 50,000 roubles (570 euros) and more. Only 9% of respondents were not at all interested in sports. The most popular sports, which residents of Nizhny Novgorod are interested in, are hockey and football. Of these two sports, respondents believe that hockey is much better developed in the city than football. The survey also revealed that 89% of respondents are aware of the existence of the football club "Nizhny Novgorod". Only 3.5% of respondents go to every match. However, almost half of those surveyed have never attended a game of – FC "Nizhny Novgorod". 23.5% of respondents attended a match once, and 23.5% go to a football match occasionally. This shows that there is no incentive for fans to attend matches. More than half of the people who attend the matches go there with their friends, those who go there with their family rank second in terms of attendance. For most fans, the results of the team are satisfactory, but a significant proportion of those surveyed answered that they were not satisfied with the team's performance.

The most effective method of spreading information about the football club is 'word of mouth'. The second most effective dissemination channel is television, followed by social media and then outdoor advertising. This shows that distribution channels need to be carefully designed (Beech & Chadwick, 2010), and active work with fans in social media is required (Abrosimova & Kulikova, 2020, pp. 11–12). The club has its pages on the most popular social networks. Activity data as of October 2020 are as follows: VKontakte (russian social network) community – 35.8 thousand followers, Instagram – 12.4 thousand followers; Twitter – 1.3 thousand readers; YouTube – 3.28 thousand followers. Turning to price incentives, we asked how much people were able and willing to pay for the tickets for the matches. It turned out that people were willing to give money for good seats in the centre, which cost from 350 roubles, but are not prepared to spend money on season tickets. The price policy for match tickets suits most fans, and they are ready to pay their money once or twice, but only 4% of respondents are ready to become a part of the team and buy season tickets. Only 9% of respondents said 'yes' when asked about buying merchandise of FC "Nizhny Novgorod". This means that over 90% of respondents are not satisfied with the prices, quality and design, as well

as the ability to buy merchandise at any convenient time. Active engagement with fans is an important incentive to attend matches (Lychagina & Angelova, 2019).

It was found from the survey that in general the club›s work with its fans before the match, during the match, at half-time break and on the rest of the days is satisfactory. Each of these points has even received the highest ratings for this work, except for the "rest of the days" point. This means that the fans are not satisfied with their interaction with the club, and there is no close fan-team interaction at all times. Based on the survey, our fans want to see the following: friendly staff – 63%; gifts from sponsors – 54%; a variety of catering facilities – 46%; comfortable conditions for moving around the stadium (escalators, lifts) – 44%; autograph signing sessions with the players – 43%; places for playing with children – 35%; master classes/show programmes – 31%; victory fireworks – 30%. The survey data help to identify what the club's home stadium lacks in terms of fan comfort and to propose the introduction of the most important elements (Yesin, 2015; Shteblov, 2015).

## Recommendations

The survey has revealed that the club barely carried out any active work with fans outside the stadium. The survey has suggested some activities that could be carried out on days when there are no matches.

1. *Events outside the stadium.* This is achieved by running promotion events and having feedback between club representatives, players and potential football consumers. The football club conducts such promotions at Maximilian Bar, but this bar is not well suited to the club's family target audience. It is possible to hold a one-day weekend "island" event of FC "Nizhny Novgorod" in the city's parks. During this event, children will be able to play with FC "Nizhny Novgorod" players, and their parents will get to know the club face to face.

2. *Stadium tours.* Such events will bring the fans closer to the team, and people who have never attended a FC "Nizhny Novgorod" football match will want to see how the team plays at the stadium.

3. Another important element in establishing a close fan-team bond by means of season tickets and the privileges that fans will get when buying them. The survey has revealed that people do not buy season tickets of FC "Nizhny Novgorod" for one reason or another. Therefore, an important line of marketing activities is to stimulate season ticket sales.

## Discussion

Football has long been more than just a sporting game. It is no secret that almost any sport is a business.

Having identified, based on the survey results, the needs of the target audience, you can competently develop a strategy for actively working with them. Any fan would like to be part of the team, and not only on match days. In order to achieve this, a range of activities are designed to involve the fans in the club›s life, both on match days and in their spare time. The fans of FC "Nizhny Novgorod" are willing to spend their money to watch football. To make this happen, various measures have been developed to increase interactivity at the stadium. If the team is not yet ready to please the fans with good results, all conditions for a football feast should be created anyway.

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# THE IMPACT OF TRAUMATISM ON THE PROFESSIONAL AGING: THE CASE OF ELITE SPORTS

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## ABSTRACT

The article outlines the problem of traumatism, which is analyzed from the viewpoint of the socio-medical aspect. The peculiarities of the impact of traumatism on the professional sports career were revealed through the analysis of the elite athletes' biographies ($n = 296$ respondents). The research was carried out applying the qualitative research design (biographical research). The assessment of life narratives of high-performance athletes performing on the world arena was carried out applying the criterion of traumatism and its impact on the athletes' lives ( the athletes' biographies are accessible through open-source Internet resources). The data obtained in the research framework revealed the possible trajectories of the impact of traumatism on the course of the professional sporting career: the process of career stagnation, professional success, the process of completion/termination of a sporting career. The career stagnation was observed among all the respondents, which is predetermined by the rehabilitation process they had to go through. Based on the data obtained in the research framework, the conclusion can be drawn that reintegration into elite sports is primarily based on the resource potential of the athlete: the resources of the family/ the loved ones, the athlete's own capacity, as well as the state support provision. The possible trajectories of professional aging were identified, namely, high resource capacity, the reduction/loss of resource capacity (disability), zeroing of resource capacity (lethal outcome). In addition, the data showed that the potential trajectory for the reintegration was usually identified within the two directions: firstly, sports and physical culture; secondly, other professional spheres. It should also be highlighted that professional aging puts forward the issues related to social security of high-performance athletes worldwide. Therefore, the issue of reviewing the reintegration criteria into the education system or professional and labour market upon the completion of the sporting career is of highest topicality provided that it would positively impact both the positive capacity of the population group and the prestige of high-performance sports worldwide. The research results allow drawing the conclusion that the accumulated resources in the course of building and implementing a professional sports career have a positive impact on the duration of the professional age of a representative of elite sports, in its turn, providing the possibility to easily adjust to the new life upon the completion of the sports career.

***Keywords:*** *Dual career, high-performance sports, professional aging, student-athlete, traumatism*

## Introduction

Traumatism in professional sports is the most common phenomenon having mental consequences that ambiguously affect the personality of an athlete and the sporting career. Within the scientific literature, two approaches to the consideration of traumatism as a socio-medical phenomenon prevail.

One of them is associated with the interpretation of trauma as a factor that has a positive impact on the advancement of sports achievements. According to a researcher in the field of physical culture and sports (FCS) (Bakunyaeva, 2018a), traumatism has a significant impact on the professional success of athletes ($p < 0.001$). Athletes with injuries have a higher level of professional success (Bakunyaeva, 2018b).

Based on the second approach, traumatism can lead not only to the loss of the possibility of personal realization in high-performance sports – early termination of a sports career, but also to the loss of a person's life-forming function – self-service (disability), and sometimes even the lethal outcome. Increasingly, the death of athletes occurs during the sports training process, with their sudden retirement from sports.

Sports injuries account for 1.3–7.2% of the total number of injuries. Males are injured about 3 times more often than females. Most often, arms and legs are affected, less often the head and the small of the back. The location of sports injuries depends on the type of sport, for instance, most leg injuries occur in football, while hand injuries – in gymnastics. The main causes of sports injuries are as follows: shortcomings in the organization and methodology of training, inappropriate place for training, low-quality equipment, violation of discipline and rules, ignorance of medical supervision (Sports Injury, 2012).

The impact of traumatism on a sporting career was considered by the research group of N. Yu. Fedunina, A. I. Grushko, A. V. Kovaleva, G. S. Bannikov, as well as D. V. Fedulova and G. A. Yamaletdinva. A significant contribution to the study of the issue of the resource capacity of the representatives of the Physical Culture and Sports was made by G. B. Gorskaya and Z. R. Sovmiz, M. I. Zolotov (Gorskaya & Sovmiz, 2018; Fedulova & Yamaletdiva, 2017; Fedunina et al., 2018; Zolotov, 2003. Fedotova (2010) and Butova & Demyanova (2018) have contributed to the study of the problems of social adaptation of athletes who have completed their sports careers (Fedotova (2010); Butova & Demyanova (2018).

## Method

Professional athletes' narratives on past injuries clearly reveal the ambiguous impact of injuries on the further life of athletes. Based on this view, the research goal was to explore the peculiarities of the impact of injuries on the professional career of athletes (professional ageing) with the aim to identify possible trajectories of professional sports career termination (professional aging).

The research aim was achieved through the analysis of elite athletes' biographies ($n = 296$) implemented applying a qualitative research approach (biographical method). The assessment of the elite athletes' life stories available in the open-source Internet resources was conducted based on the criterion of traumatism and its impact on the athlete's fate. The study included 48% of males and 52% of females representing sports, such as rhythmic and artistic gymnastics, soccer, hockey, basketball, cycling, motorsports, wrestling, mountain climbing, and boxing.

## Results and Discussion

The duration of the professional career of athletes is a multifactorial social phenomenon. The factors that determine it may be as follows: a kind of sport; length of stay in the sports field; drugs/doping use; athlete's physiology; the presence and severity of injuries; the level of stress resistance; the level of social services provided by health and social protection systems; state social policy in the development of physical culture and sports.

According to Dr. McNamara, a specialist in the field of health preservation of professional athletes, premature aging is specifically characteristic of elite athletes (McNamara, 2012). This fact can negatively affect the duration of the professional age, i. e., the age (number of years) determined by the characteristics of professional activity (in our case, sports practices/activities). Premature professional aging is an accelerated, pathological phenomenon that proceeds in a different way if compared to the natural physiological aging. Currently, the diagnostics for determining premature aging has been developed, which should be applied to this category of the population to expand the possibilities of painless integration of athletes into the society upon the termination of their sports career. Based on the opinion of the Belarusian Medical Academy M. S. Pristrom, S. L. Pristrom, S. S. Simonkova (Pristrom, Pristrom & Simakov, 2015), the criteria for determining premature aging may be as follows:

1. Subjective manifestations (fatigue, general weakness, loss of vitality, sleep disturbance, emotional lability);

2. Objective signs (loss of teeth and hair, decreased visual acuity, changes in the spine, the appearance of wrinkles, etc.). McNamara suggests that athletes at the age of 24–25 look much older, they have wrinkles, hair falls out. Even if the athlete does not acknowledge taking steroids, over the time, it turns out that they were consuming them (McNamara, 2012);
3. The biological age of the organism. This is a special indicator that makes it possible to assess the changes in the organs and systems of an aging organism, and the state of its health.

Diseases and injuries received during the sports training process can accelerate the process of premature professional aging. This substantiates the necessity to identify the trajectories of the impact of injuries in the field of elite sports on the course of a professional career. The peculiarities of the impact of traumatism on the professional sports career were revealed through the analysis of the elite athletes' biographies (see Fig. 1).
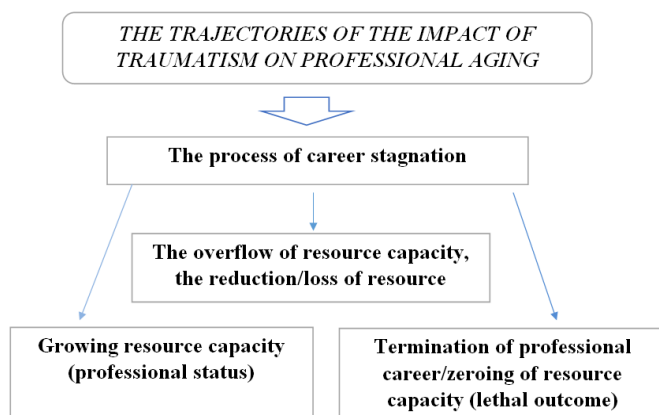


**Figure 1.** Trajectories of the Impact of Traumatism on Athletes' Professional Career (authors of the study)

The biographical analysis revealed that injuries have a multidirectional vector of impact on professional sports career. It should be highlighted that all traumatized athletes, without any exception, go through the stage of career stagnation ($n = 296$), which is due to the rehabilitation process, which proceeds differently in the space-time aspect, depending on the severity of the injury. However, it cannot be stated unequivocally that the more complex the trauma of an athlete, the less chance of reintegration into the sphere of elite sports. This is due to the athlete's resource potential: the resources of the family/loved ones, the volume and specifics of their own resources, as well as the resources of the state (for example, the

costs of the health care system). The state, as the agent participating in the rehabilitation of athletes, plays a vital role. For instance, medical expenses in the United States for visiting emergency departments for sports injuries exceed $ 935 million annually (Youth Sports, 2024).

Upon the completion of the rehabilitation measures, the athlete, returning to the sport, reaches new sports heights (high level of resourcefulness) – the level of professional success or the ability to deliver good results is minimized (low level of resourcefulness) – a decline in professional success. This way, 17 athletes who received the most serious injuries (e. g., a spinal fracture – Battiston, brain damage – Totmianina, displacement of vertebral discs – Lemieux) were able not only to restore their health, return to sports, but also progress to a new stage. However, the analysis of the biographies also reveals the reverse side of the "medal" when the athlete who returned to the arena not only failed to continue a professional career, but even to return to the professional shape that they had before the injury ($n = 23$), which obviously leads to the degradation of sports career as such. This is the case, for instance, for the high-performance athletes E. da Silva, Y. Kudryavtseva, L. Utyasheva. It should also be specified that sometimes athletes who received a serious injury may start practising paralympic sports.

The next trajectory of the influence of injuries on a sports career is its completion as a result of disability or its termination (death of an athlete) in the course of sports and training activities. Injuries such as head bruises and a fracture of the spine ($n = 19$), first of all, lead to an athlete acquiring the status of a "person with disabilities" which subsequently most frequently leads to paralysis of the athlete's body. The following outstanding athletes can be viewed as examples of such a trajectory for completing a sports career: M. Abdusalamov (head injury), E. Mukhina (fracture of the cervical spine), S. Pogiba (head injury), A. Marinescu (spinal injury), I. Skvortsov (fracture of the spine), A. Zanardi (amputation of the legs), R. Zismer (head injury). The motor activity of these athletes is difficult or even impossible. Almost none of them was able to return to the sphere of physical culture and sports, even in the status of a "coach". It should not be forgotten that it is coaching, consultancy work in this field of activity for many of them, sometimes in wheelchairs, can be the very bridge that would connect their sports past with the present, preventing depression and loneliness.

This social fact may indicate, firstly, the lack of the necessary level of resources for the restoration of both the former athletes themselves, their entourage, and the state as the main agent that implements social policy; secondly, the absence of a practical possibility of resource overflow after an injury. As a consequence, the impossibility of self-realization in the field

of coaching can be directly related to health issues, and to the lack of an effective system of state support for athletes with disabilities in labour market integration.

Sociological research "Medical and Social Adaptation of Highly Qualified Athletes in the Post-Sports Period" conducted under the leadership of Fedotova (2010) ($n = 160$) also confirms the negative impact of high-performance sports on human health, as a result of which the status of "disabled" can be acquired not only during the development of a sports career, but also upon its completion. The data show that 86% of former highly qualified athletes-gamers reveal chronic pathology of various organs and systems in the early post-sports period, chronic pathology of various organs and systems. In the structure of chronic pathology, the leading place in the post-sports period belongs to diseases of the musculoskeletal system (50%) and the cardiovascular system (42.5%), which, in turn, significantly reduces the quality of life of former athletes. The studies on the structure of diseases of the musculoskeletal system revealed that 60% of diseases are related to osteochondrosis of the spine (Fedotova, 2010).

This type of trajectory is also related to a high mortality rate in elite sports, which is associated with the negative impact on the professional age of an athlete. Only Wikipedia (apart from other sources) contains information on 237 professional athletes who died during trainings or in the course of competitive activities. The analysis of the athletes' biographies ($n = 237$) allowed identifying the most dangerous sports, fraught with death: rally drivers ($n = 116$, 49%), alpinists ($n = 46$, 195), football players ($n = 37$, 16%), cycling athletes ($n = 16$, 7%), ring fighter ($n = 15$, 6%), ice hockey players ($n = 6$, 3%).

The most frequent injuries incompatible with life are a blow to the head, a fracture of the spine. In the first place in the hierarchy of the causes of death among athletes is a heart attack due to the extreme physical overload of this professional group. Frequently enough, extreme loads are combined with the use of prohibited drugs consumed by athletes in order to achieve the higher results. The article "The Ninth Death in Two Years and the Fifth in the Last Two Months. Was it an Accident or Not? " (Lisin, 2018) published in 2018 states that none of the athletes introduced in the narrative had chronic health problems. In addition, all high-performance athletes undergo regular health check-ups, which include stress testing. As a result of the examination, the following fact was revealed: death in elite sports can potentially be considered as a possible consequence of the use of prohibited substances.

The identified trajectories of the impact of injuries on the course of a professional career allowed formulating the trajectories of professional ageing in the field of elite sports (see Fig. 2).
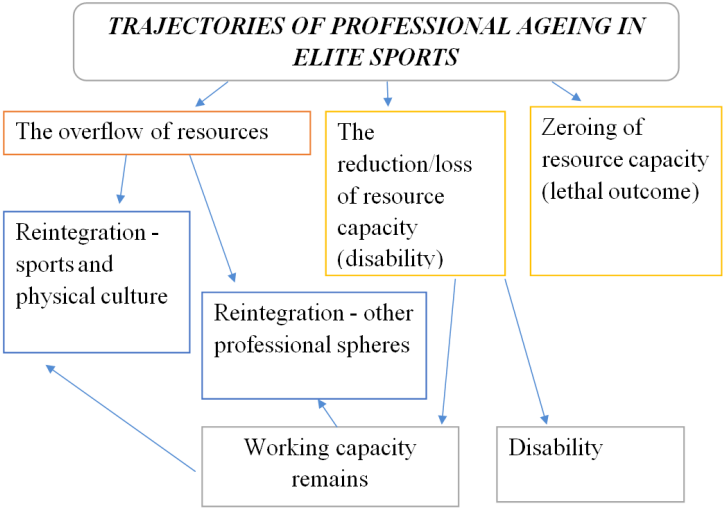
**Figure 2.** Trajectories of Professional Ageing in the Field of Elite Sports (authors of the study)

Within this study, the proposed positive trajectory for professional ageing all professional athletes should strive for is the athlete's "resource flow trajectory" as a result of which the former athlete can integrate into the labour market associated with the Physical Culture and Sports field (coach, sports judge, etc.) or into any other field of activity. However, without support from the state, the process of resource overflow, especially into other areas of labour activity, namely, integration into a professional field that is not related to sports, can be challenging. Therefore, the state should provide an opportunity to obtain the required level of education (quotas for places in the education system), undergo retraining courses, advanced training, taking into account the health status of former athletes. One of such measures may be implemented within the Dual Career framework which, in its turn, should be set as the priority within the state priority strategy.

This also applies to the European level. The European Union aims at support provision to student-athletes during and upon the completion of their professional careers proposing various initiatives and policy strategies. One of them is Dual Career program providing the opportunity to combine studies and sports (European Commission, 2007; 2012). This interest in educating student-athletes in the EU is linked to the fundamental right to education provided that these athletes give up their personal lives in favour of their friends, the state and the society (Schweiger, 2014).

It should be stated that in accordance with the Federal Law of the Russian Federation of August 22, 1996 No. 125-FZ "On Higher and

Postgraduate Professional Education" champions and prize-winners of the Olympic Games, Paralympic Games and Deaflympics are admitted to state and municipal higher educational institutions for training in undergraduate programs and specialist training programs in areas (specialties) in the field of physical culture and sports without entrance examinations (Council of the Federation ..., 2011).

It should be highlighted that the social community of professional athletes includes not only champions and prize-winners of the above-mentioned sports competitions. To shed light upon this problem, the attention to the issue of the social environment of outstanding athletes should be turned. To exemplify, for instance, within combat sports – boxing, judo, sambo, aikido, etc. – the whole team of professionals (coaching staff, medical specialists, psychologists, etc.) is involved in the preparation of an athlete for the Olympic Games. A special role is assigned to athletes participating in training activities, namely, in sparring with a leader having the highest qualifying categories; they have to face no less risks (injuries) than the future Olympic champions. It is apparent that athletes who train an outstanding athlete for world competitions lose resources (for instance, health) even faster than the participants of the Olympic Games themselves, and their resource potential is much lower, because this category is not legally protected in some countries, for instance, in the Russian Federation (Federal Law No. 125-FZ "On Higher and Postgraduate Professional Education" Federal Law No. 253-F3 "On Pension Provisions for Persons Who Did Military Service ..."). Therefore, it is very crucial to revise the criteria for integrating athletes into the education system, into the sphere of labour relations, which will contribute to a painless overflow of the resources of this category of the population and, in general, increase the prestige of sports in the society.

The negative trajectories of professional ageing are, firstly, a decrease/loss of resource capacity as a result of an athlete's disability; secondly, the zeroing of resource capacity as a result of the death of an athlete in the course of sports and training activities. A decrease in resource capacity implies that a representative of the Physical Culture and Sports field has a 2$^{nd}$ or 3$^{rd}$ group of disabilities, as a result of which a person retains the opportunity to integrate into the labour market, in contrast to the disabled of the 1st group, who, in the majority of cases, are not even capable of self-service. This substantiates the necessity to develop an institute of social support for athletes in difficult life situations, for instance, due to the presence of occupational diseases, disabilities, which complicate the process of their integration not only into the labour market, but also into the society as at large.

Already in 2007, the European Commission stated in its White Paper on Sport that it was crucial to provide young athletes with a "dual career"

support at an early stage to ensure the reintegration of professional athletes into the labour market upon the completion of their sporting careers. (European Commission, 2007).

An athlete having a higher education is a valuable human resource and is competitive in the labour market.

Based on the international research, 30% of young people between the ages of 10 and 18 who play sports quit every year due to thinking that it is too time-consuming.

In many countries (Latvia, Romania), where the development of a Dual Career is at an early stage, sports are not promoted as a career choice that can be successful not only during the active period, but also in advancement of the entire personal career. Therefore, the conclusion can be drawn that athletes frequently face psychological pressure – "now or never." You get all-or-nothing, and someone may no longer have that opportunity as an athlete's career is short-lived.

Dual Career allows looking at sports from a different perspective. It helps relieving psychological pressure and, at the same time, it is the support provision practice aimed at helping athletes achieve better results in sports.

In addition, a positive image of educated athletes will benefit society and sport by making sports and healthy lifestyle more attractive to others. Athletes would act as positive role models for youth and promote the society towards excellence.

## Conclusions

The accumulated resources in the course of building and implementing a professional sports career have a positive impact on the duration of the professional career of the representatives of elite sports, which allows them to painlessly adjust to the new life upon the completion of the sports career (resource overflow trajectory). However, a professional career in this field can unexpectedly come to its end as a result of an injury, which may lead to the loss of resources and social insecurity. In the case of professional athletes, the orientation of the personality towards sports that has developed over the years makes it challenging for the re-socialization of former athletes. The authors of the research find such trajectories of professional aging as reduction/ loss of resource capacity (disability) with preservation and incapacitation, as well as zeroing resources (lethal outcome) of high-performance athletes of particular concern to be addressed at the state level. Lethal outcome in the course of sports and training activities, as the study showed, is a common social phenomenon especially in such sports as auto-racing, cycling, mountaineering, hockey, soccer, wrestling, which requires increased attention aimed at the development and implementation

of the preventive measures to avoid accidents, such as sudden death (e. g., due to overexertion).

Therefore, taking into account the possible trajectories of professional ageing in the field of elite sports, such as decrease/loss, zeroing of resources, it is of urgent necessity to introduce changes, for instance, in the social policy of the country, strengthening the institution of social protection of professional athletes.

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schedule, and academic and sports infrastructure. The results substantiate the need for an innovative approach to the DC development within the EU, in order to promote and protect the fundamental values and to promote mutual understanding among the involved parties.

**Keywords:** *athletes, dual career, education, high-performance sport, students.*

## Introduction

The holistic development and protection of athletes is one of the priorities of the European Union (EU) in the field of sport. The EU encourages collaboration with a view to establishing quality "Dual Career" (DC) programmes capable to help athletes to successfully combine their sport career with education and/or work (European Commission, 2012). In particular, within the European Agenda and the European dimension in sport (European Commission, 2011), the EU member states are encouraged to develop policies to support athletes' DC in line with the EU Guidelines on Dual Careers of Athletes (European Commission, 2012), which endorse a great number of recommendations and good practices for a better quality of life and protection of athletes (Capranica & Guidotti, 2016).

schedules, customized curricula, distance learning, proximity of training facilities and sports services, psychological and career support services tailored for elite-athletes. Therefore, the More Than Gold Guidelines for HEIs are crucial for the development of the European DC culture.

## Introduction

Talented athletes may achieve outstanding sport performances through a long-term developmental process alongside with the academic and psycho-social development (Wylleman & Reints, 2010). In considering the difficulty to combine the demands of elite sport with the challenges and constraints of education (e. g., dual career, DC), a high proportion of European youth talented athletes are at risk of sport or academic dropouts (Amsterdam University of Applied Sciences et al., 2016; European Commission, 2012). In fact, elite athletes might not fully realize that a sporting career does not guarantee a lifetime well-paid position and that a wise plan for post-sport is necessary (Surujlal, 2016). Conversely, educated athletes not only could be considered positive role models of full commitment towards excellence, but also prepare a smooth transition to the labour market upon the completion of a sporting career (European Commission, 2007, 2012). In line with the goals of the European strategy on prevention of early school leaving, more graduates in higher education, higher employability, increase of economic activity of citizens, and making sport policies more efficient by keeping high-performance athletes in the sport system, the European Parliament, the Council of the European Union, and the European Commission have supported the athlete's right to combine sport and education by envisaging key messages for policy makers and by providing practical tools for DC stakeholders to strengthen the dialogue between the sport bodies and educational institutions (Council of the European Union, 2017, 2020; European Commission, 2007, 2011, 2012, 2013, 2020). In particular, to foster the cooperation between Member States, to facilitate the sharing of local/national best practices in bridging the gap in DC policies and provisions, the European Commission allocates funds for ERASMUS + Sport Partnerships (European Commission, 2020).

Member States have full rights in sport and education so that different DC approaches and support services are in place at national level, ranging from State-centric regulations to laissez- faire no formal structure (Aquilina & Henry, 2019). In addition to the existing sport-related differences in organisational structures and rules to organize clubs, competitions, and

championships, within and between Member States differences are present also at educational level, despite the Bologna Process and the European community Action Scheme for the Mobility of University Students (ERASMUS) structured European cooperation by supporting student, teacher, and staff mobility, and calling for uniformity of accreditation, duration of degrees, organization of academic years, curricula content and teaching methods, credit transfer and accumulation system (ECTS), and service provision (Brooks, 2021, Capano & Piattoni, 2011; European Commission, 2016). To complicate this heterogeneous context, European higher education institutions (HEIs) do not have either a common understanding of DC or structured policies and services for elite athletes (Amsterdam University of Applied Sciences et al., 2016).

To overcome existing DC practices frequently based on individual initiatives of empathic academic staff rather than on the structured guidelines on support provision (Guidotti et al., 2014), five European HEIs from State-centric regulations (e. g., University of Coimbra, Portugal; and UCAM Catholic University of Murcia, Spain), State as sponsor/facilitator (e. g., University of Latvia, Latvia) and laissez-faire no formal structure (e. g., University "G. D'Annunzio" of Chieti-Pescara, Italy; and University "Alexandru Ioan Cuza" of Iaşi, Romania) engaged in the More Than Gold (MTG) ERASMUS + Collaborative Partnership (603346-EPP-1-2018-1-LV-SPO-SCP). In particular, MTG aimed to collect best practices and support provisions (i. e., career centre services, psychologist services, mentoring programmes for students, etc.) and student-athletes' needs for developing guidelines for HEIs, especially in the countries where DC policy is at an early development stage. To achieve the overall MTG objective, a sound analysis and interpretation of the student-athletes' and HEI experts' perception of DC challenges, support programmes, and significant stakeholders was deemed relevant. Based on relevant DC literature, the experimental approach of MTG encompassed multiple qualitative data collection methods (e. g., interviews, focus-group discussions, online questionnaires) and a purposeful recruitment of student-athletes and European HEI experts (Aquilina, 2009; Abelkalns, 2014; Conde et al., 2021; Creswell, 2009; Guidotti, Cortis, Capranica, 2015; Hunter & Brewer, 2007; Izzicupo et al., 2021, Sánchez-Pato et al. 2017; Stambulova & Wylleman, 2019). Specifically to this work, 284 student-athletes were included in the experimental sample. In this framework, it has been hypothesized that an online survey could provide insights on the influential factors for the implementation of DC at HEIs from student-athletes enrolled in the MTG Universities.

## Methodology

### Experimental Approach to the study

Throughout the study, all procedures involving human participants performed were in accordance with the ethical standards of the institution and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards (Geske & Grīnfelds, 2006; Kristapsone, 2008). In considering that the present study involved student-athletes as experts in DC who regularly share this information and knowledge through consultation, teaching or public speaking, or publications and written reports, no approval from the Committee of the Protection of Human Subject (CPHS) was required. Furthermore, the student-athletes' opinion was related to the external topic of factors deemed relevant for dual career policies and services, not including demographic queries about income or other personal information. Participation was voluntary and signed informed consent was assumed with subjects' compilation of the online questionnaire. To meet the standards of general data protection regulations and safeguarding privacy rights of personal data according to country-specific regulations, the MTG partners were required to send to the athletes representing their HEI a pre-notification email providing information on the link to the MTG online questionnaire. To increase response rates for online questionnaires, three follow-up contacts with a fifteen-day in between have been planned (Deutskens et al., 2004). However, in being a not-list-based survey this procedure did not allow calculation of the probability and response rates (Callegaro, Manfreda & Vehovar, 2015). The rights and welfare of research participants have been protected at all times, ensuring and maintaining confidentiality throughout the research, and allowing opting out at any time without providing any reason. For the above reasons, the approval of an Institutional Review Board (IRB) was not required. Finally, to undermine the probability of the researchers' personal impact in the process of both data collection and interpretation, the research team maintained a neutral and objective attitude (Kristapsone, 2008).

### The instrument

The questionnaire encompassed 30 questions organized in four sections to gather information on: 1) socio-demographic aspects ($n = 12$; e. g., gender, age, practiced sport, number of years of practice, competitive level and best athletic achievement, number of training daily and weekly training sessions, academic level and major, financial support for academic studies, academic financial support); 2) personal objectives ($n = 6$; e. g., main reasons for enrolling at HEI, academic objectives, sports objectives in the following 5 years and the next steps to achieve them, expectations after

graduation, relevant DC supporter); 3) needs to achieve the sport objectives ($n = 3$; e. g., main needs and related solutions, relevant stakeholder to support solutions); and 4) needs to achieve academic objectives ($n = 9$; e. g., reasons for choosing their academic major, who supported their choice, expectations from a degree in pursuing a sport/professional career, DC academic support, academic difficulties as student-athletes, teaching tools used to support DC, DC management problems and solutions, DC support providers, expected implementation at university level. Additional four questions were addressed only to student-athletes having a DC tutor, specifically related to the actual benefits, expected support, means and frequency of communication. To collect data on a large sample of a heterogeneous student-athlete population, close-ended questions were chosen (e. g., dichotomous and single or multiple response checklist type). For the relevance of the individual questions of group 2, a 10-point Likert-type scale (lowest value $= 1$; highest value $= 10$) was used.

## Data analysis

The coding process was executed relatively to the age of the respondents (e. g., $< 22$ years vs $> 23$ years), the athletic level (e. g., international vs national), and the presence or absence of a DC tutorship (e. g., tutor vs no-tutor). Quantitative analysis encompassed descriptive statistic (SPSS Inc., Chicago Illinois).

## Results

The purposeful recruitment of the student-athletes enrolled at the HEIs involved in the project included a total of 284 student-athletes (F $= 48\%$, $M = 52\%$), competing in individual (44%) and team (56%) sports at international (e. g., Olympic Games, World Championships, World Cups, European Championships, Universiades, 45%) and national (55%) levels. Ranging in age from 19 to 28 years (overall mean 22.4), the respondents were mainly enrolled at bachelor's (80%), with significant ($< 0.05$) lower percentages at master's (19%), doctoral (1%) levels. ($< 22$ years: 56%; $> 23$ years: 44%) and the presence or absence of a DC tutorship (tutor: 37.1%, no-tutor: 62.9%).

The main reason (94%) for choosing the academic major was related to the specific programme expected to provide knowledge and skills within the specific field of personal interest. Indeed, obtaining a university degree was considered very relevant (78%), with female student-athletes attributing more frequently an importance to the acquisition of a university degree (84%) and new knowledge and skills (94%) with respect to their male counterparts (university degree: 72%, new knowledge: 76%). Whilst

the majority of elite athletes (80%) valued the achievement of a university degree, the majority of those competing at regional level (87%) selected a particular HEI with the aim to receive financial support for studies and sport. The necessary to acquire knowledge and skills presented a difference emerged also for the student-athletes having tutor support (90%) when compared to those not having such an opportunity (77%). Finally, 37% of the youngest subgroups declared that they enrolled in a university programme to be supported at sport level for achieving a higher athletic level.

Regarding the student-athletes' academic plans for the following five years, the findings confirmed that education is considered important (88%), with female respondents planning to improve their grades (77%) ad to continue their studies at graduate level (86%) more frequently with respect to their male counterparts (grade improvements: 68%, study continuation: 67%). Finally, academic achievement resulted very important for athletes older than 23 years of age (78%). For future sport achievements, differences emerged also for sport typology, with the majority (58%) of the athletes competing in individual sports having expectations to qualify for the international competitions, whereas only 33% of team sports declared such an expectation. Independently for an actual tutorship provision, respondents declared high expectations to improve their professional sport position (70%), particularly athletes older than 23 years of age demonstrated the willingness to qualify for international events (57%) and achieve top-level performances (69%). The identification of steps to be taken for achieving the academic and sport objectives, independently from age, gender, and sport typology, student-athletes considered flexible schedules at academic and sport levels their main priority (88%), followed by the opportunity to have access to high quality education in combination with sports (87%). Actually, academic achievement resulted more important for student-athletes enrolled at Master's level with respect to their undergraduate counterparts. A similar picture emerged for student-athletes receiving a tutor support with respect to those who did not have this opportunity.

The respondents' opinion on the possible DC supporters substantiates the crucial role of the family (91%) followed by that of the coaches (81%) and professors (67%) respectively. Conversely, lower DC supportive role was declared for the deans (34%) and directors (37%). Whilst almost half of female respondents (49%) considered relevant the support of a DC tutor, only 33% of male respondents found it crucial for achieving their academic and sport objectives (33%). Despite only 11% considered marginal the role of a DC tutorship, just 38% of the respondents declared that they already benefit from a DC tutor. In relation to the sport typology, a tutorship support was appreciated more among team sports athletes (44%) with respect to their individual sports counterparts (36%). Compared to 40% individual

sports athletes, team sports athletes also showed that the support of the club's president was important for them (46%), Master's students were more likely to appreciate the support of their professors (78%) and tutors (54%), whereas Bachelor's students showed a lower acknowledgment (63% and 37%, respectively).

Table 1 summarizes the main needs student-athletes in relation to the sport typology and the availability of a DC tutor. Whilst team sport student-athletes indicated appropriate sports facilities close to the faculty and the time and space for relaxing and recovery as the most important needs, student-athletes competing in individual sport reported financial support for travelling to international competitions and flexible training schedules. In general, student-athletes supported by a tutor presented lower frequency of occurrences of needs with respect to their counterparts having no DC tutorship. Respondents' potential solutions to their needs encompass academic flexibility (58%), good communication between the sports bodies and the HEIs (56%) and sponsorships (55%). Especially athletes with no tutor and those competing in individual sports envisaged to manage DC by training in the HEI facilities (41%) and having flexible academic schedule (64%). Furthermore, student-athletes expected to receive the support from HEI decision-makers (65%); coaches (38%) and the president of the sports club (33%). Differences for sport typology emerged, with student-athletes competing in individual sports valuing more the DC support from their coach (48%) with respect to their team sports counterparts (30%). Overall, student-athletes declared to be strongly motivated to accomplish the academic path (62%) adding values to their sports career (49%), which were selected also in considering consultation with their family (49%), the university location (36%), its prestige (33%), and its connection with prestigious sports clubs (70%). In particular, the possibility to engage in something new and challenging for was appreciated (35%), with individual sport athletes (41%) and the student-athletes receiving no DC tutorship (36%) welcoming interactive activities. In fact, the respondents pointed out that DC could improve their theoretical and practical knowledge also related to their sport (69%), and their communication skills (51%). Furthermore, the student-athletes appreciated the opportunity to participate in international and national university competitions (36%). For possible implementation of DC at HEIs, respondents envisaged extra exam sessions (44%), justification for missing classes (41%) and opportunity to participate in national and international competitions (39%), with athletes competing at regional level (30%) considering important study grants and study abroad opportunities. Due to demanding sport constraints (e. g., competitions, training camps and training sessions), high-performance athletes reported difficulties in attending theoretical and practical lessons

(66%) and voluntary activities organized by the university (52%), as well as a lack of time for preparing home assignments (45%). Despite the majority of student-athletes had access to digital academic materials (72%) and on-line educational resources (45%), more interactive digital resources, DC support provision (73%), and collaboration with coaches (45%) were envisaged. In general, individual sport athletes (61%), undergraduate students (53%) and athletes with no tutorhip (60%) expect DC to be recognized and implemented through DC centres. Finally, the 107 respondents declaring to benefit from DC tutorship (Latvia: $n = 6$, Spain: $n = 43$, Romania: $n = 46$ and Portugal: $n = 12$) deemed relevant an extensive communication with their tutors on how to access to courses (41%) and flexibility for examination (41%) and attendance (40%), counselling on courses (36%) and learning paths (36%), information on how to contact teachers (33%), to solve administrative issues (33%), to manage exam calendar (31%), and usage of virtual campuses (22%).

**Table 1.** The needs in sport of high-performance athletes from different groups

| Statement | Team sport (%) | Individual sport (%) | Have Tutor (%) | Have no Tutor (%) |
|---|---|---|---|---|
| Appropriate sports facilities close to the faculty | 54 | 62 | 43 | 59 |
| Time and space for relaxing and recovery after the physical effort | 54 | 64 | 53 | 63 |
| Financial support for travelling to international competitions | 59 | 37 | 58 | 41 |
| A flexible schedule for training | 64 | 53 | 49 | 64 |

## Discussion

The present findings of the More Than Gold (MTG) ERASMUS+ Collaborative Partnership (603346-EPP-1-2018-1-LV-SPO-SCP) extended the information gathered during national focus groups (Capranica et al. submitted) on European elite student-athletes' view on possible implementation of DC at HEI level based on their actual experience at five European HEIs from State-centric regulations (e. g., University of Coimbra, Portugal; and UCAM Catholic University of Murcia, Spain), State as sponsor/facilitator. Thus, this study allows for further tentative speculations in the establishment of European guidelines for the implementation of DC at HEI level.

Despite the fact that 284 respondents declared a high athletic level and a long elite sport career, only 38% of them declared to receive the support of a DC support, corroborating the inappropriateness of considering the DC of European athletes in general terms and the need of further implementation of DC tutorship programmes at HEI levels (Condello et al., 2019; Sánchez-Pato et al., 2017; Conde et al. 2021). Furthermore, the differences emerging for type of sport, athletic level, age and gender in the perceived student-athletes challenges of pursuing a higher degree substantiate the need of a harmonized approach to DC at HEI level to help this special population maintaining the motivation towards an academic career, especially at the start of the undergraduate degree path (Aquilina, 2013; Condello et al., 2019; Gaston-Gayles & Baker, 2015; Guidotti & Capranica, 2013; Lupo et al., 2012, 2015; Ryba, Ronkainen, N. J., & Selänne, 2015). Indeed, DC is particularly challenged when athletes face the transition from high school to higher education, which also coincides with the increased demands and commitment when transitioning from youth to senior sport categories (Stambulova & Wylleman, 2019). This peculiar stage leads to long absences from home due to the increased training volume, which could conflict with motivation to study. Thus, mentoring is necessary to prevent early school leaving in line with the Europe 2020 strategy (López-Flores et al., 2020). Despite student-athletes progressing towards graduation or enrolled in graduate programmes could be more skilled in managing their academic and sport commitments, the participants in this study indicated DC centres and tutoring as crucial for counselling individual academic paths necessary to prevent conflicting demands with the sport calendar, and in helping practical arrangements in the academic schedules during frequent travelling periods to compete at national and international level (Sánchez-Pato et al., 2017). Provided that different sports disciplines require specific training and competition schedules, facilities, and locations (especially environmental sports), universities shall offer different adjustments, lectures, and tutoring for their student-athletes (Amsterdam University of Applied Sciences et al., 2016). In particular, the participants in this study called for a DC implementation encompassing flexibility and tailored curricula, and specific services (career counselling, sports facilities, distance learning). In this respect, the educational models based on a DC pedagogical approach could be considered (Lapland University of Applied Sciences et al., 2017; Sánchez-Pato et al., 2017).

The present findings are substantiated in the literature on the need of a coherent support network to manage the DC challenges in different contexts (Amsterdam University of Applied Sciences et al., 2016; Condello et al., 2019; Li & Sum, 2017; Storm et al. 2021). In fact, the student-athletes' view on the needed DC implementation call for a collective effort and

regular communication across the athlete's sport and education entourage for achieving both sport and academic goals. Interesting to note, the participants in this study declared to be enrolled in a variety of university majors based on individual attitudes, the prestige and location of the university, and the prestige and location of their sport club (Foster & Huml, 2017). Furthermore, some of them really appreciated the opportunity to compete for their HEI in national and international university championships, which further corroborate a promising alliance between sport and education. Indeed, also HEIs could consider student-athletes as valuable resources when representing them in sport and public events, as well as role models or ambassadors for promoting activities or fund-raising (Harrison & Lampman, 2001).

In considering the peculiarities of higher education and sport systems in the Member States, HEIs could contribute to the development of a European DC discourse by engaging in an effective dialogue with other educational institutions and sport bodies through the European Athlete as Student (EAS) network, which fosters cross-national cooperation through the exchange of DC best practices in a shared European DC vision at local, National, and EU levels (Capranica et al., 2021; Guidotti, Cortis & Capranica, 2015; Stambulova & Wylleman, 2019). In particular, this dialogue could contribute to the establishment of European DC guidelines for HEIs, which is necessary to guide the holistic development of student-athletes in their transition from high school to university and during their academic path towards the accomplishment of a university degree.

## Conclusions

In applying a qualitative approach to the identification of areas for DC implementation at HEI level based on the views of student-athletes enrolled at universities with different dual career policies, the present findings contributed to the eminence-based knowledge for the development of the European DC guidelines for HEIs. However, this relevant information should be integrated with that collected from HEI experts, who could expand our knowledge on alternative objectives and efficient allocation of resources to guarantee university student-athletes positive academic experiences and effective support towards the achievement of a degree. Based on the present findings, the following key conclusions could be addressed:

- Athletes tend to enrol in higher education aiming to acquire knowledge and skills to pursue graduate studies and/or higher sports achievements, unless conflicts between academic and sports commitments arise.

- Athletes tend to choose their academic path based on the prestige and location of the HEIs and/or the sports clubs.
- Student-athletes need a coherent supportive environment encompassing family and coaches, as well as teachers, classmates and teammates, who should be empowered through a DC education.
- HEIs should provide DC centres encompassing DC programmes based on educational models and tutorship tailored on the needs of the student-athletes, e-learning, financial support and availability of sports facilities.
- Student-athletes receiving the support of a tutor are more motivated to pursue a DC path, being helped in getting acquainted with the academic environment, in managing daily schedules, and in handling conflicts between academic and sport commitments.
- Scholarships and/or financial support for student-athletes are envisaged to lessen their academic and sport economic burden.
- Whilst a lack of qualitative sports facilities close to the HEIs could negatively affect the DC of athletes, in improving their own sports facilities HEIs could enhance their DC services, increase their prestige as well as their financial revenues.
- HEIs should publicize the student-athletes' achievements, thereby raising a DC awareness in the academic community and in the society at large. Furthermore, through their student-athletes, HEIs could increase their visibility and prestige.
- Some Consortium team universities, for instance, the University of Latvia and University degli Studi G. d' Annunzio Chieti-Pescara do not provide a sports tutor as an official position. At the Alexandru Ioan Cuza University (Romania), there is no athlete tutor, but only a group tutor working with selected categories of students.
- The information gathered during the MTG project (603346-EPP-1-2018-1-LV-SPO-SCP) determined the introduction of a DC programme in two partner universities, supporting the feasibility of DC implementation at HEI levels also in Member States with no formal structure in place.

## Aknowledgment

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# POSSIBILITIES TO OBTAIN HIGHER EDUCATION IN GERMANY FOR LATVIAN BALTIC GERMAN STUDENTS (1920–1934)

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## ABSTRACT

With the formation of the Parliamentary Republic of Latvia in the early 1920s, higher education in Latvia underwent the changes that affected the Baltic Germans. The necessity to obtain higher education in the Latvian language was perceived with mixed feelings, and the interest in the establishment and development of the University of Latvia (UL) and involvement in the reorganisation of the Riga Polytechnic Institute (RPI) went hand in hand with the reluctance to accept the full Latvianization of higher education. In the circumstances, the students used contacts established by their student corporations and sought for higher education in Germany, where it could be obtained in German but later equated to the higher education obtained in Latvia. Thus, the aim of the article is to evaluate the possibilities for the Baltic German students from the parliamentary state of Latvia (1920–1934) to study in German universities. The research is based on the documents of UL and Baltic German student corporations from the Latvian State Historical Archive (LVVA), Baltic German student corporation press (journals and anniversary books) kept in the UL Library, UL activity reports (1924–1931) stored in UL Museum history collection and available research on the Baltic German minority in the Parliamentary Republic of Latvia. The study showed that during the parliamentary period, the Latvian Baltic Germans used the state granted minority rights to find alternative ways to obtain higher education in German. The parliamentary system did not discriminate against the Baltic Germans for their use of the German language and allowed them to study in Germany but demanded that their diplomas be equated with the diploma obtained at the UL. The contacts established by student corporations helped Baltic German students to better integrate into the German study environment offering accommodation on the premises of student corporations in Germany. At the same time, additional knowledge through lectures on the political situation of Baltic Germans in the parliamentary state of Latvia did not allow them losing their historical connection with the Baltic region.

***Keywords:*** *Baltic Germans, Germany, higher education, student corporations, University of Latvia.*

## Introduction

Latvian state won its independence as a result of the First World War (1914–1918) and the Latvian War of Independence (1918–1920), when the Russian, German and Austro-Hungarian empires collapsed. During those turbulent times, for the Baltic Germans the situation in higher education changed radically as Latvians had the opportunity to create their own national *Alma Mater* and to receive higher education in Latvian. The establishment of the University of Latvia (UL) meant Latvianization of Latvian higher education and the replacement of German and Russian language education strengthened by the Riga Polytechnical institute (RPI) from the second half of the 19th to the beginning of the 20th century. These changes put the Baltic Germans in an ambiguous position – they could study in German, but examinations and diploma theses had to be taken in Latvian (Bleiere et al., 2005).

The creation of Latvia and Estonia changed the Baltics, and the Baltic provinces (Estonia, Livonia and Courland) where the Russian Empire (1721–1917) had guaranteed the Baltic Germans cultural autonomy disappeared from the map. However, the Baltic Germans were able to maintain a county (*Landmannaschaft*) based identity by adapting to the new political order and finding ways to obtain higher education in German (Rimscha, 1968). The Baltic Germans considered Germany, with which Latvia had established contacts in the academic field, to be the land of their future possibilities. This manifested itself not only in regular business trips of UL lecturers to Germany, but also in the formation of Baltic (i. e. Latvian and Estonian) student corporation communities in the largest German cities such as Berlin, Jena, Munich, etc.

These complex changes in the history of Latvia frame the question of the research, and it is in what ways the Baltic Germans as Latvian citizens were able to obtain higher education in German if the Latvian state emphasised the strengthening of Latvianness in higher education. The study examines the significance of Baltic Germans studying in Germany for Latvian higher education taking into account the following aspects: the Baltic Germans' stance in respect of the study language in Latvian higher education, the role of student corporations in studies of the Baltic Germans in Germany, and the competitiveness of German university diplomas. Supported by a relevant document and literature review, a separate analysis of each aspect also outlines further research directions.

To understand the research question, it is necessary to explain the historiography and make a source review to explain the study of further research. Current historiography shows that Baltic Germans had interest for studies in Germany by using connections with student academical

lifetime organisation. Raimonds Cerūzis has researched this topic, but he did not analysed competitiveness of German university diplomas to the UL diploma (Cerūzis, 2004). Nor the other historians like Leo Dribins (2004), Heinrihs Strods (1994), Andris Šnē (2009) etc. made any research in the question about Latvian Baltic German student possibilities of higher education obtain in Germany. Historians have mentioned only quotes about the Baltic German higher education obtaining question: Cerūzis and Strods mentions the language question due to latvianization of higher education; Dribins views the minority rights in Latvia as liberal excluding the fact that the language question was "frozen" and ethnic tension remained between Latvians and Baltic Germans; Šnē mentions the compromise of UL rector Augusts Tentelis but did not make any deeper research in this complicated research problem. This article is a first attempt to answer the current unanswered questions of other historians mentioned above.

The sources used in the research are from Latvian State Historical archive (1922, 1922/1923, 1930), the University of Latvia Museum and the University of Latvia Library. Unpublished Archive sources include protocols and reports of UL and Baltic German student corporations which informs about Baltic German student corporation factor on possibilities obtaining higher education in the Germany, but these sources show dry facts which were needed to synthesise with published sources like student corporation press (Grote, 1967). And monographs to create a wider picture and explanation of student corporation and other student organisation factor on obtaining higher education in Germany (Rimscha, 1968). By using the activity public reports of UL, a fact was discovered about possibilities for equitation of German university diploma with UL diploma. Sources helped also to answer questions due to previously mentioned historiography problems in Baltic German higher education research (University of Latvia, 1919–1931).

## Methodology

The article is a research in history, and as such it uses historical methodology. The chronological (genetic) method is used to create a chronological description aligned to the structure of the study. After distinguishing between common and different in findings, the comparative method helps to synthesise facts discovered in protocols and reports of UL and Baltic German student organisations retrieved from the Latvian State Historical Archive, press and monographs of Baltic German student organisations kept in the UL Library, as well as previous historical research on the Baltic German minority in Latvia, and, thus, to create an analysis of the problem under research. Where the sources and literature used in the article are in Latvian and German, the translation is performed.

## Baltic Germans' stance on Latvianization
## of higher education

The Republic of Latvia fought for and achieved its national independence among the other new countries of Central and Eastern Europe such as Estonia, Lithuania, Poland, Czechoslovakia, Yugoslavia and Finland. In the complicated time between 1918 and 1920, the question of the future of higher education in the newly founded state of Latvia was addressed, and, after the reorganisation of the RPI, which had been founded by the Germans in 1862, the University of Latvia was proclaimed on September 28, 1919. The new Republic of Latvia was multinational, with the state nation of Latvians complemented by Russian, Jewish, Baltic German and other minorities (Dribins, 2004). The Baltic Germans faced the end of the 700 years of domination, which put them in a minority position. However, integrating the "old" RPI technical faculties with the new faculties of exact sciences and humanities in the UL structure, Latvians could not refuse to involve the Baltic Germans in the establishment of the University of Latvia (Latvian Saeima, 1923). The changes were not easy, because the Baltic Germans did not want to accept the full Latvianization of higher education at the new UL. At that time, the UL was governed by multilingualism, with the dominance of the three languages, namely, Latvian, Russian and German (Latvian State Historical archives [LVVA], 1922).

The signal of serious tension over the language issue became the walk-out of all six Latvian Baltic German student corporations – founded at the University of Dorpat (Tartu) *Curonia* (1808) and *Fraternitas Rigensis* (1823), founded at the RPI *Fraternitas Baltica* (1865), *Concordia Rigensis* (1869) and *Rubonia* (1875), as well as founded at the UL *Gotonia* (1922) – from the UL student corporation umbrella organisation (the Presidium Convention) on 30 October 1922. The student corporations protested against the Latvianization of the Presidium Convention meetings with the German language playing a "second-rate" role (Cerūzis, 2004). However, two years later, the situation stabilised after in June 1924, the UL Rector, Jānis Ruberts (1923-1925), reached a compromise, allowing meetings in Latvian and German, thus, facilitating the return of the Baltic German student corporations to the umbrella organization. Ruberts was a member of the Latvian student corporation *Lettonia*, and he was able to understand the Baltic German corporations despite the fact that his *Lettonia* was one of the founders of the Presidium Convention and a defender of Latvianization (Rimscha, 1968).

Although Article 3 of the UL Constitution (*Satversme*) approved by the Parliament of the Republic of Latvia (*Saeima*) on March 27, 1923, imposed Latvian as the UL official language, the de jure state was not the same as the de facto situation (Šnē, 2009). The UL Rector Augusts Tentelis (1925-1927;

1929-1931) went much further than his predecessor Ruberts, letting lectures to be delivered in Latvian, Russian and German. However, he tried to comply with the legal obligations imposed by the Latvian state, allowing to hold entrance examinations, sessions and diploma paper defence only in Latvian (University of Latvia [UL], 1927). The UL Council was also aware that the process of Latvianization of higher education could not be implemented in a radical way, so it chose to follow the compromise policy of both UL rectors, i. e., gradual Latvianization, permitted multilingualism of lectures, but admission, sessions and graduation in Latvian only. Thus, the UL did not subject the Baltic Germans to discrimination which would prohibit any non-Latvian expression (Strods, 1994).

The Baltic Germans had a so-called "second chance" and it was to study at the Herder's Institute in Riga (*Herder-Institut in Riga*). There, the entrance exams, sessions and graduation process were conducted in German. The Herder's Institute in Riga was a private university where both Baltic Germans and Germans from other Central and Eastern European countries – Estonian Baltic Germans, Czechoslovak Sudeten Germans, and Romanian Transylvanian Germans – studied (Cerūzis, 2005). The private university itself was subordinated to the German Board of Education, which was under the Ministry of Education of the Republic of Latvia. The Herder's Institute in Riga did not enjoy the same rights as the UL, which reduced the prestige of the obtained diploma. The diploma was equated with the diplomas obtained at commercial institutes, which were much less prestigious than the UL diploma (Cerūzis, 2005). Despite their importance for training trade and industry specialists, commercial institutes did not have the same rights as the UL, which allowed for training specialists of a much higher level (Šilde, 1976).

As a private university, the Herder's Institute in Riga received financial support from Germany, which reached about 5 million Reichsmarks between 1923 and 1932, with the estimated amount of 625 000 reichsmark per year. The Latvian government was concerned about Germany's financial support and saw it as the work of Berlin "soft power" (Cerūzis, 2005). After the First World War, Germany was one of the countries that did not accept the international order established by the Treaty of Versailles. Berlin carried out a gradual, diplomatic audit of the Versailles system. For example, in 1925, through the so-called Locarno Treaties with the Great Britain and France, German Chancellor Gustav Stresemann achieved inalterability of German western borders, thus shifting focus on Germany's eastern borders and specifically on German minorities in Central and Eastern Europe (Apals, 2020). The policy to support the rights of German minorities went hand in hand with geopolitics and help to weaken the influence of France in Poland, Czechoslovakia and other countries of their residence. Thus,

Stresemann tried to move Germany out of its state of international oppression (Schöllgen, 2013).

## The role of student corporations in studies of the Baltic Germans in Germany

Baltic German students at German universities can be divided into two groups, namely, exiles and immigrants. The Baltic German students who studied before and during the First World War at the universities of St. Petersburg and Dorpat, as well as at the RPI evacuated to Moscow in 1915, are called exiles. After the Bolsheviks seized power on November 7, 1917, the collapse of the Russian Empire was followed by the bloody Russian Civil War (1918–1921), the war forcing the Baltic Germans into exile for fear and hatred of Bolshevism. The exiles were also made up of the Baltic Germans who were deeply disappointed by the defeat of the Western Russian Voluntary Army led by Russian Colonel Pavel-Avalov Bermont in the Latvian War of Independence on November 11, 1919. The so-called Bermontiad ruined their hope to create their own Baltic state (*Baltenlande*). Among the disappointed were those Baltic Germans which fought for the Baltic Territorial Army (*Baltische Landeswehr*) and the Imperial Russian Army and were united by the hatred of Bolshevism. In their turn, immigrants are those Baltic German students who entered Germany to study in the 1920s, and their aim was to find more accessible higher education in German (Grote, 1967).

Among the Baltic German exiles and immigrants were members of student corporations who formed their own communities (corporation clusters) in Germany. For example, in 1922, *Curonia* established its own community in Jena, and it existed until 1934 (LVVA, 1922/1923). In 1923, *Rubonia* formed its own cluster in Munich, existing until 1931 (Rubonia, 1925). Student corporations are lifelong academic organisations that unite students and graduates in friendship and fraternity. They are characterised by so-called corporate seclusion manifesting itself in non-disclosure of their affairs to the public, which is similar to freemasonry. At the time, in such Organisations students had the opportunity to establish a variety of connections that would enhance their career prospects, such as studying in Germany (Cerūzis, 2004). It is important to note that to represent the interests of Baltic German students in Germany, Estonian and Latvian Baltic German students and graduates had set up their own student umbrella organisation – the Main Association of Baltic German students (*Hauptverband studierender Balten (HStB)*) (LVVA, 1926). This organisation had contacts with the Riga German Student Association (*Deutsche Studentenschaft Riga*) in Latvia and the Foreign Office of the Chargierter Convent of the University of Tartu (*Chargierter Convent Dorpat*), the umbrella organisation of the

Estonian Baltic German student corporations in Estonia. Both organisations coordinated the integration of corporate Baltic German students into the German study environment (Rimscha, 1968). The corporate clusters themselves were financially maintained by senior member organisations affiliated with student corporations, which were called philistine societies. For example, on March 13, 1922, *Rubonia* established a branch of its philistine society in Berlin, which maintained contacts with the philistine society in Riga. The *Rubonia* branch of the philistine society represented the interests of its senior members in Germany, who in turn materially supported studies of their younger members in Germany (Rubonia, 1925).

Studies in Germany and belonging to one of the student corporations – *Curonia* or *Rubonia* – provided accommodation on the premises of one's corporation located in Jena, Munich or other German cities (LVVA, 1922/1923). Baltic German students also had the opportunity to gain additional knowledge by listening to their senior members' lectures on the situation of the Baltic Germans in Latvia. Among the senior members were influential personalities, such as Wilhelm von Fircks, a Member of the Saeima from the Baltic German faction (during the parliamentary period, the Baltic Germans won 6 seats), who belonged to the Baltic German People's Party. In the Parliamentary Republic of Latvia, it was a conservative political party which strongly defended the property rights of the Baltic German nobles in the difficult question of the agrarian reform. In the end of the 1920s – the beginning of 1930s, they stood up against the dissolution of the German Education Board under the Ministry of Education and against the restrictions on the activities of Baltic German educational institutions proposed by Atis Kenins (*Atis Ķeniņš*), the Latvian Minister of Education. Kenins' policy failed due to public pressure (LVVA, 1922/1923). In Germany, Baltic German students closely followed the situation with their compatriots in Latvia, and especially the tension between Latvian state nation and the Baltic German minority. Following the political developments helped the Baltic Germans not to lose their connection with Latvia, the land where they had been born and where generations of their ancestors had been living since the times of medieval Livonia (Zeeberg, 1927).

## Competitiveness of the diploma obtained in German universities with the UL diploma: the case of the diploma in mechanics

In Germany, Baltic German students mostly chose the studies in mechanics, which were prestigious at the time. The statistical data of the Main Union of Riga Baltic German Students and Tartu Chargierter Convent on the Baltic German students studying in Germany in the 1926–1927 academic year brings a total of 299 Baltic German students, with 148 Latvian, 100 Estonian and 51 German citizens respectively. It is very difficult to say how

many Latvian, Estonian and German Baltic German students exactly studied mechanics or other disciplines. However, this does not change the fact that the most popular studies were in mechanics, with a total of 73 Baltic German students in Berlin (8), Danzig (27), Karlsruhe (21) and Munich (17). The most popular study place for Baltic Germans was Munich, with a total of 22 Baltic German students (among them 17 students of mechanics) surpassing by 8 students the number of Baltic German students of mechanics in Berlin (Chargieter Convent Dorpat und der Deutschen Studentenschaft Riga, 1927). The Baltic Germans chose to study in Munich because they were able to study mechanics at the Technical University of Munich. Moreover, with its conservative and nationalist environment Munich was politically attractive. Strongly anti-communist, Bavaria became the cradle of German monarchist and National Socialist political movements (März, 2002). Some Baltic Germans, such as the architect Alfred Rosenberg and the chemist Max von Scheubner-Richter, joined the Nazi movement. It is important to note that Rozenberg and von Richter were among the *Rubonia* members who formed the Munich cluster. However, not all Baltic Germans sympathised with National Socialism (Cerūzis, 2011). The UL studies in mechanics were also popular among Baltic Germans; for example, in the period between 1926 and 1931, out of the total 379 Baltic German students approximately 79 studied mechanics. There were no Baltic Germans with German citizenship studying at the UL Faculty of Mechanics in 1926–1931 (University of Latvia, 1926, 1927, 1928, 1930, 1931).

The prestige of the studies in mechanics can be explained by the fact that in the Russian Empire, the RPI served as a centre of economic growth of the Baltic provinces (Courland, Livonia and Estonia). The Baltic Germans formed the economic elite of the region and became involved in the development of industrial facilities. It was the RPI that became one of the main higher education institutions of the Russian Empire which trained technical specialists for the industrial development of the Baltic provinces and the whole country. When the UL was founded in 1919, the RPI technical faculties with Baltic German teaching staff were transferred to the university. The Baltic German technical teachers went on with the mission launched by the RPI, the strategy aimed at strengthening academic ties between the West (Germany) and the East (Russia) (University of Latvia, 1925). UL lecturers had regular foreign business trips to Germany, and it was the most frequent destination in comparison to other European countries. Based on the UL 1924–1926, 1927–1928, 1929–1930, and 1930–1931 activity reports, on average, 26 teachers went on foreign work-related trips to Germany. Out of all 773 lecturers who travelled abroad for work between 1924–1931, 110 lecturers went to Germany (University of Latvia, 1926, 1927, 1928, 1930, 1931). From the UL Faculty of Mechanics, a regular

visitor to Germany was Professor Paul von Denffer; so, for example, in 1927, he participated in the International Mechanical Congress in Berlin (*Werkstofftagung 1927*) (University of Latvia, 1928), and in 1930, he visited the Fritz Werner machine and tool factory. From 5 to 31 July 1929 the professor was in Austria, where he did an internship in the metallurgical industry. In his trips, Denfers gained experience in the field of mechanics in order to improve the quality of the UL studies, thus promoting the training of specialists in mechanics for the State of Latvia (University of Latvia, 1930).

The UL lecturers in mechanics knew about the Baltic Germans studying mechanics in Germany, and they allowed the higher education diplomas obtained in Germany to be equated with the UL higher education diploma. In 1920, the UL Faculty of Mechanics emphasized that the UL could recognise the courses of mechanics obtained abroad if they were acquired at foreign universities of the same level with the UL (University of Latvia, 1925). The UL Council also worked to ensure that higher education diplomas obtained abroad were comparable with the UL higher education diplomas. Thus, according to the 1926-1927 academic year decision of the UL Council on higher education diplomas obtained abroad, there were developed and adopted regulations allowing their recognition. Thus, the Baltic German students from Latvia who acquired the education in mechanics at a German university could submit their German higher education documents for the UL review and recognition. The UL was interested in equation because it worked on deeper integration in the international scientific and study environment. (University of Latvia, 1926).

Although on February 26, 1930, the UL Council adopted regulations on the admission of members to student lifelong academic organisations, allowing only students matriculated at the UL to be admitted to these organisations, it did not prevent members of the Baltic German student corporations from studying and receiving their higher education in German universities. Having equated the diploma of higher education obtained in Germany, a member of the UL Baltic German Student Corporation was counted as a UL graduate (LVVA, 1930).

## Conclusion

When the Republic of Latvia won its independence and the RPI of the former Russian Empire was taken over, the State of Latvia could neither suppress nor refuse the involvement of the Baltic Germans in the transformation of the higher education system. Whereas the knowledge and experience of the Baltic Germans was useful for the Latvian state in strengthening its academic ties with Germany, sometimes the Latvian state had to face

the resistance of the Baltic Germans to the Latvianization of higher education. The tension in Latvian – Baltic German relations in the context of higher education remained "frozen" due to the compromises by the UL rectors.

The Baltic Germans were able to successfully use the current situation to adapt to the new circumstances in the higher education in Latvia. Through the formation of their own organisational structures in Germany, the Baltic German student corporations played an important role in establishing academic ties between Germany, Latvia and Estonia, promoting Baltic German student corporation integration into the German study environment and preserving historical ties with the Baltics (i. e. Latvia and Estonia). The documents of higher education obtained in Germany drew attention to the prestige of the acquired specialty, and it was appreciated by both Baltic Germans and Latvian state. As a state university, the UL kindly decided to recognise the equivalence of the university diplomas obtained in Germany with the UL diploma. Therefore, the integration of German and Latvian state higher education took place.

At the time of writing, there have been formulated new directions for further research of the Baltic German students in Germany. In the future, the competitiveness of the diploma in mechanics obtained by a Baltic German in Germany should be studied in comparison with the competitiveness of German diplomas obtained in other technical specialties (e. g. architecture, engineering, etc.), with the simultaneous comparison of the competitiveness of other German technical diplomas with the diploma obtained in the UL. It would also be beneficial to study deeper the inner life of the Baltic German clusters in Germany, to disclose the role of influential Baltic German personalities in Latvia and the relations of Baltic German student corporations with local German student corporations. There is also an interesting question about Germans studying in Latvia.

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