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WEB-BASED PROJECTS TO DEVELOP TRANSVERSAL SKILLS IN SECONDARY SCHOOL

ABSTRACT

It is apparent that the system of education is one of the key actors in shaping knowledge, skills and attitudes necessary for students to live and work in the 21st century. The world is rapidly changing, therefore, these changes have to be considered within all the education cycles. However, the education system in Latvia does not always succeed in equipping students with the knowledge they can transfer and use in real-life context to meet the requirements of the 21st century. The modern realities substantiate the necessity for young people to possess transversal competences and soft skills being able to adjust to the rapidly changing world facing and resolving challenges in diverse contexts. The new generation of learners strives to be actively involved in the learning process and acquire skills which link traditional knowledge with research and inquiry-based active learning through collaboration and networking. Therefore, inquiry based web-based projects can become the instrument for paradigm change to reinforce the shift towards more relevant competency-based education programmes.

The study analyses the ways and forms for integrating web-based projects in foreign language teaching within the 21st century perspective. WebQuests developed within the research framework prove to be an effective tool to address the necessity to connect the learning process to real life. The article provides selected results of the study exploring the application of learning technologies within the teaching and learning process.

The research is conducted in the framework of the project "Multilingual and Multicultural University: Preparation Platform for Prospective International Students" (No. 1.1.1.2/VIAA/1/16/019) co-funded by ERDF.

Keywords: *Educational Technology, Paradigm Change, 21st Century Skills, Transversal Skills, Inquiry-based Learning, Active Learning, Collaboration and Networking, English Language Teaching, Learning Technologies, Web-based Projects, WebQuests.*

Introduction

ICT application in educational setting has long become the area of major interest for scholars worldwide. The research explores how the application of ICT in the English language teaching improves academic performance of secondary school students. Today, the world is rapidly changing, which calls for a new study, since the skills, competencies and attitudes required to participate in all spheres of life have changed as well (European Report on Quality Indicators of Lifelong Learning, 2002; School 2030 Project). The main trends in the development of modern society connected with processes of globalization and digitalization find direct reflection in the educational process. Nowadays, student exposure to ICT tools imposes new challenges and demands in secondary education. Traditional education methods do not support modern technology-driven, dynamic world (ATS2020). In order to keep up with time, education has to evolve providing the learner with the more meaningful learning environment. The education system is currently expected to prepare students for these changes, to equip the students with new competences required for the 21st century demands.

The education system in Latvia is going to implement a new competence-based approach to develop students' competences that would prepare students for real life and enable them to function effectively in the 21st century (School 2030 Project), which adds to the topicality of the issue as well.

In the meantime, present-day school-leavers fail to develop the competences they need to succeed in life. Graduates' inability to apply the skills acquired at future workplaces sparked the need to bridge the 'education-to-employment' gap. In view of that, schooling for both employability and life can address this disparity. The focus must therefore be put on the skills necessary for the world of work and success in life, the skills that students would be able to transfer to new environments (Barton, Farrell, Mourshed, 2013). These transferable or transversal skills are critically important to success in school, further education and the world of work. They include the ability to think critically, take initiative, use digital tools, solve problems and work collaboratively (School 2030).

The article introduces the selected results of the study which aimed to find out whether the involvement in web-based inquiry-oriented projects enhance secondary school students' transversal skills.

Theoretical Background

The education system in Latvia is currently undergoing the much needed transformation and is expected to equip contemporary students

with new competences necessary to meet the demands of the 21st century. In light of this educational reform, considerable attention has been given to the concept “key competences” (sum of skills – basic and new basic skills, needed to live in contemporary knowledge society) these days (Terminology of European Education and Training Policy, 2014). These competences are context-independent and built by students; they can be applied for succeeding in different situations according to varying demands and are valuable for today’s world (Weinhert, 1999). The development of key competences to promote learning outcomes (what a learner will know or be able to do as a result of a learning activity (Adam, 2004)) is brought to the fore of the educational change. However, learning outcomes incorporate not barely the competences, but also the knowledge (the outcome of the assimilation of information through learning), and skills (the ability to apply knowledge to complete tasks and solve problems) (The Recommendation of the European Parliament and of the Council on the establishment of the European Qualifications Framework for Lifelong Learning, 2008). Weinert (1999) identifies several aspects affecting the development of competences: ability, knowledge, understanding, skill, action, experience and learners’ motivation. He also distinguishes between the subject specific outcomes, those that refer to the subject discipline and the knowledge and/or skills specific to it; and generic outcomes, or generic/transversal skills, those that refer to any and all disciplines (1999). Generic/Transversal skills or “key competences” blend knowledge with the skills and attitudes necessary in a variety of real-life contexts for independent and life-long learning and are fundamental in helping students acquire, construct and apply knowledge to face complex challenges of the 21st century (KeyCoNet, 2012).

According to the latest OECD review of Latvia’s labour market policy setting (OECD, 2016), there is a shortage of skilled workers entering new market, and the European jobs network EURES (EURES, 2017) confirms that there is a substantial number of unemployed people in Latvia with low qualifications while Latvian employers, in contrast, emphasize the need of qualified employees with higher education, social skills, computer skills, a good command of Latvian, and the knowledge of foreign languages (Russian and English). Besides, there is a demand on Latvian labour market for adaptable and competent workers who possess both specific occupational, in addition to general skills (such as languages, and managerial skills), as well as transversal skills (the ability to think critically, take initiative, use digital tools, solve problems and work collaboratively – TS2020) (EURES, 2017). Consistent with the OECD Skill for Jobs Skill Needs Indicators (2017), in Latvia there is a shortage of the following skills: critical thinking, problem-solving, decision-making, active learning, reading comprehension, writing, speaking, persuasion, systems evaluation and analysis, negotiation,

personal resources management, technology design, social perceptiveness, time management and others.

Moreover, according to the forecasts of the Ministry of the Economy of Latvia (EURES, 2017), it is estimated that in 2022, around 8% of new specialists with the necessary qualifications in their field will have a job that does not match their education, and if the education system does not undergo any transformations, this contradictory situation will develop, which, respectively, indicates that the knowledge acquired at schools is theoretical and fragmental, while more practical knowledge is required by the labour market. This means that more practical, non-formal methods should be introduced in formal education, which calls for the implementation of a new approach to education.

Since the new education model introduced within the project School 2030 highlights the necessity for the learning process to be competence-, project-, task-based and interdisciplinary, both collaborative and individualized, both learner and teacher-led and technologically innovative (Skola 2030), the development of transversal skills as the learning outcome put forward by the School 2030 project can be incorporated into a web/project-based inquiry-oriented activity by means of WebQuests.

WebQuests or Web-based Projects are an inquiry-based lesson formats developed using various applications, which, in turn, assist in mastering the ways of technology application when given real-world tasks. As a result, students develop the skills necessary to become modern global citizens (Bell, 2010). WebQuests being both web-based and inquiry-oriented are seen as a perfect tool for development of transversal skills in the context of competency-based education implementation in schools. WebQuests have a potential to facilitate academic achievement and are regarded as the best fit for addressing the issue of a much needed transformation in education process with a final goal to connect the learning process to real life.

Research Methodology

To explore the ways and forms for integrating web-based inquiry-oriented projects in foreign language teaching within the 21st century perspective, the action research was conducted aiming to find out whether the involvement in web-based inquiry-oriented projects enhances secondary school students' transversal skills. The action research approach was found effective to "solve a problem of local concern (the skill gap) and to intervene in order to bring changes and improvements to educational practice (within the School 2030 perspective)" (Burns 2010: page for a quote).). The focus of the research was practical, directed at the teacher's

practice, learners’ achievement and the assessment of the value of the approach being implemented (Kemmis & McTaggart, 1988).

The study was carried out in one of Riga secondary schools. Forty students of Forms 10 (upper-intermediate level of English proficiency) and 11 (advanced level of English proficiency) have formed the sample of the research. The convenience sampling –non-probability sampling, where participants were selected based on naturally occurring groups conveniently available to participate in the study was applied in the research framework (Nunan, 1992). The research has been implemented over the course of one term – spring term of the 2017–2018 School Year (5 months). The students were informed of the project and were given the choice to participate or not.

Six WebQuests were developed for the research needs. Given that within the research framework, all 6 WebQuests on different topics were developed and piloted during the research implementation period, each student was given 18 opportunities to apply the transversal skills in practice, reflect on them, and raise the awareness of his/her own skill proficiency.

Within the research framework, the existing traditional model of a WebQuest suggested by Dodge (1997) was elaborated. The following table introduces the revisions made:

	Modified for Transversal Skills’ Development	Revised Design
		Homework/Self-access
Typical WebQuest Structure <small>(Dodge, B., 1995)</small>	Welcome	Contextual – Course/ Curriculum/Career-oriented
	Preparation	Open search allowed
	Introduction	Prior-knowledge activ.
Introduction	Warm-up	Self-reflection/Feedback
Task	Tasks	Web 2.0 Tools
Process	Process	Evaluation:
Resources	Product	• Individual/Group
Evaluation	Reflection	• Process/Product
Conclusion	Evaluation	• Presentation
		• Language

Figure 1. Modified WebQuest Structure for Transversal Skills’ Development

Thus, the revised WebQuest Design introduced a nine-step model which allowed to identify the level of students’ experience in the application of transversal skills before the project implementation, allowed prior knowledge

activation and supported in learning how the project implementation has fostered the transversal skills' acquisition. It also endorsed the open search, rather than just the pre-selected links for the students to follow and students' self-access which fostered more autonomous learning and incorporated Web 2.0 tools.

The methods of data collection utilized in the research were: observation, student self-evaluation and feedback, student questionnaires, rubrics, performance-based assessments, authority assessment, notes of field experiences, documents and records.

Findings and Discussion

Before doing the WebQuests, in order to activate their prior knowledge on the subject, the target students were asked to answer 11 questions, e.g. *What do I already know on the subject? What am I going to do? What are my goals? What would I like to learn from the project? What kind of skills do I already have to reach my goals?* etc. The data obtained revealed that this type of activity was new for the target groups of students and they lacked the skills to perform the setting-the-goals task. Although the majority of students managed to set their goals for the particular lesson, the teacher's supervision and additional guidance was required. Students clearly revealed their ability to provide information about the topic and discuss it with their peers. All of the students were able to speculate about further activities. The skills the students mentioned as the ones they would utilize when doing the project were computer skills, pair-work, collaborative learning, critical thinking, communication, inquiry, writing and language skills.

In order to learn about their previous experience in the application of transversal skills, the students filled in the questionnaire which indicated that the majority of students find digital literacy, communication/collaboration and autonomous learning important personally, for the secondary school and future work practice. They also have indicated their ability to execute these skills as 'sufficient'. However, more than half of the respondents have indicated the insufficient level of the ability to execute information literacy skill and have stated that they lack creativity and innovation skills. However, they find these skills being 'important' personally both at school and for their future.

The data obtained revealed that target groups of students were able to activate their prior knowledge on the subject when doing the WebQuests and to indicate the transversal skills needed to complete the projects. They were also able to select the skills required at school and those required for their future. The target students also identified their previous experience applying the selected transversal skills.

Having completed the web-based projects, the students were required to provide feedback and complete self-evaluation checklists. The analysis of the students' responses revealed that the majority of target students who were able to set their goals before the project had managed to accomplish their goals fully, others had stated to accomplish their goals partially. They mentioned that they could have produced better presentations and made fewer grammar/spelling mistakes, as well as that they could have made a deeper inquiry on the subjects. As the key benefits, students highlighted successful group work, liaising with their peers, new information learned, home-assignment, presenting and inquiry. The drawbacks the students identified were some technical issues, failure of some group mates to complete the task and the need to support them for the group benefit, analyzing and selecting the information required. Information evaluation and systematization were also identified as the most challenging skills by the majority of students. The most significant learning outcomes mentioned were broadening the horizons, presentation, team-work and the ability to do the inquiry. The students admitted that they would apply new knowledge in their future work and life when travelling or at work, when cooperating with others and planning their work. The target students found information search and analysis, as well as peer support and prior knowledge and skills useful in their project work and what helped them learn. In addition, the students pointed out that in the future, when doing another WebQuest, they would try to manage their time more efficiently, become better at information analysis and more responsible team mates. The students also stated that they would be more efficient at planning their work. The recommendation for the teacher was to organize web-based project work more often.

The self-evaluation checklists completed by the target groups of students revealed the level of transversal skills acquisition upon the completion of the projects. The skills the majority of students found personally important for the secondary school and future work practice and sufficiently proficient at were – digital literacy, communication/collaboration and autonomous learning.

The analysis of the self-evaluation checklists showed that the majority of students measured their level of communication/collaboration skills mastery upon the completion of the projects as 'proficient' and had marked the mastery of autonomous learning skill at the same level. The target students demonstrated their ability to communicate/collaborate efficiently using ICT, to obtain and organize information using digital tools, to create and share content using ICT within their groups and in class, were able to use ICT autonomously, were able to perform tasks and solve problems using ICT, to organize data and create digital texts to come up with

the final product. The students' feedback and the teacher's observation showed that the students confirmed their digital literacy skill mastery – the majority of the target students indicated being sufficiently proficient at. The information literacy skill, which was indicated by students as necessary to be more developed, appeared to be perceived by more than half of the respondents as progressing. Furthermore, the target students demonstrated the progress at the level of creativity and innovation skill mastery, the students perceived being not sufficiently skilled at during the initial stage of the project implementation. The majority of students marked the attainment level of creativity and innovation skill as developing upon the project completion, rather than not sufficient.

Based on the data obtained applying observation as a data collection method, the conclusion can be drawn that the students demonstrated the ability to interact, collaborate to achieve collective and personal goals, to communicate, express opinions, write, make oral presentations and perform using appropriate language, to show interest in global challenges, to implement ideas and take action based on critical evaluation of options and alternatives and to use digital tools when collaborating with others to create materials and share information with the peers (*Collaboration and Communication Level 3*, ATS 2020 Project) and proved to be able to access and evaluate information and communication technology, to use and manage information online, to create media products, to perform and complete their tasks utilizing digital tools effectively (*Digital Literacy Level 3*, ATS 2020 Project).

The evaluation rubrics (both process- and product-oriented) was used to assess students' individual and group performance, as well as the final product, task achievement and language input. The rubrics apportioned 20 points for Group Work, 20 points for the students' Individual Input, 20 points for their Presentations, 20 points for the Task Completion and finally, 20 points for the Language, making up a 100-point scale. The target students demonstrated excellent results: 90% of students (36 out of 40) gained 95 points out of 100, having received 15 points out of 20 for the language; 5% of students (2 out of 40) performed quite well, getting 90 points out of 100, having received 10 points out of 20 for their individual input, and 5% of students received the highest mark – 100 points.

Conclusions

Since, the learning activities should be purposefully developed to enable the students to utilize the transversal skills which they would be able to transfer into their real-life contexts (ATS2020 Final Conference), the WebQuests implemented with target students had been specifically

designed for the students so that they could demonstrate those skills and offered them the opportunity to gain crucial skills that would open up a world of possibilities. Taking part in collaborative and individual opportunities, the students were empowered with the knowledge and skills that were required for success beyond high school.

Students' observation revealed that the groups were actively involved in the project tasks, they had learned to collaborate successfully reaching common aims, they were learning from the process, demonstrated creativity and high level of participation having acquired new knowledge and skills critical to success in studies and life. Based on the analysis of students' performance (rubrics) and students' feedback, as well as their peer feedback, it can be concluded that current technology applications used in the classroom had positive effects on student learning. The students had demonstrated the ability to utilize the transversal skills, felt being exposed to the global issues and learned to draw out links and reflect. The WebQuests implemented are a good example of the new curriculum as they develop 21st century skills, such as critical-thinking, problem-solving, synthesizing of information, research skills, self-direction, planning, self-discipline, initiative, creativity, teamwork, presentation skills etc.

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