

USE OF LEARNING EXPERIENCE PLATFORMS IN LITHUANIAN GENERAL EDUCATION SCHOOLS: CASE STUDY ANALYSES

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ABSTRACT

In addition to traditional learning, digital learning is increasingly being applied in schools through various educational technologies. The development and implementation of digital educational tools represents a growing and promising field within educational technology. Digital tools provide prerequisites for students to take responsibility and control learning, as well as to choose individual learning strategies. For teachers, digital tools are a means to enhance learner engagement and learning motivation by enabling them to determine the necessary steps to achieve defined learning goals. However, the use of digital educational tools does not yet guarantee the quality of modern education. In order to ensure profound and personalized learning digital tools that foster learning based on students' personal abilities and interests, prove to be more effective. To achieve higher student engagement, it is essential to offer timely feedback, comprehensively assess students' individual progress, and identify strengths and weaknesses of their learning. For this purpose, teachers can leverage advanced technologies that employ artificial intelligence and learning analytics. Such technologies are able to help teachers to monitor students' learning more effectively- to identify learning gaps, to predict future learning progress, and to make necessary pedagogical decisions. In this study, such technologies are referred to as "learning experience platforms." These platforms are designed in a manner that assists both students and teachers in proficiently managing teaching and learning processes through the utilization of learning analytics and artificial intelligence. The study focuses on the selection of advanced technological solutions – learning experience platforms suitable for general education schools. The selected platforms were tested in Lithuanian schools, and the practices and experiences are presented through a case study analysis. The outcomes of our research disclose the advantages of implementing such technological solutions in teaching-learning process and benefits for its participants. The results of the study emphasize that learning experience platforms foster inclusive and engaging learning, promote models of self-directed, adaptive, and personalized learning in general education schools.

Keywords: *general education schools, learning experience platforms, case study.*

Introduction

In recent years the issue of digitization of education has gained significant relevance in European countries. On the one hand, the COVID-19 pandemic has considerably sped up the digitalisation of education. The pandemic prompted an unprecedented and rapid experiment with school systems which has resulted in hundreds of millions of learners transition to digital learning environments (Kalim et al., 2021). Consequently, digital technologies have become integral part of the teaching-learning process. Researchers assert that the use of educational technologies has been proven to be indispensable in providing quality education for learners during the pandemic (Kurvinen et al., 2020). On the other hand, key stakeholders in education – students, parents, teachers, and school leaders – are increasingly embracing technology for diverse educational purposes. For instance, technology is used to update students about their progress in an electronic diary environment or teachers and learners use virtual communication means (Vincent-Lancrin, 2021). These, in result, further fosters the rapid digitalisation of education.

The increasing use of technology in education goes hand in hand with the areas of learning analytics and artificial intelligence, with a particular focus on how data can be used to improve the teaching-learning process. Artificial intelligence and learning analytics are becoming the most popular ways to analyse collected data in digital learning environments to support teachers and learners in their learning (Krikun, Kurilovas, 2016). Artificial intelligence and learning analytics aim to improve teaching-learning process by systematically processing teaching-learning-related data and by providing guidance to teachers and learners. Therefore, the possibilities of integrating artificial intelligence and learning analytics are of particular interest when designing learning environments such as adaptive learning systems, intelligent learning systems, and open educational resources (Mandinach, Gummer, 2016).

Artificial intelligence and learning analytics have the capacity of informing teachers and students, as well as other stakeholders, and also contribute to the improvement of the quality of teaching-learning (Holstein et al., 2019). In recent years, an increasing number of digital education tools have already been integrated with artificial intelligence and learning analytics. Some of the tools are commercial e.g. MS Teams, Google Classroom, iSpring Learning, or open-source e.g. Moodle and are designed for various educational sectors. Research findings suggest that such educational tools could become effective means to simplify the learning process for students and to enhance the teaching experience for teachers (Rienties et al., 2018).

The scientific literature is increasingly addressing questions how digital technologies are reshaping education, what is their impact on education participants, which technological advantages could enhance educational quality, what are main technology-related challenges in education, etc. (Hollman et al., 2019). This article focuses on the micro level – the teaching-learning process and the educational technologies used in it. For the purpose of case study some advanced digital education tools – learning experience platforms- were selected. The article aims to discuss the cases of use of learning

experience platforms in Lithuanian general education schools in order to highlight their benefits and challenges in educational practice.

Methodology

During the implementation of the project “Artificial Intelligence in Schools: Scenarios for the Development of Learning Analytics in Modernizing General Education in Lithuania” (Project No. S-DNR-20-4), one of the tasks was to explore the practices of general education schools and disclose exemplary practises of the use of learning experience platforms. To achieve this task, the methodology of case study analysis was selected, considering that case studies can serve both to formulate theories and provide descriptive insights. Case studies are used to detail the best practices by illustrating or explaining a particular phenomenon or trend. The study employed a qualitative research strategy, focusing on the detailed and in-depth examination of one or more specific cases that illustrate the research problem. The researchers dedicated significant attention to a specific case with the aim to comprehensively describe and explain it while addressing the research questions (Johansson, 2007). The study was structured as follows:

1. *Identification of the selected cases and delimitation of the case.* First, one defines what will be considered a “case” in the study, then attempts to define the boundaries of the case. In order to find out what is the situation of the use of learning experience platforms in Lithuanian general education schools, it was important to identify, which platforms were used by schools. For this purpose, the list of digital teaching-learning tools provided by National Education Agency for 2020–2021 was examined (Baziukė, Norvilienė, 2021). Out of 244 tools in the list of digital learning tools provided by the National Education Agency of Lithuania (2021), only five integrate artificial intelligence and learning analytics and meet the criteria for learning experience platforms, namely: *Eduai*, *Eduten Playground*, *Egzaminatorius.lt*, *Fast ForWord*, *Matific*. These platforms provide learning content and are equipped with analytical tools, offering guidance to teachers and students in the teaching-learning process through the use of learning analytics and artificial intelligence (Vincent-Lancrin, 2021).
2. *Data collection.* The researcher aims to collect a detailed information and describe it, using all the possible diversity of information sources (document analysis, structured and unstructured interviews, observation with or without participation, etc.). As a result, to start with, the features of each learning experience platform are described, and the finding of research are discussed, further on, challenges related to the use of platforms in Lithuanian general education schools are described. Moreover, in total, 21 in-depth non-structured interviews were conducted with teachers who use these platforms, with school administrators, and creators or distributors of the technologies (see Table 1). Also, one focus group interview with 5 teachers was conducted. Interviews were conducted during the period from the beginning of 2021 till the autumn of 2021. The length of each interview varied from 45 min. up to 1.5 hr and were conducted via ZOOM program.

Table 1 Number of the interviews

Title of the program	Number of the interviews		
	School administrators	Teachers who use the platforms	Creators/Distributors/Representatives of the platforms
<i>Eduai</i>	1	2	1
<i>Eduten Playground</i>	1	4 individual interviews 1 focus group interview with 5 teachers	2
<i>Egzaminatorius.lt</i>	0	3	1
<i>Fast ForWord</i>	is used individually, as an informal education program	1	1
<i>Matific</i>	0	2	2

3. *Data analysis.* First and foremost, a comprehensive depiction of the case and its contextual background is provided. Subsequently, a thematic analysis of the interviews was conducted, wherein the researcher delves into the examination of various themes and subjects. Additionally, meticulous attention is dedicated to the analysis and depiction of the contextual details, circumstances, and conditions. However, only part of the interview data, which directly helps to answer the current article’s aim is presented below.
4. *Interpretation of results.* At this stage, the conclusions of the conducted research are presented, and new aspects of the analysed phenomenon are revealed, in order to demonstrate how the case study made it possible to deepen the understanding of the problem or phenomenon, what newly discovered facts could be further analysed and studied, possibly with the help of additional research methods. As a result, presentations of each platform consist of detailed descriptions of its advantages, challenges, and benefits of use from analysed material (official descriptions of platforms or programs, and other scientific and science popularization literature) and illustration (interview excerpts) of the perspective of users, school administration and creators/distributors/representatives of these platforms.

Results

Fast ForWord learning experience platform

Case study analysis of the platform is based on two interviews conducted with a representative of the platform in Lithuania (“Labirintas”) and one direct user of the platform. In addition, the information from the official website of the *Fast ForWord* program was used.

The *Fast ForWord* platform has been designed for children who have language (English) learning challenges and require special support. The *Fast ForWord* is copyrighted by Scientific Learning. The program was created in 1996 and is widely used in US schools, nowadays it also has spread to more than 40 countries around the world. The official representative of the *Fast ForWord* program in Lithuania is NVO “Labirintas”, who started distributing the platform from a personal initiative in order to help children and their

parents to cope with learning difficulties, such as dyslexia, dysgraphia, dyscalculia. As interview participant has emphasized *“these disorders require special attention because, if left on their own, they tend to cause problems for students such as academic, emotional, behavioural, self-esteem etc.”* (interview with “Labirintas” representative).

How the platform works. The Fast ForWord platform provides various tasks and exercises that are presented in an attractive game format. The platform adapts individually (using an algorithm) to a student’s abilities and selects the most suitable exercises and their level of difficulty. The selected exercises are designed to motivate a student to actively participate in the learning process. If a student fails in performing the exercises (for example, learning to distinguish phonemes), he/she is provided with an interactive help in order to understand mistakes and the content of an exercise. For example, using the platform’s Reading Assistant feature, students receive real-time guidance on how to pronounce sounds correctly from a virtual personal “assistant” within the system. As stated on the Scientific Learning page, the Fast ForWord is the only platform that uses this type of reading intervention, and this feature has been patented. The Fast ForWord allows students to monitor their achievements thus providing possibilities for personalized and individualized learning paths. The platform allows a specialist (a teacher) to follow reports of the student’s progress and areas where he/she needs more practice. *“Learning analytics is presented on the dashboard and is clear and understandable both for a student and for a teacher”* (interview with “Labirintas” representative). Moreover, the data collected by the platform’s learning analytics tools can easily be shared with students or their parents. Currently in Lithuania the platform is used only by some NVO that carry out educational activities for students with special educational needs. Schools do not use the platform due to financial and legislation issues (all the programs used in Lithuanian schools should be translated into the Lithuanian language).

Challenges of using the platform. One of the main challenges when it comes to the use of the platform in Lithuania is that schools are not able to purchase the platform with state funds. *“Since the platform language is English and there are no plans to translate it, schools cannot use it or purchase it with public funds, unless they want to use it as an only English language teaching/learning tool”* (interview with “Labirintas” representative). However, in this case, the main function of this platform – the development of student’s cognitive abilities and support in the presence of congenital disorders – cannot be used. Therefore, to use the platform for the needs of target group students, schools have to purchase the platform only from their own funds. Another important point is that schools have to appoint a person performing the program administration function – a specialist (e.g. social pedagogue, school psychologist or special pedagogue) who would be in charge of a student’s learning process and achievements, as well as carry out other interventions necessary for a student with special needs. Such administration is an additional burden on the employee and (possibly) a financial burden on the school that is paying for the additional administrative hours.

Factors determining success. It could be stated on the basis of the interviewees answers that one of the factors predetermining the successful use of the platform is the reliance of

target group users on the technology, desire to trust the developed games and exercises that they really can have an impact and help students to cope with language learning problems. According to the research participants, there is a lack of general confidence that “yes, these are games, but games are for the child to work and to be motivated to work, to have fun” (interview with program user). Success would also be predetermined by the motivation of the platform administrator – a specialist (a speech therapist, special pedagogue or others), who would be using the platform. “It is very important for a specialist to use the platform constantly and to apply the feedback received from the platform in further practice with a student to ensure that the methods really work” (interview with “Labirintas” representative). Such motivated specialists, as stated by the research participants, often turn to the representative office themselves for the opportunity to purchase the program.

Learning analytics and artificial intelligence. The artificial intelligence-based tool manifests itself as a personal interactive assistant that guides a student through tasks and exercises. Artificial intelligence helps to take learning personalization and individualisation decisions. “Different tasks are chosen every day taking into account what individual abilities of a student need to be developed at that particular time so a student does not get bored and the best learning path is being selected” (interview with “Labirintas” representative). The learning analytics tool integrated into the platform collects data about a student’s learning. According to the research participants, the platform’s learning analytics is clear an informative “provides clear and simple reports with explanations that are easy to understand for teachers, students and their parents, and there are plenty of tips on how to continue the work with a student” (interview with program user). From the teacher’s (or parents’) point of view, such advice would indicate the next steps in how to work with the child.

Matific learning experience platform

Case study analysis of the platform use is based on four interviews: two – with a teacher who uses this platform in her mathematics lessons, and two – with representatives of the *Matific* platform for the Eastern European region. In the description information from the official website of the *Matific* platform is also presented.

The *Matific* is a virtual learning environment that helps improve students’ math test scores. The platform focuses on developing students’ basic math skills in an interactive way (Matific Official, n.d.). The *Matific* platform was created in 2016 by the team of experts in mathematics and education of Hebrew University of Jerusalem. The rights belong to the *Matific* company, which is headquartered in Australia and has almost 20 official representatives around the world.

How the platform works. Before starting to work with the platform, each student has to perform an initial test, which aims at determining a level of math skills. When working with the platform, algorithm automatically assigns tasks to a student based on the student’s math skills’ level. “Learning exercises are automatically assigned to students based on data-driven information and state-of-the-art applied technology” (Matific Official, n.d.). Teachers have access to the entire catalogue of the *Matific* tasks and can assign

specific activities to their students, groups of students or a whole class. A simple search tool makes it easy to navigate and find the relevant tasks. The platform has the possibility of integrated work with such technologies as e.g. *Clever*, *Google Classroom*, *Office 365* programs. Parents are also encouraged to be active participants in the student's learning process. They can sign into their child's learning account (using a separate sign-in) and assign additional math tasks as needed or desired. Students are rewarded for completing a task assigned by their parents. Tasks assigned by parents and teachers do not overlap, so tasks completed at home do not interfere with class work.

Currently, the *Matific* platform is used by the only pro-gymnasium in Lithuania and only in one primary class. The platform was purchased from the class (parents') funds on the teacher's personal initiative, in coordination with the school administration. The teacher, on whose initiative the platform was purchased, found out about it by chance while browsing and looking for newer, more innovative digital teaching tools for students. The platform was started to be used at the school in 2020. One teacher first tried its free trial version herself, then contacted the representatives and asked them to send a free trial version of the platform to the whole class. At the end of the trial version, in consultation with parents, licenses for this platform were purchased for the entire academic year. The parents willingly agreed to cooperate, motivated by the children's great interest and positive feedback after testing the trial version of the platform. It is important to mention that at the initiative of the teacher, the students had tried other artificial intelligence and learning analytics platforms for mathematics, but the *Matific* was chosen, as the teacher said, "*because of its attractive graphics and interesting tasks*" (interview with the teacher). The school administration did not object to this.

Challenges of using the platform. According to the teacher, preparation to start using the platform takes time, and it requires a lot of effort from the teacher (and/or another person administering the program, if such a position is provided among the school staff). "*At first I had to understand the intricacies of using the platform myself, and then teach them to the students*" (interview with the teacher). The first preparatory work includes: registering students, explaining how to work with the platform, developing personal skills to master the platform.

Factors determining success. The range of benefits of using the *Matific* platform is wide, however, according to the study participants, several key factors can determine the successful use of the platform. The teacher's high level of computer literacy determines the possibility of quickly mastering the platform, overcoming the challenges that arise at the beginning of using the platform, and realizing the usefulness of such programs. Willingness to use digital learning tools in the teaching process is an important factor to empower teachers and students to get involved with the platform. Financial support from parents was mentioned as a factor of a special relevance in case if school does not receive funding from the state budget.

Learning analytics and artificial intelligence. In the learning analytics panel, the teacher can monitor the student's learning progress, the level of each student's answers to the tasks (in percentage), the overall level of all answers, and the activity

report of the entire class. Artificial intelligence-based tools can detect the level of skills and to choose the most appropriate task for a student. The platform also has a virtual guide, who provides advice and support for a student. As the interviewee pointed, *“the platform is used for elementary school age students so they probably are not aware of these tools, what attracts them most – game experience”* (interview with the teacher).

Eduten Playground learning experience platform

Case study analysis of the platform use is based on four individual interviews (teachers from different schools all over Lithuania), one focus group interview (with teachers of the same school) that were conducted with teachers who use the *Eduten Playground* in their lessons. The case study also is based on the one interview with school administration representative and the interview with two official program representatives. The description is also based on information from the official website of the *Eduten Playground*.

The *Eduten Playground* (for the Finnish market – ViLLE) is a math learning platform that supports learning through play. The program was created in 2005 at the University of Turku, Finland. Copyright belongs to *Eduten Ltd*. The university is responsible for the pedagogical, research and content part, while *Eduten Ltd* manages the platform. The *Eduten Playground* platform is used widely used by teachers around the world to teach math (*Eduten Playground Officia*, n.d.).

How the platform works. The *Eduten Playground* is based on Finnish pedagogy. Its essence is a carefully designed learning environment that uses games and differentiated tasks. The platform has many game elements that increase students’ motivation and desire to learn mathematics. Students and a teacher have their own personal accounts. Students solve math tasks presented in a game form in their account. Students can only see the lessons and topics that teachers give them access to. Considering the student’s pace of solving tasks and answers, the platform automatically assigns other tasks from the topic chosen by the teacher. Each lesson includes several exercises that the system selects according to the student’s skills, after which the students are automatically evaluated. The teacher can see the analytics of the whole class and the achievements of each child in his account. The platform is suitable for students’ work at school and at home, especially for independent remote work.

In Lithuanian schools *Eduten Playground* program has appeared thanks to several project initiatives¹ implemented in the Vilnius district. In the result Vilnius district general education schools have received an opportunity to test the platform in their educational practice.

Challenges of using the platform. The main challenge as stated by the interviewees is the provision of technical equipment (computer spaces) and infrastructure (access to internet, speed of the internet etc.). *“During the distance learning period, students used their own devices, and schools lent school devices to those who did not have them”* (interview with teacher Nr. 1). Another important challenge is the lack of teachers’ competencies. *“The lack of IT competencies can hinder the smooth use of the platform in schools”*

¹ Project “Modern development of mathematical abilities and monitoring of progress” carried out by the Vilnius Education Progress Center

(interview with teacher Nr. 3). The participants of the study noted that the most passive (and less interested) users of the platform are teachers who “*are against technologies and prefer traditional methods in teaching maths*” (focus group interview, teacher Nr. 4), “*are not interested in innovations*” (interview with teacher Nr. 3). However, as the experience of the schools participating in the study shows, engagement and interest in the platform started with the initiative of the most active teachers, who encouraged other, less interested teachers to get involved and start using the *Eduten Playground* in their mathematics classes. It can be assumed that this happens due to the healthy competition between teachers and the desire to keep up.

Factors determining success. Based on informants’ answers some common factors can be extracted. First, internal school culture and administration support: as unequivocally confirmed by the research participants, the basis of success is the administration support and the culture fostered by the school, focused on collective decision-making. In schools using the platform, decisions are made after the decision of the entire team. Accordingly, decisions regarding the acquisition and use of platforms are made by consensus of the entire team, according to the research participants, the decision is always supported by the administration. Second, support from teachers: when one of the teachers starts to implement some innovation, the administration encourages these actions and “*such a healthy competition is born, because if one has already tried it, the other wants to too*” (focus group interview, teacher Nr. 1). Third, openness to innovation and constant interest: the results of the interviews revealed that teachers who are more open to innovation always seek to learn something new, they constantly research something, are interested in something, and tend to use learning analytics and artificial intelligence platforms much more actively.

Learning analytics and artificial intelligence. As the results of the study revealed, teachers who use the *Eduten Playground* platform in their work notice its advantages by emphasizing the possibilities of artificial intelligence and learning analytics. It is important for them that the tasks for the student are selected by the algorithm based on student’s achievements and learning gaps. In addition, analytics allows to see student achievements and their changes over time, easily export them and present them to parents. And although some teachers notice that parents are not very interested in their children’s achievements or are not actively interested in them, “*analytical data facilitate the teacher’s work when talking individually with parents, visually presenting their child’s achievements*” (focus group interview with teacher Nr. 2).

Eduai learning experience platform.

Case study analysis of the platform is based on four individual interviews: two – with a teacher and education support specialist from a school that uses the platform, one with an administration representative, and one with an IT specialist who is involved in the development of the platform. The description uses information from the *Eduai* project documents.

The basis of the platform is the US analytics model *Tacoma*, the essence of which is to collect data about the student and his/her environment, add them to the database and, after applying analytics algorithms, offer the best practical scenarios for the school, parents, and the student in order to improve math achievement. The *Eduai* platform was created in 2019 by a team of Lithuanian school teachers. Copyright belongs to Šiauliai Dubysa Upper School (Lithuania).

How the platform works. The work with the platform starts with creating user accounts and filling out data collection questionnaires. Students, classroom tutors and support professionals have their own personal access to the platform. Basic student data is collected from questionnaires and other sources: grades, attendance, standardized tests, social, financial, health data, family and school environment, non-formal education. Parents, teachers, students fill out questionnaires, and answer reflection questions after math lessons, attendance and grade data are automatically transferred from the electronic diary system. After collecting all the data, the platform develops a portrait of the student, which is constantly updated. The essence of the platform is the automatic generation and development of individual learning scenarios.

The *Eduai* platform is particularly suitable for creating an effective plan for student support. The scenarios developed by it are suitable for ensuring preventive programs and establishing a relationship with the student and parents. According to the research participants, the platform could include the creation of a support plan for each student (regardless of whether he has special needs or not). One of the goals of the platform is to change the bureaucratic process of student assistance by abandoning documents in paper form, systematizing them, and providing support specialists with easy access to all necessary student data, thus saving time and focusing attention specifically on the student. *“The platform allows monitoring a student’s well-being, all achievements in one place. In order to see the student’s attendance, the class curator does not need to open other programs (e.g. manodienynas.lt)², he can find this information in the Eduai”* (interview with teacher). In addition, the platform automatically informs (via e-mail) when a student misses a certain number of lessons (according to the indicators set on the platform).

Challenges of using the platform. As mentioned by respondents, one of the most difficult stages is the start of using the platform. *“Data collection – is a challenge – the school staff actively participates in this process: they communicated a lot with parents, enlisted the help of curators and class teachers, motivating them to fill out questionnaires. And other questionnaires can appear quite complex, sometimes ambiguous and difficult for children”* (interview with teacher). In order to solve this challenge, the questionnaire should be filled out together with parents, curators, class teachers, with the help of the entire school team.

According to informants, currently, the biggest challenge is the need for an IT specialist who administers the platform and is responsible for its service. The presence of such a specialist would ensure the continued functioning of the program in the event of

² Such programs are used officially by schools to put down the grades and other evaluations of the students

a change in students and staff, and thus the need for new data: for each new student, new logins, passwords, etc. need to be created. *“In addition, when working with the platform, there is a natural need to include new data, remove unnecessary ones, all of this is inseparable from programming and technical matters”* (interview with an IT specialist). The presence of the above-mentioned specialist is determined by school’s financial possibilities.

Factors determining success. According to research participants, success is determined by the school’s philosophy – desire to provide help and support for each student and continuous cooperation. The school using the *Eduai* platform was one of the first to establish an Education Support Department. The priority of the school is to provide assistance and foster relations with students and their parents. According to the research participant, it *“brings benefits because parents are not afraid to talk and ask for help and cooperation occurs, not only because the school is here, the child is here, and just specialists, but building relationships, a preventive model, that’s what is useful, where the we face, questionnaires, data collection, it has a wider scope and perhaps more positives, although at the beginning it was necessary to put in significantly more work, but it has a certain return”* (interview with teacher). The philosophy of the platform is in line with the mission and vision of the school.

Another factor leading to success is a constant communication with parents and teachers. An important role is dedicated to a school administration, who should be in charge of the “communication campaign”. As research participants stated, *“persuasion takes a lot of time, but it is a contribution to our future”* (interview with teacher). This platform overall has been well-received by the students, teachers, and parents in the school.

Artificial intelligence and learning analytics. The basis of the platform’s philosophy is that systematically collected data about a student can help to get to know him/her and provide with the necessary assistance. Appropriate data on the student’s well-being, behaviour, social environment, etc. used in real time strengthens the relationship between a teacher and a student, allows to understand how a student feels and helps to take effective pedagogical decisions in the lesson. In addition, based on data, the gap between student’s learning results and the learning goals set in the lesson can be revealed. As pointed by informants *“the platform’s learning analytics is able to inform a teacher about the impact and suitability of pedagogical actions and decisions for a specific student”* (interview with teacher).

Egzaminatorius.lt learning experience platform

Case study analysis of the platform use in Lithuanian schools is based on one interview with the creator-representative of this platform, and three interviews with teachers (different schools) in gymnasiums who used this platform for students’ preparation for final exams.

The *Egzaminatorius.lt* is a modern, efficient, and reliable online platform that will help teachers and students prepare for matriculation exams, which fully corresponds to matriculation exam programs. The system belongs to the *TAMO* group which is a developer of educational technologies in Lithuania. The platform was developed in 2014.

How the platform works. Egzaminatorius.lt is an auxiliary tool for teachers in organizing students' preparation for final exams and for students' independent preparation. The system has an adaptive learning algorithm. During the test, based on the number of correct/incorrect answers of the users, the system selects the level of difficulty of the questions. This allows the student to choose an individual exam preparation mode. Students can see their individual learning level and progress. Motivating gamification engines are installed namely leader's board, points for achievements, etc. According to the interview participants, this *"platform has two important functions: to encourage learning and to provide an opportunity to test knowledge"* (interview with a platform creator-representative). The platform not only provides students with questions, but also analyses answers, so the person who made a mistake will receive a detailed analysis that will allow him/her to understand which area of knowledge still needs to be deepened. Teachers receive detailed reports that include student scores, correct and incorrect answers by topic area and specific tasks. The educational material is visualized, supplemented with virtual educational objects. The platform provides quick artificial intelligence-based feedback: learning results, comments, recommendations, what and how to learn further.

Challenges of using the platform. The interviewees noted that the benefits of the platform are noticed most by students with internal motivation to learn: *"if you learn for yourself, it is very useful"* (quoted from an interview with students). On the other hand, the study participants emphasized that the platform should not be used as a tool for assessing their progress, but just an additional tool for learning and the answers should not be evaluated with a grade. *"If you don't get any grades and understand that this is only for you, then everything is very good"* (interview with teacher Nr.1). The biggest challenge, according to the research participants, is the additional workload, working on platforms and combining traditional tasks: *"...when you have to complete mandatory tasks on different digital platforms and not necessarily via a computer – maybe write an essay in writing, the final class is very stressful, and you can no longer control his time"* (interview with teacher Nr. 2). In such cases, students can take "cardinal measures – sharing answers" to achieve a better assessment. According to the students the research participants, not all school purchase this platform for their students. So, the students themselves *"see a certain inequality, due to the fact that some students have the opportunity to use this platform, while others do not"* (interview with teacher Nr. 2).

Factors determining success. The Egzaminatorius.lt proves to be an effective support tool, but the success of using the program depends on the students' motivation: *"It depends on us whether we use it successfully, because the platform helps us identify what we are doing poorly, when you know your gaps, you can work on them longer, which is an opportunity to plan your time in order to obtain greater efficiency"* (interview with teacher Nr. 3).

Artificial intelligence and learning analytics. Research participants identified the most important advantages of the platform in their opinion – monitoring of results and automatic recommendations, which is where the function of learning analytics and artificial intelligence comes into play: *"...it monitors our answers and "throws out" the questions that are the most difficult to answer, where we are the most we make mistakes"* (interview

with teacher Nr.1). For users, it is a sign that warns of existing gaps and an encouragement to repeat incompletely learned material. Another important advantage of learning analytics and artificial intelligence highlighted by the research participants is the ability of the teacher to see the progress of the students: *“The teacher sees the summary of the results of the students’ answers”* (interview with teacher Nr.2). According to the research participant, *“after receiving the summary of the answers, the teacher reacts by slightly changing the lesson plan, including repetitions and/or additional teaching of the topics where the most mistakes were made”* (interview with teacher Nr.3). Students who have completed the tests receive an analysis of their results with comments and individual recommendations on what to study.

Conclusions and discussion

Research demonstrates the benefits of utilizing learning experience platforms in general education schools. Among the prominent advantages, the potential for adaptive learning stands out. Learning experience platforms that function as adaptive systems, can continually gather and interpret students’ data, adjust the direction of learning and learning environment, to accommodate students’ needs and abilities (Dumon, 2014). Additionally, these platforms offer enhanced opportunities for accurate assessment. Integrated learning analytics tools enable ongoing monitoring of students’ learning processes, facilitating the adoption of novel assessment methods for more precise evaluation of student achievements (Polonetsky, Jerome, 2014). Learning experience platforms also contribute to effective feedback mechanisms. Leveraging artificial intelligence tools such as virtual guides, assistants, and tutors, along with learning analytics, leads to a more coherent and efficient feedback cycle. Students receive real-time feedback tailored to their actual contributions (Weber, 2015). Furthermore, learning experience platforms possess predictive capabilities. Student behavior, skills, and learning outcomes can be forecasted through the analysis of their activities on the platform. This prediction is valuable for teachers, enabling them to focus on students with specific gaps (Charlton et al., 2013).

Case study analysis of learning experience platform use in Lithuanian general education schools has illuminated the benefits and factors of success. Firstly, learning experience platforms establish an information technology infrastructure characterized by continuous data collection, algorithmic evaluation, and extensive data storage. Secondly, these platforms influence pedagogical decision-making by promoting data-driven choices. They empower teachers’ academic autonomy, facilitate transparent student assessment, and involve parents and students in decision-making processes or decision challenges. Thirdly, the platforms play a role in defining educational components by interlinking concepts, producing content, establishing metrics, and anticipating desired learning outcomes.

Despite the potential benefits of learning experience platforms, significant apprehensions and scepticism persist regarding their application in education, accompanied by unanswered questions about how their use contributes to desired learning outcomes

(Zeide, 2017). Research reveals that schools encounter challenges during implementation, including the transition from traditional data analysis to learner-centered analytics, handling diverse data sets across various environments, overcoming technological barriers, and addressing ethical issues related to data collection and usage (Reyes, 2017).

In the context of Lithuanian general education, the case study analysis of learning experience platform utilization has unveiled major challenges and obstacles. Firstly, while substantial data is generated in Lithuanian general education, detailed information concerning students' learning achievements and demographics isn't readily accessible to those who require it most: teachers, educational institution leaders, and support professionals. Moreover, existing data often fail to provide the insights essential for teachers and schools to accurately identify teaching and learning issues and determine effective solutions. Secondly, although numerous learning experience platforms are emerging, they remain disjointed and lack integration, hindering the development of a unified learning and data network. A collaborative effort involving IT companies, educational researchers, practitioners, and policymakers is imperative to devise effective solutions. Thirdly, it is crucial for users of learning experience platforms, particularly students and their parents, to possess the necessary skills to optimize the teaching-learning process. Understanding the significance of these platforms to the learning process and experiencing their empowering effect is vital. Fourthly, the adoption of learning experience platforms in Lithuanian general education schools is often contingent upon financial resources and constrained by education legislation. Lastly, the utilization of such platforms brings forth concerns regarding data ethics and confidentiality.

In conclusion, the integration of learning experience platforms into general education schools holds numerous opportunities, fostering innovation, inclusivity, and effectiveness in learning. The incorporation of new artificial intelligence and learning analytics tools, capable of personalizing the teaching-learning process, presents ample potential. However, it is imperative to acknowledge that users require new skills and competencies to harness these technologies. Furthermore, ensuring the availability of these technologies across all societal groups is crucial, guaranteeing equal opportunities for their usage and leaving no one behind.

Despite the potential of learning experience platforms, there is considerable hesitation and skepticism about the challenges of their application in education, as well as unanswered questions about how their use could contribute to the desired learning outcomes (Zeide, 2017).

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