Education in the Age of Covid-19

15

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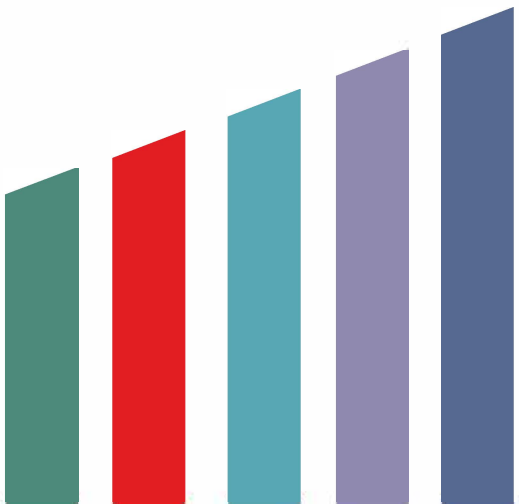

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Content

Other

Dear Readers,

We are very pleased to present you with the proceedings of the *Special 15th international online conference DisCo 2020: (Online) Education in the Age of Covid-19.*

Originally tittle of the conference had been *Disco: Active Learning in Digital Era: How Digital Tools promote a Conscious, Open-minded, Creative and Social-Oriented Thinking.* However, virus Covid-19 changed our plans. Our traditional conference venue in the se in the seat of Microsoft Prague was closed for public event and many potential participants cannot come to Prague because of the travel restrictions. However, we didn't want to give up and saw the situation as an opportunity to reflect on the teacher's experience of teaching and learning in a pandemic.

We would like to also thanks a lot to CEI, who allowed to shift it financial support from DisCo 2020 to DisCo 2021.

The DisCo 2020 was held fully online on Monday 22nd and Tuesday 23rd June. Over 70 participants from 13 countries (from USA to Russia, from Finland to Albania) took part in this event.

The conference opened with an interactive keynote speech by Darja Medic. Darja was researcher at DiploFoundation, a civil society organisation active in digital policy and digital diplomacy with extensive experience in online learning since the end of the 90's. She is is a digital practitioner and researcher, working in the fields of media art and design, critical writing, curating and production. She graduated from the Networked media department at the Piet Zwart Institute in Rotterdam, Netherlands and the New media department of the Academy of Arts in Novi Sad, Serbia. She is a core member of the organisation Interkultivator that focuses on the decentralisation of cultural production in Serbia through creating experimental educational platforms, a researcher at the Center for new media .

Her presentation *Civil society, online learning and adaptive technologies in the context driven digital space* was focused on how an educational organisation active in digital diplomacy and digital policy, DiploFoundation has built extensive experience over the last two decades in confronting the enabling versus disabling aspects of digital tools. How the educational organisation's online teaching and learning experience has influenced the development of discussion tools for its specific methodology, as well as its custom LMS. She also mentioned how their experiences long time experience with online helped Diplo Foundation to relatively good deal with Covid-19 pandemic.

Next speaker Richard Péter-Szábo from Corvinus University in Budapest spoke about using serious game for learning about Hungarian revolution in 1848. The collected data indicated that gamification as a relatively new way of teaching history can lead to higher willingness of learning and participation. Rewarding and scoring systems like the one in "1848" have a potential in motivating students to play the game more than one time. The second questionnaire showed that students' historical knowledge about the 15th of March, 1848 increased after playing the game. Then Michal Černý, Masaryk University in Brno, Czechia presented his poster about Digital competency course. The course was high quality and won based on voting of our programme comittee ČADUV Award. Then Michal Černý continued with his presentation about participatory curriculum design which he had used for open online information couse for high schools. After his presentation Yulia Krylova-Grek and Maryna Shyshikna, from Ukraine, spoke about the impact of the Covid-19 quaranntine on online course about media and cyber literacy skills. This topic is very important in the current masive waves of desinformation. Our (media) literacy block closed Veronica Yarknykh with her speech abour media education in corporate ecosystem in Russia. She show there was a lack of media, digital

and information literacy among big and medium companies in Russia. The needs of the improvement of the level of theses literacies raise during the pandemic.

Monday afternoon block was opened by Monika Frania, University of Silesia in Katowice. She presented online course abour slavic legends for early and pre-school education. Her poster won based on audience voting DisCo Award.

After her presentation, we stayed in Poland and Eryka Probierz spoked about using e-learning for developing programming. The Ukranian American team: Oksana Zmoara, James Scott Christianson and Tatiana Khvorost show how personalised learning can be used against technological fatigue during the COVID-19 quarantine period in spring 2020. Next speech from Dana Líšková (Czechia) and Ján Gunčaga (Slovakia) focused on using mobile technologies in educational process in kindergartens. Iryna Pokulyta and Mariana Kolotylo (Ukraine) about spoke about current educational challenges in the global and rapidly changing world.First days was closed by presentation from Peter Csiba and Szílárd Svitek who discussed presence and future learning of online teaching mathematics in Hungarian language in Slovakia.

The second day of the conference was opened by keynotespeech from Nadia Sansone, professor of Experimental Pedagogy and Technology Enhanced Learning at Unitelma Sapienza University of Rome, Italy. She spoke about collaborative best practices and knowledge work skill in higher education. Miranda Enesi and Anisa Trifoni from Albania focused on comparison of using Zoom for learning versus traditional learning. Current topic also presented Hana Tulínská (Czechia), who presented how to accelerate the transfer of knowledge about information literacy from university to high school using an online open mash-up environment. Lilla Korenova (Slovakia) and Jozef Hvorecky (United Kingdom) presented how programming languages and programable toys can develop children's algorithmic and critical thinking. The morning block was closed by scholars from West Bohemia University presented how university quickly react and support teachers in shockingly new conditions of fast transformation of traditional learning to online mode.

Last block was open by Sanna Brauer, Leaning and Education Researcher from University of Oulu/Oulu University of Applied Science. She reflected how Finland deal with teaching during pandemic. What impact has the pandemic on teaching, learning and daily life of higher education teachers and students. Iryna Didenko from Ukraine than reflected reaction of Ukrainian tertiary education sector on the pandemic. Then Dagmar Dlouhá, Viktor Dubovsky and Karolína Dlouhá discussed importance of interactive materials for successful teaching mathematics at university. Then Ortenca Kortenja (Albania) continued with presentation which factors motivated lectures to teach online. The presentation of Dejana Prnjat (Serbia) reflected the influence of Covid-19 on art education. The last presentation from Lenka Beneditková and Jan Frank moved us to other level of education, and they show the influence of covid-19 on secondary schools' pupils.

You can find above mentioned presentation (without keynotespeeches) in our proceedings. Because we know how tiring was to be still online, we selected for online conference just some presentation, but you can find much more presentation in the proceedings. We divided the proceeding to three parts. The first one is dedicated to using education technology in technical education. The second part focuses on the influence of Covid-19 on online education. The last part offers mix of different stories and topic related to using educational technologies.

Finally, we would like to express gratitude to our partners for their sponsorship and support. First of all, we thank The Central European Initiative, our general partner, especially for their flexibility and shifting its travel support to next year. We are also grateful to Microsoft for being our long-time partner. Our thanks go to AAEI (Association of Adult Education Institutions) the Czech Republic, Navreme Boheme s.r.o, Prague Development Center, Veriod, Czech

Association of Distance Teaching Univeristies (ČADUV) and media partners: Edumenu; Andragogika v praxi, Aula, RicercAzione, Firemní vzdělávání and Ikaros. Last but not least, we really appreciate the enthusiasm and work of the Programme and Organizational Committees as well as our volunteers. Without their great effort and help, the organization of such an event would not be possible.

Jan Beseda, Centre for Higher Education Studies

Articles

Technical education

USING CHILDREN'S PROGRAMMING LANGUAGES AND PROGRAMMABLE TOYS FOR DEVELOPING ALGORITHMIC AND CRITICAL THINKING

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Abstract

The European Commission recommends starting to develop children's digital competencies during their pre-primary and primary education because it may positively influence their future employability. The programming-related activities here represent a way of obtaining and developing their algorithmic and critical thinking. To address them properly, children-oriented educational methodologies are necessary. To use them effectively, their teachers/trainers have to be prepared. At the Faculty of Pedagogy of the Comenius University in Bratislava, an approach using children's programming languages and programmable toys has been developed.

In our paper, we present results of our research analysing the readiness of our students to provide such education – their motivation and inclination to develop algorithmic and critical thinking in their future pupils. Our research also analysed their ability to operate the tools and to share their knowledge and experience. Our results show their attitude as positive. It facilitates our will to continue and to develop our ongoing approach.

Keywords

Pre-service teacher training. Children's programming languages. Programmable toys. Algorithmic thinking. Critical thinking.

INTRODUCTION

In addition to the ability to use and exploit electronic applications, the broader interpretation of Computer literacy includes understanding of their function and the risks they can carry. Computer programming is a way of bringing this knowledge to public. (Papert, 1980) was the first educator and researcher calling for this type of education. He designed Logo – the first programming language predominantly designed for children. Papert's fruitful idea proved its potential and soon additional languages appeared (Pattis 1981; Calabres 1989; Brusilovsky 1991; Hvorecky, 1992). All these languages exploit the fact that many real-life problems are solvable using a sequence of steps that can be planned and executed (some even by kids). The algorithm is defined as a set of instructions designed to perform a specific task (Hvorecký & Kelemen, 1983). Children of early age intuitively understand the concept, too. The Swiss psychologist Jean Piaget studied it even before the appearance of the first publicly available computers (Inhelder & Piaget, 1958) and suggested reflect it in stages of education. As the children's

capability of abstract thinking grows with with their age, the explosion of children's programming languages having different complexity for different age group not a random event. (Brusilovsky et al., 1995) denote them as mini-languages and characterize the reasons for their development in the following way:

- General-purpose languages are too big and too idiosyncratic.
- General-purpose languages provide little leverage for understanding their basic actions and control structures.
- Since general-purpose programming languages are oriented on number and symbol processing, the first possible problems used in teaching the language are far from the students' everyday experience and are not attractive for them.

Today, there are hardly any doubts about the importance of training children to learn basic elements of algorithmic thinking as a part of their literacy. The decision to incorporate it leads to additional problems: to creata an appropriate learning environment, to formulate tasks appropriate for age groups, to build relevant education methodologies and to prepare educators for their gentle application. In the next chapters, these issues are discussed. First, we describe the evolution of learning environments and their relevance to children age groups. Then, we discusses the needed support for the adult companions (both teachers and parents) allowing to gain a maximum profit from these environments to their children. Finally, the application of these principles in pre-service teacher training at the Faculty of Pedagogy of the Comenius University in Bratislava, Slovakia, is presented. In Conclusions, we generalize our findings in order to enhance the quality and effectiveness of application of the children's programming languages in education.

COMPUTERS, ROBOTS AND CHILDREN

The evolution of children programming languages mirrors the IT evolution. The first mini-languages appeared only with computer displays. This type of output allowed to minimize the response time and to make the operations synchronous. The kids need instant reactions to their actions (commands). Expecting them to wait for the printout is unrealistic. Also, in the alphanumeric output one was almost impossible to define and to implement a notation decodable by a kid.

In 1980's, children's companions (both teachers and parents) did not undergo any training program – it did not exist yet. As a result, they lacked the ability to set up appropriate problems – not too easy and not too difficult – for their trainees. The documents introducing the programming languages primarily targeted the language itself (its commands, structures and their interpretation), not the methodological issues. (Papert, 1980) built them using Piaget's theory of child's development. It recognizes four stages (Inhelder & Piaget, 1958):

- During the *sensorimotor stage* (up to 2 years), the child is collecting knowledge and understanding of the world by coordinating experiences (such as vision and hearing) from physical interactions with objects. From our point of view it means that he or she may start understanding that object can be manipulated e.g. by pressing buttons. One can hardly expect them doing more than just repeat what they have seen.
- During the *preoperational stage* (2-7 years), children's operations are done primarily physically, not mentally. However, it means that they can play with robots in a

synchronous mode and accomplish tasks which lead to a well-specified concrete result, for example to perform a sequence of robot's steps inside a maze.

- The first elements of programming can be implemented during the *concrete operational stage* (7-11 years). In the previous stage, all steps had to be instantly executed in order to register their result. Now, the child is ready to foresee them and record them prior to their execution. They can design their first simple programs.
- Finally, during the *formal operational stage* (12+ years), children can formulate hypotheses and verify them. Their mental development allows them to program complex programs containing conditional commands, loops and procedures, i.e. they can exploit the full portfolio of commands.

It also means that the educator's support must be strongly connected to both child age and used (version of) mini-language. Below, we describe devoted to educational environments demonstrating the requested features. We concentrate on teacher training: expected teachers' knowledge and their skills. Basically, it implies that systematic development of algorithmic thinking can start around 7 years of age. As the child will certainly make errors in his/her solutions, he/she can be also asked to critically evaluate his/her previous behaviour. Initially, the debugging should expect going just a step back. Later it should consider more and more of them. It would allow the children to comprehend the principle of constant and continuing improvement. At the same time, if children can observe the responses to their action instantly, one can work with them from their preoperational stage. It's also the reason why the programmable toys fit better for the earlier age groups. At the same time, working with programmable toys is a way of preparing them for robotics (Merino et al, 2018).

In the K-12 educational context, the latest NMC/CoSN Horizon Report (Freeman et al. 2017), presents educational robotics as one of the technological advances. In parallel to a process of conceptual transformation and application, the construction and programming of robots (Barker and Ansorge, 2007) represents the most innovative learning paradigm (Gaudiello and Zibetti, 2016) in practically all curricular areas (Mubin, Stevens, Shahid, Mahmud, & Dong, 2013). The studies in the field are not frequent yet. Let us mention the integration of robotics in the classroom (Benitti 2012; Toh, Causo, Tzuo, Chen, & Yeo, 2016), its benefit for learner's motivation (Chin, Hong and Chen, 2014; Karim, Lemaignan and Mondada, 2016), problem solving (Lindh and Holgersson, 2007), participation (Toh et al., 2016), teamwork (Varney, Janoudi, Aslam, & Graham, 2012), and cooperative learning (Denis and Hubert, 2001). With the decline of robots' price and the opportunity to visualise their programming by blocks (Román-González, 2016), the students can quickly grasp rather high learning experiences (Chang, Lee, Wang, and Chen, 2010).

All this corresponds well with (Papert 1980; Papert 1993) presumption on such constructivist learning environments: give time and talk. Giving time means that the student needs to understand the problem, develop a conjecture, test it and, in case of error, rethink its conjecture. Invite them to talk because it is important to present their doubts and exchange ideas. Educational Robotics can provide these characteristics because it promotes very practical contexts of experimentation and resolution (Ribeiro, 2011). The action of the robot – as a materialization of thought – allows the children to make their reasoning real and to test it in a tangible way. It has proved to be an important tool for the development of cognitive and social skills (Alimisis, 2013).

(Mill and César, 2009) found the following characteristics of the use of robots:

- It provides collaborative work with the development of argumentative skills and respect for others; play and learning;
- It provides a relaxed and fun environment, combining play and learning;
- It develops logical reasoning;
- It stimulates creativity and reflection;
- It enables students to understand the error as part of the process;
- It develops the scientific spirit.

EU Horizon 2020 program also underlines the importance of robot-based educational activities as a base for making STEM studies more attractive.

RESEARCH METHODOLOGY

Our research follows the methodology of action research introduced by J. Elliott (Elliot, 1991). It consists of several stages that regularly repeat:

1. *Diagnostics of the educational process*: A call for the change comes from inside the community (i.e. from educators and their professional needs and interests). The aim is to improve quality of selected education components.
2. *Design of intervention*: A systemic action plan initiated by the controlled subjects taking part in the given socio-cultural process is specified.
3. *Intervention leading to data collection*: The educational environment is a living body not isolated from the rest of community. In order to get relevant data, certain presumptions on "what will be studied and why" must by specified in advance to get trustworthy data not considerably influenced by the circumstances unrelated to education.
4. *Analysis of data and their interpretation*: The researched bodies and the leading researcher collaborate on data collection. The data are continuously analysed and interpreted. As usual, the amount of data is extensive in both their quantum and complexity.
5. *Demonstration of changes in the process*: In principle, the process is both qualitative and dynamic because all participants accept are aware of its evolution in their socio-cultural environment and actively participate in this evolution.

Consequently, the stages cooperate through introspection – action – reflection (as well as through action – reflection – revision).

In our below research, qualitative research will address the understanding of course material and the ability of learners to exploit their knowledge for its innovative presentation to their (future) pupils. Thus, our main aim is a deep incorporation of the course content to the degree allowing its creative application.

To evaluate the process and its achievements, we will collect data on the individual student's knowledge of the course material, his/her ability to collaborate with his/her classmates on its application. (Kostrub, 2016) underlines that all educational processes have to respect the cause-result relationship and see the class activities as tools for developing cultural association of educators and learners. In means that the education itself offers room for educational strategies and events running under never-repeating conditions leading to consequences that can be outlined but hardly identical.

THE STUDY

In Slovakia, regular IT-related courses start at the secondary schools (Grades 6-9). Our research tries to move their beginning to earlier classes. Even if there are isolated examples of such courses (usually in children clubs), a systematic course supported by study materials and learning materials absents. At the same time, recent national learning standards expect introducing some elements of IT from Grade 3. It also means that our students (future teachers of Grades 1-5) did not expect learning about programming and robots in the moment of enrolling the university.

It means that the above addressed action means a shift in the motivation of our students to modify their attitude and future expectations. During our investigated action we are looking for a course methodology that would facilitate their involvement and give us responses to the following questions: How to build their positive relation to (robot) programming? What is important for them and why? What is less important or irrelevant for them and why? Their responses will lead to better design of our course practices.

Our research addressed the courses *Detské programovacie jazyky* (Children's Programming Languages) and *Technická výchova v primárnom vzdelávaní* (Technology in Primary Education) at the Faculty of Pedagogy of the Comenius University in Bratislava during the fall of 2019. Its participants were the students of the Master study program *Učiteľstvo primárneho vzdelávania* (Teaching for Primary Education). The selection of the Action Research approach resulted from the fact that the course activities are chosen and executed by the faculty which is directly affecting their content and quality. At the same time, the pre-service teachers are not passive subjects. They are actively contributing to the content and quality by their involvement and collaboration as well as by their knowledge of the primary schools' specifics. It means that the collected data have presented their knowledge, opinions and values related to innovation of primary education.

Due to its format and way of execution, the research methods belong among qualitative methods (in particular, among in-depth research approaches). Its distant aim has been to implement such a learning and teaching scenario which will maximize the subjects' involvement and minimize their reluctance. As (Kostrub 2019) say, the communication and social contact with the students is the best way of reaching it.

The research was accomplished during the entire winter term of the 2019/20 school year (October – January). Both studied courses consist of two contact hours per week. The discussions with the students run regularly during these sessions. The course format is blended learning. The instructors' demonstrations have been combined with students' active participation in the Moodle Learning Management System. It allows to post individual problems each student and to present their solutions.

The problems addressed the robotic toys: Botley, Ozobot Evo, BlueBot, Pro-Bot. In accordance with our above characterization, the tools allow both synchronous and asynchronous modes. The asynchronous mode exploits the programming language Scratch. Our main aim was to achieve the optimal integration of the toys as a supportive tool from constructivist approach to learning. As the students were not familiar with them prior to the course, their role was to test them, to find and to comprehend their advantages and limits. In the end, they were asked to formulate a series of problems that would contribute to the national curricula (known as ISCED1) in the fields of Mathematics and Science. The global aim of the project was to support and enhance the motivation of pre-service teachers in the given fields, to develop their inter-disciplinary skills as well as

their professionally-oriented creativity. To our best knowledge, similar research Fincluding robotic toys in pre-service training has not been executed in Slovakia yet.

Our principal research method was a direct observation combined with video recording. The following techniques have been used:

- Observation and video recording;
- Analysis of observed activities and their transcription;
- Open encoding of transcribed data and forming their categories.

Here, open coding was selected as an interpretation method due to its simplicity and wide applicability. The following research questions were studied:

1. What are the advantages of application of robotic toys for achieving learning outcomes in preparing future teachers for primary education?
2. What makes these advantages different from those typical for other (non-constructivist) ones?
3. Are there dependencies related to different robotic toys and/or to their programming languages?

Their hidden aim of these partial analyses was to identify the influence of robotic toys to the digital awareness of pupils and the most appropriate ways of delivery of positive knowledge.

The elaborated data consisted of the digitally recorder instructor's lectures and student's solutions. The solutions were composed from (a) a robot programmed activity, (b) an essay describing the student aims and its completion. Confusions and misunderstandings were discussed with the instructor in order to build a reference framework. As a result, this framework reflects and integrates not only our students' activity but also their key ways of considerations.

Elaboration of research material

The processing of research material is carried out with the support of software assistance via Atlas-ti in organizing and analysing research data. We also remain faithful to the mechanical processing of research data by applying the (CCM) Constant Comparative Method (Kolb, 2012). Digital recordings of the classes (teaching and learning) were repeatedly played together with the read students' "homework" - which were also essays, in order to find significant entities, elements and factors that indicate the current state of teaching and learning and the related relationship framework. A reference framework was abstracted during the analysis of the findings. The frame of reference was created on the basis of descriptions integrating the actions, communication and statements of students - subjects of research in the observed teaching and learning. The registration of the result was evaluated on the basis of the created reference framework with evaluation comments in the interpretation of the research results. The interpretation of the research material was inspired by the study of J. Attride Stirling (2001):

I. analytical stage: Reduction and division of the text, coding of research material, identification of topics, construction of thematic networks - arrangement of topics, selection of basic topics, rearrangement of topics, identification of a global topic, illustration of a networked topic, verification and specification of a topic.

II. analytical stage: Text research, description and research of the text, summarization of the thematic network.

III. analytical stage: Integration and exploration, interpretation of samples.

A large amount of research material was elaborated by the CCM (Constant Comparative Method) in which the saturation of the identified categories was monitored in the sense of:

- Comparing events usable for a category.
- Integrating categories and their properties.
- Definitions of theory.

The CCM was realized as a phase of qualitative analysis of the implemented action research.

Figure 1: The students discover the functions of the Ozobot a BlueBot robots (source: own).

In our research, the central category of intentional support of students' algorithmic thinking through robotic toys and children's programming languages was abstracted. The first level is direct support for the development of digital literacy of students through the use and programming of robotic toys and children's programming languages, where the teacher supports digital literacy through communication, design, application of jointly constructed rules, outlining various learning problems, etc. The second level is indirect support for the development of algorithmic thinking, where the teacher assigns a task for pairs of students, where students design activities for children (in the first stage of basic education) of primary school.

DISCUSSION AND CONCLUSION

The methods of validation and reliability were applied in the implemented qualitative research by: triangulation, constant comparative method, degree of generalization, process presentation, process evaluation and quality control, presentation of research results - in designing research findings and discussions based on constructing consensus in discourse.

We have not verified anything during our research – we have tried to understand the subject matter and subjects as members of the learning group. We are interested in the story and its construction, which is connected with learning during non-traditional education. It is an example of how the world of teaching and learning is created with the help of words, supported by children's robotic toys. According to (Ostradický, 2020), within the (co-) interpretation of a social situation (thinking and actions of subjects), a qualitative researcher focuses on distinguishing and evaluating phenomena in terms of their intentions which are attributed to them by the research subjects. As result, the understanding (mutual understanding) of meanings, which are ascribed to phenomena by subjects, is monitored.

First, the advantages of application of robotic toys in preparing pre-service teachers for primary education has been transparently demonstrated. The students have been not only to understand the subject but also formulate the problems addressing their future pupils and prepare the videos with their solutions.

Secondly, as the big portion of education and training run in an online environment, the students have got additional knowledge appropriate in the periods of unwanted separation from their students (e.g. similar to the recent coronacrises) and are capable of using it in a constructionist way.

Thirdly, the students worked in three different robotic environments without troubles. It indicates that their knowledge and skills do not depend on particular robotic toys or their programming languages.

According to the research subjects, the process of deliberately supporting the development of students' algorithmic thinking and digital literacy through robotic toys and children's programming languages, together with the problems associated with it, are not ultimately influenced by social and cultural environment, but by the teacher's internal motivation and attitude towards students. This requires redistribution of power, mutual trust and equivalence among the subjects of learning and teaching. Research subjects also point out that in the process of deliberately supporting the development of digital literacy through robotic toys and children's programming languages, it is important that students are spontaneously motivated and involved in creating such an environment in which they develop algorithmic thinking, communication, creativity, adaptability, resulting in being able to agree and cooperate in joint activities. Another research finding is the need for the teacher to respect the autonomy of students in discovery, as well as to respect their effort to be independent.

We can conclude that trainees demonstrated expansions of algorithmic and critical thinking and – what is also important – felt themselves as the coauthors of their course content. Their motivation drew during the semester and their final evaluation was highly positive

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REFERENCES

Alimisis, D. 2013. Educational robotics: Open questions and new challenges. *Themes in Science and Technology Education,* 6(1), pp.63-71.

Barker, B. S., and Ansorge, J. 2007. Robotics as means to increase achievement scores in an informal learning environment. *Journal of Research on Technology in Education*, 39(3), pp.229–243. Available at: https://doi.org/10.1080/15391523.2007.10782481 (Accessed: 30 May 2020).

Benitti, F. B. V., 2012. Exploring the educational potential of robotics in schools: A systematic review. *Computers and Education*, 58(3), pp.978–988 Available at: https://doi.org/10.1016/j.compedu.2011.10.006 (Accessed: 30 May 2020).

Brusilovsky, P. L., 1991. Turingal - the language for teaching the principles of programming. In: E. Calabrese (ed.): *Proceedings of Third European Logo Conference*. Parma, pp.423-432.

Brusilovsky, P., Calabrese, E., Hvorecky, J., Kournichenko, A., Miller, P., 1997. Mini-languages: a way to learn programming principles. *Education and Information Technologies* 2, pp.65–83.

Calabrese, E., 1989. *Marta - the "Intelligent Turtle"*. In: G. Schuyten and M. Valcke (eds.): *Proceedings of Second European Logo Conference,* EUROLOGO'89. Gent, pp.111-127.

Chang, C. W., Lee, J. H., Wang, C. Y., and Chen, G. D., 2010. Improving the authentic learning experience by integrating robots into the mixed-reality environment. *Computers and Education*, 55(4), pp. 1572–1578. Available at: https://doi.org/10.1016/j.compedu.2010.06.023 (Accessed: 30 May 2020).

Chin, K.-Y., Hong, Z.-W., and Chen, Y.-L., 2014. Impact of Using an Educational Robot-Based Learning System on Students' Motivation in Elementary Education. *IEEE Transactions on Learning Technologies*, 7(4), pp.333–345. Available at: https://doi.org/10.1109/TLT.2014.2346756 (Accessed: 30 May 2020).

Denis, B. and Hubert, S. 2001. Collaborative learning in an educational robotics environment. *Computers in Human Behavior*, 17(5–6), pp.465–480. Available at: https://doi.org/10.1016/S07475632(01)00018-8 (Accessed: 30 May 2020).

Elliott. J., 1991 Action *Research for Educational Change*, Milton Keynes & Philadelphia: Open University Press.

EU Horizon 2020 Project: Networked Labs for Training in Science and Technology (NEWTON), 2016. Available at: http://www.newtonproject.eu/ (Accessed: 15 June 2020).

Freeman, A., Becker, S., Cummins, M., Davis, A., and Hall Giesinger, C. 2017. *NMC/CoSN Horizon Report: 2017 K-12 Edition*. Austin, Texas

Gaudiello, I. and Zibetti, E. 2016. Learning Robotics, with Robotics, by Robotics: Educational Robotics. Learning Robotics, with Robotics, by Robotics: *Educational Robotics* (Vol. 3). Available at: https://doi.org/10.1002/9781119335740 (Accessed: 30 May 2020).

Hvorecky, J., 1992. Karel the Robot for PC. In: P. Brusilovsky and V. Stefanuk (eds.), *Proceedings of East-West Conference on Emerging Computer Technologies in Education*. Moscow, pp.157-160.

Hvorecký, J. and Kelemen, J., 1983. *Algoritmizácia (Algorithm Design, in Slovak)*. Alfa, Bratislava.

Inhelder, B. and Piaget, J., 1958. *The Growth of Logical Thinking from Childhood to Adolescence*. New York: Basic Books.

Kolb, M. S., 2012. Grounded Theory and the Constant Comparative Method: Valid Research Strategies for Educators. *Journal of Emerging Trends in Educational Research and Policy Studies* (JETERAPS), 3 (1), pp.83-86. Scholarlink Research Institute Journals.

Kostrub, D., 2016. *Základy kvalitatívnej metodológie. Keď interpretované významy znamenajú viac ako vysoké čísla.* Bratislava: Univerzita Komenského v Bratislave.

Kostrub, D., 2019. *The inspiration by qualitative methodology in pedagogical research*. Horn: Verlag Ferdinand Berger & Söhne.

Lindh, J. and Holgersson, T., 2007. Does lego training stimulate pupils' ability to solve logical problems? *Computers and Education*, 49(4), pp.1097–1111. Available at: https://doi.org/10.1016/j.compedu.2005.12.008 (Accessed: 30 May 2020).

Merino, J., González-Calero, J. A., Cózar, R. and Villena-Taranilla, R., 2018. Computational Thinking Initiation. An experience with robots in Primary Education. *Journal of Research in Science Mathematics and Technology Education*. 1, pp.181-206. Available at 10.31756/jrsmte.124 (Accessed: 30 May 2020).

Mill, D., and César, D., 2009. Robótica pedagógica livre: sobre inclusão sócio-digital e democratização do conhecimento. Perspectiva, 27(1), pp.217-248.

Mubin, O., Stevens, C. J., Shahid, S., Mahmud, A. Al and Dong, J.-J., 2013. A Review of the applicability of Robots in Education. *Technology for Education and Learning*, 1(1), pp.1–7. Available at: https://doi.org/10.2316/Journal.209.2013.1.209-0015 (Accessed: 30 May 2020).

Ostradický, P. 2020. *Vplyv individuálnej koncepcie učiteľa na autonómnosť žiaka vo výučbe: dizertačná práca.* Bratislava: Univerzita Komenského,

Papert, S., 1980. *Mindstorms, children, computers and powerful ideas*. Basic Books, New York.

Papert, S., 1993. *The children's machine: Rethinking school in the age of the computer*. BasicBooks, 10 East 53rd St., New York.

Pattis, R. E., 1981. *Karel - the robot, a gentle introduction to the art of programming*. Wiley, London.

Román-González, M. 2016. *Códigoalfabetización y Pensamiento Computacional en Educación Primaria y Secundaria: Validación de un instrumento y evaluación de programas*. Universidad Nacional de Educación a Distancia (España). Escuela Internacional de Doctorado. Programa de Doctorado en Educación.

Rodrigues, M. R. and Felicio, P., 2019. *The use of ground robots in primary education: students' perspectives*, pp.1-5. Available at:10.1109/SIIE48397.2019.8970141 (Accessed: 30 May 2020).

Ribeiro, C. R., Coutinho, C. P. and Costa, M. F. 2011. A robótica educativa como ferramenta pedagógica na resolução de problemas de matemática no ensino básico. In *Proceedings of the 6th Iberian Conference on Information Systems and Technologies*, CISTI 2011. Associação Ibérica de Sistemas e Tecnologias de Informação (AISTI), pp.440-445.

Toh, L. P. E., Causo, A., Tzuo, P.-W., Chen, I.-M. and Yeo, S. H., 2016. A Review on the Use of Robots in Education and Young Children. Educational Technology & Society, 19(2), pp.148–163. Available at: https://doi.org/10.2307/jeductechsoci.19.2.148 (Accessed: 30 May 2020).

Varney, M. W., Janoudi, A., Aslam, D. M., and Graham, D. 2012. Building young engineers: TASEM for third graders in woodcreek magnet elementary school. IEEE Transactions on

Education, 55(1), pp.78–82. Available at: https://doi.org/10.1109/TE.2011.2131143 (Accessed: 30 May 2020).

USING E-LEARNING METHODS TO LEARN PROGRAMMING AMONG ADULTS - MOTIVATION, ATTITUDES, EFFECTS

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Abstract

With the changes that can be observed on the labour market, working as a programmer offers a significant guarantee of work and one of the higher earnings. This causes that many people decide to change their current profession, precisely by learning programming. Due to the diverse educational offer related to programming, choosing the right course is not an easy task. The aim of this study is to examine the motivation, attitudes and declared effects of people who have decided to use e-learning methods to learn programming. The possibility of remote learning is an opportunity for those who want to change their profession or improve their financial conditions and at the same time cannot afford to give up their current job. The offer of courses aimed at learning programming also varies in terms of price, from free courses to courses with a job guarantee of around 3500 euros. The survey was carried out online on a group of 480 people who started to learn programming, which was not their basic learned profession. The survey consisted of a socio-demographic survey, a Behavioural Intention questionnaire, which was based on the Unified Theory of Acceptance and Use of Technology, and a self-assessment survey measuring the declared learning outcomes. The study included such constructions as: Technology Awareness, Performance Expectancy, Effort Expectancy, Social Influence, Attitude, Hedonic Motivation, Habit and Facilitating Condition. The aim of the study was to identify the key factors that contribute to the best possible learning outcomes in programming and those that hinder effective education. The participants of the study were persons of Polish citizenship, aged 20 to 56 years. The obtained results indicate a variety of factors, the most important of which are motivation, degree of involvement and the achieved, planned effects. The results obtained in this work are intended to draw attention to the key factors contributing to the success of learning programming, which may provide guidance for both those planning to change their careers and those constructing e-learning programmes.

Keywords

Programming- E-learning. Motivation. UTUAT2. Attitudes. Unified Theory of Acceptance and Use of Technology 2.

INTRODUCTION

The aim of this study is to check the motivations, attitudes and subjectively evaluated effects of learning programming using e-learning platforms. The profession of a programmer in Poland, as well as in many other European countries is highly paid and offers many solutions that cannot be applied in other professions. The survey was conducted on a group of adults for whom programming is not the first learned profession, and who for various reasons are in the process of changing jobs. The study coincided with

the outbreak of the Covid-19 pandemic, which has had and is currently having a significant impact on some branches of the economy. In addition, forced isolation, in order to reduce the number of infections, has led many people staying at home to seek new forms of education and new career paths. It is important to note that remote working is widely popular among programmers, unlike other professions.

Based on the available literature, no research was found to investigate remote forms of programming teaching. As it has been shown, learning programming is a psychological and educational challenge, especially for those for whom it represents an opportunity to change professions and improve material conditions (Robins, Rountree, Rountree, 2003). Many studies address the topic of Massive Open Online Courses (MOOCs) at universities, which allow for greater learning efficiency and simultaneous evaluation of progress (Tillmann et al., 2013). As it has been shown, the aspect of maintaining the internal motivation of the learner throughout the course is extremely important, therefore many educational applications related to programming take the form of games and simulators (Jiau, Chen, Ssu, 2009; Mitamura, Suzuki, Oohori, 2012; Combefis, Beresnevicius, Dagiene, 2016). Another aspect that emerges in research on the science of programming is the gender differences, which constantly indicate a significant advantage of men in this profession. For this reason, many online training and courses are offered exclusively for women, and have extensive advertising campaigns to attract them (Murphy et all., 2006). Many researchers also address the psychological aspects of learning programming such as computer anxiety, task compexity perception (Chang, 2005; Maloney, 2008), motivation (Fowler, Cusock, 2011; Law et all., 2010) and possible difficulties (Derus, Ali, 2012; Tan, Ting, Ling, 2009; Piteira, Costa, 2013).

Based on the above analysis, it was decided to examine the motivation, goals and effects of learners of online programming. Due to the exploratory nature of the study, one main research question was asked:

Research question 1: What variables are the predictors of the high effects achieved in learning programming using e-learning courses?

And two side research questions:

Research question 2: Will there be differences between men and women in the predictors of the high effects achieved in learning programming using e-learning courses?

Research question 3: Will young people achieve higher effects than older people?

Finding an answer to research question 1 is important for both learners and those who create educational platforms to learn programming. On the one hand, the knowledge of the predictors allows to select the course so that the main variables that will contribute most to the programming success are met, on the other hand, the platform distributor has a chance to increase the number of its clients by matching its material to the learner and meeting his/her criteria.

METHODS

In order to examine the research questions, an online survey was conducted, which consisted of a questionnaire based on UTUAT2, a self-survey containing questions related to subjective evaluation of programming science and a sociodemographic survey. The self-survey included questions about gender, age, amount of time spent on learning programming per week, question about the moment of starting the study, subjectively

evaluated effects at the time of filling in the survey and expected effects at the end of the study. Also there were questions about the cost of the course, the main reason and motivation, at the beginning of the study, the main reason and motivation at the present moment, the degree of involvement at the beginning of the study, the degree of involvement now, the goal or goals, the degree to which they are achieved at the time of filling in the survey and the question about the chosen programming language.

Unified Theory of Acceptance and Use of Technology 2 is a model that tries to understand the individual acceptance of information coming from systems and technology. This theory is the result of a synthesis of eight other theories. The first version of the UTUAT model consisted of 4 subscales, the current version assumes the existence of 7 subscales. The first scale is Performance Expectancy, i.e. the degree to which people using a given technology believe that it will allow them to get their dream job. The basis of Performance Expectancy are Technology Acceptance Model, Motivation Model, Model of Pc Utilization or Social Cognition Theory. Performance expectations are measured using three variables, such as: extrinsic motivation, perceived usefulness and job fit (Chang, 2012). The higher the score on this scale, the more likely people are to use technology. Another subscale is Effort Expectancy, understood as the degree of ease of use of a given system, derived from Model Acceptance Theory (Dwivedi et al. 2011). The easier a technology is perceived to be, the quicker people become familiar with it and use more functions. The third aspect is Social Influence, which is a phenomenon in which a given technology is judged by how important it is to significant people. It is derived from the Technology Acceptance Model and is a certain reflection of the subjective norm. The use of a technology can be seen in terms of raising or lowering status. The more a technology has a chance of raising or lowering the status, the more willing it will be to use it. Another subscale is Facilitating Conditions. This is a variable that is designed to take into account an individual's belief in the extent to which a given technology is useful and useful to humans. Another 3 subscale has been added in the UTUAT model extension. The first one is Hedonic Motivation. If a person using a technology can feel joy, fun or pleasure at the same time, the higher scores a given technology will receive in this scale. This is particularly important in the use of technology as a consumer who, apart from being easy to use, also requires positive emotions triggered in the use of a given system. The second added variable is Price Value, which is the cost of using a given technology. The last element is Experience and Habit. This variable refers to the time after which people start using the technology automatically. Due to the nature of the survey, the questions from the UTUAT2 questionnaire were changed and adjusted to the programming subject. Below is the version filled in by the respondents, each of the questions had to be answered on a 7-point Likert scale, starting with "strongly disagree" and ending with "strongly agree".

Performance Expectancy
PE1. I find learning programming useful in my daily life.
PE2. Learning programming increases my chances of achieving things that are important to me.
PE3. Learning programming will help me accomplish things more quickly.
PE4. Learning programming will increase my productivity.

Effort Expectancy
EE1. Learning programming is easy for me.
EE2. My interaction with learned programming language is clear and understandable.
EE3. I find learning programming through e-learning methods easy to use.

EE4. It is easy for me to become skillful at programming.

Social Influence
SI1. People who are important to me think that I should learn programming.
SI2. People who influence my behavior think that I should learn programming.
SI3. People whose opinions that I value prefer that I learn programming.

Facilitating Conditions
FC1. I have resources necessary to learn programming.
FC2. I have the knowledge necessary to learn programming.
FC3. Learning programming is compatible with other skills I have.
FC4. I can get help from others when I have difficulties in learning programming.

Hedonic Motivation
HM1. Learning programming is fun.
HM2. Learning programming is enjoyable.
HM3. Learning programming is very entertaining.

Price Value
PV1. Programming e-learning courses are reasonably priced.
PV2. Programming e-learning courses offer a good value for the money.
PV3. At the current price, programming e-learning courses provides a good value.

Habit
HT1. Learning programming has become a habit for me.
HT2. I am addicted to learning programming.
HT3. I must learn programming.
HT4. Learning programming has become natural to me.

Behavioral Intention
BI1. I intend to continue learning programming in future.
BI2. I will always try to learn programming in my daily life.
BI3. I plan to continue learning programming frequently.

The survey was conducted from January to March 2020, using an online survey. The survey was attended by 492 people. Prior to proper data analysis, the results were cleaned up, based on the degree of variance, 12 cases in which it was zero or close to zero were removed. Statistica 13.3 (StatSoft) and Jasp 0.12.0.0 were used to analyse the data obtained.

RESULTS

The survey was filled by 480 persons, whose average age was 28.72 (SD 7.52), the youngest person who took part in the survey was 20 years old and the oldest 56. The time spent on learning programming per week ranged from 3 to 43 hours and averaged 19.84 hours (SD 8.92). At the time of completing the survey, the respondents learned programming on average from 7 months (4.5 SD), and the learning interval ranged from 1 month to 22 months. The average for the UTUAT 2 subscale, which contained 4 questions, ranged from: 17.2 to 19.2 points, and for the subscale which contained 3

questions: 15.95 to 16.15 points. The average for the overall UTUAT 2 scale was 122.67 (SD 20.33) and for the subjective evaluation of effects 34.1 (SD 6.56). The first table shows the results of Pearson's correlation between the UTUAT2 subscale and the own survey. The respondents also answered an open question as to which programming language they were learning. Among the answers were: Python, Java, SQL, Ruby, C++, R, C, JavaScript and PHP. The overwhelming motivation was the willingness to earn, to get a new job, to change the work environment, to work from home and the feeling of burnout in the current job.

Table 1: Correlation between UTUAT2 and programming survey

	Performance Expectancy	Effort Expectancy	Social Influence	Facilitating Conditions	Hedonic Motivation	Price Value	Habit
Age	-0,41	-0,14	-0,39	-0,19	-0,37	-0,42	-0,11
Time of learning weekly	0,41	0,14	0,33	0,23	0,33	0,38	0,21
Time from start to now	0,20	0,12	0,16	0,15	0,19	0,19	0,11
Effects on this point	0,67	0,13	0,28	0,34	0,36	0,33	0,13
Effects at the end of the programme	0,49	0,13	0,28	0,34	0,36	0,35	0,15
Price	0,35	0,15	0,33	0,15	0,41	0,87	0,14
Motivation at the beginning	0,34	0,31	0,17	0,71	0,14	0,15	------
Motivation now	0,36	0,21	0,38	0,14	0,49	0,41	0,10
Involvement at the beginning	0,15	-0,10	0,14	------	0,10	0,14	0,64
Involvement now	0,35	0,15	0,33	0,15	0,41	0,74	0,14
Goals (degree of achieving)	0,68	0,44	0,55	0,55	0,57	0,55	0,36
Effects	0,75	0,19	0,42	0,46	0,51	0,65	0,31

Note: All correlations are statistically significant with $p<0,001$.

A regression analysis was conducted to check test question 1 and 2. The obtained results are presented in Table 2.

Table 2: Regression analyzis

	Dependent Variable: Effects, R^2 corrected=0,85; F(8,471)=342,52, p<0,001. Std. estimation error: 2,52		Dependent Variable: Effects, Group: Women, R^2 corrected=0,83; F(8,167)=108,51, p<0,001. Std. estimation error: 2,72		Dependent Variable: Effects, Group: Men, R^2 corrected=0,86; F(8,295)=243,41, p<0,001. Std. estimation error: 2,41	
	b*	p	b*	p	b*	p
Performance Expectancy	0,32	p<0,001	0,31	p<0,001	0,33	p<0,001
Effort Expectancy	-0,01	p<0,94	-0,01	p<0,75	0,01	p<0,72
Social Influence	0,04	p<0,07	0,14	p<0,004	0,01	p<0,90
Facilitating Conditions	0,21	p<0,001	0,20	p<0,001	0,21	p<0,001
Hedonic Motivation	0,16	p<0,001	0,10	p<0,07	0,16	p<0,001
Price Value	0,40	p<0,001	0,35	p<0,001	0,42	p<0,001
Habit	0,12	p<0,001	0,13	p<0,001	0,13	p<0,001

For the regressions shown in Table 2, the assumption of normality of residuals, no correlation of residuals, homoscedascity and redundancy was checked. All assumptions were met. Based on the results obtained, the following variables are the strongest predictors of obtaining subjectively highest scores of programming science: Price Value, Performance Expectancy, Facilitating Conditions, Hedonic Motivation and Habit. Based on the results of regressions conducted separately for women and men, it was shown that the Social Influence variable was predictor only for women and the Hedonic Motivation variable only for men, the other variables were predictors for both groups. In order to check research question number 3, a correlation between the variable age and variable effects was performed, which showed a statistically significant relationship $r=-0.49$, $p<0.001$.

DISCUSSION AND CONCLUSION

Based on the data obtained, regression and correlation analyses were conducted. The obtained results indicate the existence of statistically significant predictors of subjective assessment of high learning outcomes of programming using e-learning. In order to check the first research question, regression was performed, which showed 5 statistically significant predictors: Performance Expectancy, Facilitating Conditions, Hedonic Motivation, Price Value and Habit. In order to check research question 2, regression analysis was performed separately for men and women, the results showed that Hedonic Motivation variable is predictor only in men, while Social Influence variable in women only. Correlation analysis conducted for question 3 showed that there is a negative correlation between age and effects, which means that the younger a person was, the higher the results obtained in the question about subjectively assessed effects of learning programming. It is important that all regressions explained more than 80% of the variable effects. The results obtained in this study are exploratory in nature. Due to the subjective evaluation by the subjects, the results of the study may be mistaken, due to the willingness of the subjects to present themselves better than they really are. In order to minimize this effect, a large group of 480 people was chosen. The results obtained may be used as a basis for further research, including non-subjective data on a person's progress in learning programming. Including the obtained predecessors in online courses to learn

programming has a chance to maximize the effects of participants. The phenomenon of popularity of programming and the change of profession towards becoming a programmer is popular not only in Poland but also in the whole Europe, especially during the Covid-19 pandemic, which caused significant economic declines in many countries and many market branches, with particular emphasis on tourism or catering. In this perspective, the trend of changing to better paid jobs and offering the possibility of remote execution will occur not only in Poland but also in the whole Europe. However, based on the results obtained, a broad generalization is not recommended, but rather the need to conduct research in other countries. Also due to the changes that have taken place in Poland over the last decades, which did not take place in Western European countries. However, this study is a valuable starting point for further, more detailed analyses.

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REFERENCES

Combéfis, S., Beresnevičius, G., & Dagienė, V. 2016. "Learning programming through games and contests: overview, characterisation and discussion." Olympiads in Informatics, 10(1), pp. 39-60.

Chang, A. 2012. "UTAUT and UTAUT 2: A review and agenda for future research." The Winners, 13(2), pp. 10-114

Chang, S. E. 2005. "Computer anxiety and perception of task complexity in learning programming-related skills." Computers in Human Behavior, 21(5), pp. 713-728.

Derus, S. R. M., & Ali, A. Z. M. 2012. "Difficulties in learning programming: Views of students." In 1st International Conference on Current Issues in Education (ICCIE 2012) pp. 74-79.

Dwivedi, Y. K., Rana, N. P., Chen, H., & Williams, M. D. 2011. "A Meta-analysis of the Unified Theory of Acceptance and Use of Technology (UTAUT)." In IFIP international working conference on governance and sustainability in information systems-managing the transfer and diffusion of it. pp. 155-170. Springer, Berlin, Heidelberg.

Fowler, A., & Cusack, B. 2011. "Kodu game lab: improving the motivation for learning programming concepts." In Proceedings of the 6th International Conference on Foundations of Digital Games pp. 238-240.

Jiau, H. C., Chen, J. C., & Ssu, K. F. 2009. "Enhancing self-motivation in learning programming using game-based simulation and metrics." IEEE Transactions on Education, 52(4), pp. 555-562.

Law, K. M., Lee, V. C., & Yu, Y. T. 2010. "Learning motivation in e-learning facilitated computer programming courses." Computers & Education, 55(1), pp. 218-228.

Maloney, J. H., Peppler, K., Kafai, Y., Resnick, M., & Rusk, N. 2008. "Programming by choice: urban youth learning programming with scratch." In Proceedings of the 39th SIGCSE technical symposium on Computer science education pp. 367-371.

Mitamura, T., Suzuki, Y., & Oohori, T. 2012. „Serious games for learning programming languages." In 2012 IEEE international conference on systems, man, and cybernetics (SMC, IEEE) pp. 1812-1817.

Murphy, L., Richards, B., McCauley, R., Morrison, B. B., Westbrook, S., & Fossum, T. 2006. “Women catch up: gender differences in learning programming concepts.” ACM SIGCSE Bulletin, 38(1), pp. 17-21.

Piteira, M., & Costa, C. 2013. “Learning computer programming: study of difficulties in learning programming.” In Proceedings of the 2013 International Conference on Information Systems and Design of Communication pp. 75-80.

Robins, A., Rountree, J., & Rountree, N. 2003. “Learning and teaching programming: A review and discussion.” Computer science education, 13(2), pp. 137-172.

Tan, P. H., Ting, C. Y., & Ling, S. W. 2009. “Learning difficulties in programming courses: undergraduates' perspective and perception.” In 2009 International Conference on Computer Technology and Development, IEEE. Vol. 1, pp. 42-46.

Tillmann, N., De Halleux, J., Xie, T., Gulwani, S., & Bishop, J. 2013. “Teaching and learning programming and software engineering via interactive gaming.” In 2013 35th International Conference on Software Engineering (ICSE, IEEE), pp. 1117-1126.

Verdú, E., Regueras, L. M., Verdú, M. J., Leal, J. P., de Castro, J. P., & Queirós, R. 2012. “A distributed system for learning programming on-line.” Computers & Education, 58(1), pp. 1-10.

THE PRESENCE AND FUTURE OF TEACHING MATHEMATICS ONLINE - FOCUS ON HUNGARIAN LANGUAGE IN EDUCATION IN SLOVAKIA

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Abstract

The primary and secondary schools in Slovakia that apply Hungarian language for teaching mathematics to the Hungarian minorities, currently do not have such a freely accessible e-learning material fully processing and focusing on the framework syllabus which would summarise Mathematics as a school subject. Therefore, we did assessment research on system requirements in December 2019 with actual and future teachers of mathematics. This includes the teachers at the training schools and the university students learning mathematics at J. Selye University (JSU). In the present situation - school closures due to Coronavirus - teaching online has become more and more important at national level. Thereby this research was expanded to more teachers of mathematics who use Hungarian language as a mother tongue, or first language in the process of education at schools with this language applied in the teaching process. We do not have accurate information about the number of teachers, however, actually in Slovakia there are approximately 200 primary and secondary schools of Hungarian education in Slovakia. Based on the compulsory number of lessons and syllabuses, it is therefore concluded that every school has at least one math teacher. Furthermore, it can be said, that the online teaching affects about 45 thousand students and teachers who have Hungarian nationality in Slovakia. The object of this research is to find out what types of online and offline sources the respondents use in education. According to the preliminary data of December 2019 the respondents are using mainly the internet sources (more than 70% of the respondents). There are several webpages related to the online education at disposal. In this research we specified those sources as well which were discussed the most by most of the respondents.

Keywords

ICT in education. E-learning. Teaching of mathematics. Teacher opinion. Assessment research. Online and offline sources.

INTRODUCTION

Online teaching is different from the traditional teaching and learning environment. It requires it to be adapted to current trends. It is necessary not only to know, but also to be able to use the latest information and communication tools appropriate to the age. In online education, results can only be expected from quality-based distance learning. This, in turn, requires quality curricula and, as appropriate, the development of appropriate methodologies for their teaching / use. Such online materials have been developed at Slovak universities either on the initiative of some enthusiastic teachers or when external financial support was available. (Pišútová, 2015)

The development of new methods places new demands and new requirements not only on the student but also on the teacher. This necessitates a new way of thinking for educators, somewhat

different from the traditional one. These new methods also require good practice to be used properly. Acquiring this competence can also be a more time-consuming process, especially for teachers averse to modern technology. Teacher-student communication is also essential during virtual education. Currently, students use the virtual space for communication on a daily basis, but they may encounter a communication barrier during education (Kiss, Csiba, 2017). Curriculum development is also a critical point in e-learning education. In the case of didactically new e-learning, the focus shifts from teaching to learning. But, of course, the transfer, transmission, and explanation of knowledge remains just as important a task as in traditional education. (Cimermanová, 2011) The learning of students who voluntarily undertake the processing of the curriculum requires constant activity, which requires a modern curriculum based on the teacher's high degree of professionalism, educational and pedagogical experience gained in education, for the acquisition of which one must also find the most suitable methodology, which is at least as important as the curriculum itself. The ongoing challenges, facing the education system make it necessary to create an effective environment for education in line with actual needs. (Alvarez et al., 2015)

In our research, the target group examined were Hungarian, already practicing or future mathematics teachers in Slovakia. By the term “Hungarian in Slovakia” we mean residents of Slovakia whose citizenship is Slovak and their nationality is Hungarian. According to the 2011 census data, 8.5% of the population in Slovakia (458,467) is of Hungarian nationality. (SÚSR, 2011). They have been provided with education in the Hungarian mother tongue at all levels of education, from kindergarten to university. Of these educational institutions, with the exception of kindergarten, we interviewed in our research the mathematics teachers who taught in them. According to our hypothesis, and several years of teaching experience have shown that Hungarian primary and secondary schools in Slovakia do not currently have a free online curriculum or assignments that fully take into account and process the framework curriculum, which would summarize the subject of mathematics. Based on these data, we have compiled a cross-border project to address this problem with Károly Eszterházy University (Hungary), where we envisage that the curriculum would be developed in a comprehensive way, according to grades and topics. In addition to the practical tasks, it would also include dynamically changing (parameterized) homework, automatically generated and controlled by the prepared system, thus helping the work of teachers.

The first data were received before the appearance of the COVID-19 virus, and were recorded in December 2019. Thus, the questionnaire was not entirely focused on online education, but rather examined the currently available online curricula. These data supported our hypothesis that the online interface, described above would be needed and that educators would welcome such a project.

The COVID-19 virus has inadvertently placed great emphasis on online education. Educators had to provide students with online teaching materials overnight, hold classes online, send homework, and then check and grade… The quality and effectiveness of this is not intended to be discussed by the authors this time. However, due to the greater emphasis on online education, we expanded the sample questionnaire.

We do not have exact data on Hungarian mathematics teachers in Slovakia. Regarding their number, we can only infer from the number of schools and the number of lessons per week prescribed in the curriculum. Based on these, the research concerns at least 200 primary and secondary school mathematics teachers teaching in Hungarian. The students were indirectly

involved in the problem, representing approximately 33,000 (7,27%) primary school students of Hungarian nationality, 3,900 (5,48%) high school students and 8,200 (6,71%) secondary school students in Slovakia. Thus, approximately 45,000 Hungarian-speaking students are indirectly affected by online education in Hungarian in Slovakia. (CVTI SR, 2019).

METHODS

Our research was based on primary and secondary data. In the first round, we assessed whether such an online interface would be necessary at all, whether the progress of Hungarian students in Slovakia justifies the creation of such a site. Secondary statistics were based on the 2011 census. Among Hungarians in Slovakia, the proportion of people with higher education is significantly lower than among Slovaks: BSc. degree: Hungarians 1.7%, Slovaks 2.4%; MSc. and engineering degree: Hungarians 6.6%, Slovaks 11.6%; PhD diploma: Hungarians 0.4%, Slovaks 0.8%. The declining trend of Hungarian students in Slovakia in the central mathematical surveys (Testovanie 9) compared to the Slovak national average of previous 5 years also raises the question of creating such material available online. (NÚCEM, 2014-2019)

Table 1: Survey (Testovanie 9)

Year	students with Slovak nationality	level of success	students with Hungarian nationality	level of success	difference
2015	38 208	53,1%	2 672	46,4%	6,7%
2016	35 756	53,3%	2 474	45,5%	7,8%
2017	34 132	56,9%	2 322	48,8%	8,1%
2018	33 961	56,7%	2 420	44,8%	11,9%
2019	37 990	63,7%	2 462	52,7%	11%

(Source: NÚCEM, 2014-2019)

Based on the available statistics, it would be appropriate to set up such a free online service, which could also help teachers in their work as well as prepare students at home. We also examined in advance the existing educational surfaces, available online in Hungarian, but none of them met the requirements of the Slovak framework curriculum.

We used the online questionnaire as a research tool as a tool for primary data collection. The sample included current JSE students majoring in mathematics as prospective teachers and practicing mathematics teachers already in the field. Responses came widely from the Hungarian-inhabited regions of Slovakia, including the city's Komárno, Bratislava, Dunajská Streda, Veľký Meder, Galanta, Nové Zámky, Levice, Šahy, Rimavská Sobota and Rožňava. The questionnaire was simple, purposeful, unambiguous, and pre-tested in a small group of respondents. In the questionnaire, we can talk mainly about direct questions, where we expect a clear answer or answers. We also formulated closed and open questions according to the possible answers. In the latter, we focused primarily on what other online and/or offline educational materials we think we currently use (without affecting their responses), and we asked for their opinion on the legitimacy of such an online site. In the quantitative survey, we formulated 10 questions: after the introductory questions, we asked what types of resources are used or whether they would use or use any online

interface at all. We were also curious to see if educators and prospective educators would attend an event to use and manage the portal.

The introductory questions collected the information we needed from the respondent:

- 1. In addition to mathematics, what is the other (possibly third) speciality you have qualified for?
- 2. At what level are you currently operating in the education system?
- 3. How many years of teaching experience do you have?
- 4. In which grades do you currently teach math?

In the following questions, we asked what types of resources respondents use or plan to use in education, and within that, whether they know or use Internet interfaces. While the former question was a closed-ended question with the option to provide multiple answer options, the latter was an open-ended question where respondents could articulate their own experiences. Using these questions, we were also able to indirectly assess the current supply side to see if the presumed lack of such an online curriculum actually exists. We also analyzed this issue with the help of colleagues experienced in curriculum development and research, so that a comprehensive picture of the online curricula currently available could be formed.

- 5. What resources do you currently use to teach mathematics?
- 6. Do you use or know websites and interfaces related to mathematics education? Please list them! (It is enough to list them, but you can also comment on them, such as, regarding what topic you're using them.)

With additional questions, we wanted to know if respondents would use any online curriculum similar to the one we assumed to lack, and what justification they see for creating such an online curriculum.

- 7. Would you use an online, free-of-charge, Hungarian-language curriculum that would cover primary and secondary school mathematics in accordance with the expectations of the Slovak curriculum? (broken down by grades and curriculum, supplemented with assignments, exercises and self-assessed homework)
- 8. To what extent do you feel the need to create such an online curriculum?

In the final questions of the questionnaire, we also assessed the need for respondents to participate in an activity on how to use and manage such an online interface, and in the last question, we were interested in respondents' experiences and comments on online learning interfaces.

- 9. Would you participate in an event (workshop, conference) aimed at presenting / developing the operation of the portal?
- 10. Please share your most important experiences (positive / negative) about online learning interfaces and methods.

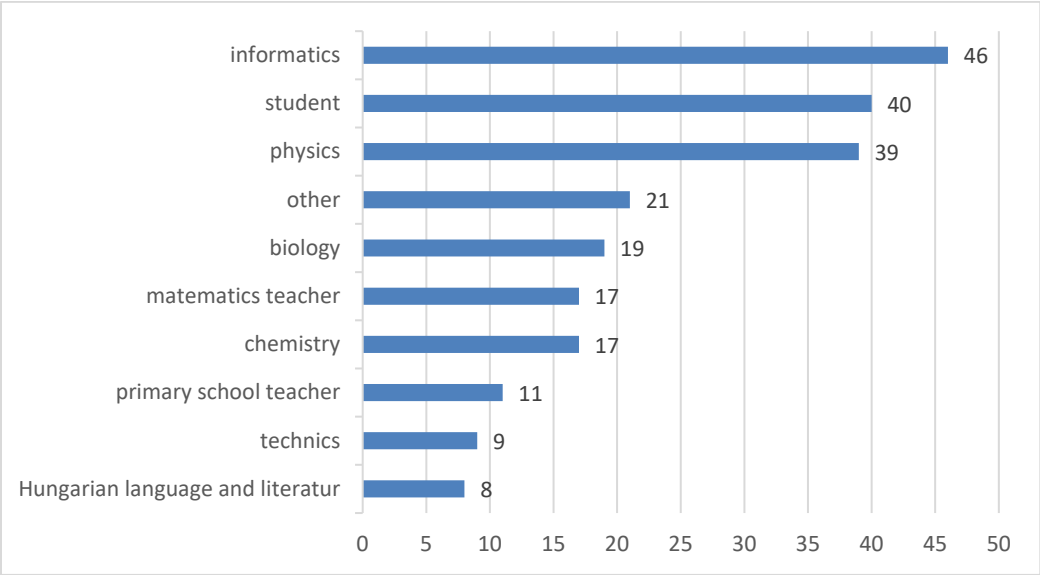
RESULTS

By the end of May 2020, 227 responses had been received to the online questionnaire. 40 of the respondents were students of mathematics at J. Selye University and 187 were already

practicing teachers. Since the number of mathematics teachers was estimated to be at least 200, we can say that the sample was representative.

Distribution of respondents according to the professional pairing of the instructors. We allowed students to have "student" status so that the data could be well separated. There were those who did not provide this information, they only indicated the option "mathematics teacher", and there were also teachers with three majors, so in addition to the mathematics subject, they have two more majors, they were classified in the other category due to their small number (physics-chemistry, geography-ethics, physics-informatics). For a better overview, subjects classified by 5 or fewer instructors were also included in the other category

Table 2: Structure of respondents



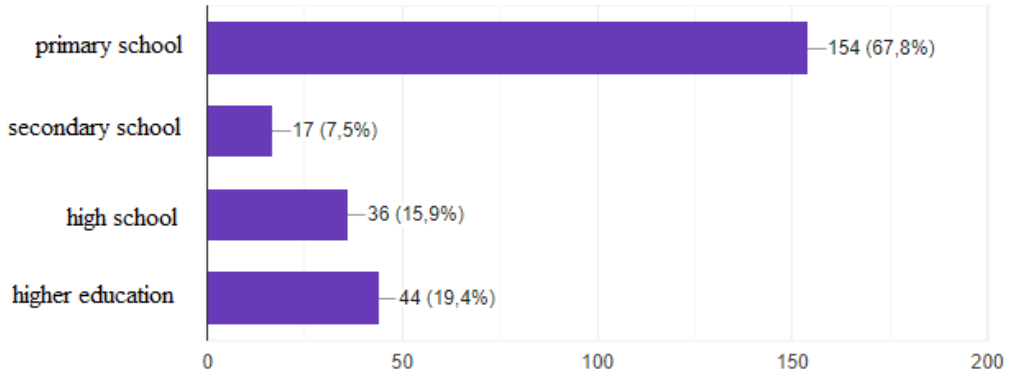
(Source: Own)

We can see that more than 50% of the respondents paired science majors with math. This is interesting because it is currently the case in Hungarian higher education in Slovakia that science courses are less attractive among those choosing a teaching career. In contrast, we can see that this is a different trend for educators who have been practicing for years.

Public education in Slovakia means primary and secondary education. Currently elementary education is 9 years long. The first four years of this are called lower grades (Primary, ISCED 1), and further years are called upper grades (Lower secondary, ISCED 2). After the successful completion of primary school, students may continue their studies in secondary education (Upper Secondary, ISCED 3). Secondary schools consist of high schools, vocational secondary schools and secondary vocational schools. However, the current regulations also allow eight-year high school courses, which are based directly on the lower elementary school level.

In the second question, we were curious about what level of the education system the respondents operate in. Respondents were able to indicate several options, as a teacher could work in more than one school or teach primary and secondary school students within an educational institution.

Table 3: Level of education, where respondents teach

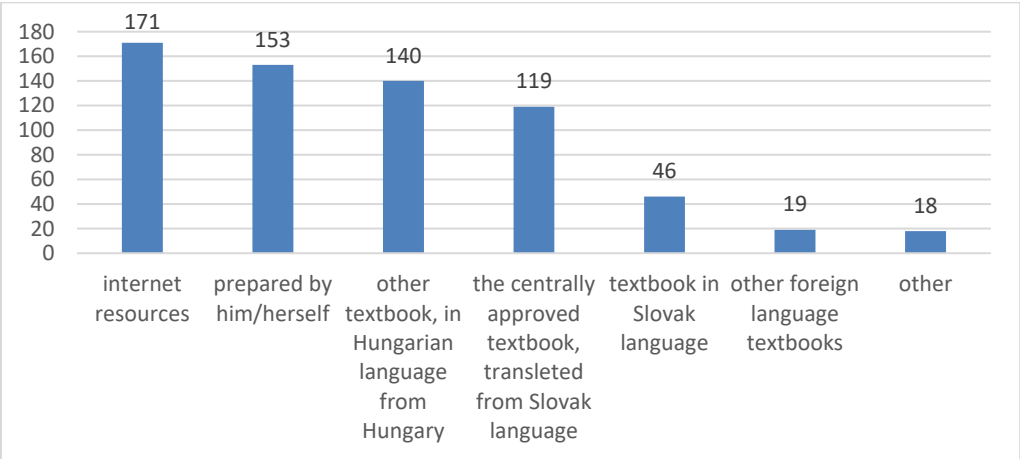


(Source: Own)

We can see that 67.8% of the respondents are primary school teachers teaching mathematics. In high schools and grammar schools, a total of 23.4% of respondents teach. This also shows that our sample can be said to be representative, as the proportion of Hungarian primary and secondary school / grammar school students in Slovakia also tends towards these indicators.

The table below provides an answer to one of the important questions of our research, according to which what resources respondents primarily use in education and where, see the table below. A respondent could specify more than one answer. Students had to indicate the resources, they currently think will be used in their education.

Table 4: The resources which are used for students'education



(Source: Own)

75.3% of the respondents use some kind of internet source, which shows the dominance and inevitability and importance of the medium in the education of the 21st century. It even precedes materials created by the educator him/herself, which are used by 67.4% of respondents. The third most used source is textbooks in Hungarian, but not approved by the Slovak state, which are used by 61.7% of respondents. Textbooks approved by the Slovak state and translated from Slovak were mentioned by only 52.4% of the respondents as a source used in education. The data show that educators rely on multiple sources in their education, which can be both an advantage and a

disadvantage of education. Its advantage is clearly diversity. The disadvantages are that their processing requires more energy (to meet the state-required curriculum) and the financial burden of obtaining other textbooks.

With the aim of mapping the supply side, we formulated the question according to which "Do you use or know the websites and interfaces related to the teaching of mathematics and informatics? Please list them!" Listed below are also those online learning interfaces that, although not provided by respondents, are relevant to the topic and have been highlighted by curriculum developer- and research colleagues. This question was an open question to which various answers were received, but these were partly consistent. Occurring answers to this question:

- mateking.hu - a Hungarian website, where in addition to the high school curriculum, there are also university curricula, formulated in a more direct style. It does not deal with elementary school mathematics, nor does it deal with computer science at all
- zborovna.sk - a portal designed primarily for teachers. Pre-prepared worksheets and study materials can be downloaded and shared.
- GeoGebra - a dynamic math software for all levels of education that combines geometry, algebra, spreadsheet, graphical representation, statistics, and analysis in an easy-to-use interface.
- Symbolab - an online interface that allows the user to calculate different types of tasks. Automatically generates step-by-step derivation of solutions.
- geotest.geometry.cz - the site focuses primarily on geometric tasks. Here we also find tasks that are automatically evaluated.
- planetavedomosti.iedu.sk - this website is closest to the online interface, the need for which we seek the answer in our research. Curriculum is processed by grade and has worksheets available online. This online interface has static worksheets, so everyone can download the same test, task set, and evaluation is not automatic. Another disadvantage of it is that it is entirely in Slovak and cannot be translated.
- WeBWorK - an online homework system where the teacher can easily and quickly create individual tasks, share and check the solutions of assigned tasks, the evaluation of which is automatic.
- Moodle - an open source, free licensed eLearning framework written in PHP. Moodle calls itself a CMS (Course Management System), but based on the classification of classic eLearning frameworks, it can be considered an LMS (Learning Management System).

There are countless online websites that can be linked to education. According to the respondents, and without mentioning them, we listed those that were more relevant to us, accompanied by a brief description.

Another important question of our research is how much educators would feel the need for the online curriculum, formulated in our research question.

In this question, we considered creation to be important if at least eight candidates were nominated on a scale of ten, where ten means that they fully felt the need. Thus, 84.6% of the respondents feel the need to create an online curriculum with tasks that meets the requirements of the Slovak framework curriculum. We can see that despite the use of several different sources, there is such a demand. This may support our previous assumption that using multiple sources in parallel is likely to require more energy. When asked if they would actually use such an online interface, 77.5% of respondents answered yes, 13.7% said no, and 6.6% said maybe. The remaining

2.2% provided a textual answer, as it was possible to give other answers on this question. From the individual answers given here, as well as from other comments (see question 10), it can be deduced that those who choose the "Maybe" option to try out the online curriculum, their use is linked to the use of online curriculum in education as a tool.

- *- If I also feel that it covers the knowledge that the student needs.*
- *- I would have used it for a long time, but while there is no problem (note: it refers to the COVID-19 virus), they do not deal with who works from what source in addition to worthless state-published math books.*
- *- If, in my opinion, it would also cover the central expectations.*

When asked whether they would participate in an activity, organized to present the operation of the portal (e.g. workshop), 83.3% of the respondents answered yes and 16.7% no. As described in the literature review, it is important to develop the competencies, needed for online education. This, in turn, requires a positive attitude on the part of educators who are already practicing. We can say that there is a need for mathematics teachers, teaching in Hungarian schools in Slovakia to develop themselves in the field of online education.

As a final question (question 10), we were interested in the positive and negative experiences and remarks of the respondents regarding the online educational interfaces and methods. As already mentioned, the answers to this question also revealed the aforementioned statement that anyone who is currently not entirely sure that they would use online educational materials, links its use to what the subjective opinion would be about the usability of the material. The answers to the last question are different from each other, but they are relevant in several cases, the most frequently repeated ones are collected below.

- *The student can take over the curriculum at their own pace.*
- *It shall be simple, thoughtful and easy to apply.*
- *Unfortunately, there are online learning interfaces that can be edited by anyone, so students are more likely to learn false knowledge.*
- *It is important not to have static material - because students will be put into "parrot" mode. Videos, animations, and links to practice are important.*
- *Access to excipients is often costly. Not all websites provide authentic information.*
- *Have an interface that is quickly and easily accessible from anywhere, anytime, with helpful demonstration videos.*
- *It would make the work of both students and teachers easier.*
- *In the field of mathematics, it all depends on the teacher, it is more difficult to learn mathematics from the internet than any other subject. Thus, I definitely prefer to explain by example, even from several points of view.*
- *The amount of curriculum you want to deliver at one lesson is large, so it would be useful.*
- *Can be very useful and save time, e.g. self-evaluating tests…*
- *My practical experience is that the number of lessons per week is small.*
- *I see it as an excellent opportunity for the learner to keep an eye on how they are facing the requirements. By the way, this is an environmentally friendly method.*
- *I would very much like students to have access to a free online interface (or to a one, which costs a symbolic amount) where they can test themselves.*

DISCUSSION AND CONCLUSION

The research used an online questionnaire to assess the most preferred sources in Hungarian-language mathematics education in Slovakia at present and sought answers to the question of whether an online curriculum would be used by current and future mathematics teachers. Based on the survey, it can be said that there is a clear need for an online, free, Hungarian-language curriculum from mathematics, which would cover the subject of primary and secondary school mathematics in accordance with the requirements of the Slovak curriculum, divided into grades and curricula, supplemented with assignments, exercises and automatically assessed homework. With the development of technology, it is also justified to develop appropriate online learning materials to aid learning. The situation, created by the COVID-19 virus has also shown that there is potential in online education, but without a proper background (curriculum and methodology) it is difficult to implement, and its effectiveness is questionable.

REFERENCES

Alvarez, D. et al. 2015. Maths: from distance to e-learning. *International Journal Interactive Multimedia And Artificial Intelligence,* 3(4), 5-12, Available at: https://doi.org/10.9781/ijimai.2015.341 (Accessed: 15 February 2020).

Cimermanova, I. 2011. E-Learning In Efl Methodology Education: Evaluation Of Learning Performance. Problems Of Education In: *The 21st Century*, Vol. 35, p25-35.

CVTI SR. 2019. - Štatistická ročenka. Available at: https://www.cvtisr.sk/cvti-sr-vedecka-kniznica/informacie-o-skolstve/statistiky/statisticka-rocenka-publikacia.html?page_id=9580 (Accessed: 15 February 2020).

Kiss, G., Csiba, P. 2017. *Analyzing of the self reported ICT literacy level of Slovakian and Serbian Students in the higher education*. In: *SHS Web of Conferences* 3, ERPA 2017, Available at: https://doi.org/10.1051/shsconf/2017370 ERPA 2017 1076 (Accessed: 30 January2020).

NúCEM (2014-2019) Testovanie 9, Available at https://www.nucem.sk/sk/merania/narodne-merania/testovanie-9/roky/2018-2019 (Accessed: 15 February 2020).

Pišútová, K. 2015. *Elearning in practice — Case of Comenius University*. In: *13th International Conference on Emerging eLearning Technologies and Applications (ICETA),* Stary Smokovec, 2015, pp. 1-6, https://doi.org/10.1109/ICETA.2015.7558506 (Accessed: 15 February 2020).

Štatistický úrad SR.2011. - TAB. 115 Obyvateľstvo podľa pohlavia a národnosti. Available at https://census2011.statistics.sk/tabulky.html (Accessed: 15 February 2020).

INTERACTIVE DISTANCE MATERIALS OF MATHEMATICS AND DESCRIPTIVE GEOMETRY FOR VŠB - TU OSTRAVA

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Abstract

The coronavirus disease COVID-19 pandemic caused schools to stop teaching overnight. Closure of primary, secondary, and tertiary educational institutions is a huge challenge for the education system as it needs to establish a stable, fully-fledged, and long-term viable system of online education. This process has become the more difficult to undergo as schools could not prepare for it. Fortunately, with the nowadays generalized access to the Internet, every student is enabled to continue his/her studies in online form, and every school, on the other hand, has means to ensure online education.

Also, we, the university teachers, had to face this challenge how to replace classroom teaching as fast and efficiently as possible. All subjects having been taught by means of direct contact so far ranging from lessons themselves and taking tests to oral exams have had to be hastily transformed into a digital form. Thanks to the fact that for several years now, we have been involved in intensive production of study materials to support distant learning, which are presented in this paper, and the LMS electronic learning system, we have managed to avoid interrupting teaching activities without major problems at the time when personal attendance of students at schools was prohibited.

Keywords

Descriptive geometry. Mathematics. Student. Distance studies. Interactive. LMS.

INTRODUCTION

Generally speaking, all subjects are primarily taught based on teacher-student communication. Communication in the classroom runs as any other form of communication – it is multimodal (Alwood, 2001). Being mutually complementary and supportive, various means of communication are used so that students and their teacher understand each other (Reich, 2008). Verbally transmitted information is usually made more specific as well as more comprehensible for all participants in communication by adding visual input (images, graphs, daily-life object, etc.). These communication principles can be maintained be it either in the classroom or online learning environment. Other inputs applied in teaching include kinaesthetic (gestures, facial expressions, movement, etc.) and tactile (manipulation with models, etc.) inputs. While being freely used in the classroom environment, they can be used to a limited extent only in the online environment. However, they can be replaced with creativity enhanced by this environment. It is important to maintain interaction within a group even during online lessons. Several research studies have been conducted around the issues of designing course

material for distance education. A brief review of the literature reveals that the most frequently expressed concern in courses designed for distance learners has to do with providing the learner with adequate feedback (Howard, 1987; McCleary et al., 1989). Learner feedback is listed as one of the five most important considerations in course design and instruction, and it is identified by (Howard, 1987) as the most significant component in his model for effective course design (LaPointe et al., 2004). Five principles of designing course materials include guided activity, reflection, feedback, control, and pre-training.

We aim at following these communication principles in designing interactive distant learning course materials as mentioned above. E-learning environments may contribute to the teaching and learning process if the integration is done within the framework of proper pedagogy. Building customized E-learning programs places high demands on design, programming skills, and time (Kotzer et al., 2012). Materials are intended to foster direct education. The reason for this is that the number of students enrolling for studies at VSB – Technical University of Ostrava has declined rapidly in the last decade. Further decline in a number of students occurs right after their entrance to the university, when almost 40% of students leave the university as early as in the first semester without passing any of the exams. One of the reasons for this trend is the difficulty of studies and insufficient number of dedicated course hours, in the part-time study form, in particular. First-year students must master mathematics, physics, and chemistry. These subjects are generally very demanding, especially for students with insufficient knowledge from their secondary schools (Dlouhá et al., 2019). However, nobody says that this group of students has no chance to successfully finish their studies at VSB – TUO despite this handicap. Therefore, we have tried to find a way to help them. One of the ways is the very process of designing distant study materials allowing us to extend collective learning even outside the extent of classroom learning. Every student has thus an opportunity to practice at his/her own pace.

Before starting our work on designing complementary study materials, we had made a survey among students asking them about their preferable study materials. Despite being satisfied with our study material portfolio, students themselves look for further materials on the Internet. In case of possible knowledge gaps, students make effort to bridge these gaps by watching YouTube videos and tutorials with solved problems on the Internet. Only 2% of students feel no need to complement their knowledge. 68% of students look mainly for solved problems, be it in the form of video tutorials or on specific websites, with only 20% of surveyed students looking for unsolved problems. Our survey proved the prevailing trend of our times: "When I do not know something specific, I will check Youtube." (Hamříková et al., 2017). We did our best to meet the demands of students and as such we have incorporated videos as one of the key features. The success of the video tutorial is ascribed to its design, which attended to and even incorporated key qualities of paper-based tutorials, while also capitalizing on the strengths of video (Meij et al., 2016). Students may make use of theory, commented video lectures as well as solved problems tutorials, exercises to practice, and tests with keys. These materials have already been created for all courses of mathematics and descriptive geometry, instruction of which we provide.

During quarantine when need for transferring education in the online environment arose, we could apply these materials immediately without interrupting classes. In the first three weeks, classes took asynchronous form. In the following week, we could start giving presentations and lead tutorials according to the timetable thanks to the BigBlueButton product within LMS Moodle.

COMPLEMENTARY DISTANT STUDY MATERIALS

Materials for all subjects are saved on a publicly available portal where a student selects the subject he/she is interested in. We chose this storage allowing not only our students but also other interested people to access these materials. If we stored these materials in the LMS system, they could be used only by students registered as users in a given subject.

One of the subjects is, for example, Descriptive geometry for the Faculty of Mining and Geology of VSB – TUO (http://mdg.vsb.cz/portal/dghgf/index.php). After clicking on this subject, students get to a website offering appropriate text books, worksheets with unsolved problems and applets in GeoGebra with step-by-step constructions of these problems to check accuracy of construction. In places wherea student has trouble finding a solution, there is a recorded video tutorial available for each problem including analysis of the problem and audio commentary of the step-by-step construction. For video recording we use interactive board, program for operating the board, which is called the Device manager, then the Camtasia studio for cut and sound and a graphic GeoGebra calculator for functions and 3D mathematic, which is free to download.

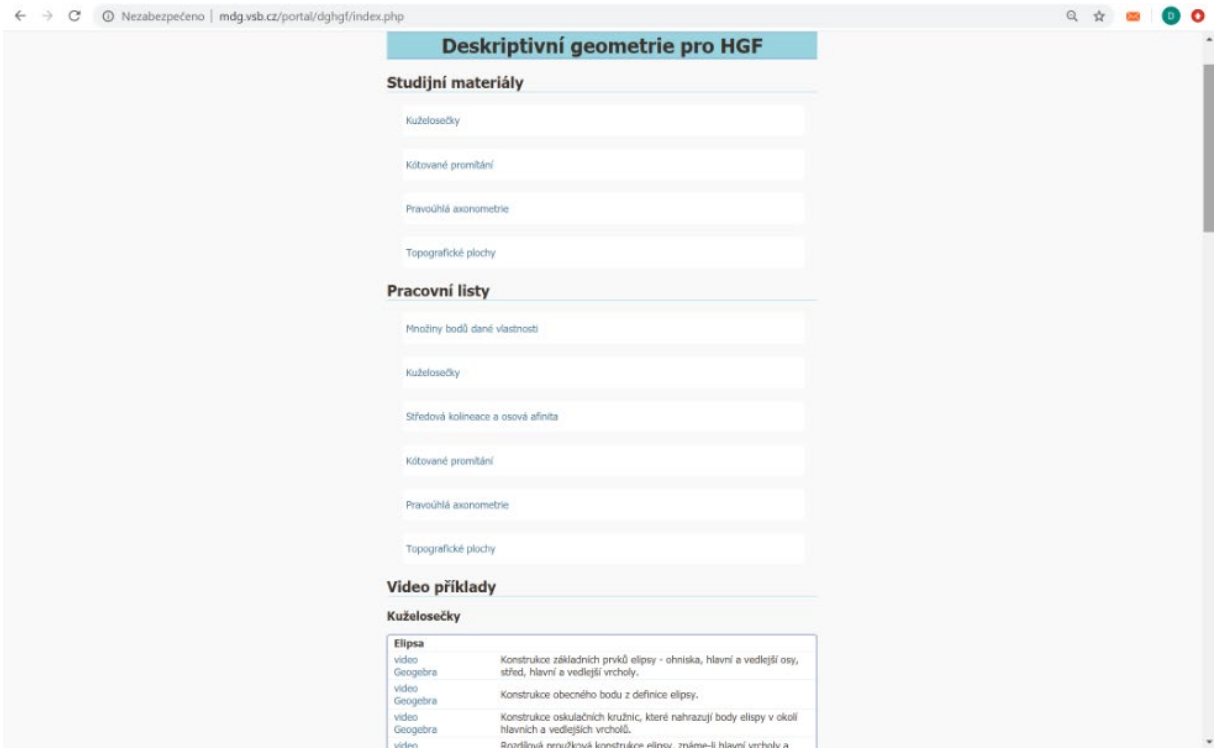

Figure 1: Demonstration of the subject page. (Source: Own)

In the period of asynchronous form of learning, students were given particular chapters in textbooks to study followed by the instruction to construct given problem areas included in worksheets accompanied by related commented video tutorials. As a feedback, students were given to solve problems in a week time. We invited students to solve problems collectively. In case of need, they could reserve one of the announced consultation times via Skype. After students submitted the given problems and their solutions, correct solutions were published, and we addressed the mistakes students made.

This solution based on contactless instruction was temporary. If we had to continue this way, we would not be able to manage the extent of the prescribed study areas for this semester as the pace of learning would rapidly slow down. Therefore, we have decided to start recording lectures accompanied by audio commentary on a tablet featuring the ProMotion function. This

allowed us to write as if on a real board using a special pen. These videos were made accessible to students in LMS. The disadvantage was the video size limit set in LMS. This, however, remained to be asynchronous form of instruction and we all missed mutual communication. We thus started to prepare for teaching in the Microsoft Teams environment. Nevertheless, at the same time we were provided information that the university prepared its own LMS-embedded online environment, which is interconnected with the school portal for students and employees.

ONLINE BIGBLUEBUTTON CONFERENCE ENVIRONMENT

The BigBlueButton product in LMS Moodle was put into operation for us by the Centre for Information Technology of VSB – TUO. Connecting to broadcasting (relation), participants move from LMS to the BigBlueButton conference environment operated at the university data centre. Neither students need to register nor notify in the system as they are already signed in. There is no need to install anything in the computer as everything runs only in the web browser. The only thing to do for using microphone, webcam, and sharing the screen is to allow the web browser access to the given devices and features. Students (audience) enter each broadcasting/relation (room) with implicitly forbidden sharing of the microphone and/or webcam. The lecturer is allowed to unblock the given devices. In the case of a lecture, unblocking is not necessary as students may write comments in the chat even during the lecture. In BigBlueButton, the lecturer can decide anytime during the lecture if to make a permanent recording of the ongoing relation/lecture. The recordings made in BigBlueButton in LMS can be hidden or deleted by the lecturer anytime. The lecturer is allowed to use a presentation or share screen as a visual input. For presentations, MS Office (PowerPoint, Word) package or PDF files can be used. The screen serves as an interactive board, and the lecturer is allowed live entry into the recorded presentation using interactive tools available on the panel.

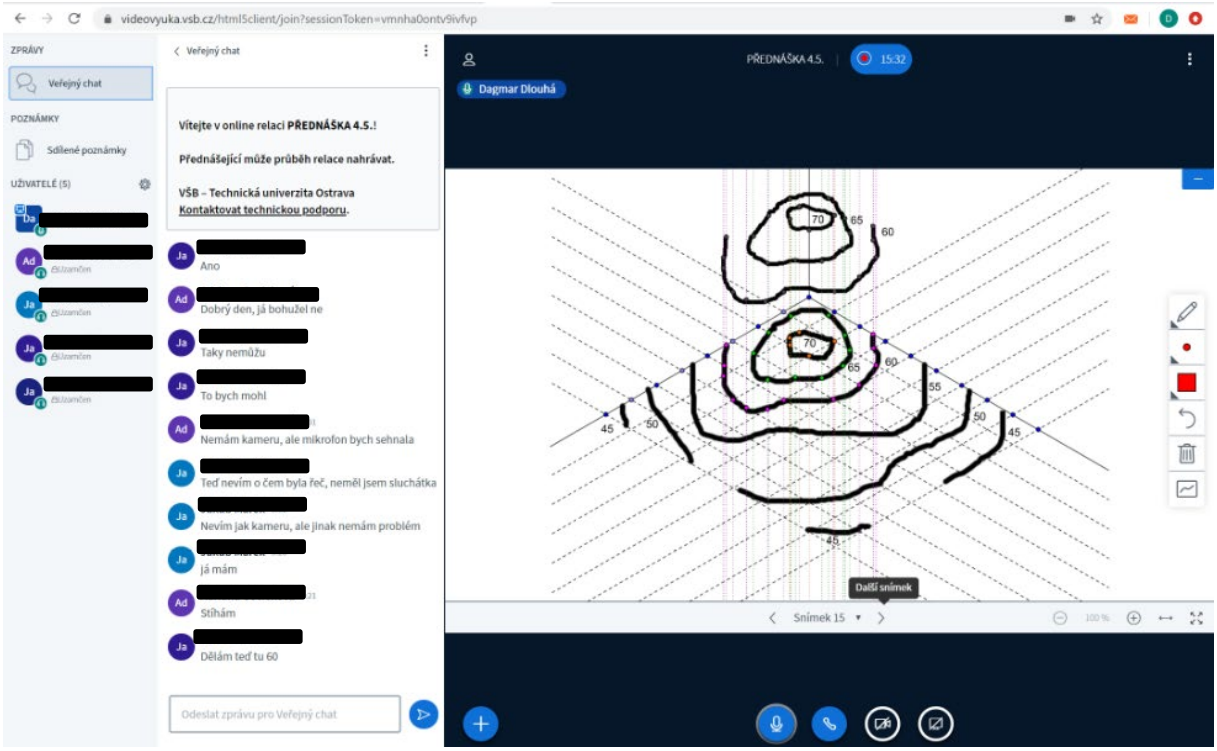

Figure 2: Screen view. (Source: Own)

To prepare for an online presentation is by far more difficult than for an on-site presentation. The lecturer must more intensively clarify the expected outcome of the presentation and its timing as in an online environment as there is no space for improvisation. Already while preparing a presentation, it is necessary to think hard how to maintain the presentation dynamics. It is advisable to prepare small tasks for students to solve themselves. There are several ways how to check them. Students may write their results in the chat window, or the lecturer may allow them to use some of the interactive tools available on the panel. A great means of communication is a survey. In proper formulation of a task or a question, a whole group may answer at the same time. The lecturer can see students' answers. In the end, the lecturer may release the survey's results.

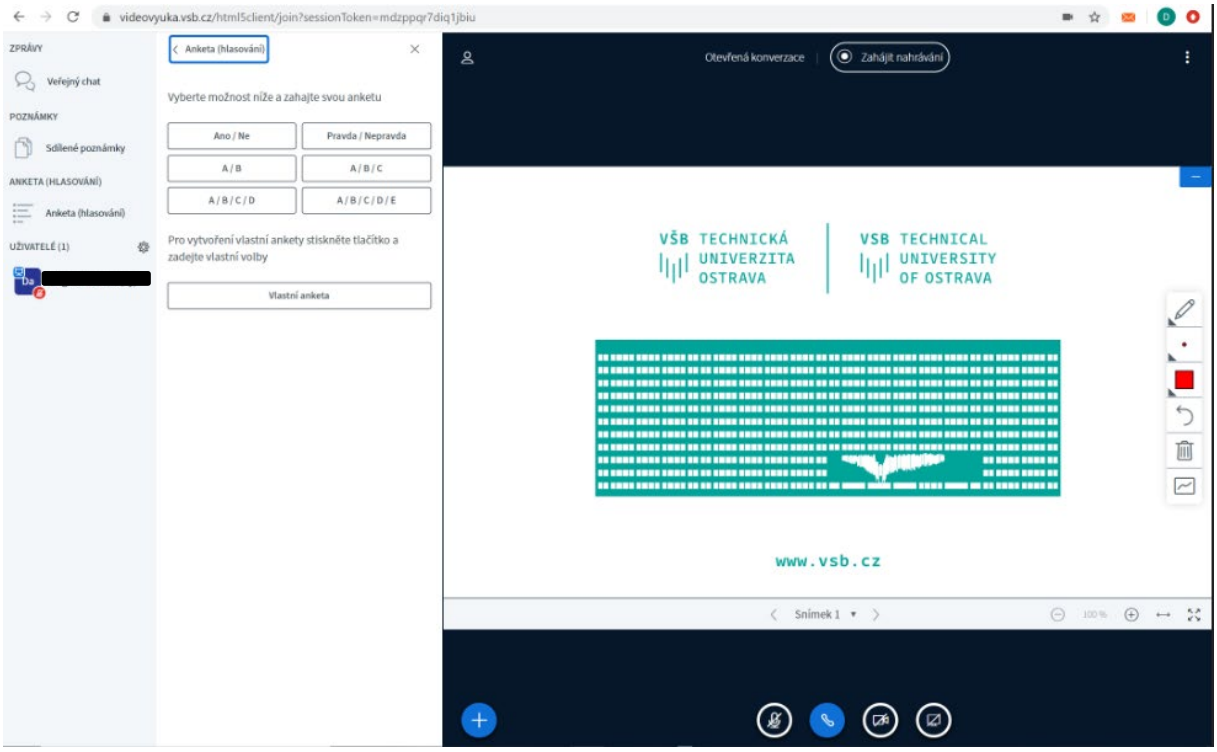

Figure 3: Screen view. (Source: Own)

The survey can also be used during the students' individual work when they do use a computer so that screen sharing cannot be used for carrying up the check. By aptly selected questions, the lecturer has an opportunity to observe the students' progress in solving the given task. Where students are stuck, it is possible to insert a short key in the presentation using an interactive tool. However, it is more advisable to consider potential mistakes or difficulties ahead in order to count with them while preparing the presentation. Another device which can be used is a camera. Particularly convenient is the use of an overhead camera, which can shoot a sheet of paper to write on. Students can simultaneously see the presentation and an image provided by such camera.

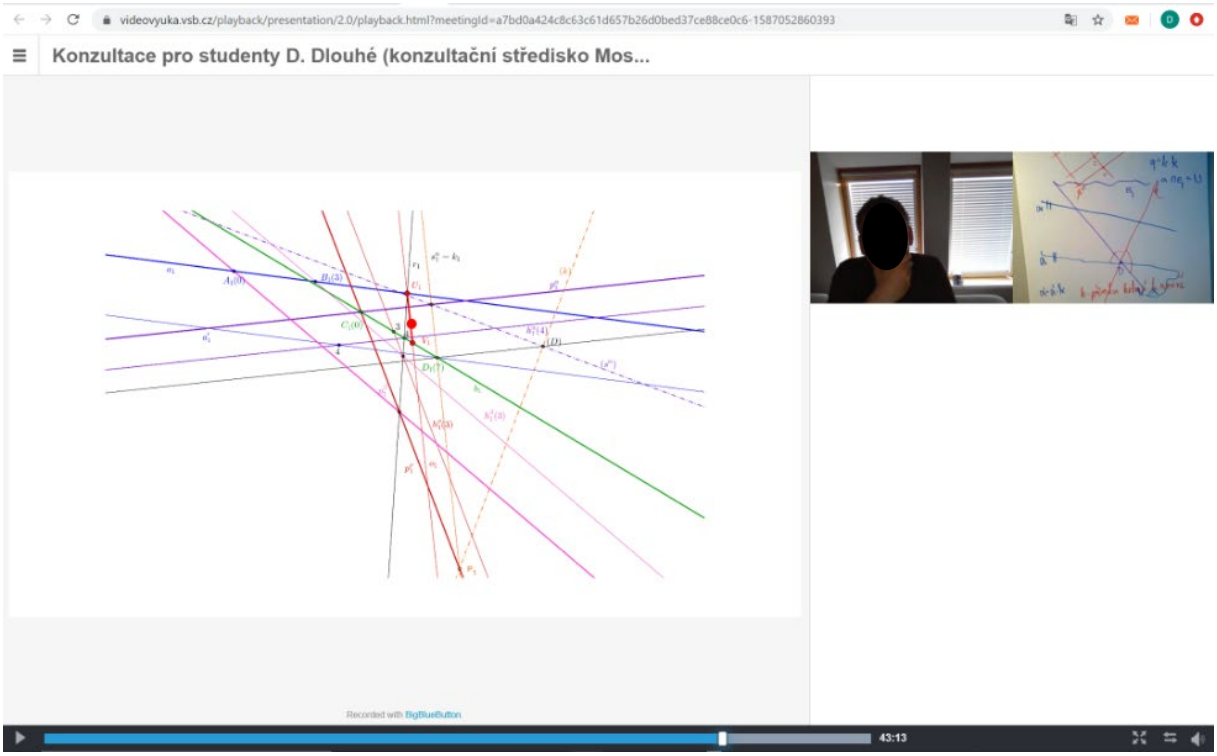

Figure 4: Video taken during a consultation. (Source: Own)

ONLINE TEACHING OF DESCRIPTIVE GEOMETRY

In preparing a descriptive geometry lecture, the GeoGebra software is used.

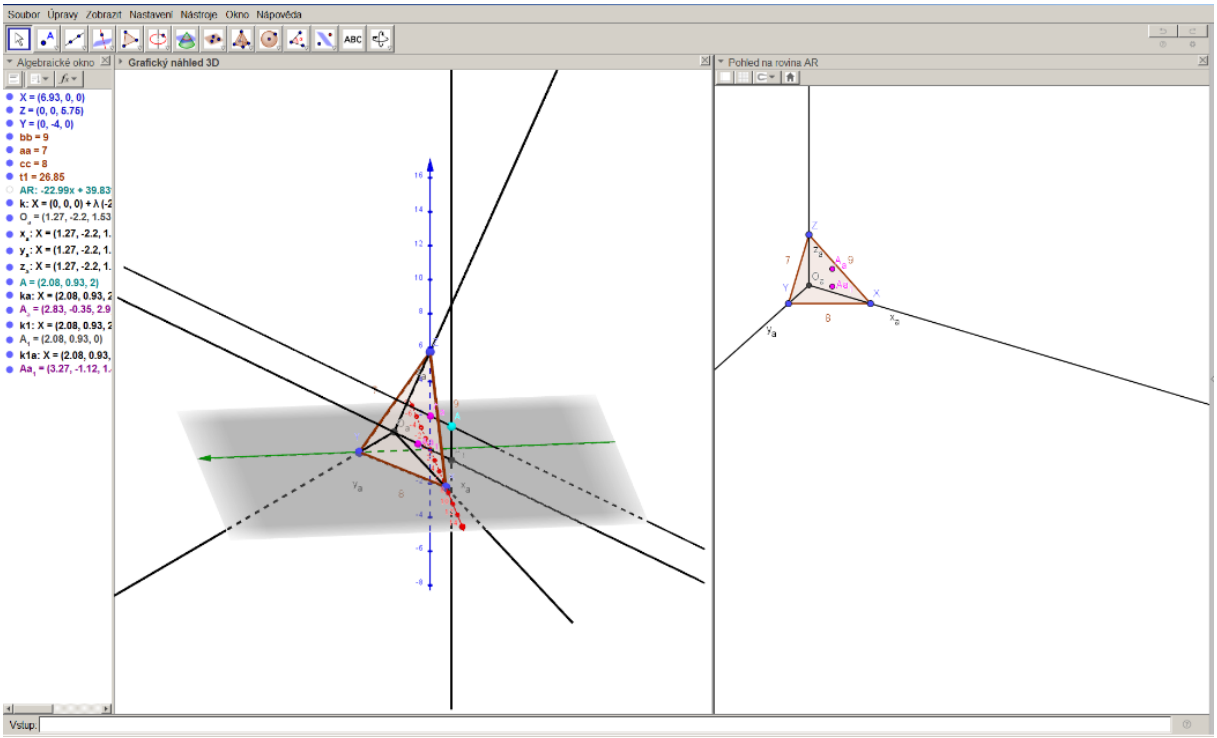

Figure 5: GeoGebra. (Source: Own)

GeoGebra is a program focused on dynamic geometry (DGS), which also includes some of the elements of computer algebra (CAS – Computer Algebra System). It is continuously localized into many languages including Czech. It is well arranged with very intuitive control and fast-developing – on its website (http://www.geogebra.org), new versions keep emerging. The program is freely available for non-commercial use - see the licensing conditions introduced in the program environment. In preparing the educational materials, we take advantage of the feature allowing us to work simultaneously in two windows. In one of the windows, we use the module for displaying problems in 3D, and in the second window, on the other hand, we can observe the 2D rectangle projection of the solved problem into the picture plane. This way we are trying to make up for tactile entry into learning. Another possibility is to compare geometrical figures to objects of everyday use, which might be at students' hands (e.g., plain – ruler, glass – cylinder, etc.). An oral commentary may then serve to instruct students to model the particular problem themselves.

We download each step of construction and insert it, one by one, in the presentation. Since individual steps "keep coming", we discuss with the students the following step and draw it in the presentation using interactive elements.

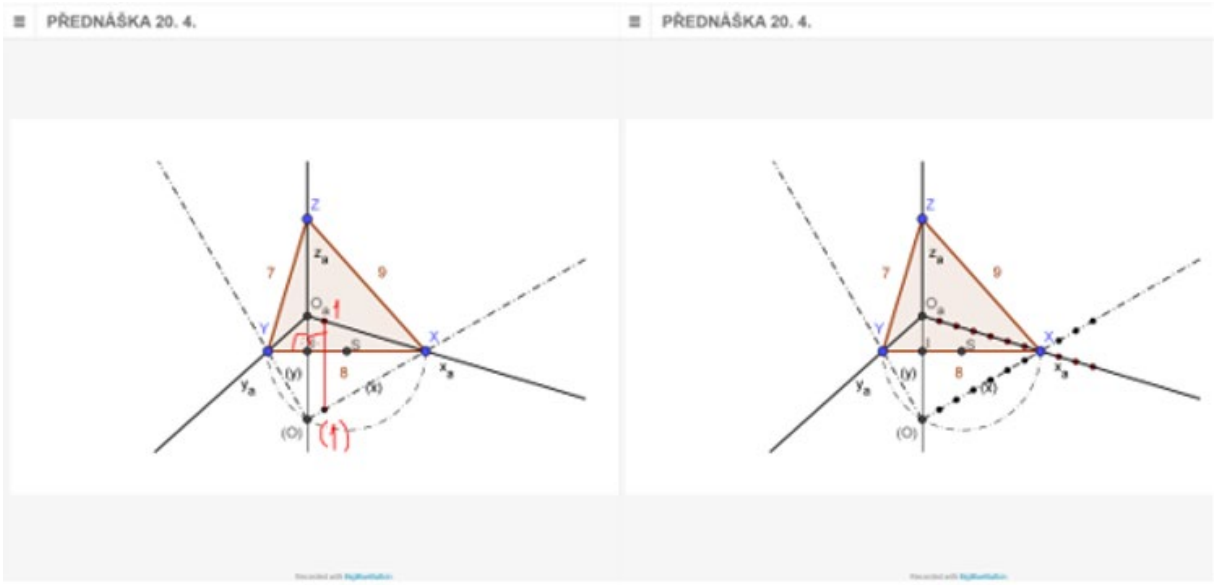

Figure 6: Demonstration of a preparation for the following construction step. (Source: Own)

ONLINE TEACHING OF MATHEMATICS

While there is a lack of materials to teach descriptive geometry, far more materials are prepared for online teaching of mathematics not coming only from our production. We can take advantage of numerous, high-quality materials from verified sources available on the Internet.

Online lectures as well as seminars take place in the BigBlueButton conference environment. During the lecture, we use standard presentations supplemented with white pages serving as a board. Lectures are recorded and made available to students via LMS. In seminars, when students are supposed to practice what they were taught during lectures, again we discuss with students the following step, take survey questions into consideration, and only after that we move forward in the presentation. As writing directly on the screen requires a lot of space, we combine the prepared presentation with completing it using interactive elements.

For self-study purposes, students may use our materials with each of them focused on a given course of mathematics (Fundamentals of Mathematics, Mathematics I, Mathematics II, Probability and Statistics, Numerics, etc.) provided by a prepared website, where complementary distant study materials can be found – suitable textbooks, worksheets with theory, and worksheets with both solved and unsolved problems. They can also use a huge library of video tutorials with an audio commentary.

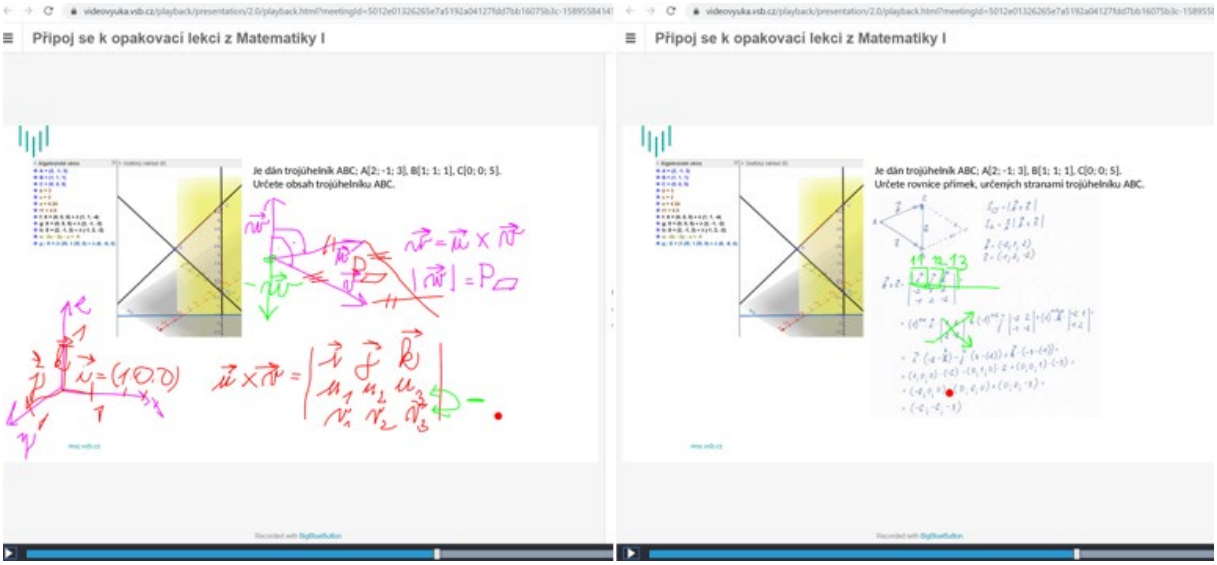

Figure 7: Demonstration of step-by-step problem solution. (Source: Own)

SHARING

Maintaining contact with other colleagues by means of occasional online conversations is the way to foster awareness of what is on at school. At the same time, it is necessary to share acquired knowledge about online education and its coordination, help each other implement new technologies, discuss further process of education, and prepare collectively for online exams. Being said above that all subjects are primarily taught based on teacher-student communication, then this communication should be maintained not only between the lecturer and a student but also in the team of lecturers as well as among students. We have therefore prepared for students open virtual classrooms where they can meet, learn together, and ask their teachers questions they cannot answer themselves. We can respond to questions either directly in the chat or we can discuss a particular problem area in the earliest possible online lesson.

CONCLUSION

The closure of schools and an immediate transfer to online learning was a tremendous challenge for both teachers and students. We cannot yet objectively assess how well we faced this challenge. However, we can already say that we were forced to take up new technologies, which we would not probably consider for teaching under normal conditions. We have filled courses in LMS with plenty of new educative materials applicable even once classes take place back in classrooms. We will maintain consultations in LMS because we know that part-time students, in particular, are highly interested in them. Nevertheless, all teachers and students alike are looking forward to collective face-to-face classes back at school.

REFERENCES

Alwood, J., 2001. Cooperation and Flexibility in Multimodal Communication. In: H. Bunt, H. and R.J. Beun (eds.), *CME'98 LNAI 2155,* pp. 113–124. Berlin–Heidelberg: Springer-Verlag.

Dlouhá, D., Kozlová, K., 2019. Knowledge asessment of student's high school mathematics. In: *APLIMAT 2019: 18th Conference on Applied Mathematics: proceedings: February 5-7, 2019, Bratislava, Slovak Republic*. Bratislava: Slovak University of Technology in Bratislava, pp. 243-252.

Hamříková, R., Dlouhá, D., 2017. Youtube in Teaching Geometry. *Systems Supporting Production Engineering*, 6(4), pp. 252-256.

Howard, D. C., 1987. Designing learner feedback in distance education. *The American Journal of Distance Education*, 1(3), pp.24–40.

Kotzer, S., Elran, Y., 2012. Learning and teaching with Moodle-based e-learning environments, combining learning skills and content in the fields of Math and Science & Technology. *In Proceeding of 1st Moodle Research Conference*, Crete-Greece: Heraklion, pp. 122-131.

LaPointe, D.K., Gunawardena, C.N., 2004. Developing, testing and refining of a model to understand the relationship between peer interaction and learning outcomes in computer-mediated conferencing. *Distance Education*, 25(1), pp. 83-106.

McCleary, I. D., Eagan, M. W., 1989. Program design and evaluation: Two-way interactive television. *The American Journal of Distance Education,* 3(1), pp. 50–60.

Meij, H., Meij, J., 2016. The Effects of Review in Video tutorials. *Journal of Computer Assisted Learning*, pp. 332-344.

Reich, K., 2008. Konstruktivistische Didaktik – Lehr- und Studienbuch mit Methodenpool, 4. Auflage, Beltz Verlag, Avaible at: http:// methodenpool.uni-koeln.de (Accessed: 10 June 2020).

Other

GOOGLE CLASSROOM IMPACT ON ALBANIAN STUDENTS DURING COVID-19

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Abstract

We are living in the 21st century and the use of online learning platforms is spread worldwide. Technologies make learning of a foreign language an easier process. This paper is designed based on the students' needs to do online learning, with a request from the Ministry of Education, Sport and Youth, at a time when universities were closed due to Covid-19 and teaching/learning had to be online. The purpose of this paper is to identify and analyse responses on the use, efficiency, and beneficiaries of Google Classroom Platform. The population of this research is 130 university students studying at the Faculty of Education, Department of Foreign Languages and Faculty of Business in Aleksandër Moisiu University-Durrës. Quantitative method is used for this paper and an adapted questionnaire from Shaharanee, I. N., Jamil, J. M., and Rod, S. S. (2016) is used in the Albanian context, as the instrument to collect the data. The questionnaire contains 2 sections where 6 questions are part of the first section and 22 items are part of the second section. Concluding with respondents' answers that this platform helps them improve their skills and proficiency while studying a foreign language, but it does not substitute face to face teaching and learning. This paper may represent a quantum leap in school effectiveness.

Keywords

Google Classroom. Online Learning. English Language. Department of Foreign Languages.

INTRODUCTION

The situation created by the COVID-19 pandemic in the whole world has forced the Ministry of Education, Sports and Youth (MESY) to close all educational institutions. In order for students not to be left behind with lessons and to create the opportunity for the end of the school year, MESY in cooperation with the Agency for Quality Assurance of Pre-University Education (AQAPE) and the General Directorate of Pre-University Education (GDPE), have passed all the learning process from school to online learning (Online Learning Survey - MESY 2020). Two main teaching forms are applied: registered lectures and broadcasted on Albanian Radio Television (ART) and work among students and teachers through social networks or various platforms that enable the creation of virtual classes (such as Google classroom, zoom, Edmondo, etc.).

Online teaching has made university lecturers and teachers follow more online training platforms by developing their professional capacities in this field. Teacher training in the development of digital competencies on the one hand has been one of the most priority areas of the Ministry of Education, Sports and Youth to develop schools of the XXI century, but on the other hand is the most difficult part for teachers/lecturers. Digital learning is the future for 21st century schools/universities, and despite teachers' immediate confrontation with this type of teaching, it will serve as an important resource for the learning process in the future.

Research has shown that scholars strongly believe that ICT will make learning process more interesting, but the problem is that many teachers should struggle to integrate it as

they do not have time to implement, do not have enough experience with technology, or they have no idea on using technology in the classroom as far as they are in the verge of retirement. Moreover, Cox (2009) states that implementing technology in classroom is needed because it can help students to prepare for their future careers. Based on Bill and Melinda Gates Foundation, 93% of teachers have already used digital tools in classroom which means there are still teachers who do not use digital tools. Thus, a conclusion can be drawn that technology is useful for learning process.

In this paper, the researcher tried to answer these questions by examining the results of previous research carried out in the field of foreign language focusing on What are the barriers to use Google Classroom?; How do students use Google Classroom in their learning?; What factors influence students to use Google Classroom?; How much are students satisfied in using Google Classroom platform?

LITERATURE REVIEW

Google Classroom is a habitat where teachers can communicate with their students, provide them with constructive feedback whenever needed, and streamline the sharing of classroom documents, illustrating videos and assignments. It is Google's industry ambition to online education, and it aims to make classrooms all over the world not only paperless, but also more effective. Google Classroom is available through Google Apps for Education and it is aimed at academic institutions only.

Janzen (2014) states that "Google Classroom's design purposefully simplifies the instructional interface and options used for delivering and tracking assignments; communication with the entire course or individuals is also simplified through announcements, email, and push notifications". It is a beneficiary that using Google Classroom does not need any cost as it is free for anyone to be used in laptops, computers (desktop), and mobile devices as far as there is internet connection.

Apart from the benefits that Google Classroom has, there are also some limitations mentioned Pappas (2015) who emphasises the integration option as too "googlish", no automated updates, difficult learner sharing, and editing problems. It is difficult for teachers to manage teaching materials and set a deadline for assignments because Google Classroom is not synchronized with Google Calendar or any other calendar. Some of Google Classrooms' buttons are only familiar for Google users. It can make new user feeling confused or needing more time to deal with it. There is no auto-update feature in Google Classroom; it makes learners miss an important announcement because they should refresh it regularly. In addition to this, students cannot share their documents among others without permission from their teacher. Learners can only edit assignment after they create and distribute to Google Classroom. They can keep and delete any part of the assignments.

In spite of some drawbacks, it can come to a conclusion that even though Google Classroom is a good thing for students and teachers because it is easy to use, efficient, effective, better for the environment, and enable collaboration between teacher and student becomes easier, it cannot substitute lessons taught/learnt in the classroom.

There are some previous researches that are relevant to this study and taken as reference is that from Shaharanee et.al (2016) about the effectiveness of Google Classroom's active learning activities for data mining subject under the decision of sciences program. The results indicated that the majority of students felt satisfied with

Google Classroom's tools that were introduced in the class. The results of data analysis showed that all indicators are above averages. It is important to be mentioned that comparative performance is good in the areas of ease of access, perceived usefulness, communication and interaction, instruction delivery, and students' satisfaction towards Google Classroom's active learning activities.

Another study is from Rossytawati (2013) research about the identification of challenges in using Google Classroom as a learning tool for students of English Language Department Islamic University of Indonesia. The result of the research can be interpreted as the students feel that the challenging aspect of using Google Classroom is not very helpful for them to minimize their time and effort in doing and collecting the assignment.

In this study, the researcher adopts the Shaharanee et.al (2016) questionnaire because the questionnaire is reliable with value above 0.90. This research aims to identify students' responses on using Google Classroom. The participants were 130 university students studying at Faculty of Education, Department of Foreign Languages and Faculty of Business in Aleksandër Moisiu University-Durrës in the academic year 2019-2020. The above-mentioned research are relevant to this study because they also examine Google Classroom and it is a good resource to be considered as reference.

METHODS

The study was conducted at Aleksandër Moisiu University, Durrës, Albania. The participants of the study consisted of 130 students, intentionally chosen, studying at Faculty of Education, Department of Foreign Languages (57 students) and Faculty of Business (73 students) in Aleksandër Moisiu University-Durrës. The researcher chose students of Faculty of Business, Bachelor 2019-2020 because they had already experienced Google Classroom. They were told that their participation in filling in the questionnaire would be anonymous and voluntary. The study was conducted in March-April, 2020. It was noticed that the subjects demonstrated a positive attitude towards the use of Google Classroom, which was also evident in the fact that none of them refused to take part in the study. This study focuses only on a part of the population of the Faculty of Education and Faculty of Business in order that further studies can continue this research on a larger scale. Thus, it can get more varied data and it can improve e-learning implementation in Aleksandër Moisiu University-Durrës.

INSTRUMENTS

The instrument used in this paper was a questionnaire that consisted of two main parts and was distributed by email to the respondents (using Google forms). The first part included background information about the participants involved in the study such as their age-group, educational level, frequency of internet access. The second part of the questionnaire contained four blocks of questions that consisted on the ease of accessing (5 questions), usefulness of virtual classroom (7 questions), communication and interaction with lecturers (6 questions) and student satisfaction (4 questions). The Likert scale was used for all of them (ranging from 'strongly disagree' to 'strongly agree'). Quantitative method was used to analyse the data. The research questions taken into consideration to answer in this paper are as follows: What are the barriers to use Google Classroom? How do students use Google Classroom in their learning? What factors influence students to use Google Classroom? How much are students satisfied in using Google Classroom platform?

RESULTS

In order to determine the reliability of the questionnaire, Cronbach's Alpha Coefficient was employed to test it. The result shows that the questionnaire is reliable with value above 0.90. Data was analysed using descriptive statistics from SPSS.

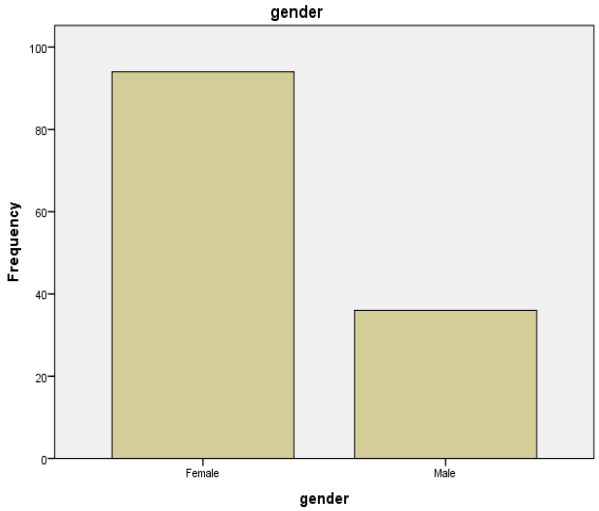

Figure 1. Graph of the result of student personal information

Figure 1. shows that 75% of students that completed the questionnaire are females and then followed by 36 % of males.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Several Times a Week	8	6.2	6.2	6.2
	Once a Day	23	17.7	17.8	24.0
	Many Times a Day	98	75.4	76.0	100.0
	Total	129	99.2	100.0	
Missing	System	1	.8		
	Total	130	100.0		

Figure 2. Frequency of internet access

Figure 2 demonstrates that 98% of the respondents use the internet many times a day. It makes us understand that most of the respondents are familiar with the use of internet and web-based programs.

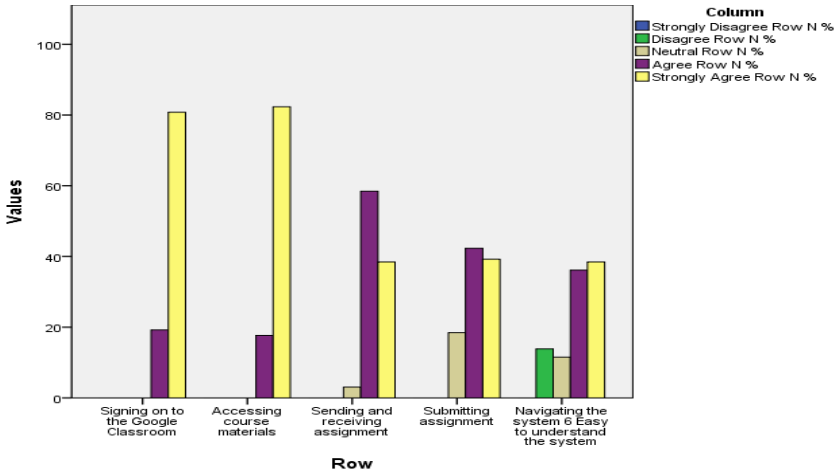

Figure 3. Ease Accessibility

Figure 3 describes the ease of accessibility of Google Classroom. The highest average is from question number 2 - accessing course materials with value 82.3%. Thus, it can be concluded that respondents feel submitting assignments is easy in Google Classroom. Whereas the lowest score is number in question number 3 - sending and receiving assignment with value 38.5% and question number 5 - navigating the system with value 38.5%. It means that respondents disagree that sending and receiving assignments and navigation system in Google Classroom is easy.

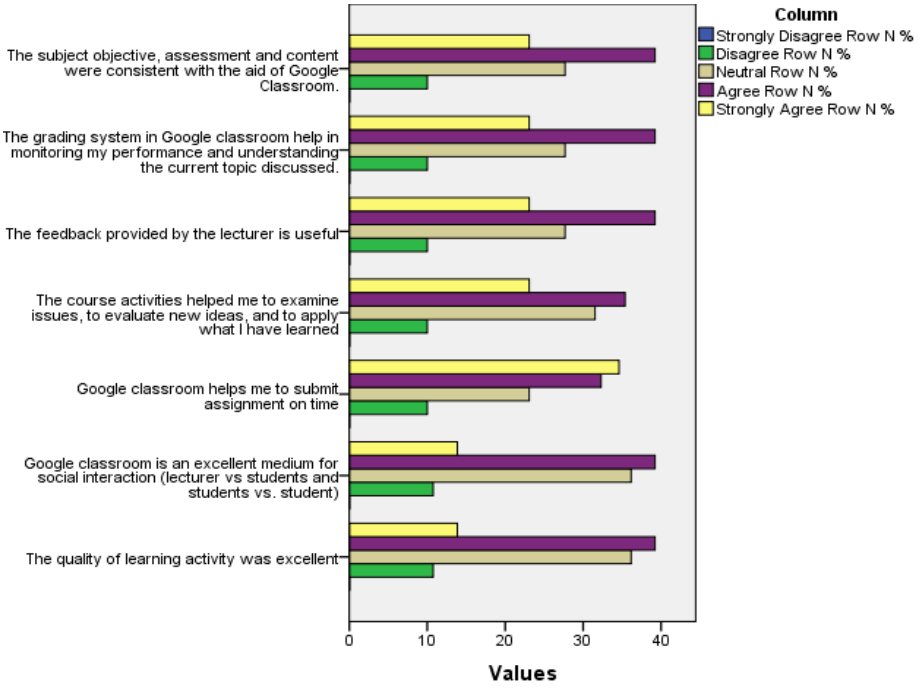

Figure 4. Perceived usefulness

Taking into consideration the results from the respondents, it is obvious that the average of Perceived Usefulness is shown in the chart above. It describes how useful is Google Classroom. The highest average comes from question number 3 - Google Classroom helps me to submit the assignment on time with value 34.6%. It can be concluded that students, using Google Classroom for the first time as a practice due to Global pandemic situation and closed educational institutions, feel Google Classroom has

helped them to submit assignments on time because there is a deadline in Google Classroom and it reminds them to be bang on time. It was also noticed that respondents are not satisfied to the quality of learning activity and they do not strongly support the idea that Google classroom is an excellent medium for social interaction (lecturer vs students and students vs. student) with value of 13.8%

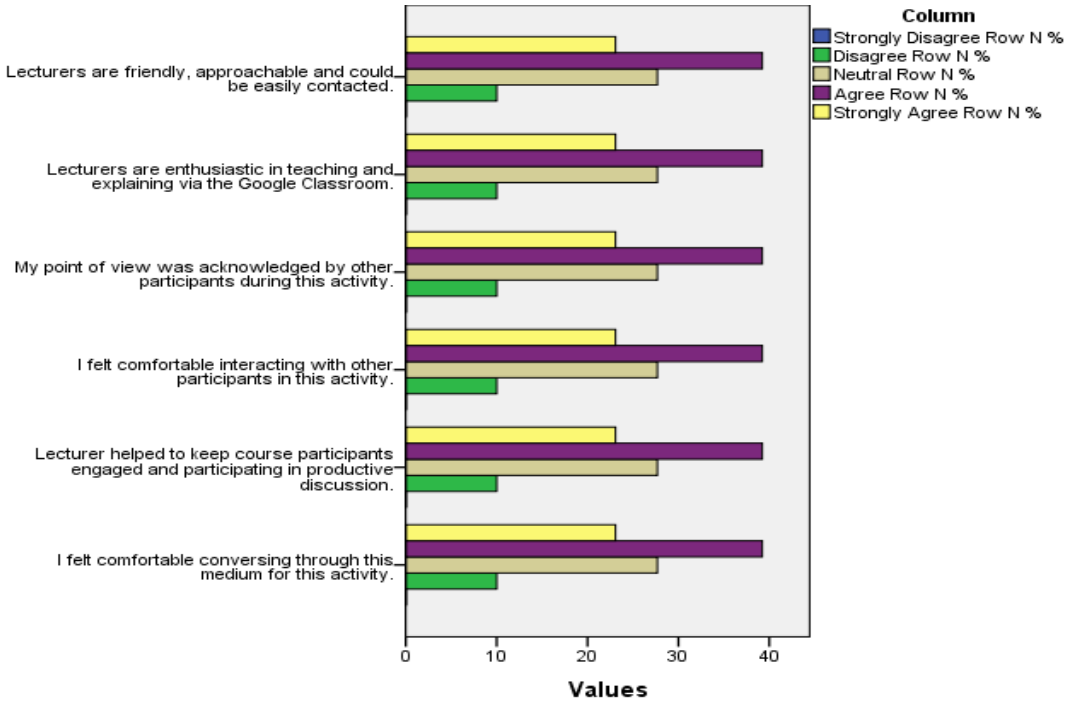

Figure 5. Communication and interaction

Based on the result of the questionnaire answered by the students, the average of Communication and Interaction is shown in the chart. It is either a coincidence or students share almost the same perspectives concerning the items (1-6). The chart above describes the communication and interaction on using Google Classroom where it is clearly calculated that 39.2% of the students agree in being comfortable having conversations through this medium and also it is noticed a uniformity in the respondents answer by stating that 10% of them disagree to the items (1-6).

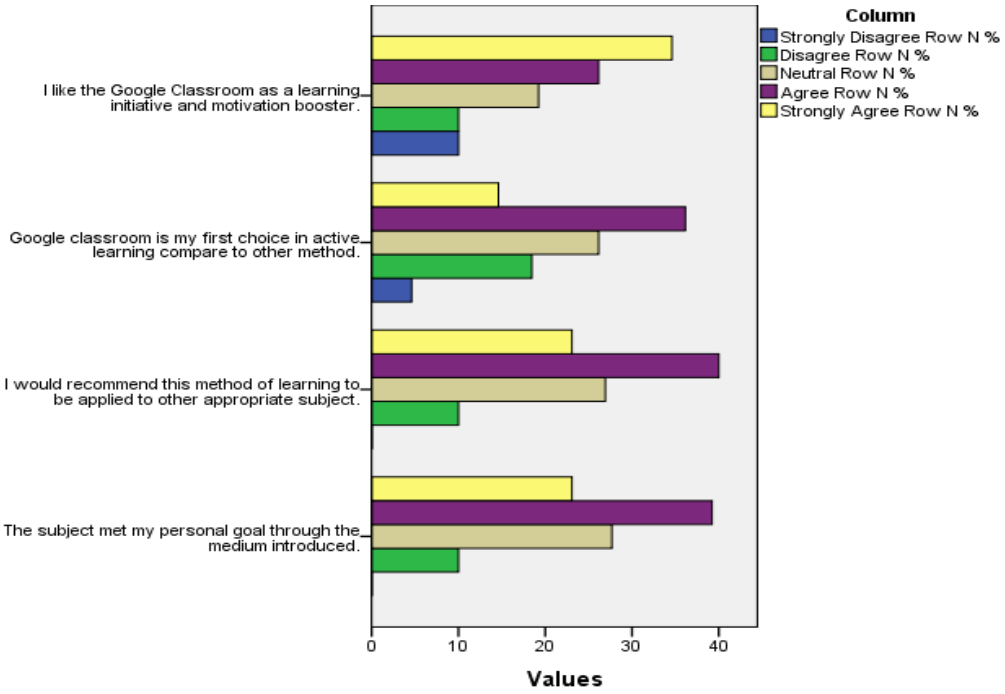

Figure 6. Virtual Classroom satisfaction

Based on the result of the questionnaire answered by the students, the average of Virtual Classroom satisfaction is shown in the chart above. The chart above describes respondents' satisfaction on agreeing using Google Classroom. It comes out from the statistics that 40% of the participants agree to recommend this method of learning be practiced in other subjects as well, "the subject met my personal goal through the medium introduced" reach 39.2% and "Google classroom is my first choice in active learning compared to other methods" reach 36.2%. It can be concluded that as far as students are not used to this platform and they came across it unprepared in difficult pandemic time, it was noticed that less than half of the respondents feel satisfied by using Google Classroom platform.

DISCUSSION AND CONCLUSION

The questionnaire is used to collect data about participants' responses on the use of Google Classroom by the students of Faculty of Education and Business. The researcher elaborated further on the results of data processing that have been discussed earlier. The results of the data from the students of Faculty of Education and Business in the academic year 2019-2020 are calculated in as it is explained below.

This paragraph describes each part of the questionnaire. Ease of Access consists of 5 questions where the highest score is question number 2 (accessing course materials) with average 82.3% which means that respondents feel submitting assignment is easy in Google Classroom. The lowest score is question number 3 (sending and receiving assignment) with value 38.5% and question number 5 (navigating the system) with value 38.5% which means respondents disagree that navigation system in Google Classroom is easy. Taking into consideration the results from the respondents, it is obvious that the average of Perceived Usefulness describes the usefulness of Google Classroom. The highest average comes from question number 3 (Google Classroom helps me to submit assignment on time) with value 34.6%. It can be concluded that students, using Google Classroom for the first time as a practice due to Global pandemic situation and closed

educational institutions, feel Google Classroom hasn't helped them much to submit assignment on time because they have had other not mentioned problems apart from the fact that there is deadline in Google Classroom and it reminds them to meet it. It was also noticed that respondents are not satisfied to the quality of learning activity and they do not strongly support the idea that Google classroom is an excellent medium for social interaction (lecturer vs. students and students vs. student) with value of 13.8%. Based on the result of questionnaire answered by the students, the average of Communication and Interaction is shown in the chart. It is either a coincidence or students share almost the same perspectives concerning the items (1-6). Communication and interaction on using Google Classroom where it is clearly calculated that 39.2% of the students agree in being comfortable having conversations through this medium and also it is noticed a uniformity in the respondents' answer by stating that 10% of them disagree to the items 1-6 (I felt comfortable conversing through this medium for this activity; Lecturer helped to keep course participants engaged and participating in productive discussion; I felt comfortable interacting with other participants in this activity; My point of view was acknowledged by other participants during this activity; Lecturers are enthusiastic in teaching and explaining via the Google Classroom; Lecturers are friendly, approachable and could be easily contacted). Virtual Classroom component of the questionnaire describes respondents' satisfaction on agreeing using Google Classroom with 40% to recommend this method of learning being applied to other subjects, "the subject met my personal goal through the medium introduced" reach 39.2% and "Google classroom is my first choice in active learning compared to other method" reach 36.2%. It can be concluded that as far as students are not used to this platform and they came across it unprepared in difficult pandemic time, it was noticed that less than half of the respondents feel satisfied by using Google Classroom platform.

To sum up, the result on the of part Ease of Access shows that most students do not find any difficulties in operating Google Classroom and Google Classroom is easy to use as a learning tool. This result is similar with Shaharanee et.al (2016), that among students' participants of his research, 18 agree that Google Classroom is effective and easy to use. The part on Perceived Usefulness shows that less than 50% of the students feel Google Classroom is useful in their learning process. This result is not similar to other studies and the justification is that Albanian universities are not used to this platform and students got shocked to this dramatic change and isolation at the same time. We would have come to satisfactory results only in those cases where students already practiced regularly the platform and this way Google Classroom increased the effectiveness in completing the tasks assigned by the lecturers.

It can be concluded that students, using Google Classroom for the first time as a practice due to Global pandemic situation and closed educational institutions, feel Google Classroom hasn't helped them much to submit assignment on time because they have had other not mentioned problems apart from the fact that there is deadline in Google Classroom and it reminds them to meet it.

The part on Students' Satisfaction shows that less than 50% of the students feel satisfied with Google Classroom as a learning tool. As they have their personal emails, they can join the class by using class code from anywhere and anytime. The part on Students' Satisfaction shows that most students feel satisfied to recommend this method of learning being applied to other subjects.

The purpose of this research is to identify the students' responses on the use of Google Classroom for students studying at the Faculty of Education, Department of Foreign Languages and Faculty of Business in Aleksandër Moisiu University-Durrës.

There were 130 students who completed the questionnaire about Google Classroom. By seeing the demography of the questionnaire, the sample of this research consisted of 36 male and 94 female participants participated to fill in the questionnaire. The conclusion in this research is based on the research findings and discussion on students' responses on the use of Google Classroom. It is much to be done and further studies would take place in Albania.

ACKNOWLEDGEMENT

I would like to express my special thanks of gratitude to my beloved students who, apart from their hard psychological conditions because of home isolation, gave me the opportunity to do this research on Google classroom use in Covid-19 times.

REFERENCES

Cox, J., 2009. Available at: http://www.teachhub.com/benefits-technology-classroom (Accessed: 15 April 2020).

Janzen, M., 2014. Hot team: Google Classroom. Available at: http://tlt.psu.edu/2014/12/04/hotteam-google-classroom/ (Accessed: 15 June 2020).

Online Learning Survey – Ministry of Education Sports and Youth, 2020. Available at: https://ata.gov.al/2020/03/29/sondazhi-per-mesimin-online-968-e-nxenesve-953-e-prinderve-dhe-987-e-mesuesve-jane-pjesemarres/ (Accessed: 15 June 2020).

Pappas, C., 2015. Google Classroom Review: Pros And Cons Of Using Google Classroom In eLearning. Available at: https://elearningindustry.com/google-classroom-review-pros-and-cons-ofusing-google-classroom-in-elearning (Accessed: 15 June 2020).

Rossytawati, R., 2018. A Survey Study of Students' Perception in Using Google Classroom in English Language Education Department of Islamic University of Indonesia.

Shaharanee, I. N., Jamil, J. M., and Rod, S. S., 2016. Google Classroom as a Tool For Active Learning. *AIP Conference Proceedings.*

CHALLENGES FOR TERTIARY EDUCATION CAUSED BY COVID – 19 IMPACT: UKRAINIAN DIMENSION

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Abstract

One more reason for rapid changes in higher education surprisingly turned to be COVID-19. More than a month of quarantine, caused by the COVID-19 pandemic, affected positively proliferation of digitalisation of education, distance learning, non-formal education. Thus, even the most resistant aged teachers – adherents of traditional face-to-face teaching had to switch into distance learning, develop digital content, master on-line platforms Zoom, Google class, etc. Also, universities are now considering the opportunity to officially recognise the achievements of their students in non-formal education. Anyway, the events and global impact of the recent year pushed the Ukrainian tertiary education several steps forward. However, every new experience brings new challenges. To identify the problems that distant learning raised in Ukrainian tertiary education the research was conducted among 199 first-year students of the Faculty of Economics of Taras Shevchenko National University of Kyiv. The main problems were identified (too many tasks, difficulties with self-study and mastering practical skills, lack of communication with teachers, not clear criteria and procedure for assessment, tight deadlines, poor Internet connection), the reasons for them were outlined (lack of experience in teaching and learning online, lack of online consultations via Skype, Zoom, Microsoft teams or other platforms, overlapping deadlines, problems with assessment criteria development rooted in the same issues in offline learning) and the solutions were suggested (variety of platforms: Skype, Zoom, Microsoft teams, Edmodo, Google class, development of clear and transparent assessment criteria, giving more typical patterns for task solutions). For the research to be full the questionnaire among 22 teachers of the same Faculty was distributed and the feedback on their challenges was gathered (higher workload than it was during face-to-face classes, lack of experience of teaching online, lack of non-verbal communication, poor Internet connection, difficulties with assessment).

Keywords

Impact of COVID-19. Tertiary education. Higher educational institution., Assessment. Issues of distance learning.

INTRODUCTION

In 2020 the whole world experienced ground-breaking changes in all areas because of the world pandemic caused by COVID-19. Ukraine wss not an exception: almost all spheres were affected because of national quarantine that was intruduced on the 12th of March: small to medium-sized enterprises, tourism, entertainent, education, health care, sport and culture.

The impact of COVID-19 on education was analysed in a number of researches from different angles: the UNESCO International Institute for Higher Education in Latin America and the Caribbean has conducted a research on the short-term and long-term

impact of COVID-19 on higher education in the Latin American and Caribbean region (COVID-19 and higher education: Today and tomorrow. Impact analysis, policy responses and recommendations, 2020), a number of problems that appeared due to the pandemic: extra burden on families due to 'home schooling', assessent issues, difficulties for university graduates in the United Kingdom - were studied by the professor of Economics at University of Bristol - Simon Burgess and the economist at the same university - Hans Henrik Sievertsen (Simon Burgess and Hans Henrik Sievertsen, 2020). Cathy Mae Toquero studied the impact of COVID-19 in the Philippines, actually, the problems appeared pretty similar to Ukrainian issues in tertiary education: 'the vast majority of teachers appeared not to be ready to opt for online education and all the educational establishents were unprepared as well' (Toquero, C. M., 2020). Ukraine has also participated in International Association of Universities research on COVID-19 impact on higher education. The effect on learning and teaching, on international mobility, on exams was studied. But according to the data of the respondents' profiles only 18 Ukrainians participated in this survey, thus for the country with more than 40 million population these results could hardly be significant (Giorgio Marinoni, Hilligje van't Land, Trine Jensen, 2020, p. 14).

Thus, the existent research projects cover the problems COVID-19 caused in education either in different from Ukraine countries or the representation of Ukrainian respondents is extremely small, therefore, for uncovering specific problems in Ukrainian tertiary education the current research was conducted. As a result, the issues that students and teachers at universities faced during the pandemic were identified and the solutions were suggested.

METHODS

The research was conducted via gathering the feedback from the students of the Faculty of Economics of Taras Shevchenko National University of Kyiv. The total number of respondents is 199 students of the first year of study. The survey was conducted by the Faculty of Economics and analysed by the author in terms of identifying the problems and difficulties the students of the first year of study faced under pandemic and national quarantine. During the research the students were not given the possibility to choose the option with the suggested problem they might have, instead they were given open questions: e.g. what problems do you face during the quarantine distance learning, what methods of communication with the teachers do you have, etc.

In order to get the complete picture of the challenges for tertiary education during pandemic caused by COVID-19, the survey was also conducted among the teachers of the Faculty of Economics of Taras Shevchenko National University of Kyiv. 22 teachers (2 lecturers from each department of the Faculty: Economic Theory, Macro- and Microeconomics; Business Economics; Economic Cybernetics; International Economics and Marketing; Innovation and Investment Management; Accounting and Audit; Finance; Insurance, Banking and Risk Management; Environmental Management and Entrepreneurship; Statistics and Demography; Foreign Languages Departments) participated in the survey. The feedback was gathered on their ways of communication with their students and challenges they faced in this new format of distance teaching.

Both questionnaires were formed as open-end questions, for instance, what tools for distance learning were used, what problems with distance learning or teaching did you experience, what can be done to tackle the issues with online learning, etc. The

questionnaire was distributed via email. The response rate among students was 78% (199 from 256 first-year students filled in the form) and among teachers it was 100%. Microsoft Excel was used for the data analysis. The results of both surveys were processed and the certain recommendations for improvement were developed.

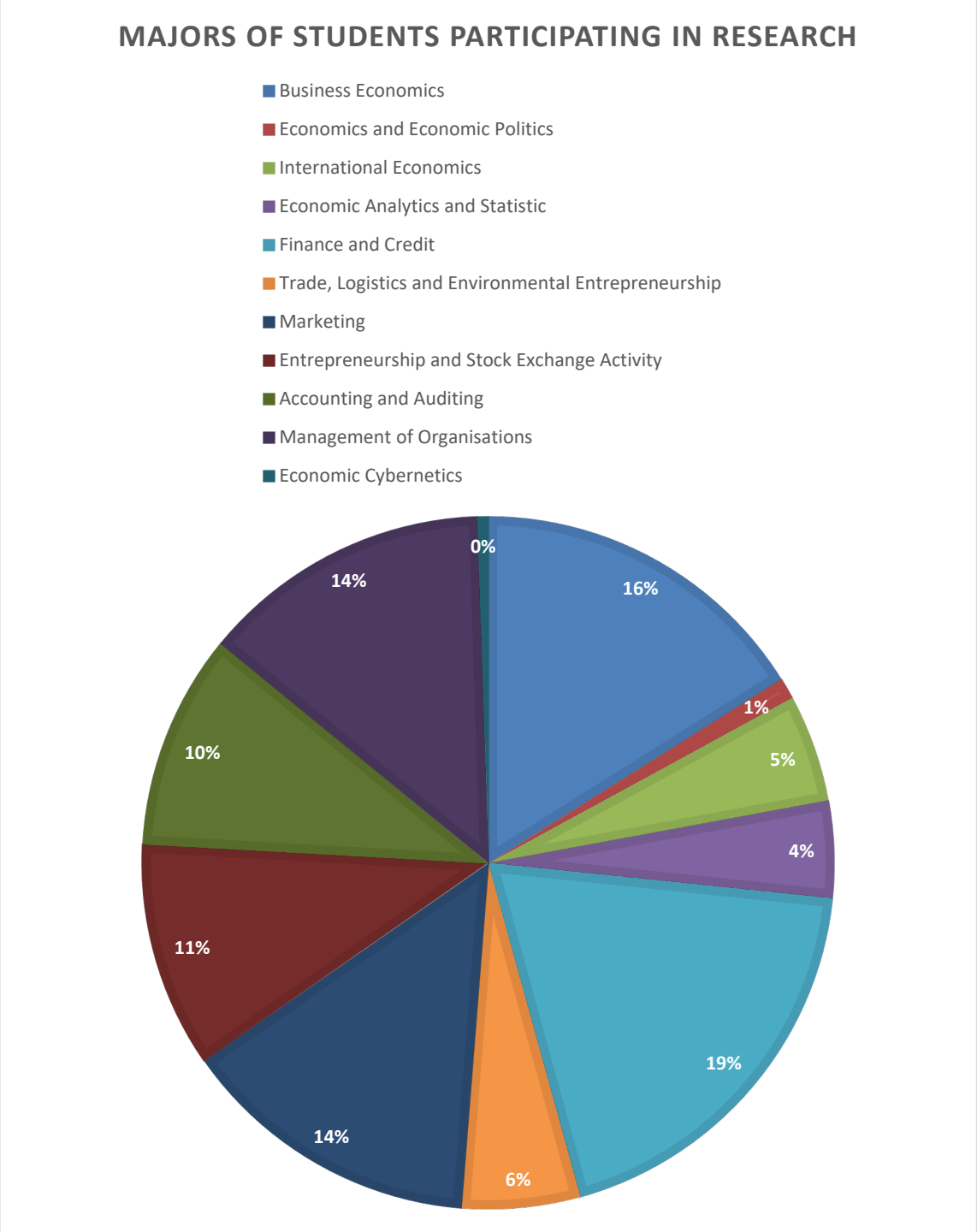

Figure 1. Distribution of the respondents according to their majors. (Source: Survey of the Faculty of Economics / own)

The problems identified were analysed and a set of recommendations was developed.

RESULTS

The problems the students-respondents outlined are presented in figure 2.

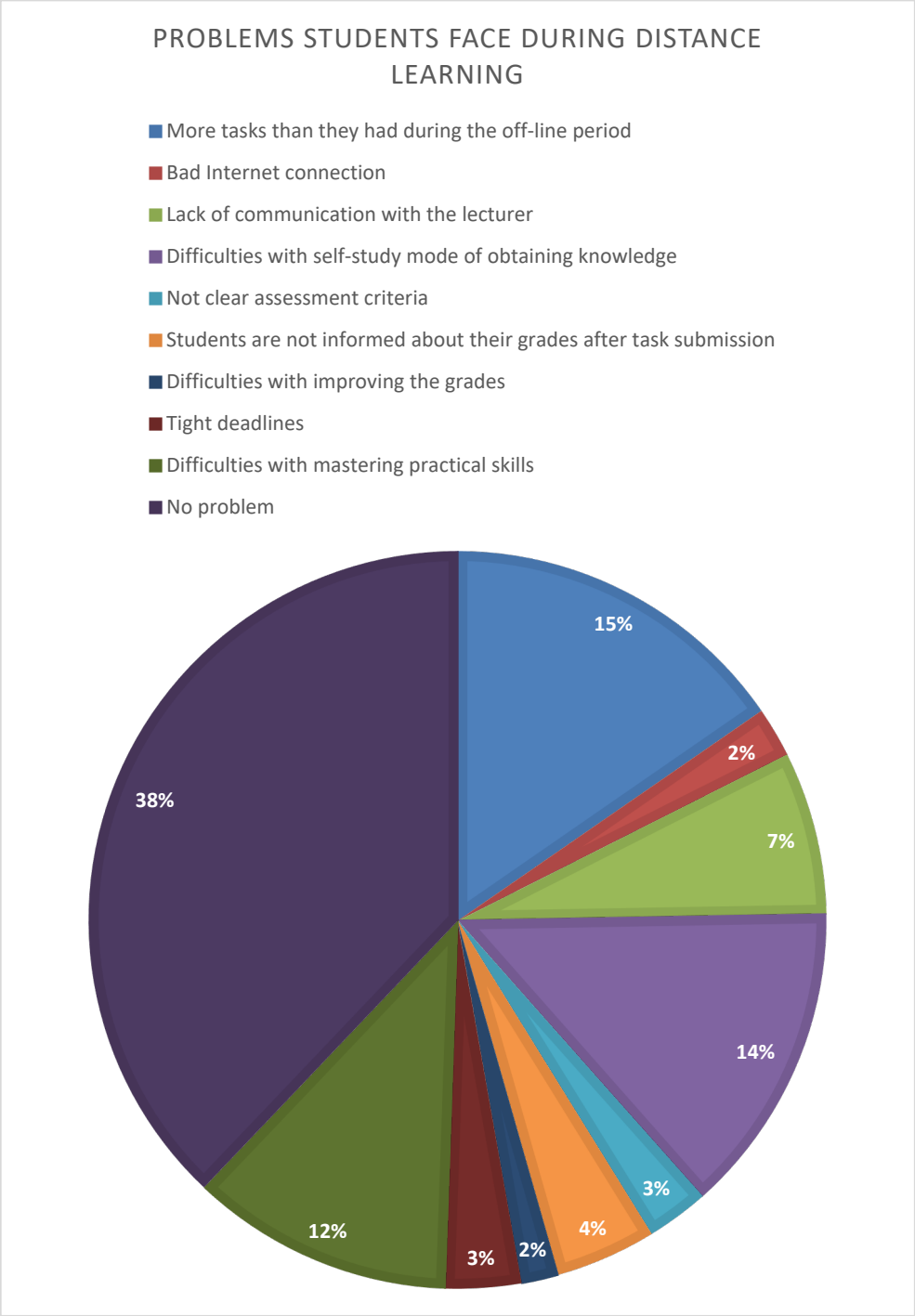

Figure 2. Problems students have with the online learning during quarantine period. (Source: Survey of the Faculty of Economics / own)

As can be judged from the pie-chart the most significant problem students face is increased amount of tasks they are given during online learning period than they had during the off-line period. The reason of this issue might be the following: distant format for the majority of lecturers was absolutely new, thus, teachers were inexperienced in identifying the necessary volume of tasks and were giving more rather than less for their students not to miss important things in the framework of this or that subject. This might be considered as one of the teething problems, the more practice in organising distance learning the lecturers will have the better balance they will find.

The second biggest problem the respondents face is difficulties with self-study mode of obtaining knowledge. The reason for this problem is that this survey was conducted among the first-year students (17-18 year-old teenagers), who are not used to self-study, to finding and processing the information without facilitation of the teachers. Thus, in order to cope with this problem, teachers may organise more online consultations via Zoom, Skype, Microsoft teams or other platforms for the students of the first year of study, when in real-time mode they can clarify difficult moments and advise where the learners can find more comprehensive materials.

The third biggest problem is connected with difficulties in terms of mastering practical skills. For future economists the situation sounds more optimistic, because compared to students majoring in Science, economists do not need to carry out any experiments in laboratories. For them practical skills mean: doing sums, solving economic problems, performing Case Studies, preparing presentations of the results. For solving this problem introduction of more online consultations might help as well as greater variety of typical patterns how to do sums or to deal with economic problems.

The fourth issue mentioned is lack of communication with the teacher. Students can't go without an immediate answer from the teacher when they face a difficulty or something is not clear. But in situations when the communication goes only via email there is almost no chance for the student to get help when he/she needs it. The way out is again online consultations via platforms. Or at least regular checking of email box or messages in Google class, Edmodo, etc.

The fifth, sixth and ninth biggest problems are connected with assessment: not clear assessment criteria, not informing students about their grades and difficulties with improving the grades correspondingly. Actually, these three problems have the same roots: this is about not clear procedure of assessment. Criteria for assessment should be a must in distance learning as well as in face-to-face learning. Students should understand what is assessed and how it is assessed, otherwise performing the task would remind a lottery: if you have a lucky hand or the teacher favours you, you will get a higher grade and vice versa. But this is not about transparency, fairness and equal opportunities. There should be no ambiguity or double standards in assessment. And this is not a pure problem of distance learning, assessment criteria should be developed and informed to the students in any situation, it doesn't matter whether it is online or offline learning. As to the problem with an opportunity to improve the grades, all the rules should be set before the task is given to the students, thus, they will understand the whole procedure and will be ready either to accept their grades as final results or to do their best to improve them.

The seventh biggest problem was outlined as tight deadlines. The reason for this is as simple as that: compared to face-to-face classes distance learning appeared to be much more teacher-centred: it is up to them, when to assign the task and when to set a deadline, students have no opportunity to negotiate or to influence teachers' decisions. The majority of teachers were not ready for online teaching, thus they had to develop new stuff, master

new ways of communication, all this took much time, but the curriculum requires certain topics to be covered during the semester, therefore, the deadlines appeared to be very tight. Bearing in mind that students usually have approximately 8-10 subjects in one semester, it can easily appear that the deadlines overlap. The way out from this situation might be suggested as follows: to assign the tasks far in advance, for students to have at least two weeks for performing it, in this situation overlapping deadlines will not cause big problems, because the students would be able to approach them flexibly.

The eighth biggest problem mentioned is bad Internet connection. It appeared to be a real problem even in the 21st century. Especially, it was a problem for students, when they were required to write a test with time constrains or should join an online lesson. In order to help such students, there should be another channel of communication, e.g. Edmodo, Google class, email or messengers.

The problems the teachers-respondents outlined are presented in figure 3.

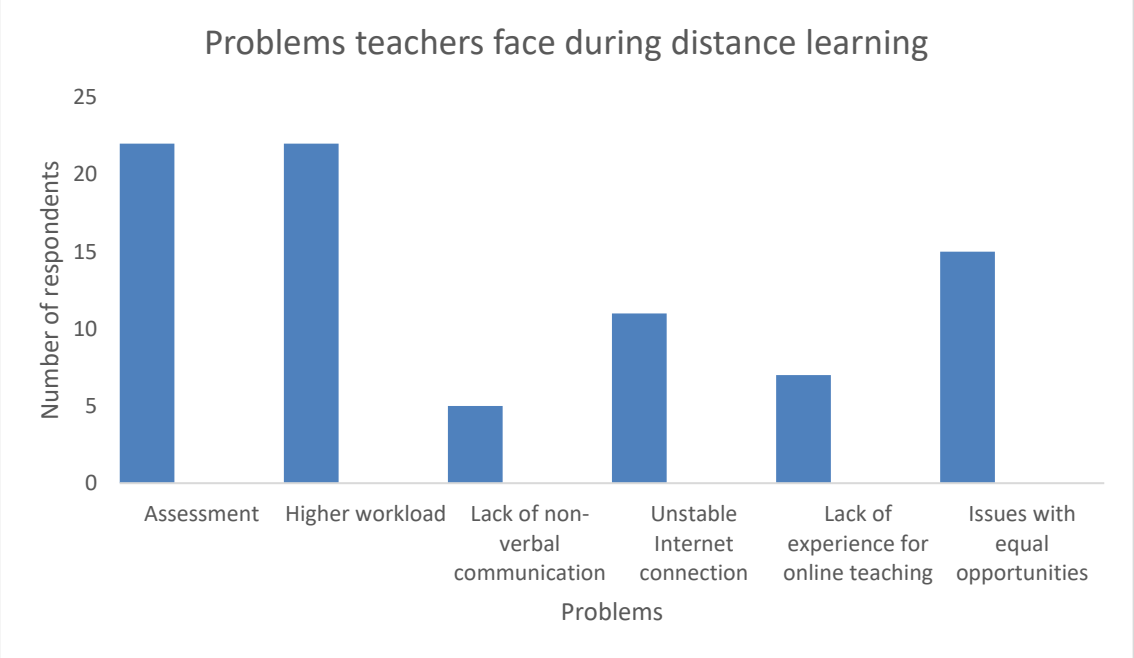

Figure 3. Teacher's problems with the online learning during quarantine period. (Source: own survey)

As it can be seen from the bar chart 100% of respondents outlined higher compared to face-to-face teaching workload and issues with assessment as the most challenging problems.

Higher workload is caused by the necessity to develop virtual content for online teaching and learning, to write feedback individually to every student, to report on the performance more often than it was done during offline period and, of course, not only to teach online, but also to learn online in order to familiarise themselves with new platforms, with new modes of interaction, with new methods of teaching. It is obvious that developing new content and mastering new ways of teaching are temporary issues and next academic year they will not consume teachers' time, but necessity to write individual feedbacks and to report about performance are the factors that will enhance quality assurance of education.

Assessment being outlined as the biggest challenge in this survey has become a 'buzzword' all over the world. Every webinar or discussion between universities during the quarantine period touches this topic. Thus, the first problem with assessment that was mentioned by the respondents is significant increase of summative assessment over formative one. All the tasks given to the students had to be not only evaluated, but also assessed and these marks are accumulated and contribute to the final grades. However, formative assessment is more important for students 'to improve their learning' (Lucie Renard, 2017). This problem is rooted in another challenge of online learning: inability to guarantee transparent, equal, objective, trustworthy and reliable procedure of summative assessment. Teachers can't prevent students from cheating during the test or from using help from other people when writing essays or working on projects. Even during online lessons there is no guarantee that a student is not using notes, books, devices while giving answers to the teacher. There were several interesting suggestions from the teachers, how to ensure objective and reliable procedure of summative assessment.

- Ask students to give answers in front of the camera, but with his/her eyes closed (such requirement might look funny and crazy in university context);
- Ask students to write the test in front of the camera, ensuring the camera to catch not only the student, but also the space on the table and around them (there are still possibilities to cheat in this situation);
- Assign so called 'open-course book tasks', when students can use any resources and devices, because nowhere they can find the already made answer to the question (unfortunately, it is very challenging for teachers to create such tasks, not everybody can do this and not every subject allows to create such tasks, furthermore, there is still an opportunity for students to use some help from competent outsiders or their groupmates);
- Limit the time for performing the test (also might not work, if students are writing these tests together with their parents, friends, groupmates);
- Give more tasks for the same time students had during the tests in offline period (it sounds a little bit unfair in relation to responsible and honest students)

Thus, there is still no acceptable solution of this problem.

The third biggest problem outlined by 15 respondents is issues with equal opportunities. Unfortunately, under conditions of national quarantine students from remote rural areas were not able to communicate with the teachers and study. For teachers this fact will result in increased workload, because they will need to teach and additionally consult such students when they return to face-to-face mode. One more barrier is lack of devices to have access to online lessons: for example, there might be only one laptop in families with several children of school or university age. Thus, such children were competing for the right to have access to learning.

The fourth biggest problem appeared to be poor Internet connection. When the whole country is using Internet simultaneously, the capacity of Internet decreases significantly. Unfortunately, to use the traditional tips for distance learning in such situations, i.e., 'if your Internet connection is poor, you can visit some public places (café or a public library) with strong Wi-Fi connection' was impossible, because of quarantine (Purdue University Global, 2019).

The fifth biggest problem was lack of experience for online teaching. Actually, this challenge triggered quick changes in Ukrainian tertiary education, when even the most reluctant teachers had to switch into online context, because they had no other choice. This resulted in mastering new tools, familiarising with new methods of teaching, getting used to new reality. Sure, it was hard, but the results for development of higher education in Ukraine could not be overestimated.

One more problem that was mentioned is lack of non-verbal communication. Frankly speaking, this problem was faced by the teachers who communicate with their students via email, thus, the solution for this problem might be pretty easy: use a variety of platforms, especially those that can give you an opportunity to communicate online in the real-time mode: Skype, Zoom, Microsoft teams, etc.

DISCUSSION AND CONCLUSION

The reason for the current research was to identify challenges students and teachers faced because of COVID-19 quarantine introduction in order to cover the blank spot in global research works, which usually deal with other region, but Ukraine or the amount of Ukrainian respondents is very little and can't give an objective and full information about higher education in Ukraine. The findings of this research can contribute to the global picture of COVID-19 impact on tertiary education all over the world.

Thus, this research outlined 9 problems that students faced in the framework of distance learning (more tasks than they got during offline period, poor Internet connection, lack of communication with the lecturers, difficulties with organising self-study and mastering practical skills, tight deadlines, not clear criteria and procedure of assessment). Teachers outlined 6 problems (objective and transparent assessment, higher workload, lack of non-verbal communication, unstable Internet connection, lack of experience in online teaching, issues with equal opportunities).

For most of the problems solutions were suggested by the author, based on personal experience, background knowledge, common sense and tips from colleagues. The suggested solutions are as follows: more training for teachers, variety of platforms, clear assessment criteria, self-discipline and time-management, etc. However, there is still a question with transparent, equal, objective, trustworthy and reliable procedure of summative assessment. All the suggested solutions are not universal and productive. Thus, this issue still needs elaboration and contributions from other researchers.

All in all, besides all these challenges students and teachers faced during quarantine period, one thing is obvious, COVID-19 triggered ground-breaking changes in tertiary education in Ukraine as well as in the whole world.

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REFERENCES

COVID-19 and higher education: Today and tomorrow. Impact analysis, policy responses and recommendations, 2020. Avaible at: http://www.iesalc.unesco.org/en/wp-content/uploads/2020/04/COVID-19-EN-090420-2.pdf (Accessed: 30 May 2020).

Marinoni, G.,van't Land, H. and Jensen, T., 2020. The impact of COVID-19 on higher education around the world. *IAU Global Survey Report*. Avaible at: https://www.iau-aiu.net/IMG/pdf/iau_covid19_and_he_survey_report_final_may_2020.pdf (Accessed: 30 May 2020).

Renard, L., 2017. The differences between formative and summative assessment – Infographic. Avaible at: https://www.bookwidgets.com/blog/2017/04/the-differences-between-formative-and-summative-assessment-infographic (Accessed: 30 May 2020).

Purdue University Global, 2019. 4 Common Challenges Facing Online Learners and How to Overcome Them. Avaible at: https://www.purdueglobal.edu/blog/online-learning/4-challenges-facing-online-learners/ (Accessed: 30 May 2020).

Burgess, S. and Sievertsen, H.H., 2020. Schools, skills, and learning: The impact of COVID-19 on education. Avaible at: https://voxeu.org/article/impact-covid-19-education (Accessed: 30 May 2020).

Survey of the Faculty of Economics of Taras Shevchenko National University of Kyiv, 2020.

Toquero, C. M., 2020. Challenges and Opportunities for Higher Education amid the COVID-19 Pandemic: The Philippine Context. *Pedagogical Research*, 5(4), em0063.: https://doi.org/10.29333/pr/7947 (Accessed: 30 May 2020).

DEVELOPMENT OF MEDIA AND CRITICAL COMPETENCIES

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Abstract

The development of media and digital competences has been very vital to education. Teachers and pupils should acquire digital competencies that allow them to survive in the digital society. In this line of thinking, they should also develop critical thinking in order to use technological resources properly. With this in in mind, the European Parliament and Commission have designed a set of recommendations and guidelines (DOUE, 2009). In the same way, we also can consult the Media Literacy Kit for teachers (UNESCO, 2007), a book where we can review some advice for teachers.

Besides all this, nowadays, when people can use their smartphones to do practically everything, it is necessary to teach with new tools adapted to the real context. The paper reflects on the problems linked to teaching with ICT and introduces some good practices and materials to teach millennials. The research paper also reports the development of media competence and critical competence (Caldeiro y Aguaded, 2015), two skills that are closely connected with digital competence (DIGCOMP, 2013; Intef, 2017). Finally, the article presents some educational resources to teach in the XXI century. (Ramírez, 2019).

Keywords

Citizenship. Digital competence, Critical thinking. Resources. Education.

INTRODUCTION

The most recent technological trends indicate that technological tools and devices have been used from a very young age. In this sense, the development of digital competence is essential (DigComp2013; Intef, 2017), that is: the ability to search for information, create content, and use them safely. It is a skill that enables users of the digital age to produce content, that is, to adopt an active approach, abandoning the minor role of a consumer. The key is the level and development of critical competence (Caldeiro and Aguaded, 2015) that favors interrelationships in society and coexistence in cyberspace. This skill, which origin lies in the dimensions of content production, axiology and values, seek responsible consumption, and production by Internet users.

Since technology has become an inseparable part of the everyday lives of many people, it is undeniable that also teachers should adopt new forms of teaching. Nowadays, it is vital to use methodologies that focus on collaborative work and, at the same time, emphasize the reverse roles of students and teachers, prioritizing the active role of

students. Through active methodologies, teachers acquire a secondary role, becoming guides, mediators, who promote the motivation and interest of their students. Students become active, collaborative subjects, capable of creating content critically and responsibly. Students stop being consumers of content and become prosumers (García-Ruíz, Ramírez, and Rodríguez-Rosell, 2014). Likewise, this practice favors the use of technology as a critical tool that favors the contact and interrelation horizontally between the guide-teacher- and the student. The new methodologies, together with the use of technology, favor critical thinking while betting on the co-construction of knowledge through collaborative work and the interrelation.

In order to achieve this objective, teachers must be literate (CML, 2013) and must have a high level of digital (Intef, 2017) and media (Ferrés, 2007) competence. Thus, they should also know about a wide range of resources that they can use daily in the classroom.

Therefore, the first aim of the research paper is to analyze the state of affairs concerning ICT in education. The second objective is to review some tools and resources that teachers should know and implement into teaching. For this, qualitative and descriptive-analytical research was conducted. The research is based on the assumption that there is a need for technology training and methodological creation. The research paper presents a review of the primary resources that teachers can use in order fulfill the needs of Generation Z and Generation T. This is the population born over the last three decades, young people who have been in contact with technological devices from a very young age and who do not know much about the analogic tools.

Based on this information, there have been tendencies to focus on the digital literacy of teachers, an objective that was already outlined more than a decade ago (Unesco, 2007). In addition, there have been aims to make changes in the pedagogical area. The changes propose teacher training on new technological trends and implementation of methodologies and tools that focus on creativity. Creativity and innovation are the objectives of the ET 2020 framework, stressing entrepreneurship at all levels of education and training. In addition to this, the document implies the creation of content in general, the development of active, critical, and responsible subjects in education. In other words, the scope of "pro-designers" is sought, that is, active and participatory subjects that can select, produce and share audiovisual content (Hernández-Serrano et al.2017).

To achieve these objectives requires educational policies and standards at both international and national levels that would regulate the situation. In this sense, the Parliament, and the European Commission (2009) collected a series of guidelines on literacy that refer not only to the training of citizens but also to the design and development of good practices. Despite the fact there is a clear regulation in this regard, good practices are currently being carried out to achieve the objectives mentioned above. Although there are no clear guidelines for creating educational laws at both local and international levels, there have been several initiatives to clear this issue. The general educational regulations do not define currently in a specific way, the use of technology at different educational levels nor establish clear principles on its application and use in the school environment. In this sense, there is a need to collect experiences concerning technology in education. Even though the legislation does not define the collection of experiences, this practice could help teachers to teachers to achieve the development of digital competence (Intef, 2017) in other words media competence (Ferrés, 2007; Ferrés and Dezuani, 2012) and critical competence (Caldeiro and Aguaded, 2015). These are the skills that empower users to become content producers capable of understanding the information they receive and responsibly produce audiovisual content. Students of any

age should also develop these skills as they are unquestionably in contact with technological devices and tools.

Good practices are understood as educational experiences whose name arise in the context of politics and are linked to the teaching practice integrating digital resources to create new content and forms of school organization. These practices "also seek to promote other types of educational activities and foster collaborative work strategies" (De Pablos, & Jiménez, 2007, p.18). They are resources that do not have to be identified exclusively with activities in the classroom, but they are any school projects where technology plays the dominant role. Specifically, in the educational context, "it implies promoting more intense contact between students and teachers, developing reciprocity and students' cooperation, promoting active learning or respecting different talents and ways of learning." (VIU, 2015). It is vital to emphasize that good educational practices can also be applied in educational organizations or centers. However, good practices are used to analyze the skills and attitudes essential for professional teachers who teach students of different ages. These types of practices are included within the so-called **Open Educational Resources (OER)**, i.e., didactic or research materials that can be adaptable. OER was officially used in the UNESCO 2002 Forum, a forum that deals with the Incidences of Open Computerware Educational Programs, and refers to teaching, learning, and research materials. They are public domain resources that must be published with an open license that allows free access. At the same time, they must guarantee its use, adaptation, and redistribution by third parties without any restrictions (UNESCO, 2012). UNESCO defines OERs as a strategic opportunity to improve the quality of education, exchange of knowledge and skills". At the same time, UNESCO implies that OERs have a substantial potential that "include bringing transparency to educational processes, facilitating collaboration between educators and students from different institutions" (UNESCO, 2015, p. 49). Along these lines, it is worth noting the set of educational trends that emerged in the year of the "technological leap." A time in which, according to Aula Planeta, "it is calculated that global spending on digital transformation will increase by 40% compared to 2019". In this sense, Aula Planeta highlights different educational trends related to privacy, security, machine learning, or augmented reality. Trends that will be included in the educational frameworks and will contribute to learning in the digital era.

METHODS

The research is based on a bibliographic review of articles found in databases such as Dialnet, Scielo, WOS, SCOPUS. The selected articles are written in Spanish and English. The selection of the sample was made according to the following criteria: 1. Application of the descriptors: pedagogical resource, digital competence, critical competence, education, educational resource, good practices, as inclusion criteria.

2. Exclusion criteria for the last ten years. The references include materials that justify the continuity and origin of the pedagogical models demanded by the digital society. Once the analysis was carried out, non-probability sampling was obtained, taking into account the inclusion and exclusion criteria, obtaining as a minor sample of articles. The bibliographic references of the analytical-descriptive research are discussed in the introductory, the conclusions, and discussion sections.

The resources, both international and local (Spanish context), exemplify the design of materials which provide the skills that are mentioned above. These are materials that

have been designed to reach a common goal of literacy for the digital world. Resources that seek the development of digital competence, media skills, and the scope of critical competence are considered pillars of responsible, autonomous, and participatory citizenship, and these pillars must be developed in today's society.

RESULTS

The documents aimed at education in the XXI century (Ramírez, 2019) and good practices (Table 1) confirm the inconsistency of the legislative framework. The outcomes of the research imply the existence of materials and experience in open digital spaces and stress the need for digital training in the era of immediacy and interactivity.

Table 1. List of resources

DOCUMENTS	RESOURCE
European Projects	A Digital Europe needs Digital Skills: best practices from around the EU https://bit.ly/2As88VP
Artículo científico (España)	Buenas prácticas que desarrollan la competencia mediática en entornos socioeducativos. Recuperado de https://bit.ly/2Z5mTby
Good practices INTEF (Spain)	Recursos INTEF https://bit.ly/2X2NumL
Compilation of good practices in digital skills Ikanos, España)	Buenas prácticas en formación https://bit.ly/3dMuujl

Source: Own.

European projects

European projects, which set a regulatory framework of digital competencies and good practices, are compilations of experience in the area of digital competencies in different countries such as Romania, the Netherlands, Poland, and France. The projects aim to introduce the benefits of technology to a greater number of people. The experience is linked to both professional and educational areas and seeks social inclusion and interrelation using digital skill development. It is because digital Europe requires citizens to be capable of using digital tools responsibly; men and women that have developed the critical competence that allows them to design audiovisual content effectively and autonomously.

Scientific articles

The article (Table 1) refers to the development of media competence at different educational levels of compulsory, university, and adult education in Spain. The reference is relevant as it mentions the development of audiovisual competence in the south of Spain, appealing to the need for media training. The article proposes the intersection between formal and non-formal education and points out that the digital society requires specific training not only of an instrumental and an axiological nature.

Examples of Good Practices (national and local)

Table 1 shows an example of good practices from the National Institute of Educational Technologies and Teacher Training (INTEF), an agency under the Ministry of Education and Professional Training that is responsible for the integration of ICT and Teacher Training at non-university educational levels. Therefore, the article is a valid document within the Spanish context that sets the methodology of technology integration in the classroom. At the same time, INTEF trains teachers to be adequately literate. For this, countless materials can be used (Fig. 1)

Figure 1. Educational resources INTEF |(Source: Web INTEF https://bit.ly/3dY0xwO)

The projects promote and support innovation and didactic experimentation in the classroom based on the development of open educational resources and the formation of teacher networks and educational centers. The projects also offer specific educational experiences from teachers and schools. These experiences have great value since the teachers serve as role models, guides, and motivators for other colleagues who are encouraged to conduct similar projects.

Besides, Table 1 shows an example of a local experience that also has a significant impact. The document includes ten examples of good practices of digital skill development. It is a selection of initiatives that are related to the European framework DigComp (2013). The framework mentions three specific areas: accreditation, training, and orientation. The first experience corresponds to the Basque Country community, while the second, the Digital Teaching Competence Portfolio, was designed by INTEF and "suggests a tool for teachers' digital competence" (Ikanos, 2017, p.7). The "Common Framework of Digital Teaching Competence" (2017 INTEF) is a reference vital in training, evaluation, and accreditation processes of teachers' digital competences and offers good accreditation practices. Besides, the Ikanos resource has the PIX Platform for obtaining a reliable and official certification recognized by national education, higher education, and the professional world (Ikanos, 2017, p.11).

To conclude, the criteria established previously in the introduction can affirm that the selection of the resources and good practices is justified. These aspects refer to the development of digital and critical competence of students and citizens in general. The references also meet the criteria that refer to the international, generic, national, and local areas and include experiences that exemplify the need for training and evaluation of acquired skills.

DISCUSSION AND CONCLUSION

The review of literature in the introductory section, as well as the review and the subsequent selection of resources and sound educational practices, justify the need for multi-literacy (Tyner, Gutiérrez and Torrego, 2015) that is understood as both instrumental and valuable training for ICT users. Likewise, it is necessary to train students based on the tools that they have from a very early age. Despite a lack of a clear educational policy, there is a need to design resources and pedagogical initiatives that could be used to teach "digital natives" (Fernández-García, Blasco-Duatis, and Caldeiro-Pedreira, 2016), that is, the population that was born with technology in its hands and population that perceives technological tools as a way of meaningful learning.

Nevertheless, in the absence of concise educational policies that set specific literacy guidelines, there is a need to review scientific literature which supports educational transformation and the use of new methodologies. Didactic strategies or procedures that intend to teach via REA, social interaction, cooperation, and knowledge sharing. To do this, we can refer to a Media Literacy Kit or European recommendations on literacy.

However, there is an evident lack of legislative measures in each context. Research studies try to reflect this problem by collecting specific experiences or recommending how to implement good practices and the use open educational resources. It should be noted that open educational resources are interesting and beneficial since they cost nothing and can be accessed from anywhere. An internet connection is the only requirement because they are published under open-source licenses (Ramírez, 2019). These materials promote the development of digital and critical skills while promoting the active role of audiovisual content producers.

In this sense, it is worth underlining the importance of Intef and Ikanos when designing tools for measuring citizens' digital competence in Spain. Also, it stresses the ability to design good practices in the educational field, at any level, in formal or informal education, to favor the development of the skills mentioned above.

The limitations of this research are the lack of studies that certify the validity and integrity of good practices. For this, it would be necessary to implement them for a more extended period, an implementation that would allow us to establish the challenges and potential of these materials.

Future studies could extend this review to different contexts. Also, it would be advisable to research good practices and open-source materials design.

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REFERENCES

Atrevia, 2016. Generación Z. Deusto: Universidad de Deusto. Available at: https://goo.gl/NNiwXE (Accessed: 15 February 2020).

Aula Planeta, 2020. Ocho tendencias educativas TIC para este 2020. Available at: https://bit.ly/3bGa5ed (Accessed: 15 February 2020).

Caldeiro, MC. & Aguaded-Gómez, J., 2015. Estoy aprendiendo, no me molestes la competencia mediática como forma de expresión crítica de nativos e inmigrantes digitales. *Redes.com, 12*. Available at: http://goo.gl/2ORkf1 (Accessed: 15 February 2020).

CML, 2003. Media Lit Kit. Conjunto de herramientas para alfabetismo en medios. Available at: https://bit.ly/3c58EXO (Accessed: 15 February 2020).

De Pablos-Pons, J. & Jiménez-Cortés, R., 2007. Buenas prácticas con TIC apoyadas en las Políticas Educativas: claves conceptuales y derivaciones para la formación en competencias ECTS, *Revista Latinoamericana de Tecnología Educativa*, 6(2), pp.15-28. Available at: https://bit.ly/2w9hkZD (Accessed: 15 February 2020).

DIGCOMP, 2013. A Framework for Developing and Understanding Digital Competence in Europe.

DOUE. 2009. Recomendación sobre la alfabetización mediática en el entorno digital para una industria audiovisual y de contenidos más competitiva y una sociedad del conocimiento incluyente. Available at: https://bit.ly/2T5jx4y(Accessed: 15 February 2020).

Fernández-García, N; Blasco-Duatis, M. and Caldeiro-Pedreira, M., 2016. *Communication and Education by Transmedia. Report on ICT skills in four secondary schools in Europe*. *Cuadernos Artesanos de Comunicación*, 108 – English Version. La Laguna (Tenerife): Latina. Available at: http://goo.gl/fl9mrK) (Accessed: 15 February 2020).

Ferrés, J., 2007. Competence in media studies: its dimensions and indicators. *Comunicar, 29*, pp.100-107. Available at: https://doi.org/10.3916/C29-2007-14(Accessed: 15 February 2020).

Ferrés, J., & Piscitelli, A., 2012. Media competence. Articulated proposal of dimensions and indicators. *Comunicar,* 38, pp.75-82. Available at: https://doi.org/10.3916/C38-2012-02-08 (Accessed: 15 February 2020).

García-Ruiz, R., Ramírez-García, A., and Rodríguez-Rosell, M. 2014. Media literacy education for a new prosumer citizenship. *Comunicar, 43*, pp.15-23. Available at: https://doi.org/10.3916/C43-2014-01 (Accessed: 15 February 2020).

Hernández-Serrano, M., Renés-Arellano, P., Graham, G., and Greenhill, A., 2017. From prosumer to prodesigner: Participatory news consumption. *Comunicar, 50*, pp.77-88. https://doi.org/10.3916/C50-2017-07 (Accessed: 15 February 2020).

Ikanos, 2017. Buenas prácticas en formación. Available at: https://bit.ly/3dMuujl(Accessed: 15 February 2020).

INTEF, 2017. Marco común de competencia digital docente. Available at: https://bit.ly/2WmRTCg (Accessed: 15 February 2020).

Marco ET. 2020. Política europea de cooperación. Retrieved from https://bit.ly/2ygNkQD

Ramírez Paredes, K.G. (Coord.), 2019. *Recursos educativos para el aula del siglo XXI*. Eindhoven: Adaya Press.

UNESCO, 2007. *Media and Information Literacy curriculum for teachers*. Available at: https://bit.ly/2Td1Obp (Accessed: 15 February 2020).

UNESCO, 2012. *Declaración de Paris sobre los REA*. Available at: https://bit.ly/2Zc0MjA

UNESCO, 2015. *Guía Básica de Recursos Educativos Abiertos (REA)*. Available at: https://bit.ly/2ZhJTnR (Accessed: 15 February 2020).

VIU,2015 . Buenas prácticas en educación. Un conjunto de interesantes experiencias y opiniones de profesionales de la docencia. Available at: https://bit.ly/3cz9Djj (Accessed: 15 February 2020).

Tyner, K., Gutiérrez, A. and Torrego, A., 2015. "Multialfabetización" Sin muros en la era de la convergencia. La competencia digital y "la cultura del hacer" como revulsivos para una

educación continua. Revista de currículum y formación del profesorado, 19(2), pp. 41-56. Available at: https://bit.ly/2CyLQzS (Accessed: 15 February 2020).

Web UNESCO. Available at: https://bit.ly/3dTbHmv (Accessed: 15 February 2020).

IMPACT OF ONLINE TRAINING ON THE FORMATION OF MEDIA AND CYBER LITERACY SKILLS DURING QUARANTINE (COVID-19)

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Abstract

The COVID-19 pandemic has greatly affected all spheres of human life worldwide, including science and the educational system. For Ukraine, full transitioning to online learning was a huge challenge, and the first educational experience of this kind.

Our research interests focus on developing information literacy and critical thinking skills, forming psychological resilience to manipulative influences. Since COVID-19 prompts the spread of disinformation across the globe and Ukraine, in particular, being quarantined during the viral outbreak, we developed a series of online media and cyber literacy training.

Thus, the paper will discuss the influence of online learning on the formation of Ukrainian students' media and cyber literacy skills during the global health crisis.

As hypothesized, our research has shown that due to the specific features of online classes, distance learning is an effective tool to increase media and cyber literacy levels. Under current conditions, it is impossible to arrange blended or face-to-face learning environments; hence, online classes are the only way of really facilitating communication between a teacher and students and convey important messages that help navigate the digital world, spot fake news, avoid manipulation and protect one's personal and financial data. We conducted a survey before and after the training, the results of which demonstrated that students significantly improved their levels of media and cyber literacy after attending online classes.

Thus, the application of online learning much assisted in solving the following tasks: first, it happened to be the only possible way of communication during the quarantine; second, online classes are effective in helping students to learn more about media and cyber literacy and improving their levels of critical thinking; third, online learning allowed enlarging the traditional course with additional cyber literacy issues, the demand for which predictably increased due to the abrupt transition of many spheres of human life into the virtual space; finally, online learning attracted a broader audience since the online version made classes more available.

The example of the given training showed that, if necessary, online learning can be employed as an alternative and quite an effective tool for providing knowledge and skills. Besides, online training can be viewed as part of inclusive education, as it allows people with disabilities to gain relevant knowledge and skills in today's digital world.

Keywords

Education. COVID. Media literacy. Cyber literacy. Online training.

INTRODUCTION

The COVID-19 pandemic has incredibly affected all spheres of human life worldwide, forcing individuals to seek new forms of communication, do business online, and minimize face-to-face contacts. The education system turned out to be one of those spheres that were somehow prepared for such an unfavorable scenario. Indeed, while health officials and governments are doing their best to slow the outbreak down, education systems are collaborating to respond and provide quality education during these difficult times. Digitally-based distance learning in a form of blended learning or advanced training of adults (e.g. Coursera, future learn) is exploited to ensure educational continuity. Besides, top universities offer free online courses, trainings, and lectures on art history, financial marketing, brand management, psychology, nutriciology, etc. that have recently become popular.

Our research interests focus on developing individual's information literacy and critical thinking skills, forming psychological resilience to manipulative influences. Hence, the quarantine during the viral outbreak poses many challenges, which must be faced while working under new conditions. The key one is selecting the most convenient and user-friendly learning platforms.

The relevance of developing Media and Cyber Literacy Skills Training is also determined by the fact that COVID-19 prompts the spread of disinformation across the globe and Ukraine, in particular, social networks and fake news websites bombard users with information about government-to-person payments as a kind of social protection. Actually, these posts contain links to fraudulent and scam websites. One of the most popular news proliferating all social networks speaks about spraying disinfectants over the cities at night. Fake news also encourages people to ignore quarantine and social distancing rules that endangered their lives, health and well-being of their family members and friends (BBC news, 28.03.2020; Richmomd news,1.04.2020).

The active introduction of advanced and innovative information technologies in all spheres of human life gave birth to distance learning. Issues of adapting information and communication technologies to average user's needs are also in the focus of interdisciplinary research, which makes the results more valid and practically significant. For instance, such a multidisciplinary field of study as human-computer interaction (HCI) exploits computer graphics, engineering psychology, cognitive science, ergonomics, etc. to develop entirely new approaches to improve the interaction between human and computer by designing a user-friendly interface (Hewett et al., 1992). Based on the concept of user-friendly technologies, diverse forms of distance learning have been partially implemented into the learning environment of educational institutions and lifelong self-learning.

These days the problems related to design and use of distance and blended learning technologies are set as the first priority in the field of education informatization. There is a vast amount of literature on the issues covering trends and perspectives of introducing cloud technologies into teaching-learning process (Abichandani, Fligor and Fromm, 2014, Aceves, Watson, 2011; Sultan, 2010 etc.).

Much work on studying theoretical and methodological grounds for modeling and designing information educational environment of open education has been carried out by Ukrainian scholars (Bykov, Shyshkina, 2018; Manako, 2012; Panchenko, 2013; Spivakovskiy, Petukhova, 2013 etc.). Recently, an increasing number of studies discuss the methodological foundations of blended learning and forms of its organization, in

particular, open online courses (Kukharenko, 2015). Many attempts have been made (Glazunova, Kuzminska, Saiapina et al., 2017) to observe the practical experience of using diverse cloud services, to analyze their advantages and disadvantages. Quite a lot of attention in this context is paid to the possibility of arranging students' collective work or personalized student-teacher interaction by ensuring the shared access to the learning environment.

Many experts (Sagan, Kabelnikova and Liba, 2019) question the need for the use of open educational resources.

Therefore, we can conclude that the methodological framework for introducing distance and blended learning have been developed quite thoroughly.

At the same time, the total transitioning to online learning experience during the COVID-19 pandemic was a huge challenge for Ukraine and the country's first educational experience. It has led some authors (Ivaniuk, Ovcharuk, 2020; Petrenko, Kravets, Bazeliuk et al, 2020) to investigate educators' readiness to introduce distance and blended learning into the new environment.

While developing a series of online media and cyber literacy training, we focused on the average citizen of Ukraine who feels the importance and needs for self-learning and cares for gaining skills to combat manipulative and fraudulent techniques on the Internet. Taking into consideration the relevance of the topic, cultural and psychological characteristics of Ukrainians, we have created and implemented a series of online media and cyber literacy classes.

It should be noted that in 2013, discussing the issues in the field of media and information literacy in Europe later published under the auspices of UNESCO, Professor Laura J. Gurak emphasized the significance of the "cyber literacy" concept in the digital era (Media and Information Literacy Policy & Strategy Guidelines (2015). United Nations Educational, Scientifc and Cultural Organization, 2013; Laura J.Gurak, 2001).

Hypothesis: a specially developed series of online media and cyber literacy classes should improve the students' critical thinking level and learn them to protect sensitive personal and financial data.

Objective: to boost students' media and cyber literacy skills by conducting online training; develop critical thinking skills, as well as skills and abilities to identify manipulative and fake messages; provide knowledge for understanding the basics of storing personal information and singling out social engineers' phishing attacks.

METHODS

The choice of methods was influenced by the research objective and strategy.

Before designing our training, we took into account the specific features of online classes. Their crucial drawback lies in the lack of face-2-face interaction, which almost minimizes teacher-student dialogue and the effectiveness of feedback sessions during the class. Thus, we created learning materials with numerous examples and exercises that each student could do on his/her gadget online. As a rule, it took them five or six minutes to read an example or do an exercise. It was an acceptable task time for five minutes is enough to perform an exercise or to answer students' questions in case they had certain difficulties.

Before starting classes, we have spotted typical technical and psychological problems faced by both teachers and students at online classes and which should be solved for the students' benefits. Based on the major principles of human-computer interaction, we have chosen a convenient free and easy-to-use video conferencing platform. Being affordable and user-friendly, Zoom appeared to be an essential tool for distance learning during the COVID-19 situation. Since it offers excellent voice and written (chat) options, students can attend classes remotely from home and feel more comfortable among strangers in a group. Besides, the Zoom product provides special graphic tools to highlight certain elements in the slide during online training. Finally, the platform allows dividing the class into groups, if necessary.

Thus, in our research we use the following methods: questionnaires, information collection, and statistical data processing.

RESULTS

In contrast to the previous media literacy course (Krylova-Grek Yu, 2019, 2020) we have expanded online training with sensitive topics on cyber literacy and reduced the number of materials that required active discussion with the teacher and group (collective) work. Extra components were related to the humanitarian aspects of cyber security, namely the security of online payments and the preservation of personal data in case of social engineers' phishing attacks.

We have recruited forty-six persons using social networks (online questionnaire, FB page, 2020). The group happened to be unique due to the diversity of its composition. Our online training has united people of different genders, ages, and professions, who wanted to improve their media and information literacy competencies. The average age of the group was 38 years.

The choice of methods (questionnaires, information collection, and statistical data processing) was influenced by the research objective and strategy.

At the beginning of the training, we conducted a survey to specify the students' initial level of media and cyber literacy. The questionnaire comprised two parts: the first one included media literacy testing, while the second part was related to cyber literacy issues.

The MediaL section contained a series of questions to check whether students understand the "quality journalism" concept (A, B) and identify quality journalistic materials from junk, fake and manipulative ones (C). The results are as follows:

A) How to check if a journalist follows professional ethics and standards? 66.6% of respondents gave the correct answers.

B) How to check the credibility of experts' comments? Findings showed that 82% of interviewees' answers included correct features.

C) When the respondents were asked to differentiate bias (thoughts), facts, and fakes, it occurred that 59.3% performed the tasks correctly; however, 40.7 % made mistakes.

The CyberL section contained questions on Internet security: phishing, farming, the security of online payments, and security of online surfing. The findings demonstrated that the average cyber literacy level was 50.43%, i.e. the overall level of media and cyber literacy was 61.3%.

The training consisted of four 1.5-hour classes. Information and media literacy classes covered the following topics:

Lesson 1. Introductory questionnaire. Signs and features of fakes and manipulations. Ways to verify the information and check the validity of statistical data. Verification of experts' competences. Difference between fact and judgment (opinion). Types of content and its goals. Mechanisms of producing and spreading misinformation. Misinformation effect. Information policy of Ukrainian TV-channels.

Lesson 2. Psychology of perception: the role of emotions and feelings in perceiving information. The great illusion of consciousness. Phishing letters in social engineering.

Lesson 3. Online tools and resources for checking photos on the Internet. Privacy and modern gadgets. Memory, perception, and processing of information.

Lesson 4. Social networks: a filter bubble. Social media algorithms: how to minimize the negative consequences. Cookies. Hate speech: trolls, haters, and junk news. Types of manipulative strategies. Why do we study? A little about the neuroplasticity. Final questionnaire.

At the end of the fourth lesson, we conducted another survey to spot the students' level of media and cyber literacy after the training.

The results of the survey demonstrated that the students significantly improved their knowledge, abilities, and skills to analyze and recognize the information. Before the course, most students were unfamiliar with certain concepts, fact- and photo-checking technologies. After the course that was aimed at combining theoretical knowledge and practical skills, students started to understand the meaning of "quality content" and could identify it among manipulations, fake, and junk news. In addition, they enhanced the level of cyber literacy (Fig. 1). Thus, after the training, students' average level of media and cyber literacy increased to 80.5%.

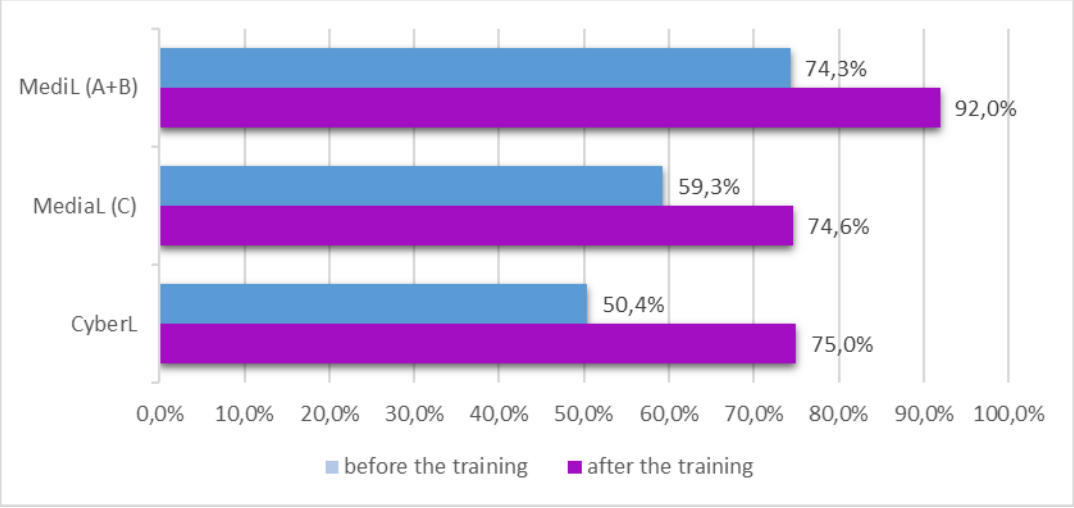

Figure1. Comparison of media and cyber literacy levels before and after the course (Source: own)

DISCUSSION

Quantitative data processing showed that students' overall average level of media and cyber literacy before the course was 61.3% (ML /A, B, C/, CL), while after the course it reached 80.5%. As seen, due to the specific features of online classes, distance learning is a highly effective tool to increase media and cyber literacy levels. Since under current conditions, it is impossible to arrange blended or face-to-face learning environments, online classes are the only way of really facilitating communication between a teacher and students and convey important messages that help navigate the digital world, avoid fake news and manipulation, and protect one's personal and financial data.

The application of online learning much assisted in solving the following tasks:

- to find out the only possible way of communication and work with the students during the quarantine;

- to realize that online classes are as effective as physical ones in helping students to learn more about media and cyber literacy and improving their levels of critical thinking, media, and cyber literacy skills;

- to expand the course with additional cyber literacy issues, the demand for which increased due to the abrupt transition of many spheres of human life into the virtual space;

- to attract a broader audience since the online version made classes more available.

CONCLUSIONS

To sum up, the evidence from this study suggests that distance learning helped to increase the average media and cyber literacy level by 19.2%.

The strong point of our study lies in outlining the particular features of online training that assisted us in keeping the audience's attention during the classes and not turning them into tedious and monotonous lectures. To be specific, we have added highly relevant information on the humanitarian aspects of cyber security and clarified it with examples from Ukrainian digital media. Five or six-minute activities including tasks and tests that could be done in online chat also contributed to the increase of students' media and cyber literacy levels.

It is worth noting that at the time of paper writing, a series of online classes remains freely available and open to everyone, which allows reaching a wide range of audiences across the globe. The example of the given training demonstrated that, if necessary, online learning can be used as an alternative, yet effective tool for providing knowledge and skills. Furthermore, online training can be viewed as part of inclusive education, as it allows people with disabilities to gain relevant knowledge and skills in today's digital world.

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REFERENCES

Abichandani, P., Fligor, W. and Fromm, E., 2014. A cloud enabled virtual reality based pedagogical ecosystem for wind energy education. In: *IEEE Frontiers in Education Conference (FIE) Proceedings,* Madrid, 2014, pp.1-7, Available at: http://doi: 10.1109/FIE.2014.7044192: (Accessed: 20 May 2020).

Aceves, P. A., Aceves, R. I. and Watson, S., 2011. Incarcerated Students and the Unintended Consequences of a Technology-Driven Higher Education System. In: M. Bowdon and R. G Carpenter, (eds.), *Higher Education, Emerging Technologies, and Community Partnerships: Concepts, Models and Practices*, IGI Global pp.258-268. Available at: http://doi:10.4018/978-1-60960-623-7.ch023 (Accessed: 20 May 2020).

BBC news, 28/03/2020. Coronavirus: The fake Bill Gates post and other claims to ignore" Available at: https://www.bbc.com/news/52039642 (Accessed: 20 May 2020).

Burov, O., Lytvynova, S., Lavrov E., Krylova-Grek, Yu., Orliyk, O., Petrenko, S. and Shevchenko, S. and Tkachenko, O., 2020. Cyber Security in Educational Networks. In: *IHSI 2020: Intelligent Human Systems Integration. Proceedings of the 3rd International Conference on Intelligent Human Systems. AISC*, vol. 1131, Springer. pp. 359-364.Available at: http://doi: 10.1007/978-3-030-39512-4_56. (Accessed: 20 May 2020).

Bykov, V. Y. and Shyshkina, M. P., 2018. The conceptual basis of the university cloud-based learning and research environment formation and development in view of the open science priorities, *Information Technologies and Learning Tools*, 68, № 6, pp.1-19.

Glazunova, O. H., Kuzminska, O. H., Voloshyna, T. V. and Saiapina, T. P. and Korolchuk, V. I., 2017. Microsoft and GOOGLE cloud services: organization of group project work of University students, In: *Open educational e-environment of the modern University*, 3, pp. 199-211.

Gurak, Laura J., 2001. *Cyberliteracy: Navigating the Internet with Awareness*. Yale University Press. USA.

Hewett, et al.,1992. *ACM SIGCHI Curricula for Human-Computer Interaction*. The Association for Computing Machinery. New York, NY, USA.

Ivaniuk, I., Ovcharuk, O., 2020. The results of an online survey of teachers' needs for raising the level of professionalism in digital and ICT use during quarantine. Institute of Information Technologies and Learning Tools, Kyiv, Ukraine. Available at: http://doi:https://lib.iitta.gov.ua/719908/ (Accessed: 20 May 2020).

Krylova-Grek, Y., 2020. Online training on media literacy. Questionnaire, FB page. Available at https://www.facebook.com/events/593384714868454 (Accessed: 20 May 2020).

Krylova-Grek, Y., 2019. Fact-checking and researching images and photos with mobile internet devices as the way to improve media literacy. In J.Beseda, L. Rohlíková and V. Duffek (eds.). *E-learning: Unlocking the Gate to Education around the Globe. 14th conference reader*, Prague: Center for Higher Education Studies, pp. 271-279.

Kukharenko, V., 2015. Systematic approach to blended learning. *Information technology in education*, 24, pp.53-67 Available at: http://repository.kpi.kharkov.ua/handle/KhPI-Press/23536 (Accessed: 20 May 2020).

Media and Information Literacy Policy & Strategy Guidelines, 2013. United Nations Educational, Scientific and Cultural Organization, 7, place de Fontenoy, 75352 Paris 07 SP, France.

Monako, A.F., 2012. ICT in education: view through the prism of transformations Educational Technology and Society [Obrazovatelnye tekhnologii i obshchestvo] (in Ukrainian), v. 15, №3.pp.392-413. Available at: http://ifets.ieee.org/russian/depository/v15_i3/html/6.htm (Accessed: 20 May 2020).

Panchenko, L., 2013. Modeling the Informational Educational Environment of University with Factor Analysis. *Bulletin of the University of Luhansk,* № 10 (269), V. III, pp.6-17 (in Ukrainian). Available at: http://nbuv.gov.ua/UJRN/vluf_2013_10(3)__3 (2013) (Accessed: 20 May 2020).

Petrenko, L., Kravets, S., Bazeliuk, O.and Maiboroda,L. and Muzyka,I., 2020. Analysis of the current state of distance learning in the vocational education and training institutions. In: *The International Conference on Sustainable Futures: Environmental, Technological, Social and Economic Matters (ICSF 2020)*, E3S, Volume 166. Available at: https://doi.org/10.1051/e3sconf/202016610010 (Accessed: 20 May 2020).

Resolution of the Ministry of Education and Science of Ukraine "On organizational measures to prevent the spread of coronavirus COVID-19" № 406 (March 16, 2020) [in Ukrainian].

Richmond news, 1/04/2020, Fake message about helicopters spraying disinfectant to kill coronavirus swept across WeChat.Available at: https://www.richmond-news.com/news/fake-message-about-helicopters-spraying-disinfectant-to-kill-coronavirus-swept-across-wechat-1.24110396 (Accessed: 20 May 2020).

Sagan, O., Kabelnikova, N. V., Liba, O. M. and Liba, N.S., 2019. The Formation of Digital Competence by Means of Open Educational Resources, *International Journal of Innovative Technology and Exploring Engineering*, 9(2), pp.2261-2264.

Spivakovskiy, A., L., Spivakovska, E. and Kotkova, V., 2013. Comparative analysis of learning in three-subjective didactic model. *CEUR Workshop Proceedings 1000*, pp. 236-251.

Sultan, N., 2010. Cloud computing for education: A new dawn?, *International Journal of Information Management*. № 30, pp.109–116.

UNESCO Media & Information Literacy: Policy & Strategy Guidelines, 2015. Ed. Grizzle, Alton and Moore Penny Dezuanni and et al. Available at: https://unesdoc.unesco.org/ark:/48223/pf0000225606 (Accessed: 20 May 2020).

ART EDUCATION IN THE AGE OF COVID-19

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Abstract

The COVID-19 pandemic greatly affected higher education, closing faculties and testing the readiness of teachers and students to adapt to e-learning quickly. Some spheres were particularly impacted, like studies of medicine, but also studies of art as being always preformed in small groups due to the necessity of direct communication between professors and students. The focus of this research is on lecturing at all levels of Applied Arts and Design studies at the University of Novi Sad (Serbia) during the COVID-19 pandemic crisis. Although we are dealing with a case study, conversations with colleagues teaching art subjects in other countries proved that they had the same problems. The main aim of this research is to identify the most successful types of e-learning during the crisis, as well as to detect major problems that students faced, in order to avoid them in the future. Data from both students and professors were collected through unstructured, open-ended interviews. During the crisis professors often combined different approaches to teaching, while students, from individual types, selected: a) Skype as the most convenient way for e-learning art subjects because it enabled them to share assignments between them, and also to learn from teachers' reviews for each assignment (85.1%) or b) Zoom (14.9%). Students stated that the most difficult problems during studying in this period were: a) the problem with workspace (37%), b) the lack of communication with other students and exchange of opinions about their work (33.3%), c) inconvenient kinds of teaching (18.6%), and d) technical problems (11.1%). While COVID-19 crisis seems to be at an end, it is actually the predecessor of a new era when e-learning will become the new regular reality. Although it is clear that we were not ready for this crisis, just a few universities might take rapid e-learning training for both professors and students and get prepared for the next crisis that might appear already in autumn.

Keywords

Art education. Higher education. COVID-19 pandemic. E-learning. Learning under crisis.

INTRODUCTION

Like all major crises, the crisis created by the COVID-19 pandemic has brought changes to our lives, including higher education. Colleges and universities from all over the world have moved to e-learning overnight.

Online teaching has already been used in higher education for several decades and it has been proven to be suitable for many study programs, but some of them, due to their specifics, still cannot be fully taught in this way. The most obvious examples are medicine, veterinary medicine, dentistry, sports, but also art studies.

Applied arts are taught in small groups at most universities around the world in the old fashion. This means that students are under the supervision of their mentors almost all the time and that their professors give each and every one of them enough time and attention so that they can discuss

the students' mistakes, opportunities, and strengths of each completed task. Live communication between professors and students is invaluable for encouraging the building of every student's individual expression. This, of course, does not mean that students should not be trained for various computer programs that are important for their work, but those programs only serve as tools to implement their ideas in the best way. Online art learning through those various computer programs can be used successfully in the education of beginners or children (Sullivan and Umaschi, 2018), but it is not suitable for higher education, especially not as the only way of teaching.

Many researchers have pointed out that although the popularity of online courses is growing, students easily drop them out (Yorke and Longden 2004, Rovai and Downey, 2010, Patterson, Mallett and McFadden, 2012. Jordan, 2014, Su and Waugh, 2018), since e-learning requires mastered self-discipline. Some researchers also believe that despite the great popularity of distance learning, it is not likely that much would be learned in those courses (Knapper and Cropley, 2000), and some even think that the role of a professor in an online environment is only to participate and stimulate students' creativity (Macleod and Ross, 2011).

At the Academy of Arts of the University of Novi Sad, there are three departments: Department of Dramatic Arts, Department of Music, and Department of Fine Arts. All departments offer undergraduate, master, and doctoral studies.

The Department of Fine Arts offers two programs at the undergraduate level - the Fine Arts program with five modules (Painting, Sculpture, Graphics, New Media Art, and Photography), and the Applied Arts and Design program with three modules (Graphic Design, Illustration, and Interior Design).

At the master level, this Department offers the Conservation and Restoration of Works of Fine and Applied Arts and Design program, the Fine Arts program with six modules (Painting, Sculpture, Graphics, New Media Art, Photography, and Drawing), and the Applied Arts program with the same modules as at the undergraduate level.

When it comes to doctoral studies, students can choose between Fine Arts programs on the one hand, and Applied Arts and Design programs on the other.

COVID-19 IN SERBIA

The first COVID-19 case in Serbia was registered on March 6, 2020, and the epidemic is still ongoing.

According to the official data from the Ministry of Health of the Republic of Serbia, 345,260 people were tested by June 22 and the presence of the virus was confirmed in 12,990 people (which makes 0.18% of the population of 7 million people, while the number of deaths was 262, so mortality ratio at that moment was 2.02%). (Ministry of Health RS, 2020)

In order to keep the situation under control, since the number of infected people has been increasing every day, a state of emergency was imposed on March 15, and just a day later all kindergartens, schools, and colleges were closed, the traffic was abolished, and national borders were closed.

As the number of newly infected continued to increase, a curfew was introduced, and initially it lasted for 9 hours (from 8 PM to 5 AM). Then it was extended to 12 hours (from 5 PM to 5 AM), and later on it was introduced on weekends too, lasting for 36 hours (from Friday 5 PM to Monday 5 AM). The longest curfew lasted for 84 hours, during the Easter holidays (Friday 5 PM to Tuesday 5 PM).

Classes for school pupils were very quickly reorganized. Only a day after all schools were closed, classes moved to the Radio Television of Serbia. For elementary school pupils they were broadcast on RTS 3, and for high school pupils on RTS2, in accordance with a class schedule that was same for all schools during that period. Pupils who missed any class could see it at another time on YouTube. It was quite noticeable that teachers who were in front of the cameras felt very uncomfortable.

However, when it comes to teaching in higher education during this crisis situation, since universities offer many different programs, the only possible solution at that time was the individual organization of online teaching.

Since online teaching at faculties in Serbia is offered only in a small number of programs, most professors had never had any experience with conducting this type of teaching, so they adapted to it as well as they could.

The focus of this research is on conducting online classes in major art subjects, since that was the main reason why students opted for these studies, at all modules and at all levels of studies of Applied Arts and Design programs of Academy of Arts of the University of Novi Sad in Serbia during the COVID- 19 pandemic crisis.

The study has three key objectives:

1. To identify the ways in which online classes in major art subjects were held during the state of emergency;

2. To determine which individual way students rated as the most suitable for conducting online classes in the major art subjects;

3. To reveal the biggest problems that students encountered when conducting online classes in major art subjects during the crisis, in order to eliminate at least some of them in the near future, which would help professors and students to be more prepared for the next crisis that could happen already in a couple of months, at the beginning of the new school year.

The main hypotheses are as follows:

H1: The choice of how to conduct online classes in the major art subjects during the COVID-19 pandemic was greatly influenced by the circumstances in which the professors of those subjects found themselves when the crisis occurred.

H2: The most suitable individual application for students for the purpose of conducting online classes in the major art subjects of Applied Arts and Design are those that enable live communication between professors and students.

H3: The standard use of new technologies for online learning cannot fully satisfy the need for high-quality teaching of major art subjects in the study programs of Applied Arts and Design.

METHODS

Data were collected through unstructured, open-ended interviews with both professors and students during May 2020. The interview was conducted with all seven professors of major art subjects and 25 students of all three modules (Graphic Design, Illustration, and Interior Design) and at all three levels of study - 15 undergraduate, 9 master and one doctoral student (at the moment there is only one doctoral student) in the Applied Arts and Design program of the Academy of Arts, University of Novi Sad, Serbia.

When the interviewing began, conversations were possible with only 22 students, since three of them had completely isolated themselves, but in the meantime, they also became available, so opinions of all students were included in the research results.

RESULTS

The main findings of the research could be divided into three groups: 1) identification of the ways in which online classes in major art subjects were held during the state of emergency, 2) students' answers about the individually most suitable online way of conducting online classes in the main art subjects, and 3) the biggest problems that students encountered when conducting online classes in the major art subjects during the crisis.

1) Identification of the ways in which online classes in major art subjects were held during the state of emergency

Professors of major art subjects combined communication tools during the crisis, organizing classes in accordance with the specifics of their subjects, their own and their students' IT knowledge, as well as the conditions in which they found themselves when the crisis occurred, but they also strove to adapt as much as they could depending on student feedback.

Table 1: Communication tools used by professors

1	E-mail	6
2	Skype	2
3	Mobile phone	2
4	Zoom	1
5	We transfer	1
6	Google classes	1
7	Viber	1
8	Online learning platform of the University	1

(Source: Own)

Interestingly, in addition to various distance learning applications, as many as 6 out of 7 professors used e-mail communication, only 2 professors used Skype, as well as their private mobile phones, and, as for other possibilities, each of them was used by only one professor.

The fact is that many professors did not have appropriate working conditions. In order to be able to hold several hours of classes via Zoom or Skype, they had to have a special, well-soundproofed workspace, so that the noise of their family members, especially if small children were present, would not disturb the classes, and vice versa, so that their classes would not disturb their housemates.

The University's recommendation was to hold classes in accordance with the regular schedule, but some professors of major arts subjects changed it to later dates, during curfew, so that students could go to supermarkets and pharmacies to help their families.

Professors of major art subjects met the needs of students to a large extent during this period, both in terms of deadlines for the submission of students' assignments and in terms of attendance.

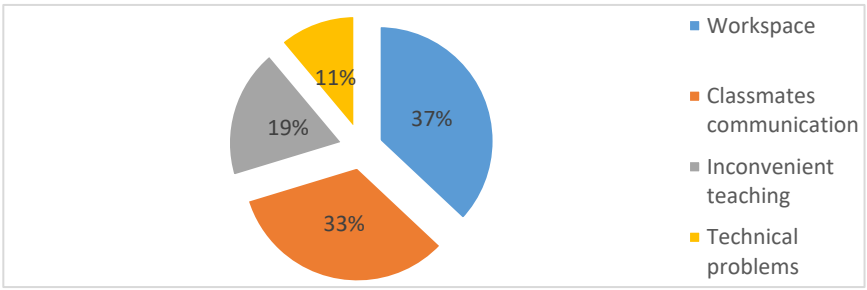
2) Students' answers about the individually most suitable way of conducting online classes in the main art subjects

Students agreed that the combination of different ways of online communication was of greatest use during the crisis, but when they were asked to choose the most suitable online method for teaching major art subjects, most of them chose Skype (81.1%) and some of them Zoom (14.9%). Even though many of them noticed that Zoom looked prettier than Skype, the majority opted for Skype, as it allowed them to share their works with each other.

This is not a big surprise since teaching through these two programs has the greatest similarity with the classes that were conducted before the introduction of the state of emergency.

3) The biggest problems that students encountered when conducting online classes in the major art subjects during the crisis

Their answers are grouped into four categories: a) problem with workspace; b) inappropriate forms of teaching; c) lack of communication with their classmates; d) technical problems, of which the first two mentioned were by far the largest problems in their opinions.



Graph 1: The biggest problems of students during the crisis. (Source: Own)

a) Problem with workspace

Most students emphasize the problem with workspaces as the biggest problem they had during the crisis. The state of emergency and curfew caused their families to be together for almost three months because most of their parents were also switched to working from homes online, and that caused additional tensions.

The following answers are illustrative:

> "Well, there were nine of us in the house at that time, including two little girls, which meant a lot of noise, crying, running through the house, so it was hard to work" – male master student.

"When everyone in the house is nervous, there are certainly no good working conditions" – female undergraduate student.

"In such situations you have to understand that the faculty is not the most important thing in the world. You should read a book, watch a movie, do something that is not directly related to the faculty but still inspires your work" – female master student.

b) Inappropriate forms of teaching

The students stated that almost all professors used several ways to communicate with them during the crisis, but they were least satisfied with the communication that took place primarily via e-mail. Typical student responses were:

"I have nothing against communication by e-mail, but when this is almost the only way of communication, there is a lot of misunderstanding, so it can later affect my grade in the subject" – female undergraduate student.

"We really needed more empathy from professors during the crisis" – female undergraduate student.

According to the students' answers, the professors of major art subjects were much more dedicated than the professors of theoretical subjects, who sent them more teaching materials than before the introduction of the crisis, without any instructions. Theoretical teachers explained that in this way they wanted to divert the students' attention from thinking about COVID-19 and the state of emergency. Obviously, the students did not experience it that way.

c) Lack of communication with other students

It is noticeable that many art students during this period had a problem with motivation even though they chose this study program by themselves, and not because they were forced into it by some external circumstances (parental pressure, inheriting a family business…). In fact, it is more likely that they have chosen these studies in spite of external pressure.

Some researchers have shown that even isolation caused by online learning produces a lot of stress (Knowles and Kerkman, 2007), so when this is combined with the stress related to the pandemic itself, we get a full picture of the amount of stress to which the students were exposed.

Their typical answers were:

"I missed not seeing classmates because we motivate each other to work" – male undergraduate student.

"When we are together, we talk about our work even before or after classes and correct each other's works before we hand them in to the professors" – male master student.

"We miss communication with each other the most because we inspire each other in our work" – male undergraduate student.

"Everything was fine, but honestly, I will never be proud of the work I did during this period" – female undergraduate student.

"Self-discipline is the most important thing. If you have to wait for someone to remind you that you need to work, you are in the wrong place then" – male doctoral student.

"You have to motivate yourself to work even though it is more difficult this way because time passes quickly and the learning material accumulates easily" – female undergraduate student.

d) Technical problems

Within this group of problems, most students complained about poor Internet connection and the lack of computers in their households.

The first problem is related to the students who returned to their homes during the state of emergency, in smaller places, where there is often no access to high-speed Internet, and the second is caused by the fact that their parents and siblings also worked or learned online during this period.

Their typical answers were:

"It was very inconvenient for me all the time. I have a brother who is also a student, so we shared a computer" – female undergraduate student.

"Both parents were working online from home, and although we have a computer and a laptop, they weren't enough for all of us" – male master student.

"During the state of emergency, everything was closed, so I had nowhere to buy work materials" – female master student.

"There were a few problems in the beginning, for example, I had never used Zoom before but, luckily, it is easy to learn" – male undergraduate student.

CONCLUSION

The COVID-19 crisis surprised the whole world and brought about a sudden transition of all educational institutions to e-learning, from primary schools to universities. In Serbia, only a small number of faculties used this type of learning before the crisis, so everyone was forced, ready or not, to adapt to the new conditions in order to maintain the teaching process as well as he or she could.

The main goal of the research was to identify the key problems that students encountered during the COVID-19 crisis in order to help them to prepare better for some future crises. All hypotheses have been confirmed.

Although the results of this study will not solve all the problems of distance learning in major art subjects in the studies of Applied Arts and Design, they could still help teachers and students to cope more easily with the next COVID-19 crisis, which could appear as early as autumn.

Some identified problems cannot be solved easily, such as the increased level of nervousness during a state of emergency and curfew, but there are a few things that can be done almost immediately:

First of all, the problem with the lack of computers could be solved by providing laptops or tablets to students who do not have computers, and students would return them to the University

after the crisis, so that some other students in a similar situation could use them again. That would be important because although mobile phones can be used to attend classes via Zoom and Skype, they are completely unworkable for students' assignments.

Secondly, most professors have used communication via e-mail and we see no reason why this type of communication should not be used in the future, but it would be important to engage in other possibilities too. As students have clearly pointed out that Skype is the most convenient way of e-learning in their field, at least part of the lessons should be taught this way, even if it is necessary to change teaching time to a time that is more convenient for professors. Professors who have not used Skype or Zoom during the crisis because they were not familiar with those applications before, so they did not feel confident enough to use them in communication with students, can very quickly master them now, during the summer, so that they can get ready for the next school season. It should be mentioned that researchers usually neglected the issue of professors' motivation (Osman and Warner, 2020).

And finally, the lack of contact with classmates could be easily alleviated by redesigning the University's online learning platform OWL, which has already proved unsuitable for art classes, and by making it possible for art students to communicate among themselves through the platform. In this way, the lack of student motivation for work, which they also mentioned, could also be solved to a certain extent.

The main problem with case studies is that they cannot be applied in general, but it would certainly be very useful to extend the research not only to other universities where applied arts and design are studied but also to other forms of arts. However, on this occasion, we would like to emphasize that professors who teach different art subjects at other art faculties in the country (Faculty of Music in Belgrade and Academy of Arts in Belgrade) and abroad (University of Donja Gorica, Montenegro), had similar teaching experiences and that they received very similar feedback from their students regarding their experience of online arts learning.

Given the possibility of the virus mutations and the fact that people massively circulate from one end of the world to the other, it seems that COVID-19 will be our companion for a long time and that it will be necessary for us to adapt to living with it.

In the field of education, this would bring about a rapid shift towards better ways of online learning as it could become the main way of learning very soon, and this summer should not be understood as a break but as a chance to better prepare for the return of the crisis that is just about to come back.

REFERENCES

Jordan, K., 2014. Initial Trends in Enrolment and Completion of Massive Open Online Courses. *International Review of Research in Open and Distributed Learning*, 15(1), pp. 133-160.

Knapper, C. K. and Cropley, A. J., 2000. *Lifelong Learning in Higher Education*, 3rd ed. London: Kogan Page.

Knowles, E. and Kerkman, D., 2007. An Investigation of Students Attitude and Motivation toward Online Learning, *InSight: A Collection of Faculty Scholarship*, Vol.2, pp. 70-80.

Macleod H. and Ross, J., 2011. Structure, Authority and other Noncepts: Teaching in Fool-ish Spaces, In R. Land and S. Bayne, eds. 2011. *Digital Difference, Perspectives on Online Learning* Rotterdam/Boston/Taipei: Sense Publishers, pp. 15-27.

Ministry of Health of the Republic of Serbia 2020. *COVID-19.* Available at: https://COVID19.rs/ (Accessed June 22, 2020).

Osman, D. J. and Warner, J. R., 2020. Measuring teacher motivation: The missing link between professional development and practice, *Teaching and Teacher Education* Vol. 92 103064. Available at: Google Scholar https://doi.org/10.1016/j.tate.2020.103064 (Accessed June 18, 2020).

Patterson, B, Mallett, W. and McFadden, C., 2012. Does online outshine?: Online vs. Campus-Based Degree Withdrawal and Completion Rates within an MBA Program. *International Journal of Online Pedagogy and Course Design* (IJOPCD), 2(1), 53-64. Available at: doi:10.4018/ijopcd.2012010104 (Accessed June 18, 2020).

Rovai, A. P. and Downey, J. R., 2010. Why some distance education programs fail while others succeed in a global environment. *Internet and Higher Education*, 13(3), pp. 141-147. Available at: doi:10.1016/j.iheduc.2009.07.001 (Accessed June 18, 2020).

Estimates of population by age and sex. Available at: Statistical Office of the RS 2020 Available at: https://data.stat.gov.rs/Home/Result/18010403?languageCode=en-US (Accessed May 23, 2020).

Su, J. and Waugh, M.L.,2017. Online Student Persistence or Attrition: Observations Related to Expectations, Preferences, and Outcomes. *Journal of Interactive Online Learning,* 16(1), pp. 63-79.

Sullivan, A. and Umaschi Bers, M., 2018. Dancing robots: integrating art, music, and robotics in Singapore's early childhood centers. *International Journal of Technology and Design Education*, Vol. 28, pp. 325-346.

Yorke, M. and Longden, B., 2004. *Retention and Student Success in Higher Education.* Maidenhead: Society for Research into Higher Education & Open University Press. Available at: doi:10.1007/s10780-007-9016-1 (Accessed June 18, 2020).

FURTHER EDUCATION OF KINDERGARTEN TEACHERS DURING THE COVID-19 PANDEMIC IN SLOVAKIA

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Abstract

According to the European Parliament's recommendations, in a rapidly changing world and in line with the concept of lifelong learning, teacher education and development should constitute a coherent whole, bridging initial teacher education. In the spirit of continuous increase of competencies and motivation of pre-primary education teachers, various forms of further education have been regularly implemented in Slovakia for several decades. The activities were mainly in the form of classroom learning. Due to the restrictions caused by the COVID-19 pandemic, this education has been "digitized" and the classroom form has been replaced by a webinar form of learning. In connection with this situation, questions have arisen with respect to the readiness and motivation of teachers to educate themselves through webinars, the impact their age and digital literacy may have on the success of this type of learning. In this paper, we report on the results of our research, where we were looking for answers to the above-mentioned questions. We conducted the research by using a questionnaire submitted to a sample of 350 kindergarten teachers across Slovakia.

Keywords

Futher Education of Kindergarten Teachers. Webinar. Quantitative Research.

INTRODUCTION

According to the European Parliament's recommendations, in a rapidly changing world and in line with the concept of lifelong learning, teacher education and development should constitute a coherent whole, bridging the initial teacher education. In the spirit of continuous increase of competencies and motivation of pre-primary education teachers, various forms of continuing education have been regularly implemented in Slovakia for several decades. The activities were mainly in the form of classroom learning. Due to the restrictions caused by the COVID-19 pandemic, this education has been "digitized" and the classroom form has been replaced by a webinar form of learning. In connection with this situation, questions have arisen with respect to the readiness and motivation of teachers to educate themselves through webinars, the impact their age and digital literacy may have on the success of this type of learning. In this paper, we report on the results of our research, where we were looking for answers to the above-mentioned questions. We conducted the research by using a questionnaire submitted to a sample of 350 kindergarten teachers across Slovakia.

Education is an important social value. Education allows individuals to self-actualize and brings prosperity and cohesion to society. It guides the members of society toward creating fair rules, innovative and ethical solutions and toward taking responsibility for their own lives. Education respects and values differences, it is based on the needs and

interests of learners and, through tailored support, it motivates them to a continuous improvement. Education is a first-rate and affordable public service.

The education system is managed effectively thanks to simple and clear rules, transparent decision making and ethical conduct of all participants. The education system is based on the fact that a person learns throughout their whole life and can therefore actively co-create the dynamically changing world around them.

The content of education is defined in such a way as to enable learners to develop coherently. In addition to acquiring important knowledge and developing the necessary literacies, it also cultivates their personality, promotes a healthy lifestyle, active citizenship and ethical conduct.

An educational environment is any place where purposeful learning and research takes place across disciplines, in context, with understanding and for life. Educational environments take various shapes and allow for learning in a variety of forms.

Teachers and other professionals working therein initiate cooperation with families in order to meet the best interest of children and achieve the prescribed educational standard. Learners gradually take responsibility for their educational, professional and career paths. Acquiring the basic standard makes it possible to continue further studies, achieve qualifications and use professional competence in practice.

Learners are encouraged to develop throughout their whole life and stimulating learning environments strengthen their inner motivation to continually improve. Learners also have the right and actual options to participate in the decisions with respect to the content and manner of their learning, which considers their needs and interests. Learners are provided with a multitude of assistance and support thanks to which they actively seek and make use of various educational opportunities.

Teachers are passionate, qualified and valued professionals who are able to recognize the talents of learners and who master a wide range of methods, from which, in cooperation with other professionals, they are able to choose the optimal method for each individual. Teachers are in active contact with the latest scientific knowledge and engage learners of all ages in interactive research, experimentation and discovery of new knowledge and contexts.

In a rapidly changing world and in line with the concept of lifelong learning, teacher education and development should constitute a coherent whole, bridging the initial teacher education (with a strong practice-oriented component), induction and continuous professional development.(Huba, Orbánová, 2001), i: In particular, steps need to be taken to ensure that: a) all recent graduates of pedagogical studies receive sufficient and effective support and guidance during the first years of their careers; b) a reflective approach is encouraged that leads recent graduates, as well as more experienced teachers, to constant evaluation of their work, both individually and collectively; c) all teachers receive regular feedback on their performance, as well as assistance in identifying their professional development needs and in developing a plan to meet such needs; d) based on this feedback, active teachers are provided with sufficient opportunities to update, develop and expand their competences throughout their whole career, and that they are encouraged to carry out such activities and also able to do so; e) professional development programs for teachers are relevant, tailored to their needs, firmly rooted in practice and of good quality; f) teachers and school management are given the chance to take advantage of the opportunities offered to them through exchange programs, mobility schemes and associated networks both at national and international levels, and that they

are encouraged to take advantage of such opportunities; g) teachers and school management receive support and are given the opportunity to participate in higher education and professional development, engage in pedagogical research and seize opportunities to expand their knowledge in other disciplines.

No initial teacher education program, no matter how brilliant, can equip teachers with all the competencies they will need throughout their career. Demands on the teaching profession are evolving rapidly, imposing the need for new approaches. To be fully effective in teaching and capable of adjusting to the evolving needs of learners in a world of rapid social, cultural, economic and technological change, teachers themselves need to reflect on their own learning requirements in the context of their particular school environment, and to take greater responsibility for their own lifelong learning as a means of updating and developing their own knowledge and skills.

What is currently happening with schools and what the current situation in education indicates. How the current pandemic affects the school system and education.

Some schools were able to switch to interactive online learning within a week of school closures, while others reduced learning to forwarding or distributing of worksheets and assignments. Education of teachers came to a complete stop and after a while, conditions were created for online education. Gradually, a wide range of online educational formats started to form. The demand for basic digital skills was passed on to teachers. Apart from outages, the crisis has also brought several positives: e.g. skills and procedures for distance learning, encouragement to creativity in some teachers, a mirror reflecting the preparedness to respond to new challenges. "Distance learning" means changing thinking, being creative, looking for new methods, making greater use of digital technologies and, above all, trusting in yourself (Kaščák, 2020). Each new situation offers learning for life. Teachers gradually emerged as facilitators forced to form an equal relationship with children based on freedom and trust. Education of teachers needs to be much more diverse. Emphasis needs to be placed on teacher's personality, creativity, character development programs, information technology and computer literacy.

Have schools ever been closed for more than a month or two in the past? Probably not. But it is not just about the length of the institution closures, rather this is a completely new non-standard social situation that has arisen today. Social movement has stopped. And that is quite scary because it has not been part of our socialization at least since the 1960s when the whole economic and social dynamics that characterize globalization processes began. This social cut-off is painful and one of the interesting experiences is that we cannot compensate for it even by having a constant online connection. It is therefore natural that the degree of disorientation of all education participants is quite different than it was with normal, even if longer-term school closures in the past.

It appears that none of us was prepared for the pandemic. The initial reaction was to stop the full-time education of teachers for a while. Schools tried to manage their entire agenda remotely. Some of them continue to do this to this day, others have learned from the situation.

How have teachers adapted to the current pandemic? What is teachers' experience of COVID-19? And how can we assist them?

In this situation, working conditions for teachers have changed dramatically, and so has their professional identity and habits. The problem is the continuing trend among young teachers, where the adaptability to new forms of education is the highest, where we keep seeing decline in their numbers. However, in terms of the average age of teachers,

our situation is not that bad, compared to other countries; it is 44 years. The strongest group of teachers in our school system is made of teachers between 30 and 49 years of age (Kaščák, 2020). The support of teachers here is not systematic in nature; it only involves a number of current partial initiatives added to one another. During the pandemic, teacher education has been limited to online education only through webinars. The interruption of the teaching process in schools as part of the measures taken against the spread of coronavirus necessitated the use of online forms of education to a much greater extent than ever before. Teachers at all levels, including school management, could benefit more from the increased mobility and networking in education that play an important role in improving the quality of education and training systems and institutions and also help make those systems and institutions more open, more outward-oriented and more accessible and efficient.

Online education must be interactive. The term webinar is an abbreviation for a seminar conducted over the Internet, a presentation, lecture, workshop or a seminar conducted over the Internet (web), specifically a combination of the web and a seminar, to describe a specific type of a web conference (Wikipedia1). Merriam-Webster's online dictionary provides a similar definition, albeit in a narrower sense: a live online educational presentation during which participating viewers can submit questions and comments. For the purposes of this methodology, a webinar is defined as: "An online seminar conducted over the web, along with the transmission of video and audio content (over the Internet) from a single source to a finite number of recipients for the purposes of training". The key feature of a good webinar is interactive elements – the ability to pass on, receive and discuss information. An interactive function may be filled with discussion forums, online chat rooms located on the same webpage as the webinar. This will also allow viewers to download content within this online community or, as in the case of live discussions, the viewers can contribute directly by asking a question or sharing an opinion. With an increasing level of interactivity – by allowing viewers to present information for the discussion (whether textual, graphical, audible or visual) – this training will become more engaging for them, resulting in better learning outcomes.

The most typical webinar features can be summarized as follows:

- Online environment;
- The use of software: The webinar provider needs to use webinar software; the participant needs to have internet access;
- Scheduled event;
- Participation by invitation only;
- Set length at1 or maximum of 2 hours;
- Presented content (using audio, video, shared screens, .ppt presentations, and more);
- Interaction with participants (audio, communication, quizzes, surveys, opportunity to ask a question, and more);
- Partial anonymity of participants;
- Granting privileges: the person who runs the webinar can grant various privileges to individual participants (e.g. make them presenters). This gives participants more options (e.g. screen sharing, document sharing, and more).

Advantages and challenges of webinars. The rapid development of infrastructure and software used for remote communication has resulted in cheaper and more accessible technology for webinars. Fast internet is standard now in every household, education institution or company. As a result, distance education is a much cheaper alternative to traditional learning. The price is undeniably one of the advantages of webinars (especially when considering high costs associated with transportation and accommodation).

Savings in the areas affected using webinars are:

- Time availability required of the participant;
- Travel and accommodation;
- Training materials;
- Training evaluation;
- Preparation of materials after training.

Webinars save time. They offer learners the option to choose the most suitable time and people who for various reasons could not be physically present at traditional fulltime training. Webinars are accessible from any place, provided there is a computer and Internet access available, which further increases the participation of interested parties.

Availability of content after the training. Webinars allow instructors to easily upload these lectures for other viewers (and make them available on request). Webinars are an alternative for those who would like to improve or maintain their qualifications in certain areas and this way, they are offered to try several subjects if they are not quite sure what exactly they would like to study. Thanks to the webinar technology, learners can participate in various webinars to review topics and subjects before they choose their own, often expensive, traditional learning format or postgraduate course. Individuals afraid of criticism or negative evaluation can participate and ask questions during webinars where partial anonymity is a key factor and a difference to traditional seminars conducted face to face.

Organizing a webinar is a good solution for achieving any of the following (business) objectives (you always need to consider the fact that travel is not necessary, and that people can be virtually anywhere, as long as they have access to the Internet):

- To learn more about new procedures or newly released software with the option to have immediately clarified any questions;
- To present a new idea/approach and get related feedback (marketing training);
- To synchronize the training approach of various experts based in different places;

Without first rate professional support and first rate continuing education, pedagogical and professional employees in our education system cannot be expected to be able to respond adequately and promptly to the demands of an ever-changing society and to the needs of children in order to facilitate their acquisition of important knowledge and development of the skills necessary to their holistic development.

With regards to the consideration of the statistical significance, the quantitative research (Kitchenham, et al., 2016; Gauthier and Hawley, 2015) can be the advantageous approach for the research analysis. There are proven the particular problems based on the further education of kindergarten teachers with regards to the occurred situation of the COVID-19 pandemic in Slovakia.

PROPOSAL OF PARTICULAR RESEARCH PROBLEMS

In the occurred situation of pandemic quarantine in the world, the transfer of knowledge in the education using the online technologies is the current particular problem. In this contribution, the implementation of the webinars as the tool of supporting the teachers' education is focused. The following proposed research problems are based on the education of kindergarten teachers in the form of webinars during the COVID-19 pandemic quarantine.

The realized research was built on the methods of a questionnaires, which were sent in electronic form (using by the Google form) to more than 350 kindergarten teachers in Slovakia in the period of April - May 2020. 63 respondents answered, which is an acceptable response.

In the 1st part, the research aims were proposed in the structure of answers to questions:

Positive evaluation of the webinar by teachers depends

Q1: on the respondents' age,

Q2: on the size of the village of the respondents,

Q3: on their digital skills?

In the 2nd part, the analysis of the teachers' evaluation of the quality of the webinar form of education is considered based on the following dependences:

Q4: with regards to the interaction with the lecturer,

Q5: with regards to the mutual interaction with the lecturer

In the 3rd part, the reasons of the motivation of kindergarten teachers to participate in further education in webinar form were analysed – Q6.

STATISTICAL BASED ANALYSIS OF PROPOSED AIMS

The analysis of the proposed aims was built on the statistical methods (Kitchenham, et al., 2016; Gauthier & Hawley, 2015) regarding the statistical significance 0.05. The applied methods of the quantitative research were based on the testing hypotheses. The providing the statistical methods was run in the statistical software IBM SPSS Statistics 26 and in the PAST Statistics (Hammer, et al., 2001). The educational aspects have been widely realized using the statistical methods of testing the hypotheses, e.g. in the education (Cieslar, et al., 2020; Vaclavik, et al., 2019a; Barot and Krpec, 2019; Vagova and Kmetova, 2018 or Lavicza and Papp-Varga, 2010) or can be seen as well as in the technical based applications, e.g. (Barot, et al., 2020) using the same quantitative principles as in the social sciences. In all approaches, the results of the statistical methods are obtained in the form of the *p* value compared with the declared significance level 0.05.

On the significance level 0.05, which is generaly used in the practical realizations of the quantitative research, the normality of data (Vaclavik, et al., 2019b) was determined using the methods Shapiro-Wilk and Anderson Darling in the first step. For each data column, the normality of data was rejected on the significance level 0.05; therefore, the non-parametrical test should be used in the frame of the testing the hypotheses. The advantage of the non-parametrical tests is the utilization as well as for the data files with the samples in number under the one hundred. Therefore, this is the second advantage of

using the non-patametrical statistical methods in this realized quantitative research with a number of 63 respondents.

Achieved Results of Statistical Analysis – Testing Hypotheses

In the 1st part, the research questions Q1-Q3 are statistically tested in hypotheses 1*H*-3*H*:

Corresponding to the **research question Q1**, the zero and alternative hypothesis 1*H* was declared as can be seen in 1H_0 and 1H_A, where the dependences of the evaluation of teachers by using the webinars on the respondents' age are identified on the significance level 0.05. There were differ following categories of the respondents' age: 1st category (18 – 20 years), 2nd category (21 – 30 years), 3rd category (31 – 40 years), 4th category (41 – 50 years), and 5th category (51 – 60 years).

1H_0 (the zero hypothesis): There are not the statistically significant dependences ofthe teachers' evaluation of the utilization of webinars on the respondents' age on the significance level 0.05.

1H_A (the alternative hypothesis): There are the statistically significant dependences of the teachers' evaluation of the utilization of webinars on the respondents' age on the significance level 0.05.

In the testing the hypothesis 1*H*, the achieved *p* value had the result of 0.235 in the testing by the non-parametrical test Kruskal-Wallis. Because the *p* value is greater than the defined significance level; therefore, there are not the statistically significant dependences ofthe teachers' evaluation of the utilization of webinars on the respondents' age on the significance level 0.05.

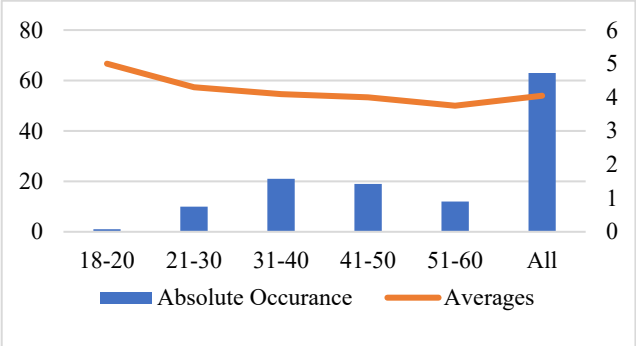

Figure 1: Average Values of Approach to Teachers' Evaluation of Utilization of Webinars Depended on Age of Respondents. (Source: Own)

Regarding the **research question Q2**, the zero and alternative hypothesis 2*H* was declared as can be seen in 2H_0 and 2H_A, where the dependences of the evaluation of teachers by using the webinars on the respondents' size of village are identified on the significance level 0.05. There were differ following categories of the respondents' size of villages: 1st category (a small village under the size of 8 thousand people), 2nd category (a small city) and 3rd category (a large city over the 50 thousand of people).

2H_0 (the zero hypothesis): There are not the statistically significant dependences ofthe teachers' evaluation of the utilization of webinars on the respondents' size of village on the significance level 0.05.

$2H_A$ (the alternative hypothesis): There are the statistically significant dependences ofthe teachers' evaluation of the utilization of webinars on the respondents' size of village on the significance level 0.05.

In the testing the hypothesis $2H$, the achieved p value had the result of 0.2998 in the testing by the non-parametrical test Kruskal-Wallis. Because the p value is greater than the defined significance level; therefore, there are not the statistically significant dependences ofthe teachers' evaluation of the utilization of webinars on the respondents' size of village on the significance level 0.05.

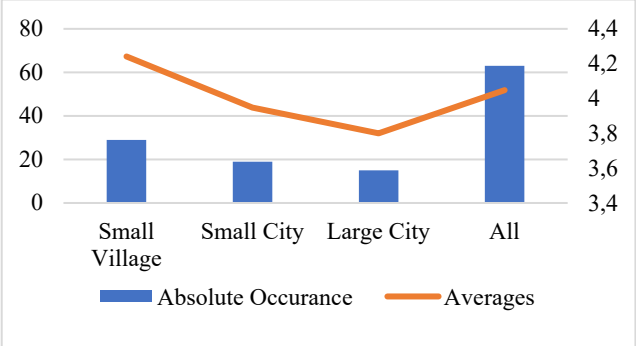

Figure 2: Average Values of Approach to Teachers' Evaluation of Utilization of Webinars Depended on Size of Village of Respondents. (Source: Own)

For the **research question Q3**, the zero and alternative hypothesis $3H$ was declared as can be seen in $3H_0$ and $3H_A$, where the dependences of the evaluation of teachers by using the webinars on the respondents' digital skills are identified on the significance level 0.05. There were differ following categories of the respondents' digital skills: 1st category (week skills), 2nd category (lower skills), 3rd category (medium skills), 4th category (higher skills), and 5th category (excellent skills).

$3H_0$ (the zero hypothesis): There are not the statistically significant dependences ofthe teachers' evaluation of the utilization of webinars on the respondents' digital skills on the significance level 0.05.

$3H_A$ (the alternative hypothesis): There are the statistically significant dependences ofthe teachers' evaluation of the utilization of webinars on the respondents' digital skills on the significance level 0.05.

In the testing the hypothesis $3H$, the achieved p value had the result of 0.6139 in the testing by the non-parametrical test Kruskal-Wallis. Because the p value is greater than the defined significance level; therefore, there are not the statistically significant dependences ofthe teachers' evaluation of the utilization of webinars on the respondents' digital skills on the significance level 0.05.

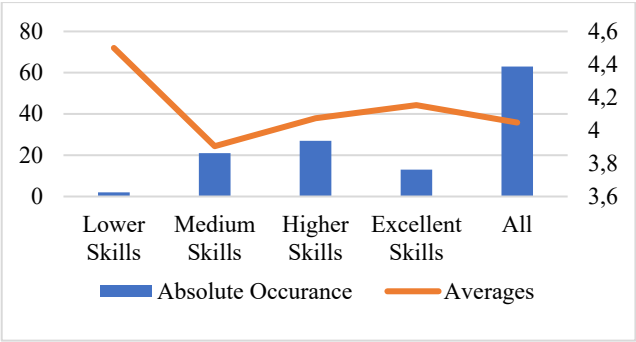

Figure 3: Average Values of Approach to Teachers' Evaluation of Utilization of Webinars Depended on Level of Digital Skills of Respondents. (Source: Own)

In the 2nd part, the research questions Q4-Q5 are statistically tested in hypotheses 4*H*-5*H*:

In the frame of the **research question Q4**, the zero and alternative hypothesis 4*H* was declared as can be seen in $4H_0$ and $4H_A$, where the dependences of the teachers' evaluation of the quality of the webinar form of education on the interactions with teacher are identified on the significance level 0.05. There were differ following categories of the respondents' interaction with teacher: 1st category (strongly disagree), 2nd category (disagree), 3rd category (neutral opinion), 4th category (agree), and 5th category (strongly agree).

$4H_0$ (the zero hypothesis): There are not the statistically significant dependences of the teachers' evaluation of the quality of the webinar form of education on the interactions with teacher on the significance level 0.05.

$4H_A$ (the alternative hypothesis): There are the statistically significant dependences of the teachers' evaluation of the quality of the webinar form of education on the interactions with teacher on the significance level 0.05.

In the testing the hypothesis 4*H*, the achieved *p* value had the result of 1.419×10^{-10} in the testing by the non-parametrical test Kruskal-Wallis. Because the *p* value is lower than the defined significance level; therefore, there are the statistically significant dependences of the teachers' evaluation of the quality of the webinar form of education on the interactions with teacher on the significance level 0.05.

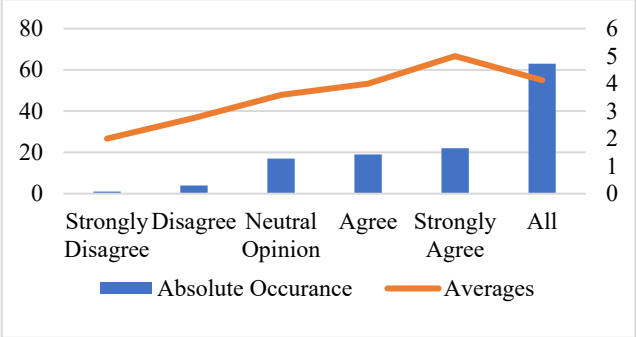

Figure 4: Average Values of Approach to Teachers' Evaluation of Utilization of Webinars Depended on Interactions with Teacher. (Source: Own)

In case of the **research question Q5**, the zero and alternative hypothesis 5*H* was declared as can be seen in $5H_0$ and $5H_A$, where the dependences of the teachers' evaluation of the quality of the webinar form of education on the mutual interactions with teacher are identified on the significance level 0.05. There were differ following categories of the respondents' mutual interaction with teacher: 1st category (strongly disagree), 2nd category (disagree), 3rd category (neutral opinion), 4th category (agree), and 5th category (strongly agree).

$5H_0$ (the zero hypothesis): There are not the statistically significant dependences of the teachers' evaluation of the quality of the webinar form of education on the mutual interactions with teacher on the significance level 0.05.

$5H_A$ (the alternative hypothesis): There are the statistically significant dependences of the teachers' evaluation of the quality of the webinar form of education on the mutual interactions with teacher on the significance level 0.05.

In the testing the hypothesis 5*H*, the achieved *p* value had the result of 2.075×10^{-5} in the testing by the non-parametrical test Kruskal-Wallis. Because the *p* value is lower than

the defined significance level; therefore, there are the statistically significant dependences of the teachers' evaluation of the quality of the webinar form of education on the mutual interactions with teacher on the significance level 0.05.

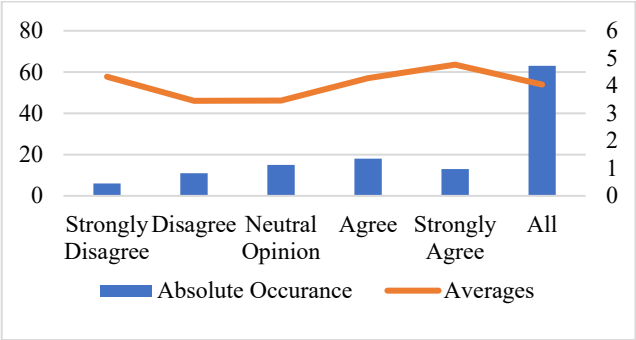

Figure 5: Average Values of Approach to Teachers' Evaluation of Utilization of Webinars Depended on Mutual Interactions with Teacher. (Source: Own)

In the 3rd part, the reasons of the motivation of kindergarten teachers to participate in further education in webinar form are analysed:

Regarding the **research question Q6**, the zero and alternative hypothesis 6*H* was declared as can be seen in $6H_0$ and $6H_A$, where the dependences of the teachers' evaluation of the quality of the webinar form of education on the content of education are identified on the significance level 0.05. There were differ following categories of the content of education: 1st category (increasing the career), 2nd category (motivation of school management), 3rd category (improving in education) and 4th category (other reasons).

$6H_0$ (the zero hypothesis): There are not the statistically significant dependences of the teachers' evaluation of the quality of the webinar form of education on the content of education on the significance level 0.05.

$6H_A$ (the alternative hypothesis): There are the statistically significant dependences of the teachers' evaluation of the quality of the webinar form of education on the content of education on the significance level 0.05.

In the testing the hypothesis 6*H*, the achieved *p* value had the result of 0.03841 in the testing by the non-parametrical test Mann-Whitney. Because the *p* value is lower than the defined significance level; therefore, there are the statistically significant dependences of the teachers' evaluation of the quality of the webinar form of education on the content of education on the significance level 0.05.

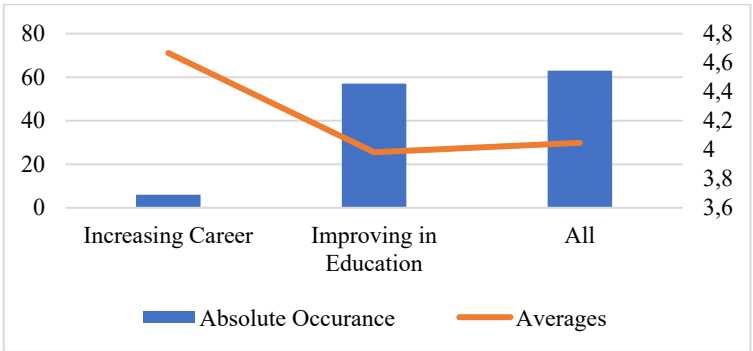

Figure 6: Average Values of Approach to Teachers' Evaluation of Utilization of Webinars Depended on Motivation. (Source: Own)

CONCLUSION

In this contribution, the proposed aims focused on the further education of kindergarten teachers were analyzed with regards to the occurred situation of the COVID-19 pandemic in Slovakia. In this realized analysis, the quantitative principles were applied on the significance level 0.05. In the testing the hypotheses divided into 3 parts of research questions, the following aims were proven: There are not the statistically significant dependences of the teachers' evaluation of the utilization of webinars on the respondents' age. There are not the statistically significant dependences of the teachers' evaluation of the utilization of webinars on the respondents' size of village. There are not the statistically significant dependences of the teachers' evaluation of the utilization of webinars on the respondents' digital skills. There are the statistically significant dependences of the teachers' evaluation of the quality of the webinar form of education on the interactions with teacher. There are the statistically significant dependences of the teachers' evaluation of the quality of the webinar form of education on the mutual interactions with teacher. There are the statistically significant dependences of the teachers' evaluation of the quality of the webinar form of education on the content of education.

REFERENCES

Barot, T., Burgsteiner, H., and Kolleritsch, W., 2020. Comparison of Discrete Autocorrelation Functions with Regards to Statistical Significance. In R. Silhavy (ed.), *Applied Informatics and Cybernetics in Intelligent Systems, Advances in Intelligent Systems and Computing*, pp. 257–266. Available at Springer. https://doi-org.ezproxy.muni.cz/10.1007/978-3-030-51974-2_24 (Accessed 20 June 2020).

Barot, T. and Krpec, R. 2019. Alternative approach to fisher's exact test with application in pedagogical research. In Advances in Intelligent Systems and Computing Vol. 859, pp. 50–59. Available at: https://doi.org/10.1007/978-3-030-00211-4_6 (Accessed 20 June 2020).

Cieslar, M., Koudela, T., Pienias, G., and Barot, T., 2020. In: *4th Computational Methods in Systems and Software 2020: Software Engineering Perspectives in Intelligent Systems (vol.2), Advances in Intelligent Systems and Computing,* pp.294-303.

Gauthier, T. D. and Hawley, M. E. 2015, Statistical Methods. In: *Introduction to Environmental Forensics*. Third Edition. Elsevier Inc., pp.99–148 Available at: doi:10.1016/B978-0-12-404696-2.00005-9 (Accessed 20 June 2020).

Hammer, Ø., Harper, D. A. T., and Ryan, P. D., 2001. Past: Paleontological statistics software package for education and data analysis. *Palaeontologia Electronica*, 4(1). art. 4. 9 pp.

Kitchenham, B., Madeyski, L., Budgen, D., et al., 2017. Robust Statistical Methods for Empirical Software Engineering. Empirical Software Engineering, 22(2), pp.579–630. Available at: doi:10.1007/s10664-016-9437-5 (Accessed 20 June 2020).

Lavicza, Z., and Papp-Varga, Z., 2010. Integrating GeoGebra into IWB-equipped teaching environments: Preliminary results. *Technology, Pedagogy and Education*, 19(2), pp.245–252. Available at: doi:10.1080/1475939X.2010.491235 (Accessed 20 June 2020).

Vaclavik, M., Sikorova, Z.,and Barot, T., 2019a. Approach of Process Modeling Applied in Particular Pedagogical Research. *Advances in Intelligent Systems and Computing* Vol. 986, pp.97–106. Available at https://doi.org/10.1007/978-3-030-19813-8_11 (Accessed 20 June 2020).

Vaclavik, M., Sikorova, Z. and Cervenkova, I., 2019b. Analysis of Independences of Normality on Sample Size with Regards to Reliability. *Advances in Intelligent Systems and Computing* Vol. 1047, pp.304–311. Available at https://doi.org/10.1007/978-3-030-31362-3_29 (Accessed 20 June 2020).

Vagova, R., and Kmetova, M., 2018. The role of visualisation in solid geometry problem solving. In: *17th Conference on Applied Mathematics*, STU Bratislava, pp.1054–1064.

USAGE OF DIGITAL TOOLS AND SOCIAL MEDIA FOR COOPERATIVE AND COLLABORATIVE LEARNING

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Abstract

In the context of the COVID-19 pandemic, the process of higher education in many countries has been transformed into online format. Thanks to this, even in traditional universities, digital tools and technologies have become more actively used. A crucial role in this process belongs to social media, which allow more efficient use of various forms of students' Cooperative and Collaborative Learning.
The article is devoted to reviewing the experience of the usage of these educational technologies in Ukraine.

The authors summarize the experience of colleagues and their own scientific findings. The main differences between Cooperative Learning and Collaborative Learning and their importance in the development of student competencies are analyzed. The advantages and limitations of the usage of the most popular resources among Ukrainian lecturers (Zoom, Google Meet) are considered. Case studies using these resources in conjunction with the capabilities of social networks (Facebook, Instagram, Twitter) and instant messengers (Telegram, Viber, WhatsApp)) for cooperative and collaborative learning are given. The influence of these forms of training on the development of professional and social competencies of students is analyzed. The authors also pay attention to analyzing the possibilities of using services for knowledge and competencies assessment of students (Google Forms, Kahoot it!) in Cooperative and Collaborative Learning.

Keywords

Cooperative and Collaborative Learning. Digital, Professional and Social Competencies. Digital Tools. Social Media.

INTRODUCTION

For a long time, the implementation of the latest learning technologies in the Ukrainian educational environment has been rather slow. Most university lecturers, and especially school teachers, have used modern digital tools to teach sporadically and unsystematically. However, due to the COVID-19 pandemic, the situation in the field of education has changed significantly. Under the pressure of circumstances, the learning

process was transformed into an online format. This has forced educators to quickly master new tools, resources and platforms suitable for distance learning. Restructuring of the educational process and its adaptation to new conditions was not an easy task. Not only lecturers and teachers, but also students experienced certain difficulties. As it turned out during the transition period at the beginning of quarantine, most students are quite well versed in a variety of gadgets, useful programs and applications, but mostly for fun and communication. At the same time, a significant number of students were not fully prepared to use their own digital skills in the learning process. Thus, the issues of increasing the digital competence of lecturers, teachers and students came to the fore.

However, increasing digital competence could not be the only important direction that provides transformation of the educational process into an online format. Creation and maintenance of proper motivation for learning, development of students' professional and social competence are equally important. All these things can be achieved through the use of Cooperative and Collaborative Learning technologies, which in the context of distance learning require the use of social media and messengers' potential.

The aim of our study is to reveal the features of using digital tools and social media for Cooperative and Collaborative Learning of students.

Theory

In modern science, the terms "digital literacy" and "digital competence" are used simultaneously. As noted by McGarr and McDonagh (2019, p.10) in many cases they are used as synonyms, and the main differences are related to linguistic features. For example in Scandinavia, the term "competence" is used more often instead of "literacy", as the latter term is not translated into the languages of these countries (Erstad, 2015, p. 86). In addition, in different countries and parts of the world there are certain traditions regarding the use of these terms. Thus, in continental Europe, Scandinavia and South Africa, the term "digital competence" is more commonly used, while in the rest of the world the term "digital literacy" is more popular (Spante et al, 2018). At the same time, in historical retrospect, the term "digital literacy" appeared earlier (in 1997), while the term "digital competence" appeared ten years later (in 2006). Perhaps that is why the term "digital literacy" is more commonly used in most countries outside Europe. However, there are more significant differences between these terms. Thus, Almås and Krumsvik (2008, p. 280) note that the term "digital competence" is more integral and wide. In this case, the term "digital literacy" is used when referring to European policy and initiatives relating to e-inclusion, while "digital competence" is used in an educational context (Janssen et al, 2013). The authors consider that competence encompasses a wider educational conceptualization that includes knowledge, skills and attitudes towards digital technologies.

Definitions of this notion appear on this basis. Aesaert et al (2013) define digital competences as the "integrated and functional use of digital knowledge, skills and attitudes" (p. 132). Although the term "digital competence" has not existed for a long time, scientists have proposed a number of interesting models that reveal the structural and substantive features of this notion. A survey by Janssen et al. (2013), in which the authors identified twelve different areas that encompass digital competence composing of knowledge, skills, and attitudes using a Delphi study (figure 1), can be highlighted among them.

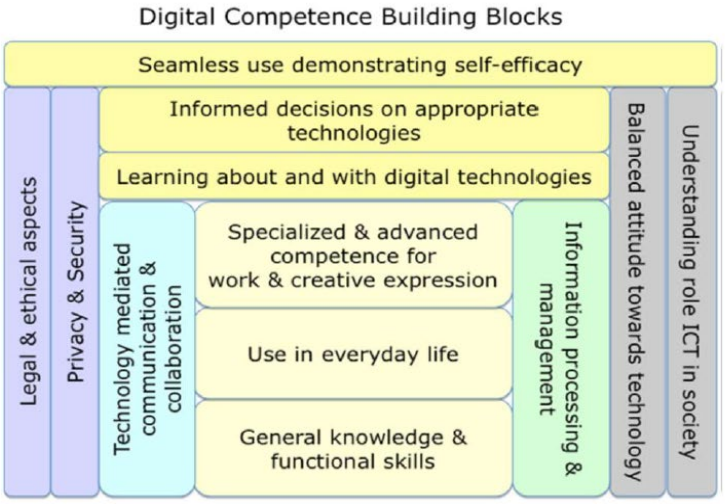


Figure 1: Digital Competence Building Blocks (Source: Janssen et al., 2013)

The model, that was developed in Digicomp project (an EU funded project aimed at identifying the key components of Digital Competence and developing an overall digital competence framework) is very important for our study. In the first version of this model 5 key areas of digital competence: Information, Communication, Content-creation, Safety, Problem-solving (Ferrari, 2012) were suggested. A few years later this model was updated. That's how DigiComp 2.0 (Vuorikari et al., 2016) variant, which is presented in a table below, appeared.

Table 1: Compentence areas of DigiComp 2.0.

	Compentence areas
Inter-related areas with overlapping points and cross-references	Information and data literacy (identify, locate, retrieve, store, organize and analyse digital information, judging its relevance and purpose)
	Communication and collaboration (communicate in digital environments, share resources through online tools, link with others and collaborate through digital tools, interact with and participate in communities and networks, cross-cultural awareness)
	Digital content-creation (create and edit new content (from word processing to images and video); integrate and re-elaborate previous knowledge and content; produce creative expressions, media outputs and programming; deal with and apply intellectual property rights and licences)
Cross-cutting areas across all areas	Safety (personal protection, data protection digital identity protection, security measures, safe and sustainable use)
	Problem-solving (identify digital needs and resources, make informed decisions as to which are the most appropriate digital tools according to the purpose or need, solve conceptual problems through digital means, creatively use technologies, solve technical problems, update one's own and others' competences)

(Source: Vuorikari et al., 2016)

Based on DigiComp 2.0, a number of interesting Digital Competence concepts have been developed in many European countries. Most of them were analyzed in detail in the work of McGarr and Mcdonagh (2019).

It is fundamentally important for us that DigiComp 2.0 contains elements that are related to Cooperative and Collaborative Learning. The terms Cooperative Learning and Collaborative Learning are also often used interchangeably. However, we share the view of Ian Curtis and his team (Promethean) on the differences between Cooperative Learning and Collaborative Learning (ResoursEd - A Promethean Blog, 2017).

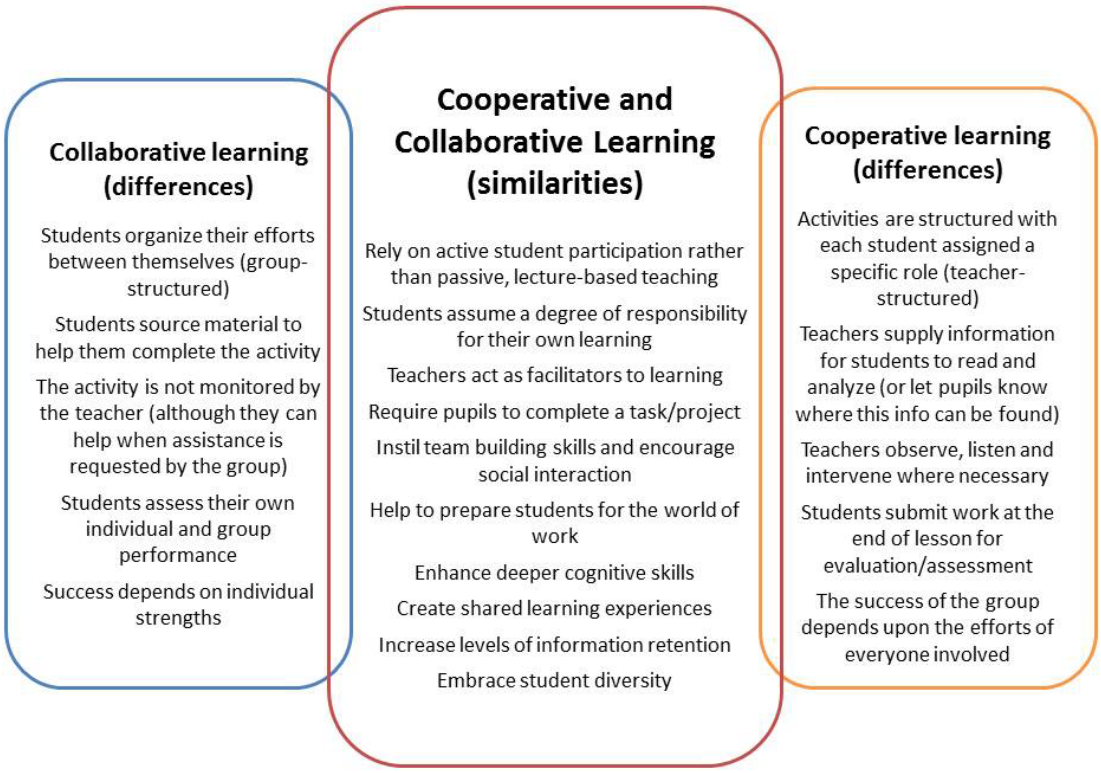


Figure 2: Similarities and Differences between Cooperative and Collaborative Learning (Source: Own, drawing on the ResoursEd – A Promethean Blog, 2017)

Specified similarities and differences between Cooperative and Collaborative Learning together with the main thesis of DigiComp 2.0 were taken into account while transforming educational process into an online format.

Also while choosing digital tools we payed attention to the results of our own research, in which prevalent types of users for the most popular social networks (Facebook, Instagram,Twitter) and messengers (Telegram, Viber) were identified. It is determined that the leading types of users are: for the Facebook – discussion initiator, active discussion participant, conformist; for the Instagram – generator of creolized content, spreader of the creolized content and a follower; for the Twitter – generator of creolized content, spreader of the creolized content and a discussion initiator; for Telegram – discussion initiator, active discussion participant, spreader of the creolized content; for Viber messenger – initiator of discussions, active participant of discussions, conformist (Sosniuk, Ostapenko, 2019, pp.160-181).

METHODS

In the process of transformation of the educational process, we used methods of active learning, such as: web-quest, comics, project-oriented tasks, methods of creating inspiring motivation, etc. Combined with the use of resources useful for the organization of distance learning (Zoom, Google Meet) and the possibilities of popular in Ukraine social networks (Facebook, Instagram, Twitter), messengers (Telegram, Viber, WhatsApp) - it allowed to solve the problem of digital, professional and social competencies.

In addition, the use of these methods helped to create conditions for the Cooperative Learning and Collaborative Learning.

We also interviewed lecturers and teachers of various faculties of Taras Shevchenko National University of Kyiv to assess the resources useful for organization of distance learning (Zoom, Google Meet, Google Forms, Kahoot it!)

We used the in-depth interview method with lecturers and teachers. The structure of interviwe consisted of such blocks:

Introduction. Familiarization with research goals, collection of general information about the lecturer, teacher (speciality, education, work experience, experience in using distance learning methods)

Thematic block 1. Gathering information about digital tools for organizing and conducting online learning. What digital tools do you use for organizing distance learning (free discussion)? Describe your experience of using these tools (advantages and opportunities, disadvantages and limitations). How suitable are they for the Cooperative Learning and Collaborative Learning? Why do you think so?

Thematic block 2. Gathering information about digital tools for assessing students in the online learning process. What digital tools do you use to assess students in the online learning process (free discussion)? Describe your experience of using these tools (advantages and opportunities, disadvantages and limitations). How suitable are they for the Cooperative Learning and Collaborative Learning? Why do you think so?

Thematic block 3. Gathering information about other useful tools and applications. What other digital tools and applications can be useful in the online learning process (free)? Which of them are more helpful for the Cooperative Learning and Collaborative Learning? Which are less helpful? Explain, why do you think so?

Final part. Generalization of information about digital tools. Which of the digital tools do you think are most useful for online learning? Why? Evaluate these digital tools on the basis of usefulness for online learning on a scale of 1 to 5. Which of those tools would you recommend your colleagues for the Cooperative Learning and Collaborative Learning? Why? Which ones are best to use for the Cooperative Learning? Why? Which ones are best to use for the Collaborative Learning? Why?

For data analysis we used the qualitative content-analysis method. In process of analysis we used other researcher's developments (Cheng et al, 2017).

Participants

Students of 1st year of study (bachelors) of the Faculty of Psychology (example from educational practice 1) – 140 persons, students of 4th year of study (bachelors) of the Faculty of Psychology (example from educational practice 3) – 40 persons, students of

1st year of study (masters) of the Faculty of Psychology (example from educational practice 2) – 8 persons.

Lecturers and teachers of various faculties of Taras Shevchenko National University of Kyiv. Total number of respondents – 28 persons.

RESULTS

The semester began in usual conditions and the first modules were mastered by students in the traditional format. However, quarantine was declared in March in connection with the COVID-19 pandemic. Thus, the transformation of the educational process into an online format took place in the middle of the semester, which contained an element of surprise for both teachers and students. This encouraged teachers to find resources suitable for online learning with free access.

That is why, at first, the vast majority of teachers chose the Zoom platform (which provided benefits for educators). However, in early May Zoom exemptions were abolished. Instead, the benefits for educators were provided by another service – Google Meet. As a result, most teachers began to take advantage of its opportunities.

Some teachers did not want to make changes in the learning process and continued to work in Zoom. Thus, most lecturers (like us) have gained a variety of experience using both of these resources.

Example from educational practice 1: "Fundamentals of psychosemantics"

The discipline "Fundamentals of psychosemantics" is studied by psychologists (bachelors) during 1st year of study and it is not easy for them to master the material. That is why we try to use different methods of active learning that allow students to do it well and with the right motivation.

Among them are web-quest, comics, research projects, search tasks. These methods are relevant for young people, support students' interest in learning, contribute to the development of their competencies. We use these methods in usual learning conditions.

However, this year, when the educational process has been transformed into an online format, these methods were especially useful (taking into account that they are Internet-oriented).

The procedure and methodological aspects of using comics and web-quest have been described in some detail in previous publications (Sosniuk, Ostapenko. 2018, pp.82-89). Therefore, this time we think it is appropriate to talk about the peculiarities of using this method in the context of Cooperative Learning and Collaborative Learning.

Assignment for creating comics is a common practice within this discipline. But content of the assignments is permanently changing. This year students were proposed to create a comic about how their representation system (or their personal constructs) are changing while interacting with the outside world.

Usually students use virtual resources with free access (like StoryBoardThat). Comics are posted in special groups in social media. Then, we discuss comics online. An example, in which student narrates about change of stereotypes and attitudes concerning citizens of other countries is presented below (Figure 3).

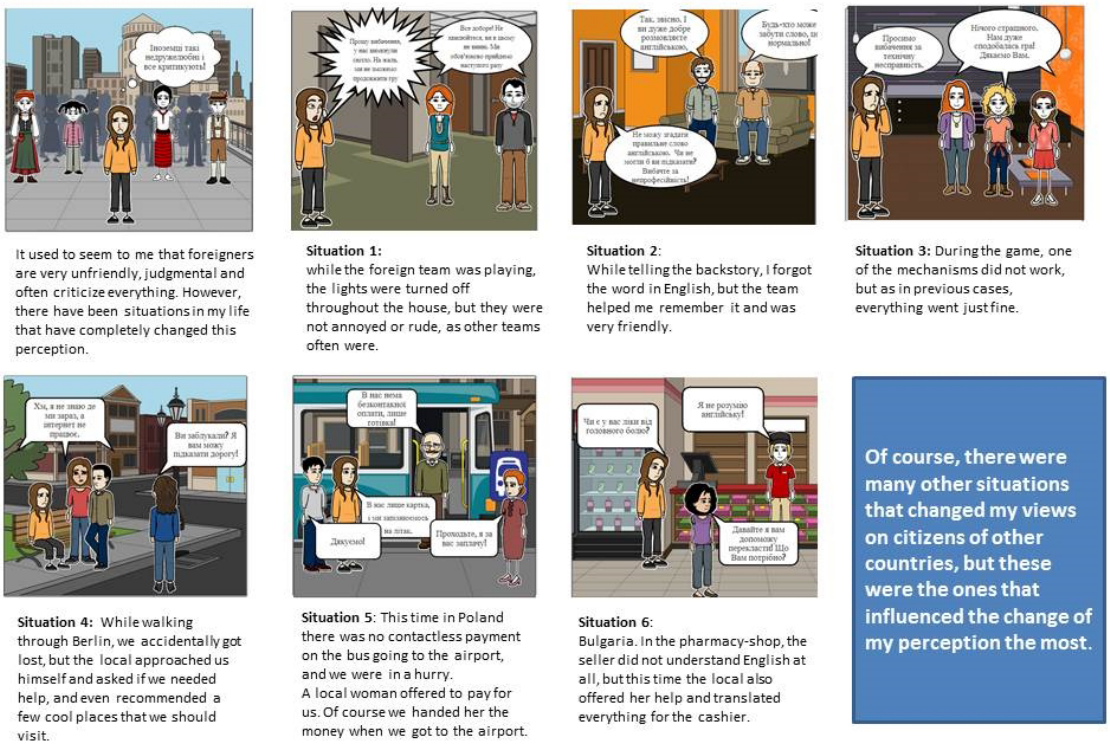


Figure 3: An example of comics about the change of stereotypes and perception related to citizens of other countries (Source: Own, 2020)

Usually in the process of creating comics students actively communicate in groups, especially while they are mastering virtual constructors. Therefore, the use of this method is important for Collaborative Learning. As for the use of web-quest, this method, on the contrary, is more important for Cooperative Learning, because it conveys a clear division of roles and collective responsibility. This year we invited students to develop a repertory grid to explore preferences for places to rest, study or work. After listening to the lecture, students were invited to read the necessary sources and take an online tour with links to materials from other scholars and teachers on YouTube: Personal constructs (repertory grids) – from Graham R Gibbs[1]; Helen Jones talks about Personal Construct Psychology[2]; What is REPERTORY GRID? What does REPERTORY GRID mean? REPERTORY GRID meaning & explanation – from The Audiopedia [3]; Competency Assessment | Repertory Grid – Rep Grid | Role Profile Competency Interviewing – from David Sharpley.[4]

Students were then divided into triads. Each of them performed a personal task, using colleagues as subjects. Thus, each of them acted as a researcher and respondent. After

[1] Personal constructs (repertory grids) – from Graham R Gibbs: Personal Constructs. Part 1 of 2 on Personal Construct Psychology – https://www.youtube.com/watch?v=SeRv62ugJFc; The Repertory Grid. Part 2 of 2 on Personal Construct Psychology – https://www.youtube.com/watch?v=YFlwtIaSxjo

[2] Helen Jones talks about Personal Construct Psychology – https://www.youtube.com/watch?v=J0bNBP5tH4g&list=PLwdAvrGLtEAhTQujd099UgnZxRmg2oXOT&index=36&t=0s

[3] What is REPERTORY GRID? What does REPERTORY GRID mean? REPERTORY GRID meaning & explanation – from The Audiopedia – https://www.youtube.com/watch?v=MEOok7xzLp8

[4] Competency Assessment | Repertory Grid – Rep Grid | Role Profile Competency Interviewing – from David Sharpley – https://www.youtube.com/watch?v=ErAJE4NUxqI

that students were given a list of links to resources that provide free access to specialized programs for statistical treatment of repertory grids[5].

Students were required to test these program's features and process their own repertory grids. Based on the experience gained, each group as experts made an analytical reference and recommendations for the application of these programs for the entire academic group.

We also used research projects. Project management was carried out by master students for insufficient of professional experience 1st year of study students. This year, there were projects concerning the study of the perception's features of social advertising of environmental orientation and the artworks perception. Within these projects, students participated in the creation of research tools (semantic differential), Google Forms, online research and processing of its results[6]. This approach allowed bachelor students to gain their first research experience, and master students – the experience of research projects management.

In addition, we used searching tasks in teaching. For example, aimed at finding potentially discordant names of foreign brands for further phonosemantic analysis. Presence in groups of foreign students (from China, Turkey, Iran, Azerbaijan, Georgia) was extremely useful. In some cases, it gave unexpected results. In particular, Chinese students have dispelled marketing myths about the perception in China names of some well-known international brands.

During the teaching we revealed that for operative communication with Ukrainian students the most useful is Telegram, and with foreign students – Viber and WhatsApp messengers. It was also found that it is better to discuss the results of certain tasks in closed groups on Facebook, presentations of creative developments – on Instagram, searching tasks – on Twitter.

Example from educational practice 2: "Psychology of Political Consulting"

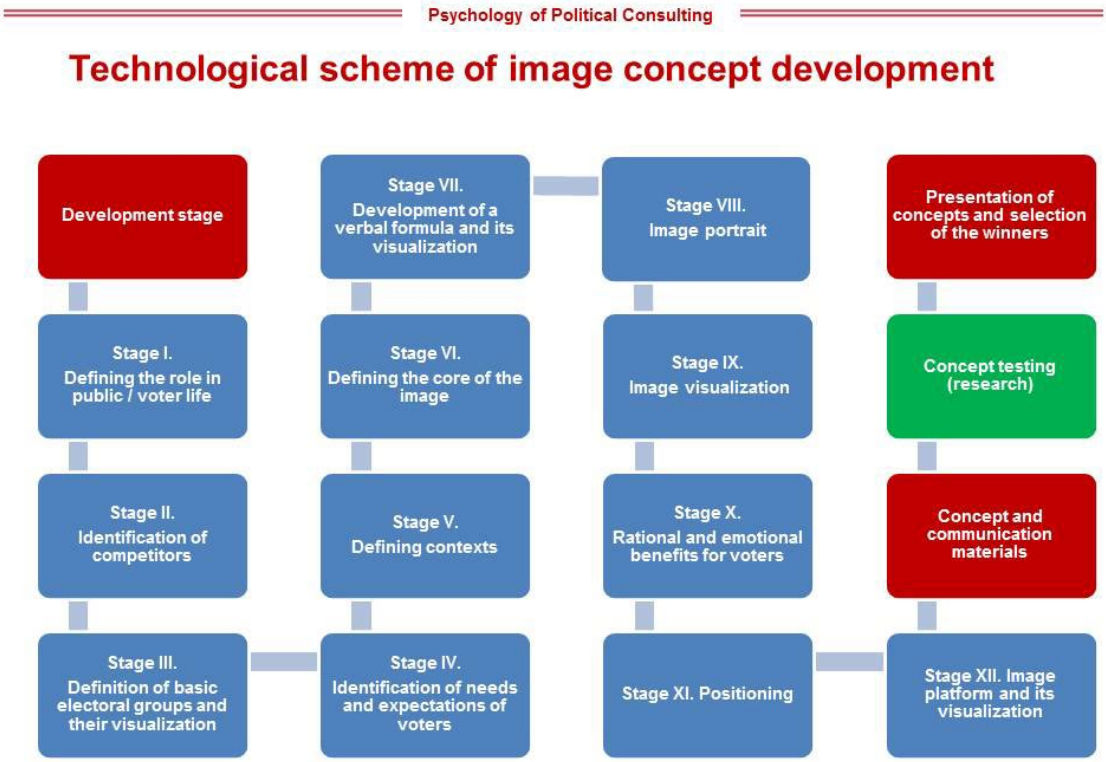
The discipline "Psychology of Political Consulting" is studied by master students (speciality "Political Psychology") during 1st year of study. These students have a higher level of professional, social and digital competencies. In addition, the number of students is much smaller – 8 persons. That is why we often use a project-oriented approach to better teaching of this discipline.

One such project-oriented task is to develop the concept of the politician's image and political party's image. To perform this task students are divided into 2 groups (teams of political party candidates). Usually students choose the option of creating a new political party and choose its leader among their team members. Then the roles of other team members are defined and work on the project begins. The project consists of many stages, at each of which students perform local creative tasks (Figure 4).

[5] Links to resources that provide free access to specialized programs for statistical treatment of repertory grids: https://pages.cpsc.ucalgary.ca/~gaines/repplus/, http://www.psyctc.org/grids/default.htm, https://www.idiogrid.com, http://openrepgrid.org

[6] Links to special Google Forms – https://forms.gle/omYNMXa8aYmjhkoY9, https://docs.google.com/forms/d/e/1FAIpQLScVsRcZEmgm3ukdBc3qk_zoqS5jzjBuKvAG_o2U2mySmCBHg/viewform?usp=sf_link, https://forms.gle/CVT7cJG42qz31Yen9,

Figure 4: The main stages of image concept development (Source: Own, 2020)



Usually, a creation of a concept finishes by generation of MoodBoards, party name, slogans, communicational materials (photomatics, digimatics, video and prints materials). After this stage, concept testing in qualitative research occurs, participants are bachelor students. This year, we conducted online FG in Zoom, because potential of this platform allows to receive both discussion record, and the scripts, which makes preparation of the report much easier.

At the final stage all teams, taking into account the results of the research, adjust the concept and materials and make presentation. The results of presentation allow to define team-winner.

The use of this approach is more in line with Cooperative Learning, although the use of Collaborative Learning elements is possible for local tasks. At the same time, we try to develop the creativity of students. Students love to prepare creative content using digital tools. This allows them to maintain appropriate motivation and develop digital, professional and social competencies.

Example from educational practice 3: "Psychology of Advertising"

Due to quarantine restrictions, imposed in consequence of COVID-19 epidemic the second content module of "Psychology of Advertising" discipline (bachelors, 4th year of study) was taught remotely. Such resources as Google Meet, Google Classroom and YouTube were primarily used for this. Rapid communication with students and solving organizational issues was carried out in a chat in Telegram messenger.

In the course of teaching of "Psychology of Advertising" discipline we provided conditions for Cooperative Learning and Collaborative Learning. The course topics, selected within the curriculum, were divided into smaller content blocks. Every such

content block was presented separately via Google Classroom and contained a pre-recorded and uploaded to YouTube lecture (the record was made in Google Meet), additional theoretical materials (the teacher's author's material, excerpts from books and textbooks, articles, links to interesting material on the Internet), illustrative samples of advertising, grouped according to the topic's content, tasks for seminars, control questions.

Tasks that summarized the completed topic also contained self-check tests (created in Google Forms) and a presentation (prepared in PowerPoint), in which material on the topic was systemized. Thematic blocks were taught in Google Classroom according to the class schedule (once a week). Thus, every student could master the material at a convenient time and in their own tempo during the week (Figure 5).

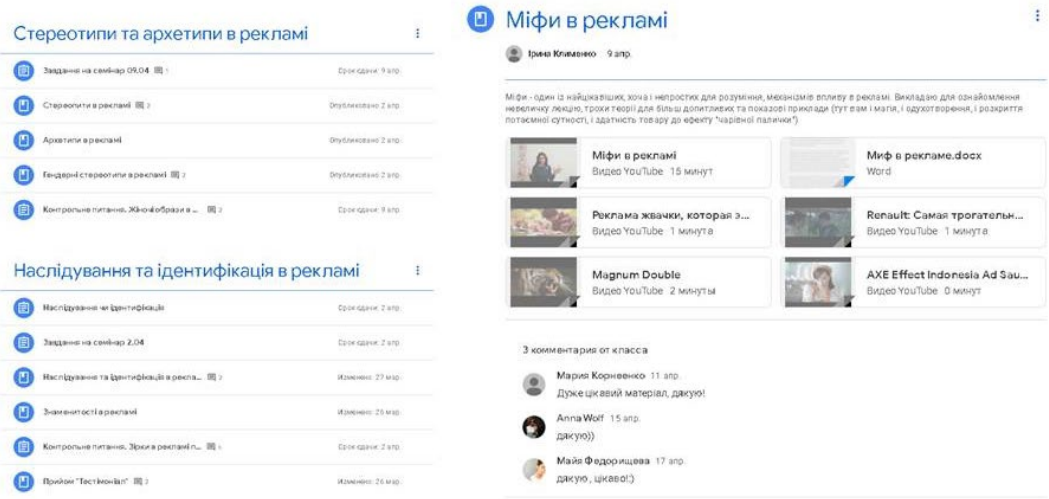


Figure 5: Example of thematic blocks (Source: Own, 2020)

While mastering the material students could ask the teacher clarifying questions both in private messages and in the main Google Classroom feed. Private messages were also used for feedback regarding quality of individual tasks fulfillment, certain teacher's clarifications, remarks or wishes.

Since not all students had stable Internet connection to participate in the seminars online, an alternative way was suggested. Students could prepare PowerPoint presentations on the seminar issues, that were then posted in Google Classroom, discussed and evaluated in the main feed. In the main Google Classroom feed students could also share interesting samples of advertising and cases, that caught their attention, discuss them with each other and with the teacher.

For knowledge control and assessment Google Classroom's possibilities were used: all tasks were formed with a specification about the deadline and maximum possible grade and returned to the students after a check. Thus, the electronic journal of the class was automatically filled in, and students could monitor their academic performance. Google Classroom also generated automatic notifications about the deadline for students. The answers to control questions of every content block, preparing to seminars and completed creative tasks were assessed. Self-examination tests were also monitored. For the final assessment we used modular tests (thematic and attribution), formed in Google Classroom on the Google Forms platform, completion of which was limited in time.

Group feedback was carried out in the main feed of the class after completing certain tasks (clarifying certain problematic moments, discussing typical mistakes etc.)

Advantages and limitations of the usage of the most popular tools

After analysing the results of colleagues' survey and their own experience we can determine advantages and limitations of use of the most popular tools among Ukrainian lecturers (Zoom, Google Meet).

Both platforms provide approximately the same functionality for online learning. However, there are some differences. Zoom provides free connection for members no matter where they have an account, while Google Meet requires members to have a Google account. Zoom also allows you to make digital records for free, while Google Meet provides such functions only in paid versions.

However, Google Meet has its advantages. First of all, this is the duration of classes in the free versions – 60 min, while Zoom provides only 40 min. In addition, Google Meet provides better privacy (through data encryption).

Possibilities of using services for knowledge and competencies assessment

Possibilities of using services for knowledge and competencies assessment of students such as Google Forms and Kahoot it! deserved autonomous treatment. According to our colleagues, each of them has its advantages and disadvantages.

Kahoot it! *Main advantages:* in the form of tests you can check the level of students knowledge, you can set time limits for each question (from 20 to 240 seconds); you can set the time until which testing will be open; you can upload a picture or a graphic to a text question. *Main disadvantages:* a free account allows you to use only two types of tasks: tests (Quiz) and approval / refutation of a thesis (True / False); in tests (Quiz) there are only 4 answer options, but you can choose a few correct answers.

Google Forms. *Main advantages:* uses many more question options: open-ended question, tests (one from the list, several from the list, scale, etc.); integrates with Google Classroom; the results come with analytics; open questions can be checked automatically by keywords. *Main disadvantages:* there is no time limit for a certain task (in order for the form to be limited in time – you need to install an add – form Limiter –PROD; if the student has not sent a response by the specified time and the form is closed –the answers are not saved.

DISCUSSION AND CONCLUSION

In the process of transforming learning into an online format, it is important to use active learning methods, such as: web-quest, comics, project-oriented tasks, methods of creating inspiring motivation, etc. In combination with the use of resources useful for the organization of distance learning (Zoom, Google Meet) and the possibilities of popular in Ukraine social networks (Facebook, Instagram, Twitter), messengers (Telegram, Viber, WhatsApp) – it allows solving problems of development of digital, professional and social competences. In addition, the use of these methods helps to create conditions for Cooperative Learning and Collaborative Learning. In our view, the methods that correspond to Collaborative Learning are more useful for work involving bachelor students of the first years of study. To work with undergraduate and graduate students, it is better to use methods that are consistent with Cooperative Learning. Such priorities

take into account the degree of readiness of students and the level of development of their competencies.

Table 2: Possibilities and limitations of using digital services for Cooperative Learning and Collaborative Learning.

Apps	Cooperative Learning		Collaborative Learning	
Zoom	***Opportunities.*** Students organize their efforts between themselves, students source material to help them complete the activity etc.	***Main advantages:*** Zoom allows us to make digital records for free, which's really helpful while using quantitative methods of research. ***Main disadvantages:*** duration of classes in the free versions – only 40 min, limited opportunities for cooperation in performing project-oriented tasks.	***Opportunities.*** Activities are structured with each student assigned a specific role, teachers supply information for students to read and analyze etc.	***Main advantages:*** Zoom provides free connection for members no matter where they have an account, which simplifies communication in the learning. ***Main disadvantages:*** duration of classes in the free versions – only 40 min, limited opportunities to perform individual and group tasks of high complexity
Google Meet		***Main advantages:*** duration of classes in the free versions – 60 min, which provides broader opportunities for cooperation in the learning process. ***Main disadvantages:*** Google Meet allows us to make digital records only in paid versions.		***Main advantages:*** integrates with Google Forms, which provides additional opportunities for the use of quantitative research methods. ***Main disadvantages:*** Google Meet requires members to have a Google account, that imposes restrictions on communication.
Google Forms	***Opportunities.*** Students submit work at the end of lesson for evaluation etc.	***Main advantages:*** uses many more question options: open-ended question, tests (one from the list, several from the list, scale, etc.). ***Main disadvantages:*** there is no time limit for a certain task (in order for the form to be limited in time – we need to install an add – form Limiter –PROD.	***Opportunities.*** Students assess their own individual and group performance etc.	***Main advantages:*** integrates with Google Classroom; the results come with analytics; open questions can be checked automatically by keywords. ***Main disadvantages:*** if the student has not sent a response by the specified time and the form is closed –the answers are not saved.
Kahoot it!		***Main advantages:*** in the form of tests we can set the time until which testing will be open; we also can upload a picture or a graphic to a text question. ***Main disadvantages:*** a free account allows us to use only two types of tasks: tests (Quiz) and approval / refutation of a thesis (True / False).		***Main advantages:*** in the form of tests we can check the level of students knowledge, we can set time limits for each question (from 20 to 240 seconds). ***Main disadvantages:*** in tests (Quiz) there are only 4 answer options, but we can choose a few correct answers.

(Source: Own, 2020)

For operative communication with Ukrainian students the most useful is Telegram, and with foreign students – Viber and WhatsApp messengers. It was also found that it is better to discuss the results of certain tasks in closed groups on Facebook, presentations of creative developments – on Instagram, searching tasks – on Twitter.

Google Forms and Kahoot it! can be equally useful for assessing students' knowledge and competencies. Each of them has certain shortcomings, so they should be used as complementary.

Zoom, Google Meet platforms provide approximately the same functionality for organizing online learning. However, the education sector is sensitive to free access. Conditions for free use of Zoom, Google Meet are constantly changing, which leads to the dependence of educators on the marketing policy of these services. That is why the specialists of Taras Shevchenko National University of Kyiv have developed their own

educational platform for online learning. Taking into account the disappointing predictions of the COVID-19 pandemic, the online format of education may become the main one for a long time. We are currently testing our platform and hope to report on its features in the future.

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REFERENCES

Aesaert, K., Vanderlinde, R., Tondeur, J., and van Braak, J., 2013. The Content of Educational Technology Curricula: A Cross-Curricular State of the Art. *Educational Technology Research and Development*, 61(1), pp.131-151.

Almås, A. G., and Krumsvik, R., 2008. Teaching in Technology-Rich Classrooms: Is There a Gap between Teachers' Intentions and ICT Practices? *Research in Comparative and International Education*, 3(2), pp.103-121. Available at: doi:10.2304/rcie.2008.3.2.103 (Accessed 16 August 2020).

Cheng X., Fu S,, and de Vreede G.-J., 2017. Understanding trust influencing factors in social mediacommunication: A qualitative study. *International Journal of Information Management*, 37 (2), pp. 25-35. Available at: doi: 10.1016/j.ijinfomgt.2016.11.009 (Accessed 24 May 2020).

Collaborative learning vs. cooperative learning: what's the difference?, 2017. ResoursEd – A Promethean Blog. Available at: https://resourced.prometheanworld.com/collaborative-cooperative-learning (Accessed 24 May 2020).

Erstad, O., 2015. Educating the Digital Generation. *Nordic Journal of Digital Literacy*, 5(01), pp.56-71.

Ferrari, A., 2012. *DIGCOMP: A Framework for Developing and Understanding Digital Competence in Europe*. Luxembourg: Publications Office of the European Union.

Janssen, J., Stoyanov, S., Ferrari, A., Punie, Y., Pannekeet, K., and Sloep, P., 2013. Experts' views on digital competence: Commonalities and differences. *Computers & Education*, 68, pp.473-481. doi: https://doi.org/10.1016/j.compedu.2013.06.008 Accessed 24 May 2020).

McGarr, O. and McDonagh, A., 2019. *Digital Competence in Teacher Education, Output 1 of the Erasmus+ funded Developing Student Teachers' Digital Competence (DICTE) project*. Available at: https://dicte.oslomet.no/ (Accessed 24 May 2020).

Sosniuk, O., Ostapenko, I., 2018. The development of media literacy and media competence of students in educational practice. In: Jan Beseda and Lucie Rohliková (eds.) *DisCo 2018: Overcoming the Challenges and Barriers in Open Education*. Prague, Center of Higher Education Studies, pp.82-89. Available at: http://disconference.eu/wp-content/uploads/2017/01/DisCo-2018-Overcoming-the-Challenges-and-Barries-in-Open-Education-13th-conference-reader-1.pdf (Accessed 24 May 2020).

Sosniuk, O. P., Ostapenko, I. V., 2019. Psychological features of social media users` activity. *Ukrainian Psychological Journal*, 2 (12), pp.160-181. Available at: https://doi.org/10.17721/upj.2019.2(12).12 (Accessed 24 May 2020).

Vuorikari, R., Punie, Y., Gomez, S. C., and Van Den Brande, G., 2016. *DigComp 2.0: The digital competence framework for citizens. Update phase 1: The conceptual reference model* (No. JRC101254). Joint Research Centre (Seville).

COVID-19 HYPERBOLA OF DISTANCE EDUCATION SUPPORT

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Abstract

The paper deals with how the sudden transition to the regime of emergency distance education as a result of government measures against the spread of COVID-19 was reflected in the needs of university teachers, and especially in their demands for technical and methodological support. The increased need for support is evidenced by a case study focused on the use of LMS Moodle at the University of West Bohemia in Pilsen in the transition to emergency distance learning during the first wave of the COVID-19 epidemic in the spring of 2020.

Keywords:

IT support, Distance education, Emergency education, Remote education, COVID-19, LMS Moodle

INTRODUCTION

The global COVID-19 pandemic has significantly affected teaching at universities around the world. As a result of measures taken against the dissemination of COVID-19, universities in many countries are forced to temporarily stop contact teaching, and continue to work with students exclusively by distance learning, which poses a number of challenges, for teachers and their students, as well as for the workers who provide the necessary methodological and technical support for distance learning in such an emergency situation.

Because it is necessary to help pedagogical staff to transfer contact teaching to the online environment quickly and as efficiently as possible, and given the fact that some of them may have minimal or even zero experience with distance learning, various methodological recommendations and summary reviews have been issued.

A short overview mapping important moments that need to be taken into account when switching to online teaching was issued by UNESCO (2020a), OECD (2020a) or Moore and Hodges (2020), and in the form of simple infographics, also by Yang (2020), and the organization Learn To Change (2020).

On the contrary, more comprehensive methodological guidelines and references to specific tools suitable for the preparation and conduct of emergency distance learning are offered, for example, by EPALE (2020), UNESCO (2020b), and Educause (2020).).

Many universities are responding to the current situation by preparing their own handbooks, reviews, webinars, online courses, and even websites that provide comprehensive support for both teachers and students alike.

Teachers who need to study quickly and think about how to optimally turn contact teaching into a distance form have an inexhaustible number of options for where to find information or be inspired. At the same time, however, they need help to solve specific problems they face in the preparation and implementation of a course. In this case, they can turn to the support centres operating at individual universities.

In the case of the University of West Bohemia in Pilsen (UWB), the Division of Lifelong and Distance Learning and the Centre for Informatization and Computer Science provide methodological and technical support to pedagogical staff. In the following part, we will present a case study reflecting the increased need for technical support during the COVID-19 pandemic, specifically among LMS Moodle users at the UWB.

CASE STUDY: USE OF LMS MOODLE AT UWB IN THE TRANSITION TO EMERGENCY DISTANCE LEARNING DURING THE FIRST WAVE OF THE COVID-19 EPIDEMIC

At the University of West Bohemia in Pilsen, the Learning Management System (LMS) Moodle has been used as the main tool for distance education since 2006. In 2009, LMS Moodle was transferred to the central administration, and gradually linked to key university systems, such as Identity Management (IdM) and STAG (study agenda). Thanks to the link to IdM, internal users are automatically created or deleted in LMS Moodle at the moment when a user account is created or terminated in IdM.

Thanks to the plug-in using webservices, the link to STAG makes it easy to create corresponding courses in LMS Moodle to existing taught subjects, and can directly assign students to them who, according to STAG, have the given subject enrolled for study. In addition, if the same subject has been taught in LMS Moodle in the past, the system will copy the content of its latest version from previous academic years to the newly established course.

Currently,[1] the UWB has more than 3,700 courses in LMS Moodle (see Figure 1), whose data takes up approximately 200 GB of disk space, and almost 25 GB of data stored in the database system used.

[1] June 2020

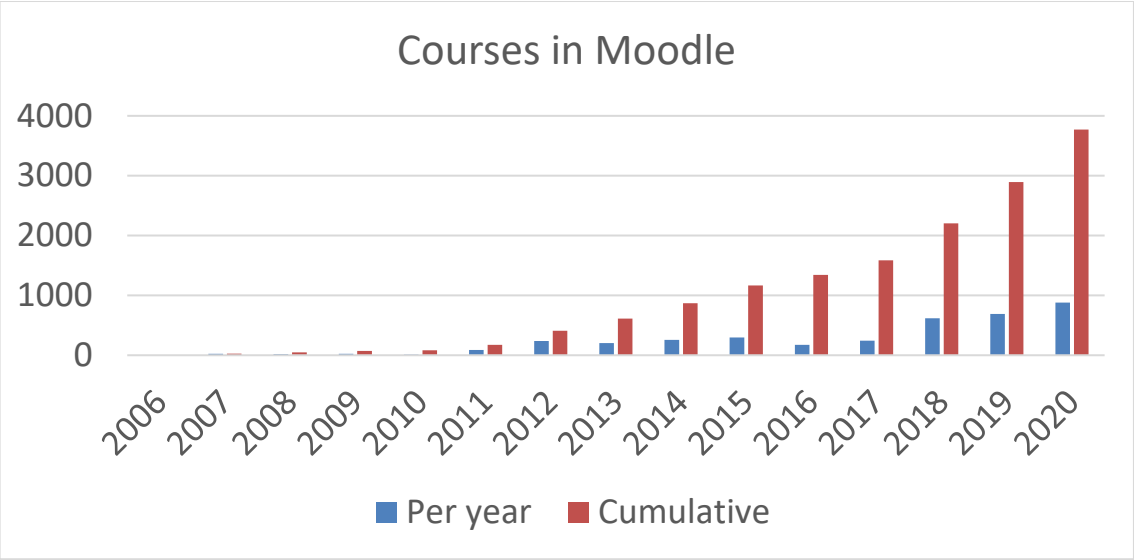

Fig. 1: Number of courses in LMS Moodle at UWB (Source: Own).

The above graph clearly shows the development of the number of courses in LMS Moodle at the UWB over the years. The blue bars represent the annual increments in the number of courses, while the green bars show the total, cumulative number of courses since the start of operations. Since 2018, a clear higher increase in the number of courses per year can be seen. The highest number of courses was recorded in 2020, even though the first half of the year was not yet over at the time of creation of the graph.

During normal operation, new teacher training courses are set up, typically before the start of a new semester, or in the first few days of the new semester. The graph in the second figure shows the daily increase in exchange rates during March and April 2020. At the beginning of March, almost no new exchange rates were established - the summer semester began on 17th February. The Government of the Czech Republic responded to the outbreak of the pandemic, among other things, by announcing a ban on the personal presence of students in schools at all levels of our education system, including universities, on March 11th. The second graph shows what happened after that date. In the first 50 days of the pandemic in the Czech Republic, 10% of new courses were established at the UWB, compared to the total number of courses in LMS Moodle for the entire period of its operation at the university.

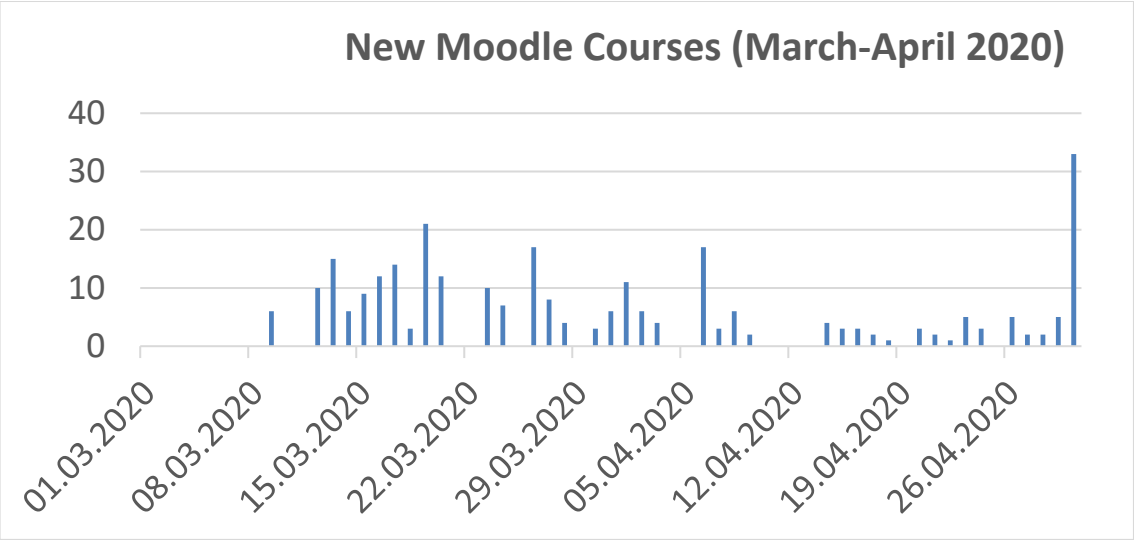

Fig. 2: New courses at the UWB after the outbreak of the pandemic (Source: Own).

The following graph (see Figure 3) shows the number of actions performed in LMS Moodle at the UWB since February 2020. Moodle actions mean, for example, user login or logout, display of the course page, answer to a test question, etc. The blue line shows the development in the number of student actions, while the green line shows the actions performed by teachers. The first two weeks of February show minimal traffic in LMS Moodle, as this is the end of the exam period of the previous winter semester. The next three weeks show normal operation after the beginning of the summer semester. After March 11th, a sharp increase in the operation of LMS Moodle can be seen, associated with the change from contact learning to emergency distance learning. Many teachers at that time discovered or realized the existence of distance learning as an alternative education system, and requested the establishment of courses for their students.

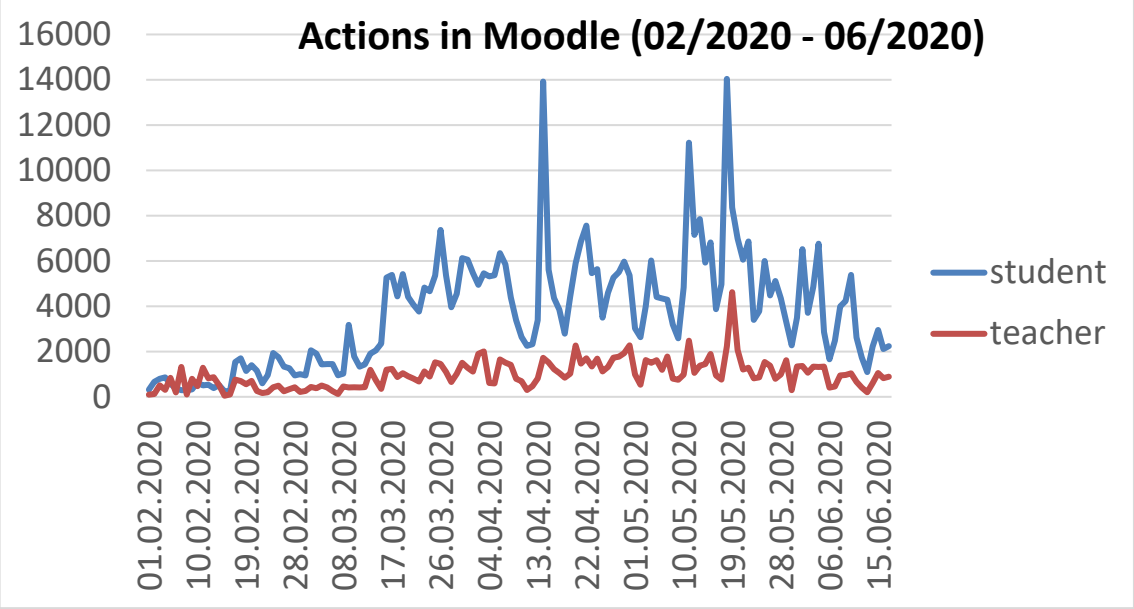

Fig. 3: Number of events in LMS Moodle at UWB (Source: Own)

Request Tracker System

Another view of distance learning at the University of West Bohemia in Pilsen after the outbreak of the COVID-19 pandemic in the Czech Republic can be provided by the Request Tracker (RT) system.

Request Tracker is a trouble ticketing system, in which user requests are resolved, and where communication with applicants is performed via e-mail messages. Each request is assigned a specific number, under which it can be traced at any time, and where all communication associated with its solution is stored.

Request Tracker has been used at the UWB since 1999. It currently stores more than 325,000 requests, or rather "tickets", in 115 different queues. Each queue is designed for requests from a specific area, and is managed by specific people, who deal with their solution.

The queue for LMS Moodle was founded in 2013, when this system was already widely known at the university, and its popularity began to rise.

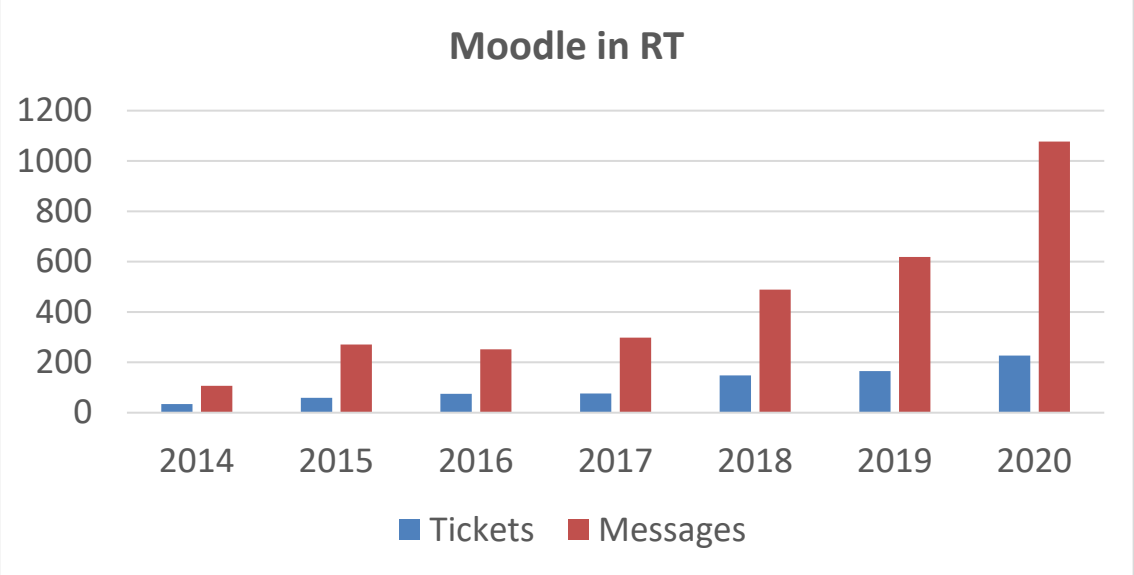

Fig. 4: Development of requests in the Moodle queue in the RT system at the UWB (Source: Own)

The graph in Figure 4 shows the development of the number of requests for LMS Moodle in the RT system of the UWB for individual years. The higher orange bars then show the numbers of all e-mail messages exchanged between the solvers and applicants of these requests. The highest values reached in 2020 are again over a period of less than the first six months.

The last graph (see Figure 5) shows the monthly increments in the number of requests and e-mails in the RT system from January 2018 to the beginning of June 2020. The current monthly values are more or less the same, with higher values around the beginning of each semester, in September and February. The values for March and April 2020, which are connected with the transition of teaching at the UWB to the emergency distance form, stand out completely from the norm.

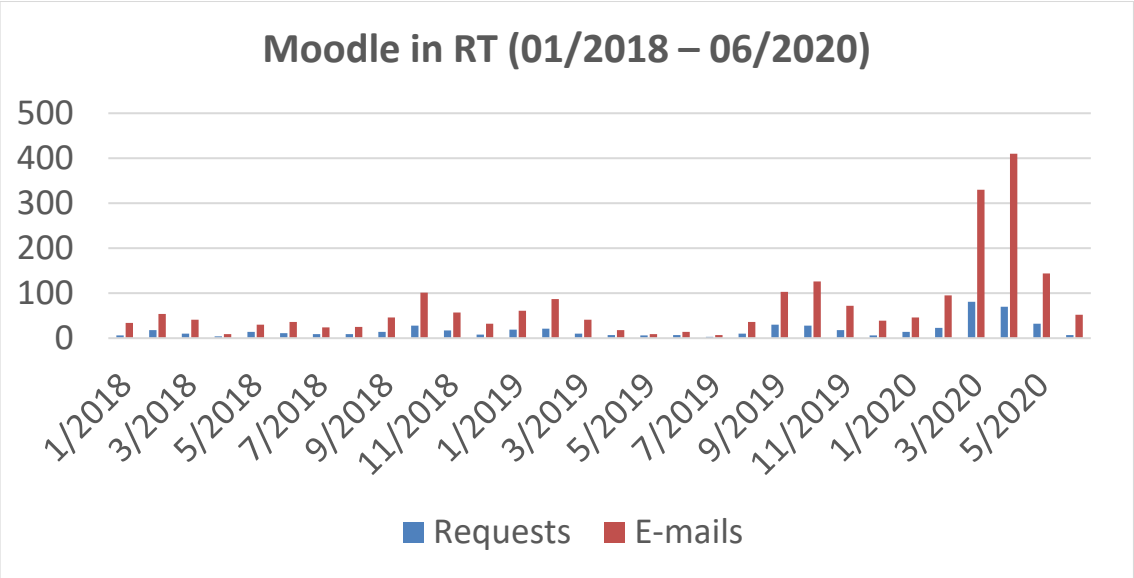

Fig. 5: Monthly statistics of the number of Moodle requests within the UWB (Source: Own)

CONCLUSION AND DISCUSSION

Based on the above data, it can be stated that due to the sudden necessary transition to the emergency distance learning regime, the UWB has had a massive increase in teachers' interest in LMS Moodle, which is evident on the one hand from the high number of requests for LMS Moodle during the period from March to May 2020, and on the other from the number of new courses created during the first wave of the COVID-19 epidemic. The transfer of teaching to the online space means a great challenge, both for support staff who help teachers at the UWB from a technical or methodological point of view, and for the teachers themselves, who are forced to adapt their teaching to the new conditions.

At the same time, however, it must be said that the transition to emergency distance learning also brings with it, in addition to complications, new opportunities. Information and communication technologies, the use of which is an integral part of distance learning, are powerful tools that can serve well, for example, to analyze the learning processes of individual students. Thanks to this, students can be continuously provided with support, motivation, and more specifically targeted feedback (Sedrakyan et al., 2018), which can potentially lead to improved courses in future full-time teaching. (Visvizi, Lytras and Sarirete, 2019).

REFERENCES

EPALE, 2020. *COVID-19 Is Reviving The Need To Explore Online Teaching And Learning Opportunities - EPALE - European Commission*. Available at: https://epale.ec.europa.eu/en/blog/covid-19-reviving-need-explore-online-teaching-and-learning-opportunities (Accessed 27 June 2020).

Moore, S. and Hodges C. B., 2020. *Practical Advice For Instructors Faced With An Abrupt Move To Online Teaching (Opinion) | Inside Higher Ed*. Available at: https://www.insidehighered.com/advice/2020/03/11/practical-advice-instructors-faced-abrupt-move-online-teaching-opinion. (Accessed 27 June 2020).

OECD, 2020. *Education Responses To COVID-19: Embracing Digital Learning And Online Collaboration*. Available at: http://www.oecd.org/coronavirus/policy-responses/education-responses-to-covid-19-embracing-digital-learning-and-online-collaboration-d75eb0e8/> (Accessed 27 June 2020).

Rohlíková, L., 2020. *Jak se mohou vysoké školy připravit na bezkontaktní nebo částečně bezkontaktní výuku?*. (How can universities prepare for contactless or partially contactless teaching?) CŽV. Available at: https://czv.zcu.cz/jak-se-mohou-vysoke-skoly-pripravit-na-bezkontaktni-nebo-castecne-bezkontaktni-vyuku/ (Accessed 27 June 2020).

Rohlíková, L., Chejlava, V., Hokrová, Z., et al., 2020. *Doporučení pro zajištění výuky distanční formou v době omezení činnosti vysokých škol.* (Recommendations for providing distance learning in the time of limiting the activities of universities): Available at: https://nadalku.msmt.cz/cs/vysoke-skoly (Accessed 27 June 2020).

Sedrakyan, G., Malmberg, J., Verbert, K., Järvelä, S. and Kirschner, P., 2020. Linking learning behavior analytics and learning science concepts: Designing a learning analytics dashboard for feedback to support learning regulation. *Computers in Human Behavior*, 107, p.105512.

UNESCO, 2020. *COVID-19: 10 Recommendations To Plan Distance Learning Solutions*. Available at: https://en.unesco.org/news/covid-19-10-recommendations-plan-distance-learning-solutions (Accessed 27 June 2020).

UNESCO, 2020. *Distance Learning Solutions*. Available at: https://en.unesco.org/covid19/educationresponse/solutions (Accessed 27 June 2020).

Visvizi, A., Lytras, M. and Sarirete, A., 2019. *Management And Administration Of Higher Education Institutions In Times Of Change*. Bingley: Emerald Publishing Limited.

Yang, A., 2020. *Online Teaching: Do This, Not That*. Available at: https://alisonyang.weebly.com/blog/online-teaching-do-this-not-that (Accessed 27 June 2020).

MEDIA EDUCATION IN CORPORATE EDUCATION'S ECOSYSTEM

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Abstract

In modern media world requirements for corporate training for companies have changed significantly. A colossal factor in changing the approach to building a corporate education system was lockdown of last three months. The need to work in a digital environment has revealed new gaps in the corporate education of company employees, new requirements for digital and information competence. Also, the level of digital and media and information literacy shows that gaps in knowledge and skills of different generation in this sphere.

Research and interviews in big and medium companies in Russia revealed that 80% of corporate education centres would change the approaches and filling of learning programs and methods of learning after lockdown. Also, among the results the need to increase the level of digital and media and information literacy was showed. An important part in this ecosystem is media education and media and information literacy. The combination of online and offline tools for developing these competencies, the growing role of distance learning, and the use of basket methods make it possible to quickly adapt employees to a new reality. The use of new forms of digital mentoring in corporate training, master classes by successful employees and corporate knowledge management will provide a competitive advantage for the corporate education system. In conclusion it's important to say that under the influence of environmental factors at the moment there is a fundamental and significant change in approaches to corporate education itself and to the formation of corporate training programs. Moreover, as the experience of March-April 2020 showed, digital technologies occupy not just a large, but an essential part of organizational reality and practice. Cross-border and expanding organizational boundaries are evolving. In these conditions, the need to include media and information literacy in the corporate training system is growing.

Keywords

Media education. Ecosystem of corporate education. Media and information literacy. Corporate education. Digital literacy.

INTRODUCTION

From the beginning of this year our organizational reality in all industries was changed dramatically. COVID-19's pandemic not only destroyed all plans of developing and economic increase but also became the huge push for transformation of approaches to education system of all levels. The need to work in a digital environment has revealed new gaps in the corporate education of company employees, new requirements for digital and information competence. Also, the level of digital and media and information literacy shows that gaps in knowledge and skills of different generation in this sphere.

Research and interviews in big and medium companies in Russia revealed that more than 80% of corporate education centers would change the approaches and filling of learning programs and methods of learning after lockdown. Also, among the results there is the need to increase the level of digital and media and information literacy was showed.

The situation of lockdown focused attention on the understanding that it's necessary to change the approaches on the corporate education as well. The second conclusion from the lockdown situation was the fact of implementation in the corporate education system the competence of media and education literacy and digital literacy.

So now there are real reasons for necessary changes in approaches for building system of corporate education and in the content of learning and organizational context too.

CORPORATE EDUCATION SYSTEM AS ECOSYSTEM

It's necessary to mention that last several years the understanding and definition of corporate education system were changed. The corporate education system has undergone significant changes in the last few years. And it's not just about expanding new forms of training, the large-scale introduction of eLearning, forms of mobile learning, etc. The definition approaches have been revised. A corporate learning model is a learning system based on the distribution/balance of learning types (formal, informal, and social) adopted by the organization (Katkalo et al.,2019, p.58). Formal learning is structured learning within specific educational programs, courses, and other educational events. In this case, the goals and learning outcomes are formally defined and put in writing. Informal learning is learning with non-defined goals. Learning is often a "side effect" of other activities (work, communication, etc.). Informal learning is usually associated with daily professional activities and includes on-the-job learning by trial and error. In a broad sense, informal learning also includes social learning and collaborative learning. However, some methods of informal learning, such as reading, cannot be attributed to social learning. Social learning is learning through interaction with other learners. Most often, it takes place informally and unconsciously and is a natural outcome of the professional activity and life of the learner.

In this regard, it is important to note that corporate education today is a system that allows company to quickly, flexibly and efficiently respond to changes in the strategy and operational activities of the company, and as quickly and efficiently develop the necessary functional or corporate competencies of the company employees.

Undoubtedly, the business model of organizations will now change in the direction of mixing online and offline work and communication technologies. The lockdown experience will not pass without a trace. Today's lockdown and the global economic crisis act here not only as a cause of change, but also as their catalyst, which affect the business model itself.

Also, it's necessary to mention that another big change in the understanding of corporate education system as ecosystem now. As Endy Ryan mentioned, a learning ecosystem is a system of people, content, technology, culture, and strategy, existing both within and outside of an organization, all of which has an impact on both the formal and informal learning that goes on in that organization (Ryan, 2019, p.1). The term "learning ecosystem" is a trendy one in learning and development circles. It's an important idea; understanding it helps organizations and their leaders think strategically about their

learning and training—and helps them achieve the goals they set for themselves. A learning ecosystem is the Learning&Developing equivalent of an ecosystem out in the wild. Just as a living ecosystem has many interacting species, environments, and the complex relationships among them, a learning ecosystem has many people and pieces of content, in different roles and learning contexts, and complex relationships. The main parts of learning ecosystem are people, content, technology, learning culture and strategy (Ryan, 2019, p.1). In the modern conditions practically all this structural part of the system must be changed.

First of all, in all companies all over the world there is the transformation of people. The main transformation is closely connected with the changes on the labour market and exchange of the generations. Now we can see on the labor market the representatives of the generations X,Y,Z. People from different generation got used to different methods and technologies in learning (Shatto and Erwin, 2017, p.26). These generations do not just have different preferences in training and development within the organization. These preferences are really fundamental. The difference in the perception of information, different cultural context, the rate of assimilation of different knowledge and skills. For example, for most part of generation Z gamification is comfortable; for a generation X this technique is not always comfortable and understandable (Glynne, 2020, p.374). This means that in a modern organization, the corporate education ecosystem must contain different learning opportunities for different generations. This introduces diversity and forms educational motivation on the one hand. But on the other hand, this significantly increases the cost of the system. It is important to note that such an integrated approach from the point of view of choosing the most convenient method of training allows you to build an individual educational trajectory of the employee.

The following factor of learning ecosystem is content. And we can see the fatal changes of content of education after this lockdown. As it will be mentioned later this lockdown is showed the problems with digital and media and information literacy. For example, already now global Russian company Nornickel had launched new program “Digital Nornickel”. Global changes in values in pandemic and new economic realities push global players to fundamental changes in labour and capital markets. The management of Norilsk Nickel decided to launch the large-scale educational program “Digital Norilsk Nickel”, considering this step to be especially relevant in conditions of forced isolation. The program is designed for two years; its first stage started in mid-April, the second is scheduled for September, 2020. The formed cycle of Digital Nornickel programs will allow all employees to choose the necessary courses in online digital literacy training, develop appropriate competencies and improve their qualifications (NorNickel. Digital market in self-isolation’s conditions, 2020, p.1).

The third important part of education ecosystem is the education technology. In corporate education ecosystem it’s necessary to change the technologies principally. First of all, this is an integration approach to the formation of the system itself. And if, until 2020, large corporations were looking for new forms of online learning, investing big budgets in the development of distance learning, eLearning, mobile learning, etc. Now, medium-sized companies and small businesses will consider the possibility of distance education.

The most popular and most expensive teaching format in the recent past - classroom teaching - today is only the top of the large pyramid of the most diverse modern teaching methods. However, without classroom activities, it is quite difficult to develop the practical skills of many competencies. From another side it’s necessary to mention that it’s impossible to develop all practical skills and habits in distance format. In any case

even technology train equipment cannot develop the skills steadily. One of the possible decisions could be blended learning.

So in conclusion of this part, it's necessary to mention the following. The corporate education system is now facing fatal changes. The approach to the corporate education system should be integrated. Direct teaching methods do not work right now.

The presence of different generations in the labour market, changes in the principles of corporate education, and the very rapid emergence of new technical training technologies force companies to change approaches to corporate education.

The corporate training system for companies of any level will certainly await fundamental changes.

PRINCIPALS OF CORPORATE EDUCATION MODEL

The principles of corporate education integration model are as follows. The first is reliance on blended education. Blended learning is a combination of traditional forms of classroom instruction with elements of distance (electronic) learning, which uses special information technologies such as computer graphics, audio and video, interactive elements, etc. (Katkalo et al., 2019, p.29). The blended learning process is a sequence of stages of traditional learning and e-learning, which alternate in time, and also includes elements of independent learning. The expansion of part of online and digital training, the use of mobile training not only allows you to optimize budgets, but also provide flexibility and speed of obtaining and developing the necessary competencies.

On other words today, corporate education is understood as a continuing education system provided for training employees. It may consist of formal studies at a university or college, or informal studies conducted by non-university institutions. Corporate education is aimed at developing the organization's ability to do everything necessary and adequate to be a sustainable and successful organization.

The second principle of the integration model is the formation of a single educational space. This approach allows not only to use the knowledge management element in the company, but to fully use the knowledge management system. The whole educational space is the physical environment for the learning environment, a place where education and training take place; internal or external location, real or virtual (Smolinska and Dzyubynska,2018, p.53). A whole educational space allows not only to put together all the necessary educational materials, but also to build the continuity of educational programs, to put together corporate knowledge, procedures, cases.

The third principle of the integration model of corporate education is the corporate university format. Despite the fact that, as a rule, a corporate university is associated with large corporations, although now this is far from the case. Corporate University in the modern sense is an educational unit designed to support the strategic development of the company and to be a catalyst for its renewal by training managers and other employees, as well as by creating, accumulating and disseminating advanced knowledge within the organization (Katkalo et al., 2019, p.60). In this knowledge millennium and an era of digital innovation, updated knowledge and continuous learning is very significant to both individuals and the organization. Modern organization must provide its workers with the ability to "retool their skills and knowledge continually" and train themselves with skills beyond on-the-job training, which is deemed effectively possible through a corporate university model (Ilyas, 2017, p.87). A corporate university offers employees the opportunity to add value to their knowledge and skills, and in return, to give back to the organization their output "through innovation, efficiency and productivity" (Castanha,

2019, p.88). Truly speaking corporate universities were created only to produce knowledge workers and develop the intellectual capital in every organization. It is also discovered that ever since the corporate university movement gained momentum, employees have shown more efficiency in their job performance, they have learnt new skills and earned degrees and certifications that would boost up their careers. Corporate universities are currently striving to develop such programs that are clearly linked to business objectives and organizational strategy.

The importance of corporate university's format is closely connected with the modern trends in corporate education. In this circumstantiates seems necessary to change the approach to the building and filling the corporate education. Luiz Alexandre Castanha focuses on the following 2020 trends: storytelling in digital learning, the use of mobile platforms, gaming, personalized learning, hybrid learning (Castanha, 2019, p.1). All these trends in corporate learning force to find new formats of learning and education. As already it was mentioned the mobile platforms are becoming very popular in modern corporate learning. The format of a corporate university allows for an integrated approach to the organizational education system.

As PWC mentioned in new survey, the fourth priority of Human Capital development in 2020 there is the influence redesign of academic curricula and modernize corporate learning & development to build an adaptive workforce (The power to perform: Human capital 2020 and beyond, 2020, p.5). Among the main features of this trend there are concerns over the lack of people with key skills and the right combination of capabilities, return on investment from some university education continues to be challenged, academic institutions need to transform learning curricula to meet new workforce skills and mind-set requirements, a review and rethink of traditional learning & development (L&D) models needed to create a more immersive learning environment, and drive employee skills development through the course of their careers (The power to perform: Human capital 2020 and beyond, 2020, p. 6). In this case it's necessary to focus the attention on the two facts. The first fact is the connection between Learning and Development system in organization with career opportunities and career trajectories. The second fact on which it's important to pay attention on the close connection between corporate university and higher education. This connection is very important in modern education space as opportunity of continuity between different levels of education.

Also, PWC mentioned about importance of revisiting corporate training programs, and augment with open online courses and other externally available content. On other words we can say about combination of external and internal education content. As I said above it's possible to do in corporate university's format and in the approach of blended education.

Also, according to the above-mentioned trends of developing corporate education the key task of corporate training remains the choice of the right strategy and training formats that really affect the performance of companies. Despite the rich experience of many companies in developing their own corporate training programs in full-time and distance formats, several questions do not lose their relevance: selection of the necessary forms of corporate training; assessment of the effectiveness of learning outcomes; training motivation and the role of training in staff motivation; optimization of training costs.

Corporate learning innovations are having an impact on the market. The key driver of innovation in the field of corporate training is the speed at which society adopts new technologies. Evaluating the corporate segment market is difficult. According to various estimates, the capitalization of the Russian corporate training market is about 100 billion

rubles a year (The power to perform: Human capital 2020 and beyond, 2020, p.15). In this case key market challenges are the following: cross functional competencies; narrow focus and specialization; quick adaptation. If we add to these challenges the lockdown's effects and problems with digital and media and information literacy it will be clear that we need new formats for corporate education. All these factors, challenges, market trends and market gaps are making the special situation for fast and rapid changes in corporate education system. And the format of corporate university gives the organizations of all levels and industries the opportunity to solve all tasks.

And, finally, the fourth principle of the integration model of the corporate education system is the principle of compliance (compliance) or the principle of combination / compliance. In fact, it is the compliance approach that allows considering the interests of all stakeholders in the corporate education system in the format of a corporate university. It is most convenient to implement this principle based on the ISO19600: 2018 standard. "Compliance" is no longer simply a legal concern isolated to a legal compliance unit. After all, how the organization operates determines its ability to comply with external stakeholder requirements. This means that compliance requirements permeate all business activities - from procurement to human resource management, to information management, to manufacturing processes, to environmental management. And corporate education system isn't on the last place in this list.

ISO19600 provides guidance for establishing, developing, implementing, evaluating, maintaining and improving an effective and responsive risk-based compliance management system within an organization. The guidelines on compliance management systems are applicable to all types of organizations. The extent of the application of these guidelines depends on the size, structure, nature and complexity of the organization. ISO 19600:2018 is based on the principles of good governance, proportionality, transparency and sustainability.

It's necessary to stop on this principle more detailed. First of all, it's necessary to mention that in this principle organizational education space connects with communication space of organization. And then in the connection with compliance the second idea is the work with stakeholders. The main idea of work with stakeholders is involvement. Even the including of online component to the system of corporate education increases the quantity of stakeholders substantially.

The key stakeholders in the online component of corporate education system are the following (Pappas, 2019, p.1):

- Investors. Among the investors not only real financial investors could be. Also internal experts, employees with good experience in the organization and etc. They are content investors, knowledge investors, etc. But also of course in the case of in-house online training, the investors may be your accounting department or executives.
- Upper management. Upper management plays a dual role in eLearning development. In some cases, they're the ones who approve the funding for the project. But they also serve as training advocates for their subordinates.
- eLearning project managers. They are certainly among the key stakeholders in online training since they handle the eLearning course development from start to finish. They delegate tasks, keep the budget on track, and ensure timely delivery. The eLearning project manager might even be charged with gathering the L&D team and choosing which tasks to outsource. Another pivotal role they

play is to act as a liaison between investors, management, developers, and other relevant stakeholders.

- Corporate learners. Many organizations overlook this integral role. However, corporate learners are the top stakeholders in online training. After all, your employees must use the finished product to build their skills and improve on-the-job performance.
- Instructional designers. They handle everything from deciding the best ID model to creating online training content based on employee skill gaps. They work directly with the L&D team and eLearning project manager to realize the stakeholders' vision and achieve the desired outcomes.
- Online instructors/facilitators. These instructors must understand not only the subject matter, but also the delivery platform. Otherwise, they won't be able to provide guidance or help corporate learners make the most of the online training resources available to them.
- Tech experts. Most eLearning teams have a resident tech expert (or two) on hand to troubleshoot IT problems and ensure a smooth launch. You should also involve this IT expert early in the process to help you choose the best tools for the task, as they can offer valuable input regarding specs, must-have features, and deployment options.
- Administrators of program. Among the stakeholders in online training, administrators are usually in charge of monitoring employee performance and the effectiveness of the online training strategy. They must know the LMS inside out in order to maximize functionality. Their job roles range from evaluating LMS reports to modifying the online training content to reflect new company policy or compliance regulations.
- Support staff. Support comes in many forms and greatly depends on your organizational requirements and corporate learner backgrounds. For example, you may need trained IT techs to field employee questions or troubleshoot issues, or a team of content creators who can continually update the online training material.

And there is only increasing of stakeholders 'quantity if we involve online component in the corporate education system. If we speak about the mobile education so we have the following increasing of stakeholders' quantity more.

In this case it's necessary to say about special compliance program. All stakeholders have their own interests and tasks. And, inside the corporate education system it's necessary to compliance the motivation of all stakeholders, their interests, the strategy and results of education, the traditional interests of top-management. And in addition, it's necessary to add the principles of communication. The compliance of all these aspects is very important for organizational practice and expertise. The inclusion of a compliance system in these principles also allows for the most detailed assessment of the risks of the corporate education system.

Summing up the presentation of the basic principles of the integration model of corporate education, it is important to note the following. The combination of the presented principles provides a comprehensive nature of modern corporate education. Connecting through a compliance system to the corporate education system also a corporate communication system allows to build the integration nature of the essence of the human capital management system.

As noted above, almost all the declared HR trends are directly related to the training system and personal development within the company in in-house format. And if earlier the corporate education system was regarded by management as costs, then now such a comprehensive and integrated system is considered as an essential factor in the competition in the market.

MEDIA EDUCATION THE CORPORATE EDUCATION ECOSYSTEM.

Media education plays a huge role in the corporate education system now. First, it is important to note that we all live in the media world and each organization is represented in it. As noted above, the component of online education is essentially based on media education technologies. If you add new mobile learning opportunities here, it becomes clear that media education technologies are extremely important and fundamentally critical for an integrative model of corporate education. Media educational technologies in the modern sense are a very multifaceted thing. In fact, many educational technologies in one form or another become media. However, in this context, I would like to consider specific media technologies that can currently be used in the corporate education system.

First, all media educational technologies today work to form a whole educational and communicative space. This is an example of a variety of newsletters and email deliveries. Also, for the opportunities for developing media and information literacy competencies in the general competency profile, it seems possible to use the following tools:

- traditional continuing education programs in the field of media and educational literacy;
- implementation and development of their own media training or real projects of participants in the continuing education system;
- the formation of a whole educational and media space for a group of participants in the Intranet corporate system;
- master classes of successful employees with the presentation of best practices;
- creation of a corporate wiki - a warehouse of documents in the field of media and information literacy;
- performance at round tables, conferences and other events;
- the use of case - study and other innovative technologies in the practice of training.

It should be noted that all the media education tools offered to improve the media and information literacy of employees of the organization for use in the field of corporate communications are complex and integrated. The proposed media education tools usually solve not one, but several organizational tasks. Solving not only a learning or educational task, but also working on the development of internal communications themselves, shaping and developing the motivation and involvement of employees of the organization. The proposed tools make it possible to implement the conditions for incorporating media and information literacy technologies into corporate communications. In this case, we are talking about the motivation of employees to study and improve their qualifications in the field of media and information literacy, transparency and openness in communications within the organization and in the relations between employees and the organization itself, and the development of dialogue and

interactivity in communications. All the proposed tools work including the formation and implementation of these conditions but are impossible without them.

The listed tools and technologies of media and information literacy are not finite, but they are of interest precisely because they are integral. They work simultaneously both within the educational system and within the framework of communication.

Also of particular interest are project teams working remotely from different regions. This is a practice-oriented training in the process of project implementation. Such technology, for example, requires the inclusion of mentoring as well. Such a complex combination can significantly reduce on the one hand the adaptation of a new employee, for example.

And finally, one should not forget about the actual media technologies, such as the fact of checking. Such media technologies directly shape the media and information literacy of the organization’s employees.

The inclusion of media information and digital literacy in the structure of corporate education courses is important from several angles.

First, the launch of such programs urgently will quickly increase the level of media, information and digital competencies for the effectiveness of work in the conditions of remote work and the online format of companies. On the other hand, the competencies of media and information literacy now play an important role in corporate communications and the formation of the media image of an organization. As part of the formation of the media image in a modern media environment, not only the company's official communications, but also the personal media resources of employees are important. The content that they post on social networks, for example, directly affect the media image of the company

Thus, it is important to note that media educational technologies in the modern corporate training system are at least clearly divided into two types: media educational technologies and educational technologies that solve issues of increasing media and information literacy of company employees. All media educational technologies are integrated. They are used comprehensively to solve several organizational problems.

CONCLUSION

In conclusion, it should be noted that modern corporate education should be flexible and able to adapt very quickly to the strategic and operational tasks of the company. And it is the integration approach, the combination of forms, methods, technologies and training tools, areas that makes it possible to realize the competitive advantage of the company in this direction.

The corporate education system is not just included in the human capital management system. In fact, the corporate education system is becoming a key factor in influencing the quality of human capital of a modern organization.

Thus, it should be noted that the corporate education system is currently undergoing major changes. Approaches to building and understanding the role of corporate education are changing. Formats, tools and training technologies are changing. Includes fundamentally new organizational practices that allow you to develop quickly and efficiently the necessary competencies of human capital of an organization of any level.

REFERENCES

Castanha L. A., 2019. Keep an Eye on These 7 Trends in Corporate Education. Available at: https://www.td.org/insights/keep-an-eye-on-these-7-trends-in-corporate-education (Accessed 25 April 2020).

Ilyas M., 2017. Making of a Corporate University Model: Transition from Traditional Training to Learning Management System. *Journal of Education and Practice*, 8(15) pp.85-90.

Glynne W., 2020. Management Millennialism: Designing the New Generation of Employee. *Work, Employment and Society*, 34(3), pp.371–387. Available at: doi:10.1177/0950017019836891 (Accessed 25 April 2020).

Katkalo V. Moehrle M., Volkov D., 2019. *Corporate Learning for the Digital World*. Moscow: Sberbank Corporate University.

NorNickel, 2020. Digital market in self-isolation's conditions. Available at: https://www.nornickel.ru/news-and-media/press-releases-and-news/nornikel-tsifrovoy-ryvok-v-usloviyakh-samoizolyatsii/ (Accessed 22 May 2020).

Pappas C., 2019. 9 key stakeholders to consider when developing online training. Available at: https://www.efrontlearning.com/blog/2019/11/key-stakeholders-in-online-training.html (Accessed 22 May 2020).

Ryan E., 2019. What is a Learning Ecosystem? And How Does it Support Corporate Strategy? Available at: https://www.ej4.com/blog/what-is-a-learning-ecosystem (Accessed 30 May 2020).

Shatto, B., Erwin K., 2017. Teaching Millennials and Generation Z: Bridging the Generational Divide. *Creat Nurs*.,23(1), pp.24-28. Available at: doi:10.1891/1078-4535.23.1.24 Accessed 30 May 2020).

Smolinska O., Dzyubynska K., 2018. The Concept of Cultural and Educational Space in Pedagogical Discourse. *Journal of Vasyl Stefanyk Precarpathian National University*, 5(1) pp.55-64

The power to perform: Human capital 2020 and beyond, 2020. Available at: https://www.pwc.com/gx/en/industries/financial-services/assets/pwc-people-strategy.pdf (Accessed 30 May 2020).

PERSONALISED LEARNING AGAINST TECHNOLOGICAL FATIGUE

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Abstract

The research was devoted to presenting the students perception analysis of the online learning imposed during the COVID-19 quarantine period in spring 2020. In particular, the learners of different specialties were exposed to the selected methods of personalized learning in order to overcome the dwindling attention spans and educational apathy detected at the second month of the lockdown. The research goal was to analyse the implementation experiences of the personalized learning and teaching approaches towards the online learning issues, specifically against the technological fatigue. The survey sample involved 200 bachelor students of Sumy State University and Sumy National Agrarian University (Ukraine) and is representative in terms of demonstrating the issues range and the state-of-the-art of online teaching and learning of Ukrainian universities. The personalized learning requires not only teachers' professional skills to provide an efficient online course, fair assessment process and well-designed engagement activities, but also learners' readiness. The students must be ready for self-directed learning, prioritization, effective personal time-management, exploiting certain digital skills, etc. The research conclusions were delivered under the context of the student's feedback analysis at the end of the courses and analysis of their well-being during the unexpected and unplanned completion of the courses online. These data will be applied to improve the existing online courses designed by the authors before the pandemic and will serve as the basis for the further investigations in the field. The research paper highlights the importance of technostress reduction as a success prerequisite for modern education. Among the main findings was the current students' collision between the need to be constantly ultra-connected and yet suffering from the educational apathy and cynicism under the storm of information flow.

Keywords

Technostress. COVID-19. Apathy. Educational cynicism. Dwindling attention spans.

INTRODUCTION

The technology and Internet have shaped the lives of modern people so that we are now constantly plugged in. The reasons for this may be different: either fun or work. However, the increasing opportunities which may be gained via immediate connection and communication were the reason why this choice became a habit and a sensitive trend for the humanity. On the other hand, increasing opportunities almost automatically mean increasing responsibilities, free time shortening and, also automatically, a growing need or even demand to be online constantly.

This paper is not focusing on the economic features of the described trend, e.g. that a growing need to stay online pushes customers to buy more advanced devices and Internet package deals. We will focus on the phenomena of satisfaction of our needs using the online regime and an Internet access, especially the need for education. The paper is devoted to presenting the students perception analysis of the online learning imposed during the COVID-19 quarantine period in spring 2020.

The research question of what can help the learners to overcome the attention spans and technological fatigue, resulting in the educational apathy, has arisen when the authors were working as lecturers during the spring 2020 lockdown. First, the empirical information and then the communication with the learners of different years of studies revealed that even those students, who were highly motivated in the beginning of the lockdown, have lose their interest in the end. Even more, there were statements that some of them have perceived the lockdown as an opportunity to take the online courses/trainings/seminars for which they did not have time before. After April (a second quarantine month in Ukraine) there have already been students that marked their tiredness from being constantly online, from the need to focus on something that was somewhere in distance and even from the dismay that the knowledge they gain might not be needed in the future (because of the threat of future lockdowns). In April the authors were searching for the reason of this mood in the teaching methods and, thus, switched more to the personalized learning, but also they have explained it by the overall fear and uncertainty.

In the end of May the relevant survey was conducted in two universities in Ukraine among the students who were completing the courses during the quarantine. The survey results have demonstrated that the educational apathy, shortening of attention spans and overall low activity of the learner could also be explained of the extensive use of the electronic devices, shift of the communication of all kinds (even personal) online, as well as change in the mode of their online presence from voluntary to obligatory.

The use of the selected methods of personalized learning had helped to raise the active participation of the students and the overall level of their involvement. However, this could be noted mainly for the students who were active and motivated even before the lockdown. It means that at least in the analysed conditions of two mentioned universities the personalized learning did help to somehow overcome the dwindling attention spans and educational apathy detected at the second month of the lockdown.

There is a set of recent and comprehensive research and forecasts offered by such organizations as DAAD (COVID-19 Impact, 2020) that allow to understand the scale, trends and issues of the current higher education in the world in whole and some regions in particular. It should be noted that even at the global scale, not in an economic sense, UNESCO has recognized this quarantine 2020 timing as a crisis. From the educators' point of view, we would add that it is also a crisis of individual socio-emotional skills. It

is a skill to communicate only online, be able to express one's thoughts and emotions relevantly, experiencing difficulties in meeting new people and in refuse from social habits and needs. As a response to such large crises affecting all parts of life one needs "a great dose of resilience in dealing with uncertainty and change to living conditions" (Giannini, 2020). There has been a recent UNESCO study that has showed that "countries have heavily emphasized cognitive learning over social-emotional and behavioural learning" (Giannini, 2020). It can be explained by a certain absence of readiness of the teaching staff to perform at the same quality level online as they did it face-to-face. The most common feedback received from the colleagues was the need "to see the eyes" of those to whom one was teaching. The other challenge has been, as well as for the paper authors, to provide enough of interactive character of the lesson, to act in front of the camera and to make sure all the students were really listening. One of the interesting solutions, which has been offered by the master students who decided to keep themselves busy during the quarantine by applying for some kinds of remote jobs, was to record the lessons so that the learners could listen to them when they have time to really focus.

This mentioned decision has led us also to the issue of the technostress and technological fatigue: the working students were fully engaged online during the working hours and had to be exposed to more hours of listening to the recorded lessons. This is where the newly introduced (Secunda, 2019; Ornstein, 2019; Right to switch off, 2019) human right to disconnect came into action. The collision between the need to work and to study is not the subject of the university concern as it is a conscious choice of a student. The obvious solution from the teachers may be offering more personalized tasks and assignments for the practical classes (tutorials). Thus, the student will need to listen only to the recorded lectures if this allows the essences of the course and its curriculum. However, as a negative factor, the absence of the ethics of working online had negatively influenced the whole process of working and studying online. The students kept trying to communicate with their teachers after the working hours because it was more convenient for them, while the employers also kept sending emails and messages after the working hours. Some students noted that the whole day seemed to them as a never-ending conversation on a topic with their employer, while they often realized that in case of face-to-face communication the conversation could have lasted no more than 30-40 minutes.

It can be stated that modern working or studying people are impacted not only by the on-going exhaustion and stress from the technology-intense life (with tiredness and social disengaging as side-effects), but also from the speed of how fast the human must react and switch the reaction. As another side effect, there are studies that point out unhealthy food consumption (Kononova et al., 2018), sleep problems (Bener et al., 2018), emotional exhaustion (Xie et al., 2018) and a well-known information and communication technology overload (Lee, 2016). There have already been studies stating that fatigue may occur from a particular type of a digital application (Zoom - Daigle, 2020; Facebook – Bright et al., 2015; social media - Du et al., 2018), which does not always have social communicative background. The research of Fuglseth and Sørebø states that "factors that create and inhibit technostress affect both employee satisfaction with the use of ICT and employee intentions to extend the use of ICT" (Fuglseth and Sørebø, 2014).

According to a UNESCO report almost 70% of the world's students are not attending school (Education, 2020) this means that the solutions for the learners' experiences in online studies must be immediately advanced impacting nationwide. The crisis has set up the lifelong adaptive challenges not only for the higher education, but all the levels of it were also affected. More of that, the practice has demonstrated that an existing computer and MOOCs or distance learning supported environment did not fully meet those

challenges. One of the reasons was that both sides were affected by the pandemic consequences: service providers (universities, teachers) and their clients (students). And this is where the issue of individual's adaptive capacities comes out: The faster the university and the teacher could adapt, the faster they could help their students to do the same. In this regard, the personalized learning is a great tool to enhance "the individual's ability to be a competent, adaptive, active, goal-oriented and motivated learner" (Järvelä, 2006) which can work both sides.

It is interesting to note that in 2018 within the New Ukrainian school (junior level) an e-platform concept was developed (http://nus.inf.ua/). It allows a free access to the educational materials to pupils and their parents, as well as teachers from any schools and regions of the country. The platform can be marked by a user-friendly and a comprehensive approach to its design and was extensively used by the primary schools during the quarantine. As a result, the educators who were, in general, forced to confront some novelty and uncertainty of the lockdown online teaching at least at the primary school level had a familiar working environment.

As for the higher education domain, Commonwealth of Learning (Commonwealth, 2020) and other associations (e.g. IAU (Covid-19, 2020); EAIE (Staunton et al., 2020), etc.) and organizations (e.g. Google (Explore, 2020); UNESCO (Distance, 2020); EC (Coronovirus, 2020); World Bank (World Bank, 2020)) had developed their recommendation to keep up with the qualitative education including the lists of open and free learning resources. For example, those planning to begin their studies six months to a year from now "the second most popular option being enrolling in an online course or degree" (Gutterer, 2020).

There was even an International Partnership of Distance and Online Learning for COVID-19 established by the intergovernmental organizations, associations and universities and educational institutions (Commonwealth, 2020). This is another example of the need for shared expertise, pooled resources and enhanced collaboration under the crisis circumstances to act nationwide and worldwide. The mentioned EAIE's document (Staunton, 2020) provides the vision of how institutions can support students affected by coronavirus via mitigation of both health and academic impacts. Under the current circumstances of students' changing educational needs, personalised learning is an urge that is expected to foster their learning capacity (Bentley and Miller, 2004) and, as the experiences demonstrate, to decrease the technostress and fatigue from constant online "life". There is no such a diagnosis in the DSM-5 for this condition, however, a number of researchers, including those already mentioned, use the term "technostress" covering physical (e.g. headache, eye strain) and emotional (nightmares, mental fatigue) symptoms (Chiappetta, 2017; Brivio et al., 2015; Oh and Park, 2016; etc.).

The results analysis of the implementation experiences of the personalized learning and teaching approaches towards the online learning issues, specifically against the technological fatigue, are presented below.

METHODS

The above-mentioned considerations led the authors to design mixed-method research. In particular, the literature review was carried out in 2019-2020 using the planning, conducting, and reporting phases. A review protocol included the research questions set up, the design of the search strategy (e.g. the sources inclusion and exclusion selection criteria, the information analysis and synthesis, comparison with the results

obtained during own survey and empirical data collection). A total of 77 records were retrieved, including research papers, journal and conference papers, legal documents, official websites and respectable web-pages. These sources were analysed applying both inductive and deductive approaches, thus the review provides a systematic overview of the knowledge both from the current trends in the sphere of education under the COVID-19 pandemic, domains of technostress, personalized teaching and motivation for online education. The complete results formed the basis for understanding and explaining the case study results obtained after the survey.

The authors gained the data for analysis via several channels: 1) the survey of the students perception of their experiences of the online studies during March-May 2020, when they were finishing their courses and the quarantine lockdown was launched in Ukraine; 2) interviewing of the foreign students on the same matter, but with a shorter version of the survey, which took place closer to the end of the semester; 3) empirical observations of experiences of themselves (this includes the US teachers' experiences as well), their colleagues and their students throughout the lockdown. The research questions were answered using both the literature review and the gained data analysis.

The survey sample involved 78 random bachelor and master students of Sumy State University (SSU, 48 respondents) and Sumy National Agrarian University (SNAU, 30 respondents), Ukraine, which was launched via the Google Form manager. The questionnaire consisted of 20 questions with options to choose as an answer, the list of the questions is presented below:

1. Assess your desire to learn online at the beginning of quarantine lockdown (March 2020). Rate on a scale where 1 - had no desire 5 - was well motivated.

2. Do you have a stable Internet connection that allows uninterrupted online communication and video watching?

3. Does your hardware (computer, phone, tablet, etc.) allow your easy participation in online classes?

4. If you did not use a video camera during an online lecture, how often did you allow yourself to be distracted by other things? Rate on a scale where: 1- often did not listen, were busy with yourself... 5 - always listened carefully and watched the presentation.

5. How many additional online courses and trainings did you enroll into during the quarantine outside the university curriculum?

6. How many of the additional online courses and trainings have you completed during the quarantine?

7. When did you start feeling tired from online learning?

8. Estimate your motivation to learn online at the end of the semester. Rate on a scale where: 1 - had no desire 5 - completely satisfied.

9. Did you feel more stressed studying the courses taught online in English?

10. Can you say that the full online studying mode were stressful for you at some point?

11. How did you cope with your stress?

12. Did team collaboration, reflection and feedback help you cope with the stress of intensive online learning?

13. Which personalized learning methods that were applied by your teachers you benefited the most from?

14. What shortcomings in online learning have you found?

15. Do you think your teachers lacked the technical skills to work online?

16. Did the teachers have enough teaching and communication skills to work online?

17. What advantages in online learning have you found?

18. Can online studying in the future be an effective alternative to teaching in a classroom with a teacher?

19. Do you want to return to the traditional learning format sooner?

20. How do you feel about being evaluated by teachers based on the results of online learning?

The answers to these questions are representative in terms of demonstrating the issues range and the state-of-the-art of online teaching and learning of Ukrainian universities. The interviewing sample included 36 random bachelor and master foreign students from both universities and involved 7 (numbers 1, 2, 7, 11, 12, 14, 17 from the list above) questions. The analysis results were presented to the several groups of students trained by the authors for validation and in proportional comparison the newly obtained conclusions were confirmed by 96,2%.

RESULTS

The personalized learning requires not only teachers' professional skills to provide an efficient online course, fair assessment process and well-designed engagement activities, but also learners' readiness. The students must be ready for self-directed learning, prioritization, effective personal time-management, exploiting certain digital skills, etc. These abilities were questioned in the beginning of the lockdown by the paper authors when students started to demonstrate shortening of attention spans and overall low activity, which further evolved into an educational apathy. The chosen approach of personalized learning to reduce the technostress and online studies fatigue, required "the condition that the learners are capable to identify their needs themselves" (Leone, 2013). The university system in Ukraine does not provide the opportunity for the student's full autonomy, rather a managed by the teachers and the university studying path under the conditions of a disciplined study.

During the last few months, the educational researchers and institutions has been extensively discussing new pedagogical models, tools and approaches experienced by the academics of different scientific domains and countries (Reimers et al., 2020; Manzoor and Ramzan, 2020; Kapasia et al., 2020; Huang et al., 2020, etc.). The more the experience sharing was happening, the more the concern of the student's stress was rising. This led to the urge to define "the principle of high-quality students' participation and the need to relieve the students' anxiety in various ways" (Bao, 2020).

According to the survey (Fig.1), conducted in 2 Ukrainian universities among the bachelor and master students, who were exposed to finishing their courses under the lockdown, at the beginning of quarantine isolation 63% of students were enthusiastic about the idea of online learning and not attending classes in university classrooms, there were even 35% of them who rated their level of self-motivation as quite high and 28% - as a very high one.

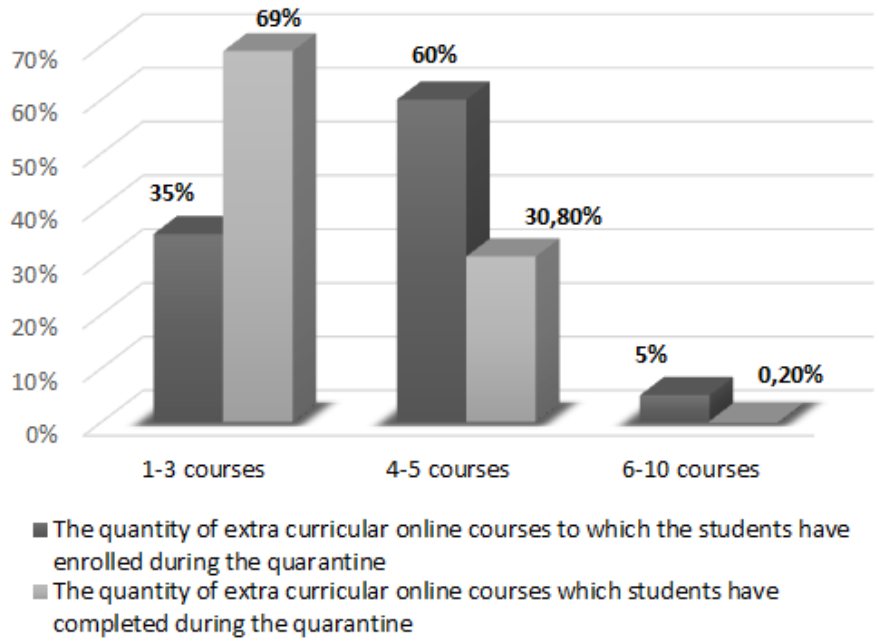

Figure 1: The changing level of motivation among the students during the spring lockdown 2020. (Source: Own)

During the quarantine isolation, many educational platforms provided free access to their courses, so many students took advantage of this opportunity. That is why some of them got enrolled in an impressive number of extracurricular educational activities (Fig.2): 60% of respondents signed up for 4-5 courses, however, only 30,8% managed to complete them.

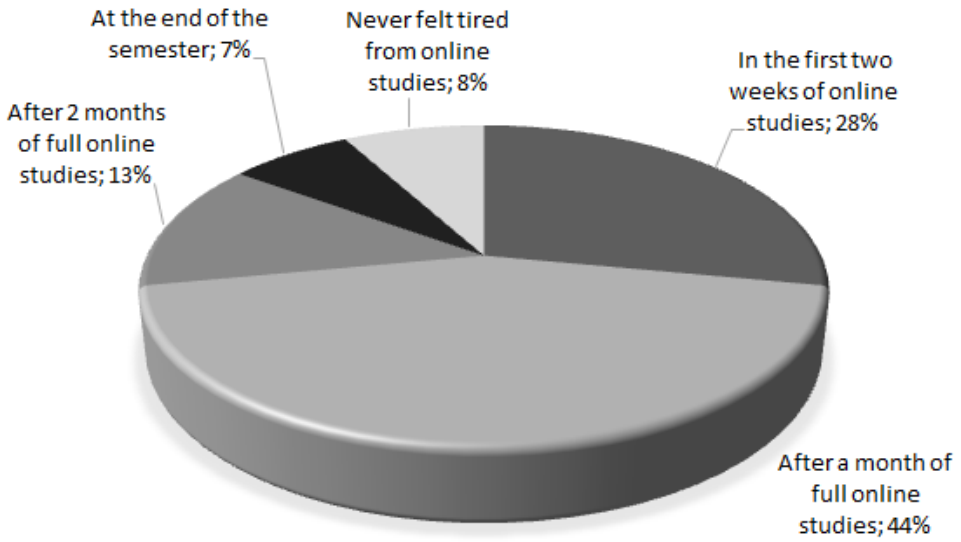

Figure 2: The number of extracurricular courses taken and completed by the students during the spring lockdown 2020. (Source: Own)

The figure also shows that the most successful graduates of additional courses are those students who enrolled only in 1-3 courses - 69% of them received confirmation of completion. This is where the learners were asked about the reasons for this.

First, there was a need to find out the technical capabilities of students: 29% of SNAU students are forced to face the problem of lack of Internet and search for it from other

sources (neighbours, friends or public Wi-Fi), which is less common among the students of Sumy State University. This is because many SNAU students come to study in the city from the village and were back at home during quarantine. Only half of the SSU students had problem with Internet connection. Also, 31% of respondents from both universities said that they had outdated hardware (computer, phone, tablet, etc.), which was why they had challenges connecting online.

During classes the authors have noticed that some students did not connect a video camera, so that a teacher could not see what the student was doing: learning the material or just pretending being present and being busy on their own. Of course, some of the students did not use the video due to the technical capabilities of the Internet and their technical means. However, within the survey 18% of respondents answered that they often did not listen at all and 49% enjoyed this opportunity from time to time. This meant that either the teacher was not capable of holding their attention or the students were not able to focus for so long.

It also happened because the students began to feel tired overall (Fig.3).

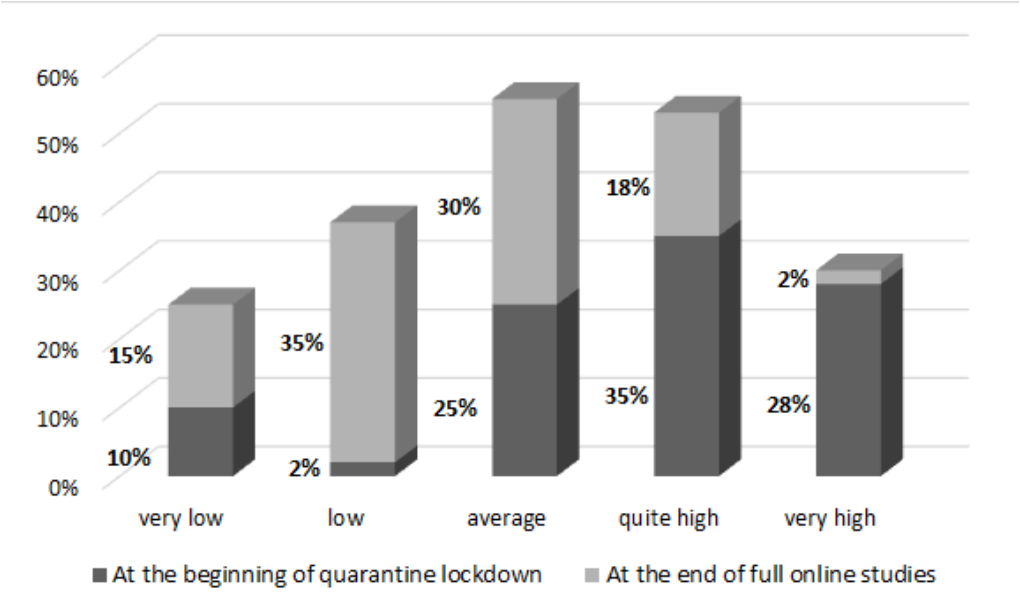

Figure 3: The share of tired students changing during the spring lockdown 2020. (Source: Own)

Thus, in the first two weeks of training, 28% of respondents began to feel tired, after a month of training another 44% added, and only 8% of students said they had never felt tired from learning online. As a result, at the end of training (Fig.1), only 18% of the students rated their level of self-motivation as quite high (compared to 35% at the beginning) and 2% as very high (compared to 28% at the beginning).

To sum up, 82% of surveyed students noted that the mode of full online learning, at some stage did stress them. This was even more challenging for those who studied in English: 62% stated that they felt more stressed when listening to the course online in English.

Among the methods by which students struggled with their growing technological stress, 52% admitted that they simply chose to miss some classes, preferring to work with textbooks, 17% - tried to reduce the time spent at the computer through social networks, and 31% - tried to go for a walk after the classes.

According to a lot of educators and researchers, "educators need to develop an educational environment that will appeal to the different learning styles of students" (Halim et al., 2010). Just a knowledge-intensive setting is not enough, as while studying constantly online learners start to require a motivating learning roadmap combined with appropriate learning and teaching strategies. Teaching itself must involve an extended task-related interaction with the involvement of intense reflection and feedback activities with students, which will help to make the process more personalized. Thus, the survey demonstrated that 27.5% of respondents agreed that the use of team collaboration, reflection and feedback helped them to cope with stress, and even thought that some students admitted that it required more of working online (31%). Yet, 41.5% of learners stated these tools did not manage to help them. The following personalized learning methods were marked as the most beneficial by the students: setting personal learning plans (42,4%), using project-based learning (54,8%), offering more learning pathways (41%).

To learn more about the background of this problem the questionnaire contained questions about the students' experiences and perceptions of the online studies. This is how among the shortcomings of on-line training, 43.7% noted that with this format of training it is difficult to gain practical skills in the subject, 27.1% of them lost motivation after a month of study (got an educational apathy), and 18.3% concluded that on-line learning does not develop communication skills due to the inability to communicate freely face-to-face. Among the advantages, 41% admitted the availability of educational materials, 38.4% - the ability to study anywhere, 20.6% - the opportunity to learn any time. Yet, 54.2% of students wanted to return to the traditional format of study as soon as possible, 28.7% - partially and 17.1% - were ready to continue their studies online. After all, a significant share of students recognizes the potential of online learning (Fig. 4): 42.3% believe that in the future it may become an effective tool for traditional education, while 14% do not consider online learning to be effective at all.

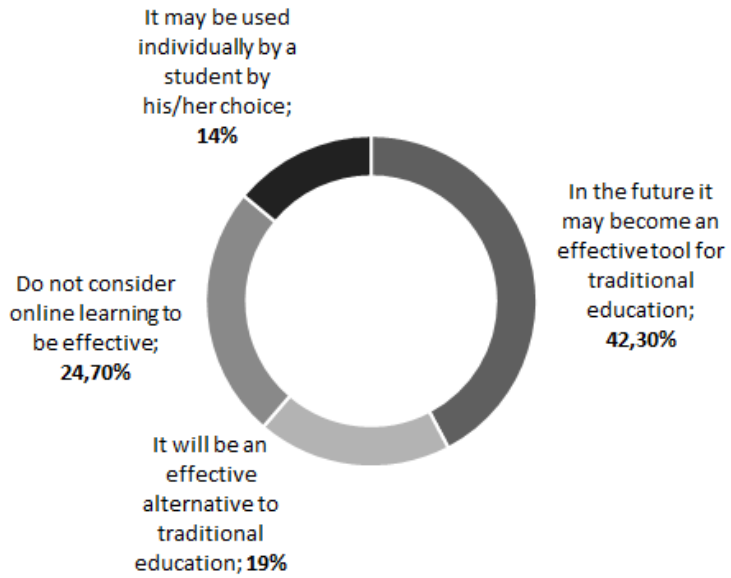

Figure 4: The students perception of the online education for the future after the spring lockdown 2020. (Source: Own)

Basing on the authors' experiences, the analysis of the online learning behaviour characteristics of students is crucial to personalised learning success. Having in mind that under the possibilities of regular pandemics and, consequently, lockdowns, conventional teaching may not be considered as effective enough anymore. A teacher gets a new role,

and it means new transitional problems. The survey has confirmed this: 20% of respondents noted that some teachers did not have enough technical skills or communication/pedagogical skills to work with them via Internet effectively. 59.5% of students said that their teachers had enough technical skills to work on-line, but they need to improve their teaching and communication skills to work on-line. Regarding the adequacy of teachers' communication and pedagogical competencies required to work on-line, 57.5% of respondents believed that they were satisfactory, yet needed to be improved. As a side-effect, 38% students stated that their knowledge assessments were not entirely objective, as there was no face-to-face communication.

Concluding the stated above and basing on the concept of successful intelligence (Sternberg and Grigorenko, 2000) to succeed in teaching online on a long-term basis, teaching for creative and practical skills must be integrated with teaching for strategic learning. Personalized teaching helps to explain the need of certain assignments and exercises for each student in a more related way. The use of the computers and a technology-based learning environment offers the opportunity of "just-in-time" support from the teachers. However, the rules for this interaction must be designed in order to increase the fruitful but not exhausting collaboration among teachers and students. In addition, the new methods of assessment tailored using the personalized learning approached will help to really learn about students' understanding of the material delivered online.

All the mentioned above conclusions were mirrored in the interviewing of the international students who possessed different values and cultural features yet experienced the same educational apathy because of the technological stress and fatigue from the constant need to be online. At the beginning of quarantine isolation 78% of international students at both universities were enthusiastic about the idea of online learning, while in the first two weeks of training, 48% of respondents began to feel tired and 22% more added after a month of training. They did not face technical problems (88% had stable Internet connection), however, even the team collaboration, reflection and feedback activities did not help them to overcome the stress from studying under the lockdown. Only 39% of the students skipped the classes and 10% tried to go for a walk. Most international students searched for the stress relief via online communication (51%). The admitted advantages of studying online (47% noted studying anywhere and 25% - anytime) did not prevent 60% of respondents from considering studying online as inappropriate for gaining practical skills.

DISCUSSION AND CONCLUSION

As an overall conclusion, a set of complex recommendations, which have demonstrated their effectiveness, are presented below:

1) making short interactive breaks via interactions with the students on the casual topics, making references to how they cope or about own experiences. The breaks even might include short physical exercises which require to stand up and do something away from the computer;

2) making the communication as possibly informal as it is allowed within the teachers' code of conduct;

3) do not contact the students at least after 19:00 in order not to add to their overloading with the devices communication;

4) send all the assignments and working emails to the students early in the morning, right before the start of the working day;

5) include the technology-free assignments which might need the use of the actual paper, handwriting, physical objects, etc.;

6) regular collection of the students' feedback on what helps namely them, accumulating information about certain academic groups and people in order to tailor teacher's communication with them in a personalized way;

7) exchange of the above-mentioned information with the colleagues in order to enrich the data set and vary the approaches;

8) set up flexible deadlines for students to fulfil big tasks: the deadline should have at least 2-3 stages with the decrease of the grade for certain number of points. The student may choose which deadline is more suitable for him/her in order to avoid stress.

9) permanent explanation during the classes that too much of the online activities may cause the technostress, tiredness and decrease in the educational motivation, drawing students' attention to the need to be aware of this problem and work with it.

The research conclusions were delivered under the context of the student's feedback analysis at the end of the courses and analysis of their well-being during the unexpected and unplanned completion of the courses online. These data will be applied to improve the existing online courses designed by the authors before the pandemic and will serve as the basis for the further investigations in the field.

The research paper highlights the importance of technostress reduction as a success prerequisite for modern education which apparently will significantly shift to online. Among the main findings was the current students' collision between the requirement to be constantly ultra-connected, which has already stopped being their voluntary choice, and yet suffering from the educational apathy and cynicism under the storm of information flow.

To sum up the research led us to the following conclusions of how the technological fatigue may be reduced and further overcome:

- Required skills to study fully online often demand their further development;
- Required guidance for students' learning skills and motivation improvement;
- Team collaboration, reflection and feedback is crucial for the long-term online university education;
- New requirements for the teachers were set up, e.g. new models of information delivery and knowledge assessment and they must be based on the approaches of the personalised learning.

It is a dilemma how a teacher who yet requires training him/herself will be able to create a new teaching and learning culture and even more – taking into consideration the needs of the diversified target groups: international students or students with special needs. The further research questions must lay in the domain of differentiating the specifics of teaching online of different age groups, cultures and subjects, as well as the extensiveness of the ICT use in the teaching process and involvement of real-world objects and processes to avoid the technostress.

REFERENCES

Bao, W., 2020. COVID -19 and online teaching in higher education: A case study of Peking University, *Human Behaviour and Emerging Technologies*, 2(2), pp.113-115. Available at: https://doi.org/10.1002/hbe2.191 (Accessed 30 April 2020).

Bener, A.,et al., 2018. Internet addiction, fatigue, and sleep problems among adolescent students: a large-scale study. *International Journal of Mental Health and Addiction*, pp.1-11. Available at: DOI: 10.1007/s11469-018-9937-1 (Accessed 30 April 2020).

Bentley, T. and Miller, R. 2006 Chapter 8 "Personalization: Getting the Questions Right", Personalising Education, *OECD/CERI*, p. 115. Available at : https://www.oecd.org/site/schoolingfortomorrowknowledgebase/themes/demand/personalisationgettingthequestionsright.htm (Accessed 20 March 2020).

Bright, L. F., Kleiser, S. B., and Grau, S. L., 2015. Too much Facebook? An exploratory examination of social media fatigue. *Computers in Human Behavior*, 44, pp.148-155. Available at: doi: https://doi.org/10.1016/j.chb.2014.11.048 (Accessed 30 April 2020).

Brivio, E., et al., 2018, Preventing Technostress Through Positive Technology, *Front. Psychol.* 9:2569, 17 December 2018. Available at: https://doi.org/10.3389/fpsyg.2018.02569 (Accessed 15 May 2020).

Covid-19: Higher Education challenges and responses, 2020. Available at: https://www.iau-aiu.net/Covid-19-Higher-Education-challenges-and-responses (Accessed 10 May 2020).

COVID-19 Impact on International Higher Education: Studies & Forecasts, 2020. Info & Services for Higher Education Institutions, DAAD. Available at: https://www.daad.de/en/information-services-for-higher-education-institutions/centre-of-competence/covid-19-impact-on-international-higher-education-studies-and-forecasts (Accessed 10 May 2020).

Chiappetta, M., 2017. The Technostress: definition, symptoms and risk prevention, *Senses Sciences*, 4 (1), pp.358-361. Available at: DOI: 10.14616/sands-2017-1-358361 (Accessed 13 May 2020).

Coronavirus: online learning resources, 2020. Recourses and Tools, Coronavirus online learning resources, Education and Training, EC. Available at: https://ec.europa.eu/education/resources-and-tools/coronavirus-online-learning-resources_en (Accessed 10 May 2020).

Daigle, T., 2020. 'Zoom fatigue' is setting in: What it is and how to prevent it, Technology & Science, CBC News. Available at: https://www.cbc.ca/news/technology/zoom-fatigue-is-setting-in-1.5585933 (Accessed 27 May 2020).

Distance learning solutions, 2020. UNESCO. Available at: https://en.unesco.org/covid19/educationresponse/solutions (Accessed 10 May 2020).

Du, J., van Koningsbruggen, G. M. and Kerkhof, P., 2018. A brief measure of social media selfcontrol failure. *Computers in Human Behavior*, 84, pp.68-75. Available at: doi: https://doi.org/10.1016/j.chb.2018.02.002 (Accessed 28 April 2020).

Education: From disruption to recovery, 2020. COVID-19 Impact on Education, UNESCO Report. Available at: https://en.unesco.org/covid19/educationresponse (Accessed 10 May 2020).

Explore distance learning resources for schools affected by COVID-19, 2020. COVID-19 Support Resources, Google For Education. Available at: https://edu.google.com/latest-news/covid-19-support-resources/?modal_active=none (Accessed 10 May 2020).

Fuglseth, A., Sørebø, O., 2014., The effects of technostress within the context of employee use of ICT, *Computers in Human Behavior*, Vol. 40, pp.161-170. Available at: https://doi.org/10.1016/j.chb.2014.07.040 (Accessed 11 May 2020).

Giannini, S., 2020. *Build back better: Education must change after COVID-19 to meet the climate crisis*, UNESCO. Available at: https://en.unesco.org/covid19/educationresponse (Accessed 10 May 2020).

Gutterer, J., 2020. The impact of COVID-19 on student plans, *Studyportals.* Available at: https://studyportals.com/blog/the-impact-of-covid-19-on-student-plans/ (Accessed 10 May 2020).

Halim, N., Ali, M., Yahaya, N., 2010. Personalized Learning Environment: A New Trend. In: *Online Learning. Education Postgraduate Research Seminar 2010 (Edupres '10), Faculty of Education, Universiti Teknologi Malaysia, 27-28 October 2010*. Available at: https://www.researchgate.net/publication/259757237_Personalized_Learning_Environment_A_New_Trend_in_Online_Learning (Accessed 30 March 2020).

Huang, R.H., et al., 2020. *Handbook on Facilitating Flexible Learning During Educational Disruption: The Chinese Experience in Maintaining Undisrupted Learning in COVID-19 Outbreak.* Beijing: Smart Learning Institute of Beijing Normal University. Available at: https://iite.unesco.org/wp-content/uploads/2020/03/Handbook-on-Facilitating-Flexible-Learning-in-COVID-19-Outbreak-SLIBNU-V1.2-20200315.pdf (Accessed 10 May 2020).

Järvelä, S., 2006. chapter 2 "Personalised Learning? New Insights into Fostering Learning Capacity", *Personalising Education*, OECD Publishing, Paris, p. 32. Available at https://doi.org/10.1787/9789264036604-3-en (Accessed 10 March 2020).

Kapasia, N., Paul, P., Roy, A., 2020, Impact of lockdown on learning status of undergraduate and postgraduate students during COVID-19 pandemic in West Bengal, India, Children and Youth, *Services Review*, Vol. 116, September 2020, 105194. Available at: DOI: 10.1016/j.childyouth.2020.105194 (Accessed 10 May 2020).

Commonwealth of Learning, Canada. Available at: https://www.col.org/resources/keeping-doors-learning-open-covid-19 (Accessed 29 April 2020).

Kononova, A., McAlister, A., and Oh, H. J., 2018. Screen overload: Pleasant multitasking with screen devices leads to the choice of healthful over less healthful snacks when compared with unpleasant multitasking. *Computers in Human Behavior*, 80, pp 1-11. Available at: doi: https://doi.org/10.1016/j.chb.2017.10.042 (Accessed 29 April 2020).

Lee, A. R., Son, S.-M., and Kim, K. K., 2016. Information and communication technology overload and social networking service fatigue: A stress perspective. *Computers in Human Behavior*, 55, pp.51-61. Available at: doi: https://doi.org/10.1016/j.chb.2015.08.011 (Accessed 29 April 2020).

Leone, S., 2013. *Characterisation of a Personal Learning Environment as a Lifelong Learning* Tool., Springer Science & Business Media: New York.

Manzoor, A. and Ramzan, Q., 2020. Online Teaching and Challenges Of COVID-19 For Inclusion Of Persons with Disabilities in Higher Education. Available at: https://www.researchgate.net/publication/340681691_Online_Teaching_and_Challenges_Of_COVID-19_For_Inclusion_Of_Persons_with_Disabilities_in_Higher_Education> (Accessed 28 April 2020).

Oh, S. T., Park, S., 2016. A Study of the Connected Smart Worker's Techno-stress, *Procedia Computer Science,* Vol. 91, pp.725-733. Available at: https://doi.org/10.1016/j.procs.2016.07.065 (Accessed 25 March 2020).

Ornstein, D.,2019. More Countries Consider Implementing a "Right to Disconnect", *National Law Review*, Vol. IX, # 29. Available at: https://www.natlawreview.com/article/more-countries-consider-implementing-right-to-disconnect (Accessed 25 March 2020).

Reimers, F., Schleider A., Saavedra, J., Tuominen, S., 2020. Supporting the continuation of teaching and learning during the COVID-19 Pandemic, *Annotated resources for online*

learning, OECD. Available at: http://www.oecd.org/education/Supporting-the-continuation-of-teaching-and-learning-during-the-COVID-19-pandemic.pdf (Accessed 10 March 2020).

Right to switch off, 2019. European Observatory of Working Life, EurWORK (European Foundation for the Improvement of Living and Working Conditions), July 2019. [online] Available at: https://www.eurofound.europa.eu/observatories/eurwork/industrial-relations-dictionary/right-to-switch-off (Accessed 15 March 2020).

Secunda, P., 2019.The Employee Right to Disconnect, *Notre Dame Journal of International & Comparative Law*. 9(1) Article 3. Available at: https://scholarship.law.nd.edu/ndjicl/vol9/iss1/3 (Accessed 25 April 2020).

Slick, J., 2020. Coronavirus: When teaching during a disaster, students need to be partners. The Conversation. Available at: https://theconversation.com/coronavirus-when-teaching-during-a-disaster-students-need-to-be-partners-136695 (Accessed 29 April 2020).

Staunton, L. and Haber, F., 2020. Supporting students affected by coronavirus, Student Services. EAIE. Available at: https://www.eaie.org/blog/supporting-students-coronavirus.html (Accessed 29 April 2020).

Sternberg, R.J. and Grigorenko, E.L., 2003. Teaching for Successful Intelligence: Principles, Procedures, and Practices, *Journal for the Education of the Gifted*, 27(2-3), pp. 07-228. Available at: https://doi.org/10.1177/016235320302700206 (Accessed 11 March 2020).

World Bank Education and COVID-19 (2020), World Bank, APRIL 30, 2020. Available at: https://www.worldbank.org/en/data/interactive/2020/03/24/world-bank-education-and-covid-19 (Accessed 10 May 2020).

Xie, J., Ma, H., Zhou, Z. E., and Tang, H., 2018. Work-related use of information and communication technologies after hours (W_ICTs) and emotional exhaustion: A mediated moderation model. *Computers in Human Behavior*, 79, pp.94-104. Available at: DOI: 10.1016/j.chb.2017.10.023 (Accessed 10 May 2020).

INFOGRAPHICS HELPING TEACHERS DURING EMERGENCY REMOTE TEACHING

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Abstract

Due to the COVID 19 pandemic, there was an emergency need to quickly switch from face-to-face to distance teaching at all types of schools in the Czech Republic. A considerable number of manuals and materials on how to use different applications for teaching online appeared quite quickly; however, there was a lack of help with the online teaching methods. This article aims to describe the simple infographics that have been prepared to inform practicing teachers about the essential aspects of distance education. The content of the infographics was inspired by general rules for distance education and the experience of teachers in China. It was adjusted to suit the specific needs of the pandemic situation in the Czech Republic. The prepared infographics were received well by teachers in the Czech Republic and distributed via social networks.

Keywords

Infographics. Distance education. Emergency remote education, COVID19. Best practices.

INTRODUCTION

Based on the Emergency measures of the Ministry of Health of the Czech Republic from 10 March 2020 (Ministry of Health 2020), the personal presence of pupils and students in all types of schools was forbidden in the Czech Republic. As a result of the government decree, and based on crisis management, distance education officially started on 12 March 2020.

For schools, this situation was not only very nonstandard, but also unprecedented. Hardly anybody was prepared. Under these circumstances, the situation cannot simply be described as "distance education". As Hodges et al. (2020) alert, there is an enormous difference between well planned and prepared distance education and educating pupils and students remotely during the pandemic. To give an example, they explain that the preparation of a subject for distance education takes from six to nine months. Therefore, for the education realized during the COVID19 pandemic, they suggest a new specific term "emergency remote teaching".

Brdička (2020a) emphasizes a difference in teaching via technologies. A sudden switch from face-to-face to online education, caused by closing schools, means an enormous increase in the teachers' workload.

This article provides an overview of recommendations published at the University of West Bohemia in Plzen during the first days of the COVID 19 emergency. The recommendations are aimed at supporting the methodology and quality of realization of emergency remote education.

First, the form of the published methodological material and the reason for its being published is described. Then the article presents the infographic "Online Teaching in

Times of Pandemics". After that, it describes materials prepared for primary, secondary, and upper secondary school teachers, and finally, the article mentions synchronous online learning and teaching.

METHODOLOGICAL MATERIALS - INFOGRAPHICS

A lot of manuals and materials on how to use different applications for teaching online appeared quite quickly; however, there seems to be a lack of help with the online teaching methods. There was a minimum of materials available to help the teachers solve the methodological question of emergency remote teaching, and the first help came from Bořivoj Brdlička and Jaroslav Mašek. They published articles on "Učitelském pomocníkovi" (Assistant Teachers or Teacher's Assistants), the methodological portal for teachers in the Czech Republic (Brdička, 2020b; Brdička, 2020c; Mašek 2020a; Mašek, 2020b; Mašek; 2020c). Jennifer Pearson (2020), an American teacher living in China, shared her experience and advice when interviewed for the portal "shakeuplearning.com". It quickly became apparent that there was a lack of methodological support for teachers.

The literature show that infographics improve understanding of present materials (Al Hosni, 2016; Ozdal et al., 2016; Ozdal and Ozmali, 2017). Chan et al. (2020) also demonstrate the benefits of sharing infographics through social media. Easily accessible, engaging infographics also help diffused innovation (Rogers, 1995). That was the reason why the team of experts from Division of Lifelong and Distance Learning and the Faculty of Education prepared methodological materials in form of infographics. Three sets of methodological materials were prepared and published. The infographics were chosen for its effectiveness to reach a high impact (Chan et al, 2020), especially for its simple distribution via social networks. In addition, infographics are well arranged, and teachers can acquire the essential information for further pedagogical reflection.

ONLINE TEACHING IN TIMES OF PANDEMICS

A team of distance learning specialists from the University of West Bohemia in Plzen first decided to prepare and publish an infographic focused on online teaching in times of Pandemics. The goal of this infographic is to emphasize the fundamental methodological aspects of emergency remote educations; see picture one.

The material contains ten carefully chosen online teaching principles and emphasizes the role of teacher-student communication and teacher-teacher communication. Essential principles are a well thought, consistent approach of teachers from the same school, considerate and not very strict rules, flexibility reflecting individual conditions of each pupil/student that can help achieve the success of emergency remote education. The infographic was prepared to meet the needs of universities; however, teachers at other schools made use of the material as well (a significant distribution of the material was noted via teacher communities and social networks).

Figure 1: Infographic 1: Online Teaching in Times of Epidemics (Source: Rohlíková et al., 2020a)

REMOTE TEACHING AT PRIMARY, SECONDARY, AND UPPER SECONDARY SCHOOLS

The following infographic, called "How We Can Make It Easier to Work Remotely" was prepared to meet the specific needs of primary, secondary, and upper secondary schools. This material focuses directly on the different contexts of the target group; see figure 2.

Figure 2: Infographic 2: How We Can Make It Easier to Work Remotely (Source: Vejvodová et al., 2020).

As the home conditions for learning, and the general situation of a family during the pandemic time is essential for younger pupils, it is inevitable to establish individual contact with the families and discuss the possible organization of homeschooling. There can be several different forms of possible co-operation with pupils in one class. An ungraded school system seems to be an optimal possible approach in emergency remote education.

It is advisable to provide pupils with flexible individual support, using different means of technology, and using common teaching off-line materials, such as textbooks,

workbooks, handouts printed at schools and handed in by parents (in person), phone contact, etc.

SYNCHRONOUS ONLINE TEACHING

As Czech households are well equipped with technology, most schools gradually started realizing synchronous online teaching. The third infographic was prepared to help the teachers and pupils/students with the basic rules (see figure 3).

Figure 3: Infographics 3: The How-to Guide to Synchronous E-learning (Source: Rohlíková et al., 2020)

Synchronous online teaching is significant in the field of teaching foreign languages. The advantage was that there is a considerable amount of experience, particularly in one-to-one teaching. During the pandemic situation, the main goal was to provide education to all pupils / students, not only those with sufficient access to technologies and motivation for online learning.

Jana Čepičková from Faculty of Education. (2020) prepared the set od advice for teachers of foreign languages, which supported presented infographics. The set of advices focused on good preparation and organization of the online lessons, being familiar with virtual environments, setting the online classroom rules and logistical recommendations.

CONCLUSION

Based on feedback from teachers and parents. We can say that infographics supported with other methodological materials helped teachers to orient in the hard time of emergency remote teaching. We got positive feedback not just from Czech Republic, but also from other countries. This article shows just the first reactions on the unexpected situation. We are in the phase of preparation more structured research focused on deeper reflection of using infographic for supporting emergency remote teaching.

REFERENCES:

Al Hosni, J. ,2016. The power of image in English language teaching. *Journal of Teaching English for Specific and Academic Purposes*, 4(1), pp.229–235.

Brdička, B., 2020a. Dokáže koronavirus zavést technologie do výuky skokem? *Učitelský spomocník*. Available at: https://spomocnik.rvp.cz/clanek/22436/ (Accessed: 30 May 2020).

Brdička, B., 2020b. 7 tipů pro online výuku Johna Spencera. *Metodický portál* Available on at: https://spomocnik.rvp.cz/clanek/22456/7-TIPU-PRO-ONLINE-VYUKU-JOHNA-SPENCERA.html(Accessed: 30 May 2020).

Brdička, B., 2020c Personalizace podle EdTechTeacher. *Metodický portál*: Available at https://spomocnik.rvp.cz/clanek/22474/PERSONALIZACE-PODLE-EDTECHTEACHER.html (Accessed: 30 May 2020).

Chan A.K.M., Nickson C.P., Rudolph J.W., Lee A., Joynt G.M., 2020. Social media for rapid knowledge dissemination: early experience from the COVID-19 pandemic. *Anaesth Adv.* Available at: doi: 10.1111/anae.15057 (Accessed: 30 May 2020).

Čepičková, J., 2020. Praktické rady k realizaci videokonferenční výuky. Available at: https://czv.zcu.cz/wp-content/uploads/prakticke-rady-Jana-Cepickova.pdf(Accessed: 30 May 2020).

Czech Government Order, 2020. Usnesení vlády České republiky č. 74/2020 Sb., o přijetí krizového opatření. In: Sbírka zákonů. 2020. Available at: https://aplikace.mvcr.cz/sbirka-zakonu/SearchResult.aspx?q=74/2020&typeLaw=zakon&what=Cislo_zakona_smlouvy (Accessed: 30 May 2020).

Hodges, C., Moore, S., Lockee, B., Trust, T. and Bond, A., 2020 The Difference Between Emergency Remote Teaching and Online Learning. *Educause Review*. Available at: https://er.educause.edu/articles/2020/3/the-difference-between-emergency-remote-teaching-and-online-learning (Accessed: 30 May 2020).

Mašek, J., 2020a. Nechme učit žáky místo nás. *Metodický portal*. at: https://spomocnik.rvp.cz/clanek/22461/NECHME-UCIT-ZAKY-MISTO-NAS.html (Accessed: 30 May 2020).

Mašek, J., 2020b. 10 důvodů, proč je volba vhodného vzdělávacího prostředí pro online výuku tak důležitá. *Metodický portal*. Available at: https://spomocnik.rvp.cz/clanek/22475/10-DUVODU-PROC-JE-VOLBA-VHODNEHO-VZDELAVACIHO-PROSTREDI-PRO-ONLINE-VYUKU-TAK-DULEZITA.html (Accessed: 30 May 2020).

Mašek, J,. 2020c. 12 vlastností školního vzdělávacího prostředí. *Metodický portal*. Available at: https://spomocnik.rvp.cz/clanek/22476/12-VLASTNOSTI-SKOLNIHO-VZDELAVACIHO-PROSTREDI.html (Accessed: 30 May 2020).

Ministry of Health, 2020. Ministerstvo zdravotnictví ČR. Mimořádné opatření č. j. MZDR 10676/2020-1/MIN/KAN (uzavření základních, středních a vysokých škol od 11.3.2020). Available at: http://www.mzcr.cz/dokumenty/mimoradne-opatreni-uzavreni-zakladnichstrednich-a-vysokych-skol-od-11320_18696_4135_1.html (Accessed: 30 May 2020).

Pearson J, 2020. Coronavirus Closures? Online Learning Tips for Teachers and Schools: interview with an American Teacher in China. *Shake Up Learning*. Available at: https://shakeuplearning.com/blog/coronavirus-closures-online-learning-tips-for-teachers-and-schools-interview-with-an-american-teacher-in-china/ (Accessed: 30 May 2020).

Ozdamlı, F., Kocakoyun, S., Sahin, T., and Akdag, S., 2016. Statistical Reasoning of Impact of Infographics on Education. *Procedia Computer Science*, 102, pp.370-377.

Ozdal, H., and Ozdamli, F., 2017. The effect of infographics in mobile learning: Case study in primary school. *Journal of Universal Computer Science*, 23(12), pp.1256 – 1275.

Rogers, E.M. *Diffusion of Innovations, 4the ed.* 1995. New York: The Free Press.

Rohlíková, L., Pruner, T., Topinka, J., Chejlava, V., Vejvodová, J., Mentlík, P., 2020a. On-line výuka v čase epidemie: metodické poznámky pro vysokoškolské učitele – infografika. Available at: https://czv.zcu.cz/on-line-vyuka-v-case-epidemie/ (Accessed: 30 May 2020).

Rohlíková, L., Vejvodová, J., Mentlík, P., Pruner, T., Topinka, J., 2020b.Jak na synchronní e-learning? – infografika. Available at: https://czv.zcu.cz/jak-na-synchronni-e-learning-infografika/ (Accessed: 30 May 2020).

Vejvodová, J., Šindlerová, J., Rohlíková, L., Topinka, J., Pruner, T., Mentlík, P., 2020. Jak můžeme žákům i sobě usnadnit práci na dálku? – infografika Available at: https://czv.zcu.cz/jak-usnadnit-zakum-i-sobe-praci-na-dalku-infografika/ (Accessed: 30 May 2020).

Other

PERCEPTIONS ON USING KAHOOT! FOR LEARNING ITALIAN IDIOMS

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Abstract

The use of technology is influencing not only our lives as adults but children's' lives as well. The purpose of this research was to investigate both teachers and students' perceptions on using Kahoot! For teaching and learning Italian idioms. Furthermore, in this paper there are going to be presented the restrictions that both categories of participants faced up when using Kahoot!. The research subjects were five Albanian teachers, teaching Italian language and 35university students of the 1st Year. The researcher conducted the interviews, observations and focus groups - during the first semester 2019-2020, in the Faculty of Foreign Languages, University of Tirana, Albania – in order to explore their opinion and observe their progress after using Kahoot! application to support learning Italian idioms. This is a qualitative descriptive research, data of which was conducted using structured interviews, observation and focus groups. The results highlight teacher and students' perceptions on the use of Kahoot! For learning Italian idioms is very good. The restriction that teachers present as necessary to be mentioned has to do with low quality of internet connection now that they access Kahoot! and get students practice learning.

Keywords

Italian idioms. Italian language. Perception. Kahoot!.

INTRODUCTION

Today, nobody doubts the influence or the vital importance of technology in all areas of life. If in all of Europe for 30 years there has been talk of pedagogy in the name of technology, even in countries such as Albania, even before the discussion on the use of ICT in teaching, technology ends has now overwhelmingly taken its place and is leading the learning process in schools. Several European projects and also those of the Albanian Ministry of Education Sport and Youth have created the possibility of several pilot schools, where for years we have been experimenting with the use of the tablet, the smartphone in the everyday life of our classes. In other words, technology has influenced the way we live, work, play and learn. Year 2020 has marked the learning-teaching models throughout the country and technology is an indisputable subject and the use of it has definitely reduced the barriers by putting an end to the discussions and has made even the most reluctant teacher make use.

Each teacher thereby becomes both a disciplinary and a learning expert. The more these teachers have to deal with teaching innovations and the pressure to use new media, more important these insights become. In fact, as Bachmann (2018) states high expectations that new media will bring about fundamental changes to student learning are almost sure to lead to disappointment.

Taking into consideration the models already in use and practiced by teachers through the use of technology in learning, in this respect it would help to clarify not only the favorable position for this use, but also to mark the paths to follow. The research in question aims precisely to take into consideration and analyze the progress of the use of technology in the classroom, the position of teachers and the use of students. On the latter, even our teachers agree that there are various reasons why students need technology in learning, among these it is worth citing Mareco (2017) on (a) correctly used technology can help students be prepared for their future careers; (b) technology integration in the classroom is an effective way to connect with all students using various learning styles; (c) technology can offer students opportunities to improve interaction with their classmates and teachers through collaboration; and (d) technology facilitates students to access the latest information more quickly and easily.

But the teachers note that their real difficulty in the management of tablets and smartphones in the classroom is to use them in function of teaching, which is linked to a great discussion of recent years concluded in favor of the use of smartphones and tablets in the classroom and not their total and drastic impediment and prohibition in school in the classroom. By now we all agree that what we cannot prevent their use and the challenge is like being closer to their desire for the use of technology and not only, but to the natural habitat of man in general and young people in particular, the game. Even in this case, the key word still remains playful pedagogy, therefore inserting technology into playfulness. We all agree on this so the concept of gamification serves to attract student participation in classroom learning. Even Zichermann and Cunningham (2011) mentioned that since games make people more interested in participating and get more motivation, it is up to the teacher to use those apps in teaching that guarantee participation, involvement, joy, enthusiasm, elements that affect the better memorize the concept in question. Atherton (2018),also states that gamification uses the aesthetics and functionality of games to attract, educate and motivate students. All users are active participants and their development is recorded and sorted by ranking. Gamification makes students see failure as an educational opportunity rather than a bad thing.

Gamification can increase intrinsic motivation when the questions used provide a sense of control, including their skills, and facilitate them to interact with other students. One of the key elements of human motivation is precisely the race and the challenge that accompanies man throughout his journey, in boys the race is accompanied by joy, enthusiasm and becomes an existential motif. A very interesting and apparently successful app is based right here which took off at the beginning with great difficulty but which is proving to be very interesting and used in foreign languages learning in Albania. It's the Kahoot! app which becomes the subject of this study as it is unknown in the long term and frequently used in the short term precisely because Kahoot! is an app that transforms each lesson into a prize quiz. Competitiveness and fun is the fulcrum of the Kahoot! platform, which works by means of an internet connection and a device to indicate the answer to each quiz. The platform formula follows the same rules of pedagogy about learning: that of the points and rewards of each individual.

Furthermore, Morten Versvik, Johan Brand, and Jamie Brooker who, in a joint project with the Norwegian University of Technology and Science (NTNU), teamed up with Professor Alf Inge Wang, and were later joined by Norwegian entrepreneur Åsmund Furuseth. The technology is based on research conducted by Kahoot! co-founder Morten Versvik for his Master's degree at NTNU, who was a student of Professor Wang's at the time. Kahoot! was launched in private beta in March 2013 at SXSWedu. In September 2013, the beta was opened to public, and it's been quite a ride ever since! Building a company with learning at its heart, we chose to address the classroom first, but it seems game-based learning is now a pop culture phenomenon! (Kahoot!, n.d.)

Today, the Kahoot! movement spans far beyond classrooms: it is played in business training sessions, at sporting and cultural events, or in any social and learning context. What prompted the founders to create this application, it is not the teaching/learning process but the interest in how students play. On the one hand, the stimulation of each student appears through participation in the quiz. On the other hand, transfer the lightness of the game within an area that can be serious and therefore free of fun.

This platform allows us to create a sort of competition between school desks that has the main result of learning. A month after placing the application on the web, it won over 20 million American students.Taking advantage of this application, it was seen interesting to share the experience and position of Albanian teachers and university students on the Kahoot! method in learning foreign languages, specifically Italian idioms.

METHODS

This research uses qualitative methods, as it seems in this article it is neither an easy option nor a collation of anecdotes. It involves a complex theoretical or philosophical framework and rigorous analysis is conducted without the aid of straightforward mathematical rules. Qualitative methods are used to answer questions about experience, meaning and perspective, most often from the standpoint of the participant. These data are usually not amenable to counting or measuring. Qualitative research techniques include 'small-group discussions' for investigating beliefs, attitudes and concepts of normative behavior; 'semi-structured interviews', to seek views on a focused topic or, with key informants, for background information or an institutional perspective; 'in-depth interviews' to understand a condition, experience, or event from a personal perspective; and 'analysis of texts and documents', such as government reports, media articles, websites or diaries, to learn about distributed or private knowledge.

To achieve the goal of investigating the perception by both students and teachers of Kahoot's influence in teaching-learning the idioms of the Italian language, research has used the qualitative method. More specifically, the work of five Albanian teachers (3 teachers from the Faculty of Foreign Languages and two from the Tirana Linguistic High School was analyzed, teaching Italian L2:

- by means of the semi-structured interviews administered to the 3 teachers of the Department of Italian Studies, Faculty of Foreign Languages, University of Tirana and 2 of the Tirana Linguistic High School;
- by means of the observations of the class hours in which the use of teapot! platform was leveraged;
- to get the most targeted answers regarding the effectiveness of the Kahoot! platform in learning the idioms of the Italian language L2 the data collected was analyzed being based in five focus groups created with 35 freshmen of the same faculty, addressing Italian language.

The interviews with two teachers of Tirana Linguistic High School were carried out in the school environments in December 2019. These are semi-structured interviews lasting 35and 42 minutes. The availability of colleagues was maximum and they divulged to argue the reason for the lack of knowledge and the use of apps at school.

The interviews with university professors of the Faculty of Foreign Languages were also carried out in December 2019. The first interview lasted 30 minutes, the second 45 minutes and the third 47 minutes. There were neither difficulties in understanding the questions nor

hesitation in the answers. The interviews were recorded with authorization. All five interviews offered the research team the opportunity to have all the answers that could be analyzed in order to achieve the objectives of this research.

The observations were carried out only in two classes, respectively Year I-A and I-C of the Italian studies address. The research team presented itself in the classroom and followed for 50 minutes without interacting the whole course of the lesson time. This practice was not possible in the other three classes, respectively in the I-E and in the two classes of the linguistic high school. The reason for the failure to observe in these classes was derived from the results of the interviews with the respective teachers, who revealed that they did not use the Kahoot! app in teaching the idioms of the Italian language.

The most interesting and most lively segment of the research is precisely the collection of data and the analysis of the responses received by means of the focus group. The students of faculty where I teach strongly responded to the invitation of the focus group and were very interactive by generating a lively discussion. The research team came in two, me and my assistant, who noted the progress of the focus group. 5 focus groups have been created with 7 students per group.

RESULTS

Interwiews Analysis

The interviews conducted on 5 teachers offered a fairly colorful panorama based on the category of schools belonging. The first two interviews with teachers of Tirana Linguistic High School immediately highlighted the lack of knowledge of the app and not only of Kahoot! but also other similar apps and ICT teaching models. From the first two interviews it appears that the only application that teachers were interested in, remains WhatsApp through which they carry out tasks, communicate with videos, voice messages, send photos, songs, documents always based on the requests of the teachers themselves, but as homework activity. Regional Educational Directorate delivered directions to Albanian schools/directors/teachers that the use of smartphones is prohibited in the classroom and practically in most cases they are collected by the teacher at the beginning of the day and given back to the students at the end of the daily course. When asked what continuous training were offered teachers reveal the fact that there are held in-house and external continuous trainings from time to time but it is evident that it is not sufficient to guarantee them the ease required to use ICT in teaching process. They complain about the fear of being overtaken by the students and consequently tend to minimize the use of apps and technology that they don't know enough. According to one of them, the trainings offer techniques for the use of tools but little or no tools, activities and apps. When asked if the conditions for applying ICT in teaching exist, they answer that they know and recognize the current need for ICT in teaching, but the activities carried out in the classroom still remain limited because the environments of their classes offer only the use of the PC for the teacher, and interactive whiteboards and video projectors are missing.

The result obtained from the interviews with the three university professors of the Department of Italian Language is somewhat different. From the interviews with the teachers it appears that it has been a few years since they started to practice interactive platforms. Two of the three teachers use Kahoot! frequently for the different quizzes given to the students but also for teaching idioms especially when it comes to working on their meaning. The third teacher confessed that is not very familiar with the use of apps and not even subsidies, since she is inclined to the traditional methodology. Two of the teachers, who use ICT in teaching, confess that they use Kahoot! often and willingly because the atmosphere in the classroom and

the positive energy that it creates is positive elements that motivates the frequent use of the same. When asked about the frequency they use Kahoot! for teaching idioms, they reply that they use it every time when dealing with idioms because they find it excellent to attract students' attention on the topic in question.

Another result that emerged from the analysis of the interviews is the fact that both teachers underline the fact that with this app all students participate and respond correctly to students who are not normally active.

Furthermore, underline the fact that this app pushes students to consult online dictionaries in order to find the exact definition of Italian idioms. They highlight that outside this method it is very difficult to arise curiosity and the use of dictionaries in students. Results from interviews with the two teachers also show that in cases where this teaching model is used, student participation is constant until the end of the lesson. One of the teachers interviewed pointed out that students bring "the game" to the idioms even outside the classroom, at the bar and also at home, returning to the classroom the next lesson with proposals from other idiomatic groups.

When asked what the limitations or problems of Kahoot are! one replies that the question is limited to a few characters and therefore care must be taken to formulate the questions, even if this does not affect the study of idioms. However, both professors have detected a technical fact that disturbs the use of Kahoot!, the main constraint encountered when using Kahoot! in the classroom is the problem of Internet connection. In order to use ICT-based learning tools, the faculty provides Wi-Fi service. However, the speed of Wi-Fi in the classroom is rather slow and sometimes requires students to use their own Internet quota. The cell phone of students whose specifications are poor requires a longer charging process when taking quizzes than the cell phones of those who have better specifications, thus leading to an increase in response time.

Observation Analysis

The analysis carried out on the observation technique shows that in both classes observed both the teachers and the students were very practical in Kahoot! The versatility in the participation of almost all students leads to understand that it is a frequently used method. Two teachers carried out quizzes to verify the learning of the meaning of idioms in the Italian language.

In class I-A the teacher projected through the video projector the *idioms related to the noun head* and the students identified the exact answer relative to the meaning of the idioms among the 4 answers offered. When they finished replying, the correct answer was projected and then the accuracy of the answers was checked immediately. 70 out of 100 answers were correct. Ultimately, the atmosphere created was positive and participatory. However, the analysis of the observation also reveals irrelevant problems:

- the teacher did not use images or videos in the formulation of the questions that could facilitate the understanding of the meaning of the idioms;
- not for all the questions, we have managed to project the right answer to the question;
- the teacher was unable to verify whether or not all the students answered;
- the students had not received an adequate explanation of the category of idioms before starting the quiz;

For the second observation in class I-C, the analysis leads us to these conclusions:

- in the formulation of most of the questions, images were projected, which facilitated the understanding of the meaning, which led to a greater accuracy in the answers 90 out of 100.

- for two questions in Kahoot! it took some time (lasting up to 90 seconds), so the students passed the answer among themselves;
- at the end of the quiz, the teacher awarded three students with the best scores according to the ranking.

The positive atmosphere and participation of all was guaranteed by the use of this application. The understanding of the idioms was realized and thanks to the recurring quizzes their learning is facilitated.

Focus Group Analysis

The detailed analysis of the data collected by the 5 focus groups, carried out with 35 students of the first year of the Department of Italian Language at the Faculty of Foreign Languages highlights the following:

- 31/35 students answered that they know Kahoot! as an application;
- 31/35 answered that they use the Kahoot! app in Italian language lessons;
- 28/35 students admitted that Kahoot! helps them learn better and quickly the meaning and use of idioms whereas 7/35 that perhaps Kahoot! helps;
- 30/35 students replied that it is a pleasant hour when using Kahoot!, different from other language lessons;
- 32/35 students admitted that the atmosphere created in the classroom using the Kahoot! app is very pleasant and dynamic, as the element of the race releases energy, enthusiasm and participation;
- 35/35 students admitted that boys and girls participated in the same frequency in quizzes through Kahoot app;
- 33/35 students replied that when the teacher organizes the lesson through the Kahoot! platform, s/h takes on the role of organizer and conductor;
- 24/35 students replied that if they prefer it to other apps; 7 prefer Quizzes; 4 of them do not know it at all.

The perception of the teachers on the Kahoot! platform, as in interviews, coincides fully with the perception of the students gathered through the focus groups, who say that they learn to know and transfer idioms from L1 to L2 more easily than the traditional teaching method. The knowledge of the application and its use in learning the meaning of idioms is shared by most students. The app helps them to capture the meaning of idioms, thanks to the images that are projected, even when they are unknown idioms. They say that they accept it pleasantly and sometimes they ask for it as an activity not only for idioms but also on other segments of L2 language teaching. Students say that even the teachers are gentler and take a different attitude when the lesson takes place through the quizzes developed by this application. They are aware that it resembles a game, i.e. it allows a more participatory, active, lively and sometimes even noisy atmosphere, but it is not a game, it is a segment of the lesson, but the most beautiful one. They remember that the use of apps is not only Kahoot! but also other apps and that language teachers in their subjects are among the few teachers who apply them. They are of the opinion that if it became a practice in all disciplines with the same frequency as yours of Kahoot! they would not only learn more easily but would also be more willing to go to lessons. It is also important to underline the fact, as shown by the focus groups, that the role of the teacher in the case of the use of apps and other similar activities is no longer the center of attention. Teacher's role is no longer the one that is constantly talking and explaining, but they take on the role of the organizer, supervisor and conductor.

Students are familiar with the app and also use it outside the classroom as fun for each other on other more personalized matters.

DISCUSSION

At the beginning of this research, it was argued that the use of technology plays a crucial role in our daily lives and it also requires schools to start using technology to improve teaching-learning activities in the classroom, specifically L2 teachers they can help each other from apps and not only to improve the transfer of languages from L1 to L2. Research after the considerations and detailed analyzes of all the components of the methodology used in this study reveal that the perceptions of teachers and students on the use of Kahoot! are very positive.

Kahoot! it is unique in its content; the illustrations and its characteristics allow us to determine the game by ourselves and to work specifically with each of the students. Kahoot's! mission is to unlock each student's deepest potential, regardless of age or context, making learning fun, magical and engaging through game-based learning.

From the research it appears that somewhat above the students who are directly interested have perceived it in full and therefore prefer Kahoot! to traditional teaching. The use of Kahoot! improves the atmosphere in the classroom and the positive energy that is created is one of the positive elements that motivates the frequent use of the app.

The teachers find it excellent to attract students' attention during the lesson. Through the use of this app all students participate and correctly respond even those students who are normally not active. Good results are also reported by the research on the use of Kahoot in learning and transferring languages from L1 to L2 and vice versa because the flexible structure and the race that Kahoot guarantees! They take students to their natural habitat which is learning through stimulating activity. Students bring "play" to idioms even outside the classroom, at the bar and also at home, which improves the approach to learning.

In addition, this application pushes students to consult online vocabularies in order to find the exact definition of idioms.

Failure to complete suitable training for the use of technology in the classroom, training already started for 10 years in the country, but aimed only at pilot schools, slows down the teachers to use ICT and in particular Kahoot! convinced that they are overtaken by students and consequently tend to minimize the use of apps and technology that they don't know enough. In addition, the environments especially in secondary schools only offer the use of smartphones and PCs but interactive whiteboards and video projectors are missing. Still in schools, the rule applies that smartphone are not used in the classroom and in most cases, they are delivered at the beginning of the day and resumed at the end of the daily journey. All this does not facilitate the approach of use for school reasons at least of the smartphones.

High school has not yet facilitated the use of applications and social media in school and in the classroom, but they are already familiar with part of them because of the projects and group work with which the boys have already started working for 4-5 years now. The university offers better conditions that facilitate the use of ICT in teaching and applications, Kahoot! and consequently everything depends on the training of teachers and their belief that the use of ICT in teaching improves learning. The Kahoot! application offers a better learning because invented keeping one hundred of man's needs at leisure, entertainment, game and competition that reported in the classroom offer both a greater interest of the subject in question, in our case of the transfer of the language from L1 to L2, and more sustainable learning, responding to all cognitive theories.

CONCLUSION

Upon the results of this research, we concluded that the perception of both teachers and students on the use of Kahoot! is very positive and shows the latest trends in educational innovation. All that remains is to continue with other studies that would technically improve the ICT approach in teaching. This research also highlights that the implementation of online and digital learning opportunities can help reduce operating costs without requiring more time or compromising the quality or consistency of the instructions provided, because we now agree as also results from this research that through the use of apps in teaching stimulates curiosity and the desire to learn every day. If the use of Kahoot! and other apps becomes common practice in all subjects, the children and/or students will go more willingly at school, they will participate more strongly, so they will learn more easily and consequently create synapses faster as it is also confirmed by Balboni (2014). When students learn with technology, they acquire skills that will allow them to be independent learners for life.

This is an imperative question, which can no longer be questioned that the use of teaching activities through apps and other teaching tools becomes practice in all disciplines, as it guarantees facilitated and joyful learning. On track to understand the importance of ICT, apps in general and Kahoot!, there are also teachers with the backwardness caused by the lack of training in time and often willingly of the lack of technological tools and the same network in the classrooms.

The continuous training offered to teachers both internal and external training will have to target the need of teachers and pedagogical troops regarding the large training offer that apps, clouds offer and direct them to know how to orient themselves and find apps based on their own teaching needs.

One of the problems still to be solved is the limited use of ICT in teaching, especially in secondary schools, accompanied by a lack of knowledge of the apps that would facilitate learning in teaching.

However, the ICT topic used in learning cannot be explored unless the improvement of the internet in schools is resolved on a national scale, a fundamental prerequisite for this. However, the limitation posed by the lack and / or speed of the internet in schools is still a technical thing which is easily resolved if politics is convinced of the positive results that can be obtained from ICT in teaching. It remains to be said that the lack of training of our teachers and teachers are the main obstacle. Therefore, making available to the teachers adequate training on the use of ICT in general, search engines on the net, tools, clouds and apps in particular, remains an imperative task for trainers.

REFERENCES

Atherton, P., 2018. *50 Ways to Use Technology Enhanced Learning in the Classroom*. London: SAGE Publications.

Bachmann, H., 2018. "*Competence Oriented Teaching and Learning in Higher Education" – Essential (E-Book)*. Available at: https://www.weiterlesen.de/Leseprobe/Competence-Oriented-Teaching-and-Learning-in-Higher-Education-Essentials-E-Book/9783035512502/html. (Accessed 20 June 2020).

Balboni, P., 2014. *Le sfide di Babele*, Torino, UTET.

Kahoot! n.d. Available at: https://kahoot.com/company/#history (Accessed 20 June 2020).

Kahoot! 2017. *The Kahoot! guide to creating & playing learning games 3rd Edition. 2017*. Available at: https://kahoot.com/files/2017/07/Kahoot_guide_to_creating_and_playin g_learning_games.pdf (Accessed 20 June 2020).

Mareco, D., 2017. “10 Reasons Today’s Students NEED Technology in the Classroom”. Available at: https://www.securedgenetworks.com/blog/10-reasons-today-s-studentsneed-technology-in-the-classroom Advances in Social Science, Education and Humanities Research (Accessed 20 June 2020).

Zichermann, G.and Cunningham. C., 2011. *Gamification by Designs. Sebastopol*: O’Reilly Media, Inc.

THE IMPORTANCE OF LECTURER'S EXTERNAL MOTIVATION FACTOR IN TEACHING THROUGH DIGITALIZATION

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Abstract

The information and communication technologies in our days are key components of the ongoing world development. The use of technology has become very present as the result of coping with natural disasters' consequences where the latter has led to the deprivation of social life and everyone needs to develop and educate inside the home contours. The progress of education is crucial for any age group and the continuity of learning should not be interrupted and not meet restrictions. The use of technology in education has a great impact and is very useful in the development of education by providing opportunities for educational institutions to facilitate communication, learning process and lecturer-student collaboration through various online platforms. The main basis for teaching is the teachers, lecturers of the universities who have to continue their educational process despite the problems, natural disasters that society is facing. Their work aims at developing and maintaining in coherence the learning of students or pupils. They must be prepared to do this through digitalization that requires energy, desire, professionalism and patience to deliver the right materials and at the same time to be comprehensive on the subject that they give lessons. In Albania this way of teaching is new that has started to be used recently, displaying difficulties and often fatigue. Motivation is a very important factor that has a direct impact on the productivity of teachers and professors' work. The aim of this study is to show the importance of external factors in the productivity of teachers through the digital process. This study is based on the participation of 30 subjects on whom an interview was applied. Some of the results of the study showed that evaluations by supervisors, availability and the online presence of the students, staff training etc., were very important factors of external motivation that influenced their productivity, reliability and the way of teaching.

Keywords

Digital program. External motivation. Motivation. Albania.

INTRODUCTION

The purpose of this study is to contribute to the aspect of knowledge and to give a clear picture of motivation and impact that has on the work and the well-functioning of online learning. To show the importance of motivating factors in lector's during the online learning and to give suggestions on the development of this teaching that for more teachers in Albania it has been a new experience.

The objectives of this study are:

- to provide knowledge of the concept of motivation and its importance in the lector's work;
- to show the role of lector's in online learning;
- to explore the important of external motivating factors and their importance in the work of lector's in online learning.

In this study, in order to identify the motivation factors and their impact on the work of lector's, two research questions were raised:

- Which are the external motivational factors that influence the motivation of lector's in online learning?
- Which is their perception of each motivating factor in their work environment?

Technology is evolving more and more every day and one of the aspects where it is accessible is also in the teaching process. The use of technology in the academic aspect of any lecturer or student has a great impact and is useful in developing new innovations. Information and communication technologies that in nowadays are the key of elements on the universal response especially in the case when students are not present on certain days at school, crises, natural disasters etc. Today's technology offers many opportunities for educational institutions to help students, teachers and parents through various platforms to restore the process of teaching and learning. Online learning, which is expressed as an axiom of computer and internet use together, is a new educational trend. This aims to overcome these shortcomings towards facilities and eliminate various social barriers towards a technological education. Its use requires continuous and productive work. Work is an activity where individuals alone and together participate in productive endeavours to complete tasks or to achieve outcomes which are either self-set or set by others and which may or may not be remunerated. Work is also a process whereby individuals engage in activity from which they gain some satisfaction on completion which may or may not be recognized by others. (Cairns and Malloch, 2006).

The use of technology in education has a great impact and is useful in its development by providing opportunities through various platforms educational institutions to help co-communication and the process of learning students, students, in collaboration with teachers, professors. or with the parents of the students. A big help technology gives the learning process especially in emergencies. The closure of schools and universities during the COVID-19 dissemination period in the face of many teachers and educators with the development of online learning.

The motivation of teachers in schools, university lecturers is of great importance in this regard. External motivating factors have an essential effect on motivating teachers to be productive. They are the main aid to the development and functioning of a country. There is no greater factor for the social economic and political advancement than a good educational system (Fafunwa, 1980). For successful schools and educational systems, teachers are very vital.

Nowadays, where COVID19 has paralyzed almost everything, digital teaching has become a necessity which in developed countries can only be a continuation, while in developing countries it is an experiment for the first time.

Teachers of different educational levels (lower, middle, upper) in Albania faced more difficulties such as the use of technology, material equipment, the platform selected for a teaching as productive as possible. In such cases encouragement, evaluation affect very much in the desire to be as productive as possible and to adapt to this innovation in their teaching process.

According to researchers Paris and Turner (1994) motivation is an 'engine' of learning. Motivation can influence what we learn, how we learn and when we choose to learn (Schunk and Usher, 2012).

Motivational factors are of great importance in stimulating lecturers to be as productive as possible in the work process by overcoming the difficulties of the online system they may face.

DIGITAL LEARNING

Learning is a very important process in the life of each of us. The way that information is transmitted is very important. Learning is a context with information about different and specific issues which is taken in different forms both directly and digitally. Digital learning means learning and using Kafai and Resnick (1996). Different information and instructions created with these digits are therefore called digital information. Learning that uses this digital information is called digital learning. Digital learning has recently played an auxiliary role in transmitting information to students by giving them the opportunity to not disconnect from learning and keeping information coherent by not allowing various deficiencies.

Digital learning enables new strategies and formats, such as online and blended learning and competency-based learning, which have the potential to contribute to deeper learning. Providing every student with the opportunities for deeper learning is not possible without a technology-enabled network of tools and strategies to customize and extend learning. Yoon et al. (2012) stated that digital learning (E-Learning) was first proposed by Jay Cross in 1999. With the advance and development of technology tools, it appeared different explanations and terminology, such as Internet-based training, web-based training, or on-line learning, network learning, distance learning.

Online learning has its roots in distance education. A. W. Bates (2005) points out that the terms 'online learning' and 'e-learning' are used interchangeably, but makes the distinction that e-learning can encompass any form of technology while online learning refers specifically to using the internet and the web. The term "fully online" is used by Bates (2005, p. 9) to distinguish distance courses where students *must* have access to an internet capable device to undertake the course. Schools that promote deeper learning share a common intellectual mission, high expectations for all students, and a coherent curriculum that is supported by an aligned structure, schedule and support system. Vander Ark and Schneider (2012) say that schools that promote deeper learning combine "rigor, relevance and relationships" in a small, personalized environment.

MOTIVATION, EXTERNAL MOTIVATION AND DIGITAL LEARNING

The school should be seen as a key and essential institution that serves society for the education and development of knowledge, making the individual able to face the reality of the present and prepare it for the future.

Adapting to contemporary educational levels to try to follow the path of countries with developed educational, often requires training, proper efficiency, socio-economic level, as well as the right tools, if we want to be productive. An important element that helps teachers, lector's in their work is motivation. The aim of this phenomenon is to increase the productivity of teaching process in the school institution. The term motivation is typically defined as an emotion, desire, need, or impulse that acts to trigger actions. It is something that comes from within the body, but at the same time people are motivated by external factors (Locke, 2008).

Latham and Pinder (2004) said that motivation is a process that determines how energy is used to meet needs as well as time and energy work together to accomplish goals and tasks.

Extrinsic motivation is characterized by factors that are external to the self. The extrinsic motivation of teachers, lector's is associated with many extrinsic factors such salary, working conditions etc Individual job performance plays an important role in what we do as a student's,

lector's researchers and practitioners. External motivation is related to external stimuli such as salaries, bonuses, and other types of tangible rewards (Ran, 2013)

This motivation with the constituent factors has a very big impact on the teacher's online learning. These things, tools provide teachers with access to student data that can inform instruction in real time. Desire, passion, appreciation, stimulus, and fulfilment with the necessary tools as well as ongoing training are very important. Meeting the basic needs of the teachers makes them as productive as possible in their work. Different study shows that there is a connection between motivation and digital learning.

In the study of Ming-Hung Lin, Huang-Cheng Chen Tung, Kuang-Sheng Liu (2017) on the effect of digital learning results conclude that 1.digital learning presents better positive effects on learning motivation than traditional teaching does, 2.digital learning shows better positive effects on learning outcome than traditional teaching does, 3.learning motivation reveals significantly positive effects on learning effect in learning outcome, and 4.learning motivation appears remarkably positive effects on learning gain in learning outcome. It is expected to combine with current teaching trend and utilize the advantages of digital learning to develop practicable teaching strategies for the teaching effectiveness.

METHODOLOGY

The study was conducted in the city of Elbasan. The sample is 30 lectors in public University of Elbasan. The interviews conducted with each interview lasted 10-11 minutes which were recorded after obtained permission was from the participants. The interviews took place over the phone in the form of free conversation with the questions that has been set before.

Sample: 30 lectors participated in this study. Of those interviewed, 20 were female and 10 were male. All participants were assured that any information they provided would be kept confidential.

Instrument: In this study, 30 semi-structured interviews were conducted with lectors of the University of Elbasan. The instrument is an interview with 11 questions. In this interview 5 (five) were general questions and 6 (six) were about meaning motivation and importance of motivating factors in their work. But the designed questions did not remain only those that were prepared but were accompanied by other intervention questions in order to obtain more detailed information.

INTERVIEW ANALYSIS

The interviews were reviewed one by one, and the data were extracted from their analysis. This is how the data was analysed. During the first phase was made the transcription of interviews, and their interpretation was done by reading each sentence in each question to find their meanings. In the second phase, the coding was done by finding the central ideas found through the data. Initially, all the categories from which answers were expected were defined, such as: understanding external motivation factors that influenced in their work, so in online teaching. Once all of this was determined, was made a summary of all the answers given, and was made a general conclusion was reached, regarding the research questions raised.

DISCUSSION OF RESULTS

In this chapter will be discussed the result from interviews conducted by 30 lectors of Elbasan. The interpretations of the result will be given according to the qualitative analysis based on the research issues put into the study.

Regarding the first question: How do they understand motivation and how factors of motivation affect their motivation?

Topic 1: Understanding being motivated in the workplace.

From the analysis of qualitative data, it has resulted that for the first topic there are two categories:

P_1: Strong internal and external impulse

P_2: Support from colleagues, fulfilment of physical conditions.

One of the subjects when were asked about this matter that whatever it means to be motivated in work were answered:

"Motivation is a very strong impulse that someone may have internally or externally related to work, the environment, work goals, work interests that the individual may have and also the conditions that offered in the work environment."

As can be seen from categories taken from the data analysis, it is noticed that lectors see motivation as an internal stimulus which depends on internal and external factors.

Regarding the topic related to: "The influence of external motivating factors on the work of lectors in online learning. There are 5 (five) categories where most of them express themselves due to lack knowledge of all platforms that help them in online learning and also to have been trained for that. For this issue interviewer expresses*: "Meeting new platforms and preparing for a short time to develop online learning with students was very difficult. The lack of training made the first weeks of stressful because the students did not have the right tools and lack information at the same time."*

Another interviewer said that being evaluated from the staff is very important for to be motivating and productive even in such situation: *"Evaluation by colleagues and heads of institutions is a primary motivating factor."*

Regarding the cooperation with the pedagogical staff and the principal, three categories have been given, which clearly state that cooperation and assistance is not in maximum from the staff of school. Here is how an interviewer expresses himself on this issue.

I can say that it is superficial relationship but I am convinced that if there was more cooperation and interaction it would be a single platform on which we would work online with students. This would make the work more productive.

Another interviewer said: *"The lack of materials, and the low attendance of students have reduced motivation. However, coping with this innovation made us stronger and taught us something valuable for the future."*

CONCLUSION AND RECOMMENDATION

From the analysis of the data obtained from all respondents on the importance of motivation everyone has stated the importance of motivation in their work, expressing both internal and external factors. As external factors, a number of factors were noticed, the most

important of which was the training and the acquaintance with the new online learning platforms and the provision of necessary materials. According to them, these factors are very important to feel useful and to do the productive job.

From the analysis of the data obtained from all respondents on the importance of motivation in their work, expressing both internal and external factors.

- First, the recognition and awareness of the leading institutions of Albania education on the depended on the motivation of lecturers on their performance as lectors. Designing infrastructural, didactic and economic policies for the creation of school facilities as complete as possible with the elements that help the development of online learning.
- Second, the occasional training of lecturers, in relation to the news in the fields of online platforms of teaching. Also, trainings should be done with students too for knowledge of these platforms because cooperation is very important for motivating lectors to do the best in their work.
- Third, providing the necessary materials for the development of online teaching of lecturers and evaluating the leaders for the work they do.
- Fourth, should be done more studies to lectors to see their knowledge of development on technology. This should help to focus the training in the real difficulties.

REFERENCE

Afolabi, C. Y., 2013. The Influence of Gender, Age, Training and Experience on Teachers' Motivation in Ado and Efon Local Government Areas, Ekiti State, Nigeria. *Green Journal of Educational Research*. 3(3), pp.138-143.

Bates, A. W., 2005. *Technology, e-learning and distance education* (2nd ed.). New York: RoutledgeFalmer.

Cairns, L.G. and Malloch, M.E., 2006. Can Self-Managed Learners Jump Puddles?, *Paper at Annual Meeting of the American Educational Research Association,* San Francisco.

Fafunwa, B.A., 1980. *New perspectives in African education*. London: Macmillan Education Limited.

Jarvis, P., Holford, J. and Griffin, C., 1998. *The Theory and Practice of Learning*, London: Kogan Page.

Kafai, Y. B. and Resnick, M, 1996. *Constructionism in practice: Designing, thinking, and learning in a digital world.* Mahwah, NJ: Lawrence Erlbaum Associates.

Latham, G. L. and Pinder, C. 2004, Work Motivation Theory and Research at the Dawn of the Twenty - First century, *Annual Reviews Psychological*, Vol.56, pp.485-5163

Locke, A. E, 2008. *International Encyclopedia of Organization Studies*, Thousand Oaks: Saga Publications.

Ming-Hung L., Huang-Cheng C.T., Kuang-Sheng, L., 2017. A Study of the Effects of Digital Learning on Learning Motivation and Learning Outcome- *EURASIA Journal of Mathematics Science and Technology Education*. 13(7), pp.3553-3564.

Paris, S. G., and Turner, J. C. 1994. Situated motivation. In: P. R. Pintrich, D. R. Brown & C. E. Weinstein. (eds)., *Student motivation, cognition, and learning: Essays in honor of Wilbert J. McKeachie*. Hillsdale, NJ: Lawrence Erlbaum, pp.213-237.

Ran, B., 2013, *Encyclopedia of Business in Today's World*. Saga Publications, Inc. Thousand Oaks.

Schunk, D. H., & Usher, E. L., 2012. Social cognitive theory and motivation. In: R. M. Ryan (ed.), *The Oxford handbook of human motivation*. Oxford, UK: Oxford University Press, pp.13-27.

VanderArk,T., Schndeider, C., 2012. *How digital learning contributes to deeper learning,* Available at: https://www.gettingsmart.com/wp-content/uploads/2012/12/Digital-Learning-Deeper-Learning-Full-White-Paper.pdf (Accessed 20 June 2020).

Yoon, J., Kwon, S., and Shim, J. E., 2012. Present Status and Issues of School Nutrition Programs in Korea, *Asia Pac J Clin Nutr*. 21(1), pp.128-133.

PARTICIPATORY CURRICULUM DESIGN USING AN EXAMPLE OF AN OPEN ONLINE INFORMATION LITERACY COURSE FOR HIGH SCHOOLS

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Abstract

The aim of the study is the methods of participatory curriculum design. There is a widely shared idea that the curriculum must be made up not by the state or professionals but by the community for a successful education. Specifically, we will focus on the issue of designing an online information literacy course, which we, as a university, create for high schools. We are based on three sources - strategic documents and competence frameworks, teachers, and students. All three sources are involved in creating the final version of the course.

The study describes the entire course design process - from the original idea, desk research, internal research, prototype creation, to prototype evaluation. During the research, we worked with data from five high schools. The knowledge and competence test was passed by 95 students and based on the AASL framework. Subsequently, focus groups (8) with 42 students were led. In the case of teachers (8), we performed a qualitatively oriented g-methodology, followed by semi-structured interviews and an analysis of three school curricula.

We created a map of topics of interest to students and teachers based on this research. We implemented them in an open online course (which now exists as a validated prototype). The study aims to show how working with students and teachers can be helpful to in curriculum development and to offer methodological experience with such a participatory online learning design.

Keywords

Curriculum design. Information literacy. Online course. Participative design.

INTRODUCTION

There are many approaches to working with curriculum design. In general, it is possible to come across models based on practice requirements, with normative approaches copying certain professional practices or with a particular evolutionary concept, which focuses on the gradual modification of existing forms of education. In this study, we will focus on the way of working associated with design thinking, specifically on participatory curriculum design.

In this study, we will try to focus on information education for universities. This topic is crucial if we are considering education that is democratic, open and able to respond to the challenges of the 21st century. Working with information and information literacy is an essential competence aimed at learning, orientation in a complex world. Information literacy connects the school with the real world. Our previous research shows that schools perceive the requirement for the development of informal education as essential and try to adapt their school curriculum to it.

It is difficult for schools to distinguish between media and information literacy. Working with information is present in the curriculum of many subjects (Czech language and communication, foreign language, informatics, history and others). Still, it is often reduced to general statements or just to work with media content. However, media literacy focuses on the reception of information, not on one's work and the production of information, which makes it possible to perceive a specific definition of both approaches. Some theoretical models integrate media and information literacy. Either by creating a particular limiting example of particular information from media literacy - the Big6 model (Eisenberg et al., 2001) or DigComp - or by integrating interconnection - the UNESCO MIL model. (Lee et al., 2013)

The theoretical part of this study, on the one hand, defines the concept of information literacy, especially in the Czech environment, on the other hand, on the basic understanding of the methods of design thinking related to working with the curriculum.

Information literacy is one of the topics that come to the discussion about education in many different directions. (Eisenberg et al., 2004; Bruce, 1997; Shapiro and Huges, 1996; Elmborg, 2006)

We can thus trace a discourse that we could call a librarian, associated with separate competencies or thematic frameworks of what information literacy should look like, either in general or at different levels of education. Here we can find frameworks such as Big6 (Eisenberg and Berkowitz, 2008), the academically focused SCONUL (Bainton, 2001; Andretta, 2005), the concept of MIL (Moeller et al., 2011; Lee et al., 2013; Gizzle et al., 2014), which promotes UNESCO linking information and media literacy, or the standards and frameworks of the American ALA (Association of College, Research Libraries, & American Library Association, 2000; Allen et al., 2007), etc. These frameworks are specific in that they look at the phenomenon of information literacy as a clear, clearly defined competence package that can be developed.

Another concept can be captured in the media, which proclaims the ability to work with information but usually does not involve anything more specific than the fight against disinformation. (Gregor and Vejvodová, 2018) This path is clear to the low degree of practical implement ability, yet it is firmly embedded in school curricula. This approach petrifies information literacy as an essential literacy, but at the same time, fails to define what it means. At the same time, information and media literacy overlap, which merge into one.

The last necessary approach we will mention may be the concept of DigComp, i.e. the European framework of digital competencies for citizens (Carretero et al., 2017). This includes information literacy as a part of digital competencies and at the same time as a piece of necessary competence equipment for every citizen of the European Union. Information and data literacy is perceived here as the first dimension of digital competencies. There is explicit talk of the ability to search and filter information, evaluate it and sort or organise it. It is a concept firmly focused on practice. Information literacy is perceived as a prerequisite for further work with technologies. Without information literacy, it is not possible to work effectively with technologies.

In addition to these general approaches, we can also find concepts that focus on information literacy at a selected level of education. For example, the American ALA or the Czech School Inspectorate works with this concept through the Information Literacy Development tool. In our project (which is the focus of this study), we will rely on the AASL framework (Farmer, 2014; Burke, 2017), designed for high schools. It works with six dimensions – inquiring, including, collaborating, curating, exploring and engaging.

Each of these six areas is further structured in four stages – thinking, creating, sharing, growing. Unlike DigComp, it does not work with levels given by cognitive demands but rather with a pyramid of educational goals for the online learning environment.

Interestingly, the model places great emphasis on the ability to learn. Information literacy is formed in it as a certain meta-literacy enables independent lifelong and school learning. This concept can be found in the literature in andragogy, for example, in Candy.

We can conclude that defining information literacy is a highly demanding and complex task, reflecting the discourses of individual countries and conceptual approaches that perceive information literacy as a matter of libraries (Czech Republic, Australia, USA) or as part of standard school knowledge (most EU).

Our study will be based on the AASL framework and with needs that will prove essential for schools, teachers, and students (reflected, among other things, in high school curricula).

Creating the curriculum itself is one of the most challenging and complex problems, which usually do not have one correct solution. It is relatively well described in the literature that it is possible to start the curriculum design from the community (Toombs, 1977, Sandoval and Bell, 2004; Nelson et al., 2005) and students. (Bok et al., 2011) Du Pessis and Van Niekerk (2014) also offer a similar model in some respects, who leave it to experts to design a framework (or curriculum) but emphasise the need for evaluation by those who work with it. It is, therefore, clear that the community approach to curriculum development (Cormier, 2008; Honeychurch, 2016) is relevant.

A model of design thinking is often used for this process (Brown, 2008; Kimbell 2011; Pattner et al., 2009; de Guerre et al., 2013), which is based on an iterative way of working on a project (curriculum) and human-centred design (Boy, 2012; Gee, 2006; Cooley, 1999).

As part of our project, we focused on creating an online course that will develop the information literacy of high school students. Its content is constructed through community research findings. Students and teachers themselves say what is essential for them to learn. However, the articulation of this need is never complete, neither in terms of form nor content. This fact affects how the whole course is developed.

METHODOLOGY

Design thinking uses many methods that often do not have to work with a large sample or are not interpreted in detail. Often, they only must provide the researcher with a quick answer to a small problem or question that he must work with it. In the design process, on the one hand, great emphasis is placed on research. Still, at the same time, it must always be associated with some creation, the solution of a problem, which is gradually concretised and modified.

In our case, these are semi-structured interviews, focus groups, curriculum research, pretest, Q-methodology, ongoing evaluations, and work with web analytics. Curriculum design is a form of engaged ethnographic research in which the researcher must understand the needs of the community, offer a solution, and gradually adapt this solution to the conditions that arise in interaction with the district.

We will not deal with a detailed description of specific methodological procedures; only briefly outline how we worked with them.

As part of our project, we work with five secondary schools (two grammar schools, three vocational schools) and eight teachers. The group we studied were second-year high school students. They already have experience with looking at high school; at the same time, they still have two years of study ahead of them - enough time for quality research.

Below we offer a brief description of specific research methods and their inclusion in the research design:

- 95 "pretests" of students. In this method, we tried to map the students' entry-level and the tools and procedures they used. We created a questionnaire in Google Forms with 24 open questions for practical implementation, creating according to the AASL framework. Each open question corresponds to one area of competence. Passing the test was a condition for further involvement in the research. The duration of the test was 40 minutes.
- Eight focus groups with a total of 42 students: this method aimed to gain an idea of the information literacy curriculum among students. It was based on the relationship to technology (DigComp perspective) and information literacy according to the areas (6) of AASL. At the same time, the students presented their views and emphases. It was a principal activity emphasising the analysis of the "tone of voice", i.e. the language that students speak to design a suitable course. The length of focus groups (Morgan 1996; Gibbs 1997) was approximately 45-60 minutes.
- Eight semi-structured interviews with teachers: it analysed teachers' needs about information literacy. We tried to get an idea of the topics and approaches that appear in this area, and based on this experience, we work with teachers suitably. Both the suggestions of students and teachers are vital to us about the content and form of the course. The length of the interviews was approximately 30-60 minutes.
- Eight qualitatively applied Q-methodologies (Watts and Steiner 2012, Risdon et al. 2003) conducted interviews: we were based on 24 competencies, and we wanted teachers to spread them (with comments) into a regular division - from the most important to the least important. Some teachers (4) were to rank their vision of the current state of students in this way, the other half (4) to an ideal state. Interesting findings were offered here by their comments on individual competencies, not by their q-types or other tools related to the q-methodology. The length of the interviews was approximately 30-60 minutes.
- Three analyses of the school curriculum: schools (one grammar school and two vocational schools) were willing to provide us with their curricula for curricular analysis. In them, we defined ten topics in content analysis, which was related either to the content or meaning and form of information education. To a large extent, these documents capture the ideal state as imagined by the school. Therefore, even in some specific proposals, we worked with this information.
- Data from Google Analytics. Data from web analytics capture how students (and teachers) work with the web, what they read, on which pages they stay, etc. This data is essential for the evaluation of the prototype and the appropriate setting of the functioning of the entire web course.
- Continual feedback from students and teachers: some teachers were willing to share information from students who evaluated the content of individual modules. This information can improve the whole course, modify models, supplement them, etc.

Methodologically, we must work with a three-phase process of design thinking, to which particular research methods are assigned and their results. The design thinking phase creates the underlying framework with which we work.

In addition to the above methods, we use quick informal feedback, such as reviewing teaching materials by teachers or meetings at popularisation events with students. These interactions are difficult to describe methodologically, but they also influence partial shifts in the design of the entire course.

The limits of our research can be seen in two areas. The first is a relatively small number of schools, which we include in creating the prototype. It is possible that if there were more, there would be a different structuring of the topic, content and possibly the entire course content. The second limit is related to the size of the research team - a larger group would be able to create a more comprehensive prototype with more multimedia content than us, which could again be reflected in the final course. Nevertheless, we believe that our sample and work with the prototype is sufficient for the research objectives.

RESULTS

Due to the limited length, we will focus on the overall results of this study, not the specific methods separately. However, we will describe the findings that led us to modify the original concept with which we entered the curriculum design. The original plan was to create an open course that schools could use for one semester as a separate subject. The content will correspond approximately to AASL and be an elementary form of the Course of work with information, which we have and the university for students of the 1st year of bachelor's study. We did not expect significant differences between different high schools or universities groups. However, it turned out that students' needs and levels vary considerably, even between groups of the same age.

The first problem was the organisational obstacles to opening a separate course, "Working with Information". However, that does not mean they are not interested in the topic. Therefore, it was necessary to design a modular structure that would combine the school's needs (teach students to search on the Internet, prepare them for writing year papers) with certain modularity. Each topic is now included in a thematic package, but at the same time, it must be designed so that it is possible to work with it in a single lesson. So, we moved from a comprehensive course to a modular course concept.

Each topic is now included in **a thematic package**, but at the same time, it must be designed to work with it in a single lesson. So, we moved from a comprehensive course to a modular course concept. The need to relate to the situation, i.e., motivational introductions, is another interesting finding.

Teachers and students emphasise the importance of seeing briefly what the topic will be good for, where it applies and how. It is necessary to leave general examples, to be concrete and factual. **The connection with the actual case** is wanted and important.

The project works with a very **diverse group of schools**. Every school and every teacher has different requirements. While some require tests, others only want text with links. Others require methodological recommendations and worksheets. Diversity is visible in the subjects in which the course is implemented in the situations with which students work. Others are the needs of a nurse, a librarian, or a grammar school student. At the same time, the course should be able to help everyone. We believe that working

with information is a generally necessary skill, regardless of professional orientation, although it may differ in its emphasis.

In terms of content, it was necessary to **define the range of topics**. The original idea associated with focusing on the AASL framework or the University Information Work Course transformation proved to be unrealistic. Schools and students gradually articulated their demands, creating a community-based curriculum. The following set of topics emerged from the research:

- Security, Legislation, Ethics (Social Media Development, Citation and Legislation, Security and Information Sharing, Privacy and Backup, Disinformation and Cyber Threats, GDPR for Users, Ego Surfing, Online Identity and Biography)
- Four phases of essential work with information (Searching, Sorting, Filtering, Evaluation, Use)
- Media literacy (Influencers, YouTube and online celebrities, Media literacy)
- Methods of working with documents (Methods of reading, Argumentation and communication, Working with information as a Solution to Problems, Methods of critical thinking, Methods of working with text, How to write text, Working with video)
- Memory institutions (Libraries, Museums, Archives, Galleries)
- Practical skills (Be able to do a profound fake artefact, be able to create infographics, work with search engines, Citace.com, Work with bookmarks, pocket, etc., toolbox, Mobile apps types and BYOD)
- Self-management (Online project solutions, Self-management and PIM, Creative work with information, Social networks for personal development, Information literacy and civic engagement (right to information, e-petitions, available information, civil society ...), Global challenges and the Internet (crowdfunding, communities, petitions, activism), How to make life easier - life hacking)
- Collaboration and feedback (Collaboration, Self-assessment, Feedback, Receiving feedback, Awareness, informed decision making, Contributing to the discussion, importance of sharing - When - what - why, Active listening)

The schools then gradually formulated another topic concerning the coronavirus pandemic, such as support for the creation of seminar works or research design.

The prototypes showed that teachers perceive the **video** as **remarkable and relevant to students**. Interestingly, it does not have to be video content, but also one that is loosely related to the topic and shows it in some social structure or context. Video can be an exciting element in a discussion in which the case is reflected or taught through video.

Some teachers wanted the system to allow the creation of **tests**; for the other part, it was useless. Because the course generally builds on real situations and competencies, it is almost impossible to create a functional test system for some features.

What was consistent among the teachers was the emphasis on **the didactic component** and current topics in the course. Each case should be listed in a specific situation that students must deal with, which they could encounter. Requires the ability to respond dynamically to topics and issues emerging in society, work actively with modern tools, and update content continually. A year-old case is stuffy. Teachers also emphasise

educational support - for the material to be suitably didactically processed, instructions or support were completed within the lessons, or the test questions discussed above.

Another essential requirement, which resulted from both interviews with teachers and the analysis of the curriculum, is the need **not to link the course to one school subject**. We build the system so that it is as interdisciplinary as possible. The creation of the study also influenced the presence of vocational subjects at the school and their use in them. It, therefore, had to be as interdisciplinary as possible.

The project has undergone another significant change in connection with the COVID-19 pandemic. The intended initial work with the classroom material **has transformed into homework**. Teachers initially emphasised the need to separate the content for themselves from the student, but at the same time, students learn relatively independently, based on what the teacher gives them.

From content design, it is vital to find out, which resulted from student interviews and data on web analytics, that **it is difficult for students to read and process longer teaching material** than corresponds to approximately one side of the text (up to 550 words). Therefore, we build the texts respecting this length and at the same time have enough links and other resources for more demanding students (typically grammar students).

DISCUSSION

In the Results chapter, we identified ten research findings that we had to incorporate in some way and implement them into a prototype course. In the project, we work with the concept of design thinking - from the research data (inspiration phase), it is possible to proceed to create a prototype (ideating phase), which will be gradually evaluated. In our case, this evaluation took place during the course design, and we received feedback from teachers. This is important because only from something that has a specific form (i.e. a prototype) can teachers effectively evaluate whether such a course will benefit them in teaching or not.

The discussion with students and teachers suggested that each topic should have:

- Study text page with links - we prepare texts so that it is not too long (the limit is about 1 page of text), but at the same time so that it is supplemented with links to other sources, contexts, etc.
- Lesson activity - instructions or a set of recommendations on what a teacher can do with a given topic in a lesson, what questions to ask.
- Audio - a podcast from each module.
- Other resources - recommendations on what to read, for example, if the teacher or student is interested in the topic.
- Methodological recommendations - methodological recommendations on working with the content, what competencies and learning outcomes are monitored, etc.
- Tools - a set of tools (mainly online and free) related to the topic with the given annotations.
- PowerPoint - presentation in school classroom if the teacher decides to explain in class.

- Worksheet - goes more to the level of competencies or practical skills, allows the student to try out what he has learned.
- Test - some teachers wanted the system to allow testing or the ability to take questions into their tests.
- Video with annotations - teachers wanted each module to link to other videos that will expand or supplement the topic or videos of course authors.

When designing the prototype, we had to make a few concessions. Not all materials contain the set of components listed above. Somewhere due to the logical structure of the module, elsewhere, it would be too difficult to implement them into everyone. For now, we have also skipped the podcasts we plan to create after evaluation and testing on students.

In terms of working with the content of the course, as we described above, we have decided to work only on the following topics:

- The phase of working with information
- Working with information and learning
- Media and citizenship
- Working with documents
- Interaction, reciprocity, and feedback
- Safety and fairness

Shortly afterwards, we also added topics requested by teachers in response to the COVID-19 pandemic:

- Research for beginners
- Creation of a professional text

Each topic is then differentiated into 5 - 11 lessons, which are always based on the text and some other added materials (see the list above). Thus, 60 studies were created, which are available to students in the first evaluation of the prototype.

The course is designed to be open, uses the UMBRACO content management system and can be used without anyone's login or other barriers. In addition to UMBRACO itself, it uses YouTube for video storage, Google Presentations for presentations, Google Forms for tests (in conjunction with its platform for working with rotations) and Google Drive for file storage. Neon Studio did the website's graphic design, so it is a solution developed outside the university project team.

Regarding the self-assessment of how students and teachers work with the material so far, we can say that the final data from interviews with teachers and students are not yet available. Data from Google Analytics are available, which we have been focusing on for a long time. (Černý, 2018) It can be deduced from them, for example, that students proceed relatively linearly in working with the course (they do not skip topics if they have to read the whole module), whose time spent on one page is a little over 3 minutes (e.g., 3:25 in the module Phase of Information Work, 2:40 in Media and Citizenship, 2:42 Work with Information and Learning, Security and Fairness 2:52), which is not a low indicator at a stand length of approximately 550 words, if we can compare it with data from university courses. Students use both a computer (67.5%) and a mobile device (32.5%) to study, so responsibility is very important. On the desktop, they systematically study (average time spent on the web to visit is 11:00), while on a mobile phone, they tend to track information retrieval (time to visit is 5:30), i.e. less than half the time.

CONCLUSION

Our study focused on the research and development course description, which originated between 2019-2020. It is currently a functional prototype used by at least five schools to provide information education. One of the motivations we had when entering this project was how to ensure the transfer of knowledge between the university and the high school. The aim was to create a transparent environment that would allow such a process. When analysing the existing prototype, the only possible solution seems to be to modify the university courses so that they correspond more closely to the high school one (not in-depth or difficult, but in terms of topics). The second option is to resign from this activity and focus on developing the information education curriculum, which we now perceive as very promising. The course is functional. It is continuously evaluated and supplemented, and its content is created based on the community's needs. In this way, relatively large new competence frameworks are created, which we have already mentioned in the introduction to our research.

The content of the course will be further expanded and supplemented with didactic activities - for example, the mentioned podcasts, videos and others, which can be effectively connected with the existing, already established content (curriculum). At the same time, we believe that our further research can contribute to an even more in-depth understanding of this area of competencies that students and teachers have developed together with our research team.

At the same time, we believe that this process can be an inspiration for many other areas. The still dominant normative approach to curriculum development is based on objectivist philosophical assumptions and seems unsustainable. On the contrary, methods of thought design and productive work with a collaborative community can be much more effective and beneficial.

The course is available in a version for students at https://kisk.phil.muni.cz/onlife/student and High School teachers at https://kisk.phil.muni.cz/onlife/ucitel.

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REFERENCE

Andretta, S, 2005. *Information literacy: A practitioner's guide*. Elsevier.

Association of College, Research Libraries, & American Library Association, 2000. Information literacy competency standards for higher education. ACRL.

Bainton, T., 2001. *Information Literacy and Academic Libraries*. The SCONUL Approach (UK/Ireland).

Bok, H. G., Jaarsma, D. A., Teunissen, P. W., van der Vleuten, C. P. and van Beukelen, P., 2011. Development and validation of a competency framework for veterinarians. *Journal of veterinary medical education*, 38(3), pp.262-269.

Boy, G., 2012. *Orchestrating human-centered design*. Springer Science & Business Media.

Brown, T., 2008. Design thinking. *Harvard business review*, *86*(6), 84.

Bruce, C., 1997. *The seven faces of information literacy*. Adelaide: Auslib Press.

Burke, J. L., 2017. From AASL standards to the ACRL framework: Higher education shifts in pedagogical strategies. *The Library With the Lead Pipe*.

Candy, P. C., 2004. *Linking thinking: Self-directed learning in the digital age*. Canberra, Australia: Department of Education, Science and Training.

Carretero, S., Vuorikari, R., and Punie, Y., 2017. *The Digital Competence Framework for Citizens*. Publications Office of the European Union.

Cooley, M., 1999. Human-centered design. In: R.Jacobson (ed.) *Information design*. Boston, MA: Massachusetts Institute of Technology pp.59-81.

Cormier, D., 2008. Rhizomatic education: Community as curriculum. *Innovate: Journal of online education*, *4*(5).

Černý, M., 2018. Understanding learning in the online environment using selected web analytics tools. In J. Beseda and L. Rohlíková (eds.). *DisCo 2018: Overcoming the Challenges and Barriers in Open Education: 13th conference reader*. Prague: Centre of Higher Education Studies. pp.279-297.

de Guerre, D. W., Séguin, D., Pace, A., and Burke, N., 2013. IDEA: A collaborative organizational design process integrating innovation, design, engagement, and action. *Systemic Practice and Action Research*, *26*(3), pp.257-279.

du Plessis, H., and Van Niekerk, A., 2014. A new GISc framework and competency set for curricula development at South African universities. *South African Journal of Geomatics*, *3*(1), pp. 1-12.

Eisenberg, M. B., Lowe, C. A., and Spitzer, K. L., 2004. *Information literacy: Essential skills for the information age*. Greenwood Publishing Group.

Eisenberg, M., and Berkowitz, B., 2001. A Big6 skills overview. Available at: http://www.nmusd.us/district/tech_plan_2006-2009/appendix-E.pdf (Accessed 20 June 2020).

Elmborg, J., 2006. Critical information literacy: Implications for instructional practice. *The journal of academic librarianship*, 32(2), pp. 192-199.

Farmer, L., 2014. How AASL learning standards inform ACRL's information literacy framework. Available at: http://library.ifla.org/831/1/072-farmer-en.pdf (Accessed 20 June 2020).

Gee, L., 2006. Human-centered design guidelines, *Learning spaces*. Chap. 10.

Gibbs, A., 1997. Focus groups. *Social research update*, *19*(8), pp.1-8.

Gregor, M. and Vejvodová, P., 2018. *Nejlepší kniha o fake news, dezinformacích a manipulacích!!!*. Albatros Media as.

Grizzle, A., Moore, P., Dezuanni, M., Asthana, S., Wilson, C., Banda, F., and Onumah, C., 2014. *Media and information literacy: policy and strategy guidelines*. UNESCO.

Honeychurch, S., Stewart, B., Bali, M., Hogue, R. J., and Cormier, D., 2016. How the community became more than the curriculum: participant experiences in# RHIZO14. *Current Issues in Emerging eLearning*, *3*(1).

Kimbell, L., 2011. Rethinking design thinking: Part I. *Design and Culture*, *3*(3), pp.285-306.

Lee, A., Lau, J., Carbo, T., and Gendina, N., 2013. *Conceptual relationship of information literacy and media literacy in knowledge societies. Paris: UNESCO*.

Moeller, S., Joseph, A., Lau, J., and Carbo, T., 2011. Towards media and information literacy indicators. In: *Background document of the UNESCO Expert Meeting (Bangkok, Thailand, 4-6 November 2010).*

Morgan, D. L., 1996. Focus groups. *Annual review of sociology*, 22(1), pp.129-152.

Nelson, B., Ketelhut, D. J., Clarke, J., Bowman, C. and Dede, C., 2005. Design-based research strategies for developing a scientific inquiry curriculum in a multi-user virtual environment. *Educational Technology*,45(1), pp.21-28.

Plattner, H., Meinel, C. and Weinberg, U., 2009. *Design-thinking*. Landsberg am Lech: Mi-Fachverlag.

Risdon, A., Eccleston, C., Crombez, G. and McCracken, L., 2003. How can we learn to live with pain? A Q-methodological analysis of the diverse understandings of acceptance of chronic pain. *Social science & medicine*, 56(2), pp. 375-386.

Sandoval, W. A. and Bell, P., 2004. Design-based research methods for studying learning in context: Introduction. *Educational psychologist*, *39*(4), pp. 199-201.

Shapiro, J. J. and Hughes, S. K., 1996. Information literacy as a liberal art?. *Educom review*, 31, pp.31-35.

Toombs, W.,1977. The application of design-based curriculum analysis to general education. *The Review of Higher Education*, 1(3), pp.18-29.

Watts, S., and Stenner, P., 2012. *Doing Q methodological research: Theory, method & interpretation*. Sage.

STUDY THE E-BOOK ACCEPTANCE OF HIGH SCHOOL BIOLOGY TEACHER IN HANOI, VIETNAM

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Abstract

Although the rapid growth of electronic book (e-book) in teaching over the world, the e-book used in high school was still new in Vietnam. The objective of this study is to investigate the perception of e-book use and the difficulty problems of biological teachers at high schools. A survey from 105 high school teachers of biology in Hanoi city's center and suburban and other areas in Northern provinces of Vietnam was collected using questionnaire form. The frequency distribution and median mean were analyzed by SPSS (Scientific Package for Social Sciences). The results of our survey indicated that e-book acceptance is considered at medium level. The findings show that e-book acceptance level of teacher is related to teacher's workplace and seniority. Young teachers with seniority of less than 10 years use e-books in teaching regularly, while teachers over 10 years never use them. Most teachers in Hanoi city schools use e-book in teaching are higher than teachers in suburban and other areas in Northern provinces in Vietnam. This study also discovered the difficulties of teachers when using e-books in teaching and proposed some solutions to overcome these limitations.

Keywords

A*cceptance. Biological teaching. Electronic book. High school.*

INTRODUCTION

Electronic book (e-book) is a book published in digital form, including both text and image, which can be read on a flat screen of computer or other electronic devices (Rosso, 2009). Ashley (2011) defines e-book as interactive book or digital book, are documents with content in digital format and can be viewed on computers or electronic reading devices such as Amazon's Kindle... E-book can also combine hypermedia such as audio, animation, featured text, music with various forms for readers to adjust and controlling through touch buttons found on the screen.

Many studies have been caried out the e-book's acceptance and attitude to e-book utilization. Larson and Marsh (2005) suggest that by developing of e-book, reader can narrow the gap between the knowledge that they received in class. The putting of e-books forward school to help adaptation of teacher and student in modern technology and gain new valuable skills in the 21st century. Report of the impact of e-books on learning progress and the interest of student in e-book indicated that the utilization and interaction of e-book has a direct effect on the student's progressive learning (Rozel and Gardner, 2000; Minard and Mcknight, 2006). Using e-book in teaching and learning has been applied in education system of Malysia from 2000 with an aim to facilitate teaching and

learning processes (Salina, 2001). A study on the using e-books in science teaching, it has been shown that most of the teachers feel that e-book is necessary, but they spent not more than once a week to use e-book for teaching and learning (Luaran, 2016).

Vietnam has been identified as a country that has planned and developed information technology (IT) in education (SEAMEO, 2010). According to this SEAMEO report, there is also a large and different gap of IT infrastructure between urban and rural areas. Currently, in Vietnam, e-book is increasingly known and used by many readers in many different jobs, such as high school teacher who often use e-book in their teaching work. Determining how to accept their e-book, what are benefits and difficulties when they use e-book has not been much studied. The purpose of this study is to explore the current situation of e-book using of teachers in high school in Hanoi and some other provinces in northern Vietnam, and the following research questions answered:

What is the e-book acceptancy level and awareness of biology teachers at high schools?

There is a difference in the e-book utilising between seniority of teacher?

What is the difficulty being faced by the teachers who use e-book in biology teaching?

RESEARCH METHODOLOGY

Questionare form

This research utilizes a questionnaire survey technique involving data gathering from respondents who use e-books in teaching. The questionare form designed and divided to 4 main parts: personal information of respondents, background of e-book usage, level of acceptance of e-book utilisation, problems faced to e-book using. Random sampling is used in the data gathering process.

Data Collection

This article used a survey consisting of questions related to the use e-book was administered. This research is carried out on biological teachers in 20 high schools at Hanoi, Vietnam. A total of 105 valid responses were collected, while 10 responses from incomplete surveys were rejected. While most of the previous research on e-book usage from many different audiences showed that e-book is used for many purposes. Biology teachers are users who could offer insight into about the purpose of the ebook in teaching.

Data analysis technique

Quantitative data was analysed using SPSS. The descriptive data analysis approach encompasses frequency, percentage and mean ranking were used as well. Besides that, statistical analysis is started with a cross-Table analysis to see whether a relation between the dependent variable there are involved in this research.

RESULTS

Respondents' information

Our sample consists of 105 teachers from more than 20 high schools in the Hanoi city and other provinces in the Northern region of Vietnam. The summary of the information of the respondents are shown in figure 1. The respondents in this study are predominantly females (84.2%) (Fig. 1a), and most investigators with less than 10 years of teaching experience were 77.2% (Fig. 1b). Most of them work in Hanoi city centre (40.6%), 24.8% and 34.6% of respondents work in Hanoi suburban and other provinces in northern Vietnam respectively (Fig. 1c).

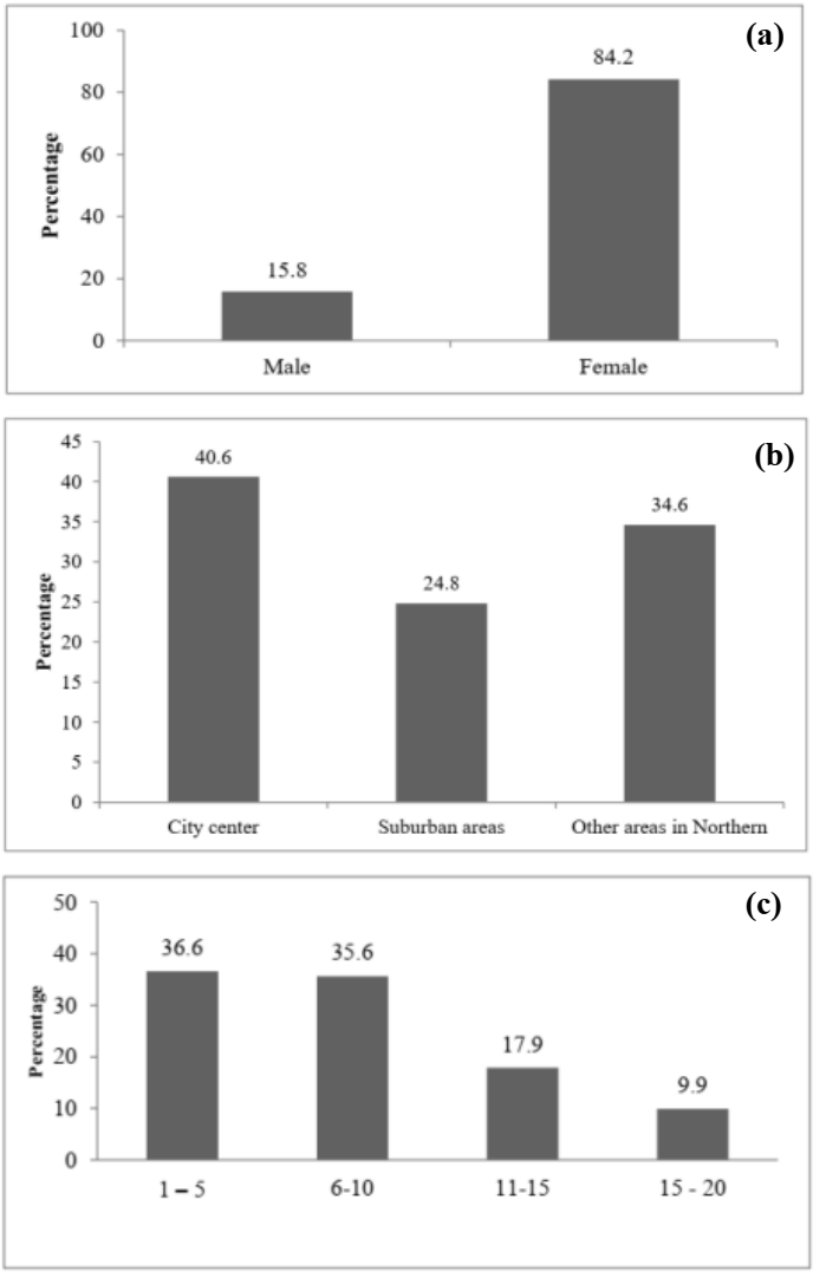

Figure 1: Information about respondents (Source: Own).

Information of e-book usage

Analysis of the relationship between the e-book using frequency and years of work experience of teachers showed that most young teachers with under 10 years use e-books regularly, whereas most teachers with above 11 years no use of e-book (Table 1).

Table 1: Relationship between the seniority and frequency of e-book utilisation

	1-5	**6-10**	**11-15**	**>15**
Everyday	87.5%	12.5%	0.0%	0.0%
1 time per week	44.8%	41.4%	13.8%	0.0%
More than 1 time per week	40.0%	60.0%	0.0%	0.0%
Never	14.4%	30.4%	26.1%	29.1%

(Source: Own)

Table 2: Chi-Square Tests

	Value	df	P value
Pearson Chi-Square	39.193[a]	12	.000

(Source: Own)

Hypothesis:

H_0: There is no significant difference in the frequency of e-book utilization between the seniority of teachers.

H_1: There is a significant difference in the frequency of e-book utilization between the seniority of teachers.

The results for the data analysis is unreliable (rejecting the alternative hypothesis) as the Chi-square value is greater than the 20%, however the p-value, which is [χ^2 (2, N = 91) = 39.193[a], $p < 0.05$] shows correlation between 2 variables

This means there is a difference in the frequency of e-book utilization between the seniority of teachers temporarily accepted (Table 2).

In this study, we also conducted an examination relationship of the use of e-books in biology teaching with work areas. The results showed that the percentage of teachers who work in Hanoi city centre using e-book is higher than teachers in suburban and other areas in Northern provinces of Vietnam (47.9%, 25.4% and 26.7% respectively) (Table 3). Findings show that 55.0% of teachers who work in other areas in the North never use e-book.

Table 3: Relation using of e-books to working place of teacher

	Hanoi city center	Suburban of Hanoi	Other areas in Northern
Yes	47.9%	25.4%	26.7%
No	15.0%	30.0%	55.0%

(Source: Own)

Association between the e-book using frequency and area of work indicated that most teachers who work in Hanoi city center use e-books regularly, while 78.3% teachers who work in other areas in Northern Vietnam never use of e-book (Table 4).

Table 4: Frequency of using e-book for teaching

	Hanoi city center	Suburban of Hanoi	other areas in Northern
Everyday	100.0%	0.0%	0.0%
1 time per week	51.7%	27.6%	20.7%
More than 1 time per week	46.7%	33.3%	20.0%
Never	17.4%	4.3%	78.3%

(Source: Own)

Purpose of ebook utilising

Analysis of the relationship between the e-book using's purpose and seniority point out most of young teachers with 1-5 years use e-book as material and reference in teaching (66.7% and 36.1%, respectively), whereas 56.7% teacher with 6-10 years use e-book as entertainment resources (Table 5).

Table 5: Purpose of e-book using

	1-5	6-10	11-15	>15
Using as material in teaching	66.7%	20.0%	13.3%	0.0%
Using as a reference	36.1%	39.3%	19.7%	4.9%
Using as entertainment purposes	26.7%	56.7%	16.6%	0.0%

(Source: Own)

Benefit of ebook using in teaching

Collected data results indicated that 100% of respondents agree that using e-book in teaching helps them to apply information technology (IT) in teaching (Fig. 2). 96.4% of teachers said that they could find many useful reference materials and illustrate vividly through multimedia integrations (audio, images, video clips…) from e-books, and make the lesson more attractive (83.1%).

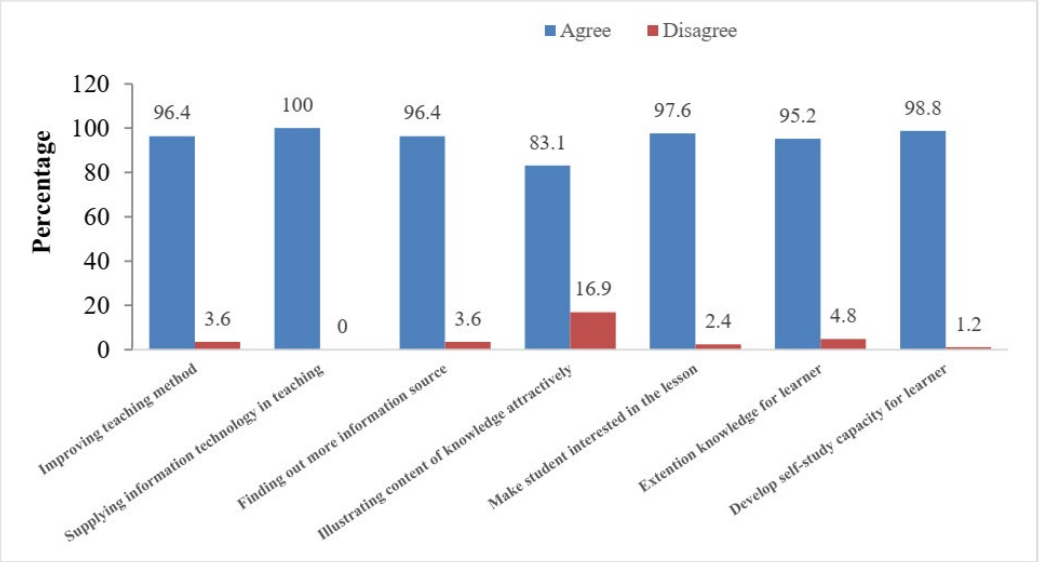

Figure 2: Benefits of e-book in teaching. (Source: Own)

Difficulties when using e-book in teaching

When asked what problems the teachers face using e-books in teaching, most teachers under 10 years of seniority who believe that the problems they often face are many e-books difficult to download or online using (42, 9%). Whereas 50% of teachers with above 10 years of seniority who have frequent problems with IT application in teaching and about 56% of teachers think that e-book's content is not suitable for high school programs, such as too much knowledge, or not suitable on exam and evaluation. Besides other difficult factors such as unstable network connection (40%), teachers have not been trained on using e-book (85%), and difficulty to know whether students use e-book for the right purpose or not (46.4%).

DISCUSSION AND CONCLUSION

The purpose of this study is to understand the perception of e-book use and the difficulty problems of biological teachers at high schools in Hanoi city's center and suburban and other areas in Northern provinces of Vietnam. The utilizing of e-books in teaching is not a new problem in the world, but it is quite new in Vietnam. This study does not examine deeply about the benefits and limitations of e-book usage as previous studies, but does investigate the current situation of teacher's e-book use. The survey results on 105 biology teachers in high schools reflected the high accuracy of this study. According to the teacher's initial opinion, e-book are simply documents that can be read on electronic applications, but in the future when IT is applied and deployed strongly in many fields like education with more supportive and interactive features for teachers and learners to learn by themselves. The survey results indicated most teachers agree that e-book utilizing will help them apply IT in teaching, and can find many useful reference materials through multimedia integrations such as audio, images, video clips…, and supporting to make the teaching lesson more attractive and interesting. Besides that, e-book can also make positive effects on the student. However, finding in this study found that the e-book using frequency may relate to years of work experience of teachers. Most young teachers with under 10 years use e-books regularly, whereas teachers with above 11 years don't use e-book. Besides that, using also depends on the teacher's workplace.

Number of teachers who use e-book in teaching in city schools are higher than teachers in suburban and other areas in Northern provinces in Vietnam.

The results of this study also indicated that teachers also face many difficulties when using e-books in teaching, such as download or using online version, or IT application in teaching, or e-book's content is not suitable for high school programs, or not easier for examination and evaluation. Besides other difficult factors such as unstable network connection, most teachers have not been trained on using e-book in teaching, and they cannot know whether students use e-book for the right purpose or not.

In this study, respondents were given the opportunity to supply open-ended comments about designing e-book suitable for high school education. We have summarized the comments and most of them listed as below:

- Increases sound and image effects
- Allows reading e-book in a variety of formats
- Adding interaction between student and teacher, and between students together.
- Needs more interactive functions (eg. highlighted, colored, underlined… on text, paragraphs).
- Needs more illustration by images, video and audio.

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REFERENCES

Abdullah, Z., Mansor, N. and Hassanuddin, N. A., 2013. School teachers acceptance of E-book. *World Applied Sciences Journal*, 23(23), pp.1-7.

Gunter, B., 2005. Electronic books: a survey of users in the UK, *Aslib Proceedings*, 57(6), pp.513-522.

Larson J. and Marsh J., 2005. *Making literacy real*. London: Sage.

Levine-Clark, M., 2007, Electronic books and the humanities: a survey at the University of Denver, *Collection Building*, 26(7), pp. 7-14.

Luaran, J. E., Rom, K. B. M., Nadzri, F. A. and Jain, J., 2016. E-book usage in teaching science:The perspectives of science teachers in secondary schools in Selangor. *Malaysian Journal of Distance Education*, 18(1), pp.13-27.

Marston, S., Thrasher, E., and Ciampa, M., 2014. Does gender play a role in the acceptance of e-textbooks by students?. *Research in Higher Education Journal*, 23, pp.1-9.

Melinis, A., 2011. The Effects of Electronic Books on the Reading Experience of First Grade Students. *Education Masters*. pp 279.

Miynard, S., Mcknight, C., 2006. Electronic books for children in UK public librarie. *The Electronic Library*, 19(6), pp.405-23.

Nicholas, D., Rowlands, I., Clark, D., Huntington, P., Jamali, H.R. and Ollé, C. 2008. UK scholarly e-book usage: a landmark survey, *Aslib Proceedings*, 60(4), pp.311-334.

Quyet, C. B., Cuong, H. C., 2019. Study the acceptance of e-book for students in Vietnam, *Banking Science & Training Review,* No.203, pp.63-69.

Rosso, S., 2009. What are ebooks? Advantages and disadvantages of electronic books. [online] Available at http://whenihavetime.com/2009/03/09/what-are-ebooks-advantagesand-disadvantages-of-electronic-books (Accessed January 4 2020).

Rozell, E.J and Gardner, W.L., 2000. Cognitive, Motivation and affective Processes: associated with Computer – related Performance: a path analysis. *Computers in Human behavior*, 16, pp.192-222.

SEAMEO Secretariat, 2010. SEAMEO UN-HABITAT HVWSHE project. Available at: http://www.seameo.org/_ HVWSHE-Toolkit/Toolkit.html (Accessed 20 August 2020).

ALBANIAN EXPERIENCE IN USING WHATSAPP WIDELY IN TEACHING

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Abstract

The Albanian educational system is developing rapidly thanks to technological progress and its use in our lives. Nowadays, everyone frequently uses the mobile phone with the intention of bringing it into the classroom. The big dilemma is whether to prevent or to use them in schools, now seems to have favored mobile phones' use in the classroom but directing children's interest on tasks to be done instead of games to be played. This paper aims to reveal the impact WhatsApp had in preserving the curriculum of Albanian elementary and junior high school students during the last term of the 2020 school year and its widely use in teaching. The objective is to measure the perception of elementary and junior high school teachers about the validity and effectiveness of the lessons delivered through Whatsapp. The methodology followed to achieve the objective is the qualitative method, carried out through interviews with policy makers and school principals and focus groups with teachers and parents. The results showed that the use of smartphones in general and WhatsApp in particular proved to be a good aid for teaching not only in particular conditions but also in the routine of homework and school projects in the future. The positive competition, promptness and user-friendliness of WhatsApp has proven to be an element that can be used as a support for a variety of activities including continuous teacher tutoring. An interesting result is the improvement in the shared participation of parents in teaching and education process offered by the school through WhatsApp application. The analysis of the results shows that for the first time we have a direct involvement of parents in their children's learning and homework. The fact remains that we need to focus teacher training on better knowledge and use of applications for a more profitable management by teachers, of clouds made by professionals in each subject.

Keywords

Effectiveness. Teaching. Technology. WhatsApp.

INTRODUCTION

Continuing with the 21st century, we can see not only that the educational system is developing rapidly, but also technology has invaded our lives as far as everyone uses WhatsApp, Facebook, Twitter, Instagram, Telegram etc. through their smartphones.

Everyone agrees that the generation of these days has become dependent on these applications for social relations and entertainment. If we compare the educational system of the last five decades, when we were students, and the educational system of today, we will find a huge gap between what teachers used in the past considering educational aids, teaching methods, motivation strategies, etc. and what we are using now to teach our students.

More and more reasons are given to what Graham and Phelps (2013) called "conventional wisdom suggests that being in an environment where others use technology is generally good for learning". In Albania a lot of work has been done in the last 15 years for teacher training on the use of technology in the classroom. Projects have been carried out on a national scale aiming not only at the creation of computer labs in all schools, the introduction of broadband internet, in-service teacher training (ICT Lab; Teaching ICT at European level; E-School project), but also other projects aiming at the application of these apps in the classroom such as teaching ICT at European level or SchoolMe type platforms.

Some of them remained at the piloting level, however, creating a good knowledge base that would lead to decent support for teaching and learning under the conditions of online lessons.

The last difficult period of the last quarter of the 2019-2020 school year has now brought to a positive conclusion the great debate that has been going on for years in the Albanian school about whether or not to ban smartphones in the classroom. With all the limitations, shortcomings, problems still unresolved, the need and urgency to continue and finish the school process has pushed teachers to put in motion and use all the information and skills acquired in all these decades of digital teaching theory. A particular use of the smartphone and WhatsApp has been verified in the new and extraordinary process of online teaching and this study focuses precisely on the perception of teachers, of the progress of this process at a distance.

The aim of the study is to measure the perception of elementary and junior high school teachers about the validity and effectiveness of the lessons delivered through WhatsApp**.**

Several studies have been conducted on the effectiveness of the use of WhatsApp in teaching, both in pre-university and university education in recent years in Europe and around the world. According to Gon and Rawekar (2011) communication skills can be developed through realistic interaction using meaningful and contextualized language, however, time within the lesson is not enough to practice the four skills (reading, listening, writing, and speaking), so using WhatsApp can be a solution to this problem. The study promotes favorable educational change by helping teachers capture the possible merits of WhatsApp to develop their students' vocabulary choice, writing skills, and spoken language.

In addition, Maria (2016) in her study “The use of WhatsApp to improve reading and writing skills at the university level” has shown that the use of WhatsApp motivates students to improve their writing skills even though it is considered the most difficult of the four language skills and students respond better when technology, especially the internet, is involved in their language learning. The Internet, available on almost all students' mobile phones, and WhatsApp as an application is a highly motivating tool for learning various subjects. These studies reveal that WhatsApp provides a space to communicate, express ideas, and exchange information anytime, anywhere. However, (a) the expense required to use WhatsApp, (b) the extra workload, (c) the distraction for learning, and (d) the lack of commitment from students to effective participation were identified as the greatest challenges to using WhatsApp effectively for learning purposes. Man (2014) in his study also reveals his students' appreciation of using WhatsApp as a teaching tool and especially as a tool for their involvement. The use of this application also encourages their participation in the classroom and increases their interest in the content of the subject.

There are also interesting experiences on the use of WhatsApp in junior high schools, but also in elementary classes. Starting with younger children, for example, the first immediate impact is in teaching writing and punctuation. According to Mariani (Alminarite, 2019), who conducted an experiment with elementary school pupils, asking mothers to lend their mobile

phones to their children for 5 minutes a day in the afternoon. The teacher sent very short messages, questions that the children had to answer. At the beginning the children wrote everything attached, without any punctuation, maybe misspelling. The mobile phone already contains a corrector but the teacher's advice, in real time and above all targeted, integrated the teaching. Also worth mentioning is the initiative of Luongo (Scala, 2019) who launched a one-year project to involve a class in a Whatsapp group to be used inside and outside the classroom. According to Luongo, through Whatsapp it is possible to post links, homework, photos of notes for absent pupils, ask for material or preparatory activities for the next day, inform about any changes or news, etc.

It is worth remembering that Mobile learning offers an environment where students can negotiate meaning, reflect and evaluate their performance through authentic interaction and feedback, providing a powerful tool for language skills development.

Our research can promote favorable educational change by helping teachers grasp all the possible merits of WhatsApp to support innovative, motivating and ludic teaching by making it a daily practice of many apps and platforms, both in classroom and online teaching.

METHODOLOGY

In order to achieve the objective of this study, the research group considered qualitative research as appropriate to answer questions about understanding, experience, meaning and perspective, most often from the standpoint of the participant. It is used to gain an understanding of underlying reasons, opinions, and motivations and provides insights into the problem or helps to develop ideas or hypotheses for potential quantitative research. Furthermore, qualitative research techniques include 'focus-group discussions' to investigate beliefs, attitudes and concepts of normative behavior; this is why we selected it to carry out focus groups with teachers and parents; instead, to carry out interviews with policy makers, Regional Education Office and District Education Directory representants, we selected semi-structured interviews to seek views on a focused topic or, with key informants, for background information or an institutional perspective.

More concretely, we conducted 10 interviews with policy makers, respectively with a representative from the Ministry of Education-Sport-and Youth (MESY), Regional Education Office (REO), District Education Directory (DED), and 7 principals from elementary and junior high schools in the district of Tirana. We specifically chose 3 principals from schools in the city center, 2 from the suburb and 2 from the surrounding villages in Tirana to get a more complete picture. The interviews were organized online through the zoom platform and lasted an average of 45-50 minutes: the shortest of 47 minutes, the longest of 54 minutes. Both the interviews and the focus groups were carried out at the end of the last quarter of 2019-2020 by means of zoom.

The same logic of the extension on the territory we held also in the organization of focus groups with teachers and parents, respectively 6 focus group discussions about elementary schools: two, inviting elementary school teachers from the city center of Tirana, another two with teachers from suburban schools (suburban area created in the '90s around the capital) and two focus group always with elementary school teachers from different schools in villages near the capital. As far as the focus groups created with lower secondary school teachers are concerned, we judged that they were more useful starting from the specific type of teaching at this level (transition from a single teacher for elementary schools to more teachers in junior high schools). Following this logic, we organized 6 focus groups: two for each area of origin

of the schools. Each focus group was composed on average from 5 to 8 teachers per group, in total 87 teachers.

For this research we found necessary to have the opinion of parents in this particular path of today's school, so we invited parents from junior high schools in 3 focus groups respectively inviting in one, parents from suburban areas 7 parents, from villages near the capital 5 parents and from central schools 8 parents and 3 other focus groups with parents from elementary schools respecting the same subdivision, 7 parents from suburban areas, 7 from areas of the villages near Tirana and 8 parents from the city center, in total 42 parents.

It should be emphasized that during the work with focus groups the most important thing was the seriousness in dealing with the topic and the lively participation of teachers. In addition, they themselves were very interested in the topic and absorbed each other's words and reflections. It was very difficult for the research group to keep up with the lively participation of teachers. But even more interesting and unexpected were the focus groups organized with parents because it was highlighted in all three groups their satisfaction in being heard on a topic that seems to be a sign of everyone's life from now on.

RESULTS

Policy makers' interviews analysis

The analysis of the three interviews with policy makers shows that despite all the efforts made by the government to bring schools closer to technology over the last 15 years, only pilot projects have been implemented in elementary and junior high schools to bring teachers closer to the use of technology in teaching. According to the representative of the Ministry of REO and DED, the use of SchoolMe in 7 schools in Tirana has been a fruitful experience. These pilot schools also used the same platform in the online teaching process.

However, it could not be applied to all schools because the number of pilot schools was limited and because it was an expensive platform. It turns out that the choice to use WhatsApp was dictated by the fact that not all schools were familiar with SchoolMe, the ‘pedagogical troupe’ were not familiar with platforms and apps other than WhatsApp and in addition most of the families outside the capital did not have a computer. The analysis shows that it was a decision made by the Ministry to use WhatsApp for online teaching because the communication and use of this app was familiar to junior high school students and was a practice that had already begun with the parents of elementary school students. In response to the need to allow all children to teach online through WhatsApp, REO made an agreement with a donor to donate mobile phones to pupils in some schools whose parents did not have the opportunity to get a mobile phone, in order to be able to face distance learning.

However, there is no evidence that there was a feasibility study before taking the initiative to use WhatsApp in conducting online teaching in the third trimester 2019-2020. At the same time, it appears that the REOs through DEDs have organized themselves to make short and quick webinars on theoretical consultation of experiences from other countries. These webinars served to help teachers transform WhatsApp's chat communication into online lessons. The DEDs monitored the process on a daily basis through the reports requested by the schools. For MESY, REO and DED the process has been implemented and WhatsApp has proven to be an appropriate application in dealing with the emergency of online school and is asking the need to use WhatsApp in classroom teaching as well.

Principals' interviews analysis

The analysis of the interviews carried out with the principals of the schools in Tirana shows that the use of WhatsApp in online teaching has helped them to continue the training process in the period of the third trimester 2019-2020, a time of emergency that has made them reflect at length on the urgent need for internal and external training of teachers in their schools because they judge that now the use of platforms and apps not only online but also in the classroom is an undeniable reality. A relevant fact from the analysis is that although an app chosen by policy makers, principals where possible have allowed their teachers to use other apps or platforms such as SchoolMe, google classroom, zoom (principals of city schools). On the other hand, it turns out that even though it is an app well known by children, it was not always able to be fully exploited for the needs of the lessons because there were also some teachers who did not have a smartphone type mobile phone (principals of the villages near Tirana).

In addition, there were many cases when the lesson was announced at nine in the morning but ended as a trial at 11 in the evening due to the lack of mobile phones for all the children of a family going to school, or due to the working hours of the parents incompatible with school hours. Parents returning home late had to help their children with their homework by sharing their mobile phones with them (the suburban principals). Ultimately, the use of WhatsApp in online teaching has revitalized the school-parent relationship because it has allowed parents to get into the planning process and participate strongly in the implementation of learning, homework, and projects. The same results show that the teacher-pupil relationship has also changed in favor of more direct, faster, more loose communication from pupils. In this relationship the ones who were more uncomfortable were the teachers and not the pupils because the pupils were already familiar with the use of WhatsApp and transforming this app from a purely leisure tool into a ludic training tool was quite fun for them. As for the teachers, the analysis of the interviews carried out with the principals brought them back to fatigue not only because of the endless hours of daytime work but also because it was difficult to quickly adapt a chat communication app into an app of educational value.

The direct training response to the teachers by the REO and DED education specialists who were not able to guide the teachers in time by means of video tutorials and appropriate training was very vague and unsuccessful.

Lastly, interviews with principals consider WhatsApp a valid application to be used in teaching only in junior high school because it helps to increase pupils' feeling of security and to believe in their abilities and self-confidence.

Teacher's focus group analysis

The answers of 6 focus groups organized with teachers from junior high schools were quite interesting and depending on the school placement: two focus groups with teachers from schools in the city center of Tirana, two more focus groups with teachers from suburban schools and the last two focus groups always with teachers from junior high schools but from schools in villages near the capital. To the question how much WhatsApp was used first in class or out of class for teaching, the answer was the same for all groups of teachers, underlining the fact that never before the third trimester of this year they were allowed to use mobile phones in class or even WhatsApp out of class for homework or whatever, except in extreme cases of teachers passing homework to pupils stuck at home for health reasons or other reasons.

However, teachers have been using WhatsApp for several years for regular communication with parents and for sending school reports. When asked when the use of WhatsApp was introduced for teaching needs, the analysis leads to the moment when it became imperative to

organize and reorganize the entire school system and especially the third trimester in online mode. When asked which apps or platforms were proposed as a function of online teaching, the answer was WhatsApp, because it was decided by the Ministry of Education and because most pupils knew it first. If they were familiar with the use of WhatsApp, the answer in most cases was yes (city center and suburban schools) and enough (schools in villages near Tirana) but only for personal communication and work, in its main chat function.

The analysis leads to the conclusion that the first moment was quite difficult because everything had to be oriented to the needs of the teaching process. What consisted in reprogramming the subjects according to the use of WhatsApp, the teaching and explanations of the subjects were carried out: by means of the videos uploaded in the WhatsApp groups formed with the students of the class, by means of voice recording, by means of chat communication, questions about homework and clarifications requested by the students. Did you use tutorial videos or produce them? The answer is that the videos are produced by the same teacher in most cases, either by self-recording the lessons, or in some cases by photographing objects, newspaper pages, books or magazines.

After one month of this experiment, they switched to tutorial videos produced by more experienced colleagues. When asked whether they entered the cloud where other experts or colleagues had deposited their lectures, everyone said no. The analysis of the teachers' opinions reports that the homework done by the students, most of the focus group participants replied that the homework almost always arrived, but never within the time set by both parties. This is due to many factors such as: the lack of a personal mobile phone, a mobile phone available to all children (1, 2 or 3) who attended school, as well as the working hours of the parents, which often did not coincide with the time set by the school (the cases where the children did not have their own mobile phone, they used the parents' one), the lack of gigabyte available for the mobile phones used by the pupils.

This last element was more present in the focus groups composed of teachers from schools in the surrounding villages in Tirana and schools in the suburbs due to the lack of internet infrastructure in those areas, while in focus groups composed of teachers from schools in the city center this was not revealed as a problem. How has the communication with parents been realized? Also, through WhatsApp, it was an experience to be reused in many ways, especially because parents were very present and helped a lot of children in their homework.

Moreover, for the first time they realized the difficulty and greatness of the teacher's role, thus recognizing the importance of this figure and giving it much more respect. What is their opinion on the success of the teaching process? It is a good intent that they managed to keep the attention of the pupils alive, to keep communication with the teachers, to recreate the routine of the school according to the established timetable and most of the participants confirmed that they were held at the same times as before. What is the feedback received from the pupils? Ultimately it appears that they have become familiar with the new teaching model using WhatsApp but the initial enthusiasm and discouragement has been replaced week after week by tiredness and disillusionment**.**

Analyzing the data from the 6 focus groups regarding feedback from parents, it turns out that in most cases, it is pure gratitude for the commitment and work that has always been done by teachers. They find WhatsApp easy to use. As parents they can easily follow, help and assist their children with their homework and listen to videos of explanations with them. In addition, it is a tool that parents and teachers already use to communicate about their children's school performance.

How do you judge this experience? In analysis, the experience of the teachers is interesting, stimulating but in some ways very stressful because extended in all subjects and for all topics, confirm the teachers of the schools in the city center; interesting but difficult because a mobile phone for home to use for two or more children does not always lead to a positive result, think the teachers of the suburb and very beautiful and interesting when you could have the Wi-Fi connection, say the teachers of the villages near the city of Tirana. All the teachers in the 6 focus groups realized the difficulty in reworking the teaching material according to the online teaching using WhatsApp because it is quite impossible to upload through the app very long videos, so it is difficult to synthesize the necessary information to pass to the children. They are left with the insecurity of fulfillment of their goals.

As for the advantages of using WhatsApp, the teachers pointed out that it is the app that is first and foremost loved by the children, ensures independence in formulating responses and teamwork, and increases the children's self-confidence. They learn from each other's mistakes leading to positive competition and turning error into a learning tool. It helps pupils to develop listening skills, comprehension skills, their oral skills and above all it enables them to improve their writing skills, as they do almost all their tasks in writing.

As for the negative aspects from the analysis of teachers' answers, it appears that some students do not participate in the discussion, students' attention cannot be guaranteed and not all students learn from the materials, some students simply copy and paste the homework.

Will it be part of your teaching from now on? The teacher from schools in Tirana would like to use WhatsApp in future because they do not want to lose the group and personal communication created with the children during this period. In addition, WhatsApp gives them more time to compare the minutes of the standard lesson. If the pupils have any questions they can write immediately, and more casually than in class. Pupil groups become small communities that behave as such even outside of homework and video lessons, allowing pupils to develop their understanding and writing skills, and for them as teachers to get to know them more deeply in order to better meet their educational and educational needs.

Focus groups with elementary school teachers

The research team decided to follow the same procedure with elementary school teachers in formulating the groups, i.e. two discussion groups with teachers from schools in the city center of Tirana, two other discussion groups with teachers from suburban schools and the last two discussion groups were those always composed of elementary school teachers from schools in villages near the capital.

The first two focus groups lasted two and a half hours and marked the lively participation of all the teachers and the questions were received with great sympathy offering very interesting, shared answers. We could say the same thing about the other focus group organized always with teachers offering service in elementary schools in the suburbs and villages surrounding Tirana to the question if WhatsApp will be part of your teaching path from now on? All six groups answered yes, but each group with a different argument. For the focus groups composed of teachers serving in schools in the center of the capital WhatsApp was a widely used form of communication with parents even before it became an online school practice due to the pandemic. They used it to communicate regularly with parents not only about service information but also about the performance of pupils and the whole class but never with the same frequency.

The transition from a communication on informative topics to a communication that aims to make parents 'support teachers', because through them the process of explaining new topics, explaining how to understand the homework and the realization of the homework itself is

carried out. Teachers stressed the fact that in the elementary school cycle pupils cannot have a mobile phone not only in school but also outside and at home. Therefore, the parental figure becomes crucial in the process of realizing online teaching. From the processing of the answers of the teachers of this group, it appears that they will continue to use WhatsApp not only for service communications, as before, but also for the realization of homework, for ludic activities and to transmit videos that help children to understand and fix the topics dealt with in class. Every kind of communication with pupils is carried out through the parents!

According to the analysis of the answers and discussions of the first group, i.e. the one carried out with teachers from central schools in the capital, it appears that when asked how they judge the WhatsApp? experiment, they confirm that they find themselves unprepared, without tutorial videos and without adequate training, and this has not always led to success. Most of the teachers consider it positive but to be applied especially for homework, videos that help understanding, games and projects.

Less optimistic results come out from the analysis of the data collected from focus groups with elementary school teachers from schools in suburban areas and even more so in the villages near Tirana.

The analysis of the discussions and the responses of the groups in question bring a very different panorama: WhatsApp was introduced several years ago in the presentation of specific problems to parents or for the communication of disciplinary facts, but it was not always possible because there are also parents from suburban areas and villages that do not have a mobile phone. In these cases, communication with parents about homework and downloading videos was not possible, so the lesson was missed.

The analysis of the focus group responses shows that where there was regular communication between teachers and parents in passing homework and explanations of homework and lessons (2 focus groups in the city center) there was positive competition between parents leading to improved performance. This was thanks to WhatsApp, the communication groups created for the occasion, where parents read other people's answers and this allowed them to correct their homework in time or even redo it again. This positive competition improved pupils' learning.

The analysis leads to the conclusion that there was a lot of effort, but they tried to achieve the objectives of the teaching by having a positive response from the parents (teachers in the city center). It was an effort to achieve the objectives of teaching (teachers in the suburbs) and not entirely successful the objectives (teachers in the villages surrounding Tirana). In the analysis, it appears that the positive response in the use of WhatsApp for elementary schools is the full involvement of parents in the teaching process. What is negative is the fact that homework is always done with parents, thus becoming dependent on their help and without developing the ability to understand, read and write.

For all 6 focus groups in analysis remains the app to be used with the aim of involving parents in doing homework together with their children and helping them to better understand the lessons. However, the teacher do not think that WhatsApp should be used frequently in the educational process.

Parent's focus group analysis

From the elaboration of the answers given in the first three focus groups organized with parents of junior high school pupils, the result stands out that their children used their mobile phone, WhatsApp, had their own personal mobile phone and spent a lot of time on their mobile phone (city center parents) even before. They were both involved in the process of doing their

homework and explaining or clarifying the elements of the videos received from the teachers (parents of the city center schools). They were quite involved in controlling the use of WhatsApp while their children were doing their homework (parents from the suburbs), little or no involvement in the process of online teaching (parents from villages near Tirana).

It turns out that for downtown parents the teachers' explanations about homework were often not clear, often it was just a simple reading of the requests written in the pupils' book, detailed explanations from teachers were missing, other times it was too much homework. Parents remember that they could not keep up with their children's homework because they understood little both from the lesson videos and from the formulation of the homework in many subjects. They only accompanied their children so that they could not leave their homework behind to play with their mobile phones.

In other cases, parents became protagonists to speed up the process. The analysis leads to an interesting fact, that of improving the communicative relationship with children and teachers. The process of online teaching got parents into the merit of the teachers' work and the problems of learning by their children.

The situation that results from the analysis of the answers taken from the focus group organized with parents in elementary school is very different. They did not allow their children to spend a lot of time with their mobile phones, to use WhatsApp and to have their own mobile phones. They remember that it took a lot of time and effort to accompany their children to do their homework. It turns out that to reassure their children, in order to get positive feedback from the teacher, the parents were doing their homework instead of them. They spent a lot of time following the videos of the lessons and helping their children to understand them (parents from city schools).

The analysis of the answers collected from parents from the suburbs or villages brings us back to the fact that less of their children have a personal mobile phone and as a result the parents pushed to finish their homework and preparation quickly. They were not or not at all involved with their children’s homework and had little or no understanding of the subject matter and consequently less involvement in homework and projects. It turns out that children spent more time doing homework with WhatsApp. The relationship with teachers remained the same as before, but they controlled communication between their children and their teachers in WhatsApp.

Analysis of the issues for these two groups of parents leads us to mention as one of the issues the phone costs of using the internet, the children's extended time using the phone and WhatsApp, the fear that their children are playing with their cell phones and the children's tiredness and lack of physical activity as an excuse for homework. The analysis of the feedback collected from elementary school parents shows the same differences as the analysis of the feedback collected junior high school parents. More specifically, the WhatsApp groups of parents created by teachers have been working quite well for two to three years. The communication included announcements about schedules and disciplinary behaviour. The online school changed the communication with teachers making it more complex, more constant and more alive (parents in the city of Tirana). It was not often possible to deliver homework on time due to the daily occupation. As the children did not have their own mobile phones, homework and learning was prolonged until late in the evening.

Children needed more time to do their homework (all 3 focus groups). They learned how to do their homework and better understand project questions by consulting the answers given by other parents in the WhatsApp group. They would often take their children to do homework,

spend more time with them, get more into the subjects they do, and apply themselves more to following videos and doing homework. The analysis of the negative effects leads us to list:

- teachers' requests were not always clear;
- they were not always explanations;
- often they were a simple re-reading of the homework in the book;
- difficulties in understanding by parents who later had to explain them to their children;
- communication of the homework by teachers is extended until late in the evening (parents from Tirana and the suburbs).

Another interesting element that results from the analysis is the parents' attitude about the use of WhatsApp in the future. The analysis of the responses of all focus groups leads to the conclusion that WhatsApp remains as a model of communication with parents, of communication with pupils only for specific clarifications to send specific homework, and rarely to upload video tutorials or short videos.

DISCUSSIONS

The Albanian system has been trying to introduce the use of technology in classroom teaching for over a decade. With all the progress that has been made in the theoretical training of teachers, it was not possible to enable the pedagogical staff, in the inclusion of platforms and apps in the daily practice in the classroom. The few pilot projects were a fruitful experience but insufficient to cope with the "online" emergency of the third trimester of 2019-2020, school closing time. Using WhatsApp was a wise decision taken by the Ministry because the use of this app was familiar to teachers, junior high school students and had also been a practice of communication with the parents of elementary school pupils for years. WhtasApp is also valid and interesting to be used as a ludic and motivating activity.

The only people, who were more uncomfortable in the process of implementing WhtasApp, were the teachers and not the pupils because the pupils were already familiar with the use of WhtasApp and transforming this app from a purely leisure tool into a recreational and educational tool, was quite fun for them. Teachers' insecurity of not being able to fully fulfill their teaching goals was growing because most of them had used classical teaching models until now and because they were faced with the need to prepare their own materials that required time and software experience to support the application.

The use of WhatsApp has led teachers to be more flexible also in their communication with students, forever changing the teacher-pupil relationship in favor of more direct, faster, more loose communication by both. Using this app teachers have had the opportunity to know more about the creative and artistic skills of the pupils to put them better in the educational process.

In addition, the use of the WhatsApp in the teaching process, particularly online, ensures the independence of the students in formulating responses alone or in group work, thus increasing their self-confidence. Students learn from each other's mistakes, thus transforming error into a learning tool and ensuring positive competition. The app helps them to develop the four skills by favoring writing skills, (as they do almost the entire volume of tasks in writing).

However, one cannot forget that the attention of the students cannot always be guaranteed. Not everyone participates in the discussions and not all students are committed to learning from the materials received through the WhatsApp. Others simply copy and paste. Sometimes, it

happens that behind the excuse of homework, students spend hours and hours playing on the Internet or chatting, which is also a parental concern.

You can't escape the fact that the use of WhatsApp in online teaching has revitalized and improved the school-parents, parents-pupils communication relationship because it has allowed parents to get into the merits of programming. They have accompanied their children in learning and have participated strongly in the realization of their children's tasks and projects more than before, especially in the elementary cycle. The parents didn't enter the merits of teachers' work and their children's learning issues until WhatsApp was used in the online teaching process. They have had the opportunity to evaluate closely and thus better understand the shortcomings of the teachers' work. All this also led to the awareness that only by accompanying their children together with the teachers towards the acquisition of different competences will the goals set by be achieved and the learning process will be successful.

CONCLUSIONS

In the present and future of online and classroom teaching, smartphones, WhatsApp and more, have now gained "the primacy" of use and you can't and shouldn't go back. WhatsApp must remain as a practice that keeps children's attention, revitalizes communication with teachers and parents, and counteracts the boring of the traditional school. WhatsApp should be used in teaching as an app that is loved and quoted positively by students and therefore increases their motivation to learn.

It can be and must be used as a winning alternative to virtual classes because on the one hand Whatsapp helps absent pupils to catch up (homework, material, even the audio of a lesson), and on the other hand it also helps those in the classroom who have missed something. All thanks to Whatsapp's potentially endless archive and the possibility of creating broadcast groups, it is possible to store exercises, tips, guidelines throughout the school year, which can be retrieved when needed.

It is important to advise and support the use of WhatsApp as it favors eco-sustainable development: it eliminates the ink, paper, chalk and blackboard as it offers very practical and instantaneous functions that can be used during the lesson. Let's think about how many photocopies it would take to give the students the same text to read. Just one click and the file is shared with everyone. Just send the individual files to their mobile phones and they will stay there without the risk of getting lost or someone copying them incorrectly or incompletely. Not to forget the possibility of sending audio and video, even large ones, clips of documentaries, interviews, news reports that can accompany the teacher's explanation.

Not all teaching subjects and activities, however, can find the best teaching choice in WhatsApp. This fact should lead education specialists to deepen their knowledge of the techniques and didactics of the use of a multitude of technological aids. We must continue with more perspicacity in the internal and external teacher training for a better knowledge and correct use of apps, platforms and icloud created by professionals of each subject.

In addition, being part of a group, albeit virtual, as in the case of WhatsApp, will help inclusion because the digital screen facilitates social interaction and constitutes a sense of belonging to the group. In short, there are good reasons to consider WhatsApp a fun and entertaining app. For all this, the research group, through this study, states that Albanian teachers have a more than positive perception about the use of WhatsApp in teaching and they consider it as the app that led them to the conclusion and realization of the educational process of the school year 2019-2020.

REFERENCES

Almiranite, P., 2019. Whatsapp a scuola: se usato bene va bene. Available at: https://www.tecnicadellascuola.it/whatsapp-a-scuola-se-usato-bene-va-bene (Accessed 28 July 2020).

Gon, S. Rawekar, A., 2017. *Effectivity of E-learning through Whatsapp as a teaching learning tool*. Available at: https://www.researchgate.net/publication/317815716 (Accessed 28 July 2020).

Graham, A. and Phelps, R., 2013. *Technology together: whole-school professional development for capability and confidence*, International Society for Technology Education (ISTE), Oregon.

Man, C., 2014. Word'sUp with WhatsApp: The Use of Instant Messaging in Consciousnessraising of Academic Vocabulary, In: *23rd MELTA and 12th Asia TEFL International Conference* 28-30, August 2014, at Borneo Convention Centre, Kuching.

Maria, J., 2016. Use of Whatsapp to Enhance Reading and Writing Skills at Undergraduate College Level. *Language in India*, 16(11).

Rosenberg, H., Asterhan, Ch., 2018. "WhatsApp, Teacher?" - Student Perspectives on Teacher-Student WhatsApp Interactions in Secondary Schools, Journal of Information Technology Education: Research, Vol.17, pp. 205-226.

Scala, C. M., 2019. Come usare Whatsapp a scuola e renderlo utile nella didattica: idee e suggerimenti 2019. *Scuolainforma.* Available at: https://www.scuolainforma.it/2019/09/13/come-usare-whatsapp-a-scuola-e-renderlo-utile-nella-didattica-idee-e-suggerimenti.html (Accessed 28 July 2020).

RESOURCES OF CONFLICT PEDAGOGY IN THE PROJECT OF DIGITAL UNIVERSITY "SMART-UNIVERSITY IN SMARTPHONE 2020"

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Abstract

The modern development of the digital model of the Ukrainian economy, the introduction of digital projects "State in a smartphone", "Electronic student", "The capital in a smartphone" and other services have contributed to Redesigning Learning Spaces for 21st Century Education and creation of the Multidimensional Realities - a digital university. It is based on the need to adapt a classic university to students belonging to the Digital generation, who seek to use new technologies and claim (94% of respondents) that IT, Internet technologies need to be used in the educational process. The article analyzes actual ideas on the problem of digital university development, which is interpreted as the digitization of the processes of higher education institution for processing information in electronic format. The University in a smartphone will provide maximum flexibility, individualization, personalisation and efficiency for participants in the educational process. The research is being conducted at Taras Shevchenko National University now. The results of 4 initial stages of this research have been reflected in this article. Its sample was 525 students from all 20 faculties of the university. According to the results of the research, recommendations about implementation of the Smart-University were formed.

The single training profile allows users to consolidate and accumulate knowledge in one place. In particular, the following things are very important in filling such a university:- student's electronic study (57%); - teacher's electronic study (22%); - electronic dean's office (6%); - electronic classroom and library fund (5%); - online reporting (4%); - electronic document flow (3%); - online help in resolving problems, disputes (3%). The authors of the article emphasize the conflictological competence of students, teachers, administration.

Pedagogical conflicts at the university, caused by destructive real and virtual communication, have become the subject of research in conflict pedagogy. Its resources (methods, techniques, technologies such as foresight and mediation) are effective productive tools in managing pedagogical conflicts in higher education. Learning these resources significantly improves the quality of mastering not only the discipline "Conflict Pedagogy", but also in general the professional and personal competence of students by saving their time, resources, health, potential, which increases the efficiency of Smart University.

Keywords

Smart-University. Pedagogical conflicts. Resources of Conflict Pedagogy

INTRODUCTION

Nowadays the world is becoming digital, and everybody must have a sufficient level of using digital technologies and use it effectively in business, various sectors of the economy, including education and science. Today, as never before, the basis of any activity is access to information data that is placed in the relevant open environments and can be accessed from anywhere and at any time. This, in turn, can be attributed to the necessary conditions for the

development of innovative educational activities in which intellectual (digital) technologies are used, used in all areas of information society. In this process, key values are important namely those that society will expect from higher education and universities.

The university is a cultural and civilizational phenomenon that has undergone a long evolution and is an environment where new ideas develop freely, scientific discoveries are made, complex philosophical and ethical issues are discussed, and creativity is rewarded and capitalized. The key assets of these institutions are the top manifestations of human intellect, supported by a holistic worldview and ethical position. As a result, it allows the university to be a factor in the reproduction of modern civilization.

Universities are a part of society and should be the driving force of its development, they should develop and evaluate options for solving problems that are important for the society, as well as to offer a wider range of educational, scientific, innovative, expert and other services aimed at meeting the needs of both applicants and employers. and the country and society as a whole, local communities, professional communities (including international ones), etc. (Skiba, 2020).

These goals need structuring to better understand priorities, the links between them, and step-by-step detailed elaboration of problematic issues. In particular, *digital tools* deserve special attention. The topicality of their implementation should be considered:

1) in the contexts of higher education management at different levels;

2) through the use of new learning technologies;

3) in integration with other sectors of the economy, with the European areas of higher education and research;

4) through access to sources of information and online tools of scientific research, social protection of workers, etc.

The Covid-19 pandemic emphasizes *the topicality of the development of digital technologies* in education and will obviously accelerate the transformation of higher education towards their comprehensive use.

However, the traditional tasks of universities are no less important:

- formation of human potential for the future society;
- preservation of general culture, special knowledge, their transfer to new generations;
- development of science and technology;
- participation in the development of society, territorial and professional communities.

The key ideas of Alexander von Humboldt, John Newman, Ortega Gasset, and Karl Jaspers regarding the university's mission in society remain actual today. However, the new generation of universities should become the leading centers of intellectual support and scientific support of social development through the development and examination of relevant projects and forecasts at various levels (global, national, regional, sectoral), as well as tools to involve young people in actual research. Such processes are already taking place in modern European, American, Chinese and other education systems.

In addition, there are no single education models in many countries in Europe, the United States, Canada, and China, but there are different types of higher education institutions. Not everything from their experience should be borrowed, because not everything will work in our conditions in Ukraine. Moreover, in the face of global competition, these universities are evolving. They are looking for answers to new challenges, more effective solutions to old problems and are changing quickly. Therefore, within the framework of this approach, there is

a risk of borrowing what the previously mentioned universities do not use any more (Skiba, 2020).

Therefore, different universities will differently assimilate new technologies and practices and, adapting to the changes caused by the Covid-19 pandemic, will either remain the most powerful players in the field of higher education, or disappear without competition. And various elements of non-formal education will be incorporated into new practices of organizing the educational process, as well as will be developed in the field of adult education.

The most successful universities will be partially transformed into digital ones, which are based on the need to adapt the classical university to students who belong to the Digital generation and want to use (94% of respondents) innovative technologies in the educational process (Taras Shevchenko Kyiv National University, 2020).

Digital university is the digitalization of the processes of a higher education institution for processing information in electronic format. In modern conditions, the term "Smart Education" is used to denote such innovative educational activities, which means the association of modern educational institutions and pedagogical staff to carry out educational activities in the Internet on the basis of common standards, agreements and technologies, which include:

- rapid adaptation of students to a rapidly changing environment;
- providing free access to educational content around the world;
- formation of students' skills of "education of the future", which consists of the individual's mastery of ways of continuous new knowledge acquisition, the ability to learn independently;
- formation of an independent creative, not reproductive type of thinking;
- flexible learning in an interactive educational environment;
- acquisition of skills to work with heterogeneous and contradictory data and information;
- addition of the traditional principle to form "knowledge, skills and abilities" according to the principle "to form competence".

Smart University includes a digital university in combination with tools that allow you to optimize processes through automation, as well as the use of new technologies for organizing the educational process.

"Smart University" is an association with the global information open educational space, which provides free access of students and teachers to global information resources, meeting the needs of students in information products and services, as well as effective information interaction of all participants in the educational process (Taras Shevchenko Kyiv National University, 2020).

This in turn means that there should be a transition from book to interactive content, teachers, students and their competencies should change, a new concept of academic and corporate knowledge management should be created, which is provoked, in particular, by the problem of personal health safety of participants in the educational process during the spread of Covid-19. Under such conditions, the task of a modern "smart" university, which was formed by our University, is to develop in students:

- key competencies: life, professional, digital, communication;
- personality skills of the XXI century, including cooperation (common teamwork, leadership, understanding of diversity, respect to differences).

"University in a smartphone" includes the implementation of Digital University and Smart University with full adaptation of functionality for using in smartphones, which will provide

maximum flexibility, individualization, personalization and efficiency for participants in the educational process. However, along with the many advantages of *"University in a smartphone"*, we have destructions related to the deterioration of communication and functioning, the emergence of emotional tension, negative feelings, misunderstandings, disputes, hostility and conflict situations in the educational institution (Taras Shevchenko Kyiv National University, 2020).

Pedagogical conflicts arise in the interaction of participants in the educational process (students, teachers, administration) due to certain contradictions in values, views, mutual expectations, tactlessness in communication, destructive actions, as well as due to lack of conflict culture of individuals. In the formation of this culture, special emphasis is placed on innovative ICT and educational technologies. Such processes pay great attention to the conflictological competence of students, teachers, administration. This competence is acquired through the acquisition of positive experience and using theoretical and methodological recommendations for successful prevention and effective constructive resolution of pedagogical conflicts (Golub, Koshechko, Postoiuk, 2019, p. 214).

Such conflicts at the university are caused mainly by destructive real and virtual communication, have become the subject of research in C*onflict Pedagogy*. Its resources (methods, technologies, techniques) are effective productive tools in the *management of pedagogical conflicts in higher education.* Learning these resources significantly improves the quality of mastering not only the discipline *"Conflict Pedagogy",* but also in general the professional and personal competence of students by saving their time, resources, health, potential, which increases the efficiency of Smart University.

The analysis of the scientific literature on the issue of pedagogical conflicts was carried out in the work "Emotional intelligence of future teachers for the prevention of pedagogical conflicts". It states that pedagogical conflicts have been studied by many specialists and the results of these studies have been presented in numerous publications by V. Afonkova, S. Banikina, V. Basov, B. Zhyznevsky, V. Zhuravlyov, V. Kazanska, E. Kirshbaum, J. Kolomyisky, A. Likhanov, M. Rybakova, L. Simonova, O. Sokolova, S. Suleymanov, T. Chistyakov, N. Shelyakhovskaya and others (Koshechko, 2019, p.15).

I. Dychkivska, N. Kryvoruchko, I. Pidlasy, V. Slastenin, V. Shapkin and others studied the problems of development and implementation of innovative educational technologies of education, the actual ideas of whom were considered and generalized by Koshechko in her article "Innovative Technologies for Teaching Students in Pedagogical Conflict" (Koshechko, 2018, p.32).

In the context of teaching, one of the most modern studies about using educational technologies in higher education are the works by Beseda, Rohliková and Bat'ko (2017), Maiier and Ustymenko (2018), Postoiuk (2018), Prepotenska and Angelova (2018) and others.

The purpose of the article is to analyze and characterize the resources of pedagogical conflictology in the project of the Ukrainian digital university "Smart University in a smartphone 2020". To achieve this goal, the following tasks were implemented:

- the content and the essence of Smart University and its influence on students has been analyzed;
- the specifics of activity, filling of structure of the Ukrainian digital university and pedagogical conflicts in it have been characterized;
- recommendations on the use of resources of pedagogical conflict in "Smart University in a smartphone 2020" have been formed.

METHODS

To achieve this goal, *research methods* have been used:

1) *theoretical methods:* • study, theoretical analysis of psychological and pedagogical, scientific and methodological literature to clarify the essence and specifics of the basic concepts of research; • comparison, systematization and modeling of information to determine the content, features, characteristics of the Smart University impact on students, their resource capabilities in the formation of conflict competence of participants in the educational process; • generalization of research provisions;

2) *empirical methods:* • written survey ("Methods of diagnosis of communicative social competence" and questionnaire "Pedagogical conflict by the eyes of students: prevention and management", "Latest educational technologies in higher education", "Modern technologies of higher education"); • methods of quantitative and qualitative data processing.

RESULTS

The study is being conducted at Taras Shevchenko National University of Kyiv. The sample is 525 students aged 17 to 26 years from all 20 faculties of the university. The research is being carried out during 2019-2020. Currently, the implementation of the project *"Smart University in a smartphone 2020"* continues and this article analyzes only the results of the implementation of 4 initial stages.

I. *The first stage was preparatory.* During it, an analysis of a large amount of scientific and methodological literature on issues related to the use of innovative ICT and educational technologies, comparison of technologies, methods, algorithms for managing higher education institutions, highlighting the most effective of them has been done. The necessity of using a written survey ("Methods for diagnosing communicative social competence") has been substantiated. Also, at this stage there was a selection of methods, the creation of questionnaires to study the above problem. On this basis, questionnaires were developed using the program google forms: "Pedagogical conflict by the eyes of students: prevention and management", "Latest educational technologies in higher education", "Modern technologies of management of higher education institutions".

II. *The second diagnostic stage* was characterized by the implementation and analysis of the above-mentioned questionnaire survey of students. Its results reflect the level of professional competence, the use in practice of innovative ICT, educational technologies and methods of conflict management in higher education.

III. *At the third analytical stage*, the problems, risks and resources associated with the use of innovative ICT in the Smart University format were analyzed. Its specificity was to consider the personal and professional qualities of students in the use of modern innovative ICT, management technologies in higher education and methods of prevention and resolution of pedagogical conflicts in it.

IV. *At the fourth creative stage* the generalization, registration of results of research was carried out. There was a question of visual, graphic illustration and reflection of these achievements, which is presented further in the article.

Also, at this stage there was a generalization of the recommendations offered by students on *filling the Smart University*, the introduction of innovative ICT technologies and educational technologies in the practice of conflict management in higher education.

It is necessary to consider in detail the main stages of the transition to *Smart University*.

First, it is the transition from book passive content to electronic active and constant updating of academic disciplines. Active content means educational content that is built by integrating knowledge objects, electronic metrics and academic knowledge management systems. At the same time, knowledge is placed in repositories in the form of knowledge objects of various formats. A specially designed metadata system is used to describe and link all knowledge and learning objects. The content is a set of parts (modules) that can be assembled in any sequence, which makes it possible to develop an individual course for each student and in reality, to implement personality-oriented learning. The technological environment of the educational institution should allow to work not only with educational courses, but also with their separate parts (modules). The content is located in social networks for common development and common use by both students and teachers.

Secondly, the formation of new professional and information competencies of teachers and students, as the information society of knowledge requires innovative technologies for the creation of educational materials and innovative approaches to learning.

In this context, the preparation of the Concept of a new model of university education was announced at the Ukrainian Institute of the Future in autumn 2019 as the third stage of the project "Future of the University". During six months, the name, composition of the working group and, of course, the mood that influenced further intentions changed several times. In particular, the educational situation, the format of students' education, and the requirements for their health safety have changed significantly due to the Covid-19 pandemic (Skiba, 2020).

The result of the first stage of the mentioned project was the publication of the report "Evolution of universities. On the threshold of unknown future". Thus, there was a review of the basic elements of the university as a phenomenon, the patterns of its evolution in different social and economic contexts. Finally, a kind of "coordinate network" was built, which allowed us to determine the place of Ukrainian universities more accurately on the world map, and most importantly their prospects. The latter turned out to be the most difficult.

Both expert texts and the results of presentations and meetings outlined the gap between what a university is in the global context and what educational institutions in Ukraine are, most of which have the word "university" on their facades. It is both about the reproduction of human capital and the ability to generate intellectual phenomena from which new value chains are unfolded, respectively, the economy grows with new assets, and society has better optics to track and understand changes.

That is, we are not talking about the difference in the level of figures of the budget and currency in which they are calculated. We are talking about ordinal and qualitative values: at the level of quality of thinking and meanings invested in the organization, management models and culture. The circumstances of the spring 2020 force to ask questions very sharply and actually. The reaction to the Covid-19 pandemic and the resulting quarantine is becoming a crucial dividing line between capable and incapable universities. In particular, the global map shows hundreds of academic centers that are becoming centers of expertise in the field of virology, immunity. At the same time, there were tens of thousands of institutions around the world that could not even organize a proper level of distance education. The latter are simply doomed, if not to extinction from the arena, then to marginalization almost certainly.

But the hardest part was finding leaders who were ready for a radical transformation, not just step-by-step improvements that had significant systemic limitations and had been already expired. There were a lot of presentations, dozens of round tables, hundreds of informal workshops. On the one hand, it shows the prospects of speed, and most importantly - the

courage of change, but on the other hand it revealed those who really need them and for whom it is pleasant to work.

Leading universities have played a significant role in helping doctors fight the onset of the Covid-19 virus. For example, in Cambridge, a group of scientists and engineers designed new models of ventilators simultaneously with the development of the vaccine. Several universities in New York worked on the development of devices and protective suits for doctors. And the Seoul University Clinic became a hospital where hundreds of people were saved from complications caused by Covid-19. Of course, before the crisis, these universities had solid funding and material technical base. But on the other hand, they received all of the above mentioned in fair competition and the legal field, which contributed to attracting investment and choosing the most appropriate governance mechanisms and inviting the best professionals who made skillful management decisions. And this is exactly what is absent in Ukrainian universities (Skiba, 2020).

The pandemic and the global economic crisis are not only a threat, but also an opportunity, a significant potential for leaders of change such as Taras Shevchenko National University of Kyiv in the implementation of innovations, progressive developments from the university and academic environment in higher education management. After all, it is time to reach the level of work dynamics and consolidation of efforts that will meet the challenges of time.

At Taras Shevchenko National University of Kyiv, in the process of implementing the "Smart University in a smartphone 2020" project (Berezina, 2020), a single educational profile is being formed, which allows users to consolidate and accumulate knowledge in one place.

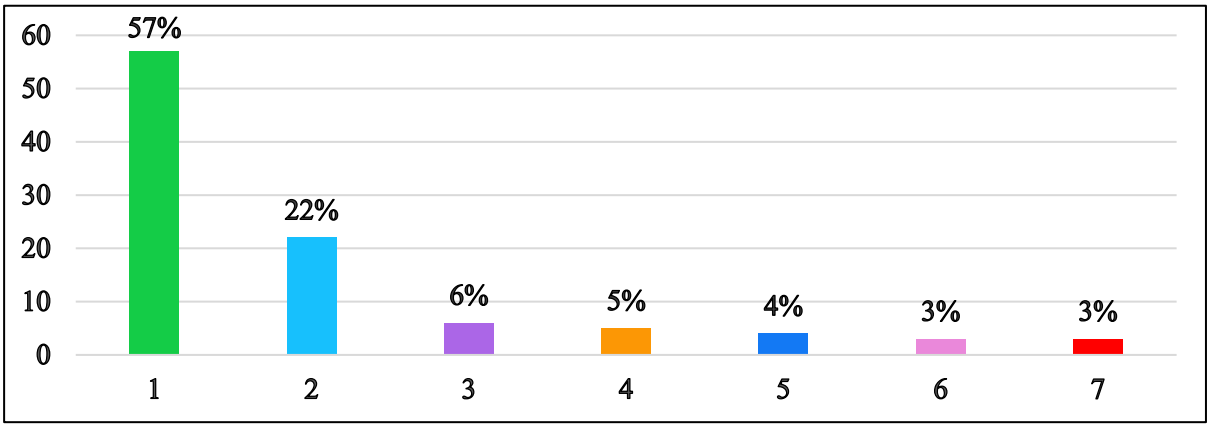

Figure 1: The structure and content of Smart university. (Source: Koshechko, Postoiuk, 2020)

In particular, the following are important in filling such a university: **1** (57%) - student's electronic study; **2** (22%) - teacher's electronic study; **3** (6%) - electronic dean's office; **4** (5%) electronic classroom and library fund; **5** (4%) - online reporting; **6** (3%) - electronic document flow; **7** (3%) - online help in resolving problems, disputes using the technologies of facilitation, moderation, coaching, *foresight and mediation*. We believe that these last two technologies provide the greatest effect in the online assistance of the individual in overcoming pedagogical conflicts in universities.

Forsight combines the best achievements of forecasting and strategic planning in the field of pedagogical conflict studies. Knowledge of the future took different forms in different historical epochs, evolving from ancient prophecies to the futurology of the twentieth century and scientific prognosis of the twenty-first century. The stages of foresight changed along with the development of society and its conflicts. Today, this technology is increasingly moving into the sphere of social, cultural and educational relations.

Foresight technology in real and online formats is to form a strategic policy for the development of the university and strive to maximize its potential, timely prevention and resolution of pedagogical conflicts. Education is increasingly perceived as an extremely important intangible investment in the development, the future of the individual. In particular, the development of digital technologies is changing the ways in which knowledge is recorded, transmitted and created, as well as skills are formed. In addition, digital technologies are changing the process of assessing and recording achievements, the process of managing their own educational trajectory, processes in the management of educational institutions (Houlman, 2018).

Digital technologies allow to individualize education without increasing the level of costs for it, which increases its advantages in the context of *foresight* technology. It is a technological set of tools that make it possible not to guess the problems of the future, but to set a goal in the form of the desired result, to determine the necessary conditions today. This is an active forecast that includes elements of impact on the future, considering the resources needed for development.

Forsight is called a systematic attempt to look into the long-term future of higher education institutions in order to find resources and new nanotechnologies that provide the greatest social bonuses, in particular, in the process of managing pedagogical conflicts in higher education.

Mediation technology has been used in the educational activities of educational institutions for a long time. First it began to develop in the second half of the twentieth century in the USA, Great Britain, and Canada. In 2001, the United States Unified Mediation Act was developed and adopted. Common law countries such as Germany, Austria, France, Denmark, Finland, Scotland, Italy, Poland, the Czech Republic, Slovakia, Macedonia, and Switzerland took a difficult way until they recognized mediation as a legal and useful dispute settlement procedure. In Russia, the Federal Law on Mediation Procedure came into force on January 1, 2011. In April 2004, a state program for the introduction of mediation in Ukraine was launched.

Mediation is a popular technology for resolving conflicts in real communication or online with the help of the third person, independent and disinterested. It is a process in which a neutral person, free from negative emotions, helps to resolve the conflict by promoting a voluntary agreement between the conflicting parties. The mediator facilitates the process of communication between the parties, helps to better understand their interests, creates conditions for finding effective ways to solve the problem, encouraging the parties to reach their own agreement. The mediator helps participants develop criteria for evaluating alternatives to conflict resolution. The mediator does not make the decision and does not force it to be made but brings the parties to make an independent decision and the most acceptable way out of the situation.

Mediators can work alone, and mediators of different sexes can work in co-mediation with heterosexual participants in the pedagogical conflict to eliminate the effect of the gender coalition. Mediation technology significantly improves students' study of the discipline “Conflict Pedagogy” due to interactivity, focus on the process of avoiding the escalation of conflicts (Koshechko, 2018, p. 34).

DISCUSSIONS

At the initiative of the rector of Taras Shevchenko National University Leonid Gubersky, the University launched a project of the Digital University “Smart KNU (Kyiv National University)”, which provides for a comprehensive digitalization of the functioning of higher education. At the Rector's meeting on February 10, 2020, the project was presented by the Vice-

Rector for Perspective Development Oleksandr Rozhko. He noted that the University's management is aware of the exceptional importance of technology in a globalized world that is changing and improving incredibly fast. KNU (Kyiv National University) as a leading educational institution in Ukraine should become a model and respond immediately to technological challenges of everyday life (the newspaper "Kyiv University", 2020).

In the conditions of development of digital model of economy of Ukraine, introduction of digital projects "State in a smartphone" (national online platform "State and I", "Action. Digital education"), "Trembita" (platform for legislative communication), "Electronic student", "Capital in a smartphone" and other electronic national services and platforms, there is an urgent need to adapt the University to the target audience - students who belong to the generation of "Digital" and demonstrate a tendency to use new technologies in everyday life and in the learning process. This adaptation will increase the competitiveness of the University, create additional values and increase the number of students involved, including foreign students. The presentation at the Rector's Office, accompanied by a lively discussion, was attended by partners and developers of "Smart KNU" (Berezina, 2020).

Leading specialists of Human company joined the development and filling of this educational smart-project. Philip Sterenthal outlined the key principles of the Smart KNU platform, which will be automated, flexible, informative and accessible at the same time. Philip Sterenthal noted that an educational project of this scale is being implemented in Ukraine for the first time and the University is truly an innovator in the implementation of such global smart-developments. That is why we will first focus on the requests of all users of the innovative platform "Digital University Smart KNU" (Berezina, 2020), which contains:

1. *Electronic student's study*: • choice of courses; • schedule (taking into account elective disciplines); • access to lecture materials (in the format of presentations) in all disciplines according to the curriculum; • receiving and delivery of tasks; • control of the received marks; • online communication with the teacher, group; • automatic check for plagiarism of completed tasks (essays, course and diploma works); • online communication with the dean's office (generation of necessary certificates, financial issues); • online communication with the dormitory administration; • assessment of discipline; • digital library; • reference information;

2. *Electronic teacher's study*: • formation of educational and methodical support of courses (locating on the site of all lectures, tasks for exams, etc.); • electronic register of visits and evaluations; • online transfer of tasks to students and obtaining results (automatically checked by the system for plagiarism); • formation of information lists with the points scored before the exam / test; • online communication with the dean's office and other necessary departments;

3. *Electronic dean's office*: • automatic scheduling; • control over financial discipline (debtors receive a message at the touch of a key on the computer); • performance monitoring (daily); • electronic document flow (references, submissions, information, etc. are generated and sent to the recipient); • systematization of personal data of students; • reporting;

4. *Electronic classroom, library fund*: • arrangement of classrooms in "Smart classrooms" and virtual classrooms; • use of Smart technologies in the classroom; • online teaching platform; • digital library; • video surveillance in classrooms with a monitor on the teacher's desk in order to increase the level of integrity;

5. *Online reporting*: • formation of a report on the performance of the university in a continuous mode with a demonstration on the computer of the rector and heads of relevant departments;

6. *Electronic document flow* with the use of digital signature in all structural units.

Further development of the project involves its modernization and development of new components ("Campus", "University Clinic", "Electronic Voting").

On April 29, 2020, the management and staff of Taras Shevchenko National University of Kyiv (2020) took part in a meeting during which a test version of the new distance learning platform was presented. The meeting was held in the main educational building of Taras Shevchenko National University.The presentation was a stage of implementation of the project "*Smart University in a smartphone*". The audience was shown platform capabilities on the examples of educational materials of teachers at the Institute of International Relations, Faculty of Economics, Chemistry and Law (Taras Shevchenko Kyiv National University, 2020).

On May 25, 2020, the presentation of the distance education platform "*KNU Education Online*" took place at the university. Rector Leonid Gubersky stressed that the development of this technological solution lasted more than one month. "*KNU Education Online*" is not considered as the only possible form of implementation of the educational process. The presented technological solution will not replace direct communication of teachers with students. This platform will be an effective tool for overcoming the today's challenges, will help organize training right now, and in the future will become a mandatory part of the informatization of the Taras Shevchenko National University.

The development of "*KNU Education Online*" considered the experience of the best foreign universities, as well as today's educational trends. When selecting the development team, the University considered various proposals, where the main criteria for the selection of a partner organization were *the quality of the software product*, *safety of its use and compliance of the technological solution with the requirements* of the educational process. The developer who met such requirements was the limited liability company "*Interactive Learning Systems*", headed by a graduate of the Faculty of Economics of KNU *Ivan Volkov*. At the initial stage, the developers focused on creating a teacher's and student's studies. The spread of the coronavirus, and later the pandemic, prompted the developers to change the focus, so work was done to create a platform for distance education.

The presented platform currently consists of the following modules: + teacher's study; + student's study; + digital library; + electronic journal; + module for people with special educational needs; + module for foreign students; + online presentation module; + video course module; + testing module; + interactive schedule module. Due to its structure and technical capabilities, the platform has no geographical boundaries, it is incredibly important that at the same time it is adapted to the requirements of inclusive education.

The technical capabilities of the "*KNU Education Online*" platform were presented by Ivan Volkov, who acquainted the participants with the functionality of the developed platform for conducting classes, creating an interactive schedule of the educational process at the University, placing materials for educational courses, developing interactive learning tasks for students, filling virtual journals with the possibility of their multilevel administration by the management of educational units, representatives of departments and other participants in the educational process.

Ivan Volkov said that the educational platform is currently being tested by two faculties, in particular, Economics and Law. According to the expert-developer, 65-70% of teachers of these departments already use it for training; currently the platform has almost 6,300 registered users, including both teachers and students. Ivan Volkov noted that the program provides a mobile application that is compatible with Android and iOS, both versions of the application are currently available in test mode. The use of the resource by all educational units of Taras

Shevchenko National University is planned for September 1, 2020 (Taras Shevchenko Kyiv National University, 2020).

CONCLUSIONS

Summarizing all the above-mentioned, we conclude that the current challenges and conflicts associated with the Covid-19 pandemic require immediate action to improve the automation of the educational process in higher education institutions. Now universities, more than ever, need a quality platform for distance educational activities, which works on the basis of modern psychological-pedagogical and information communication technologies.

Pedagogical conflicts at the university, caused by destructive real and virtual communication, have become the subject of research in pedagogical conflictology. Its resources, in particular, online (foresight and mediation) are effective productive tools in managing pedagogical conflicts in higher education. Knowing them significantly improves the quality of mastering not only the course "Conflict Pedagogy", but also in general the professional and personal competence of students by saving their time, resources, health, potential, which increases the efficiency of Smart University.

Modern conflict realities require an innovative distance platform for classes, creating an interactive schedule of the educational process at the University, placement of materials for educational courses by teachers, to develop interactive learning tasks for students, to fill virtual journals with the possibility of their multilevel administration by managers of educational units, representatives of departments and other participants of the educational process.

REFERENCES

Beseda, J., Rohlikova, L., Bat'ko, J., 2017. *The 12th international conference DisCo 2017: "Open education as a way to a knowledge society".* Available at: http://disconference.eu/wp-content/uploads/2017/01/DisCo-2017-Open-education-as-a-way-to-a-knowledge-society_-12th-conference-reader.pdf (Accessed 20 April 2020).

Berezina, S., 2020. Taras Shevchenko Kyiv National University launches "Smart KNU" digital University project. Available at: http://www.euroosvita.net/index.php/?category=1&id=6361# (Accessed 13 February 2020).

Golub, T., Koshechko, N., Postoiuk, N., 2019. Mixed Reality in the Ukrainian higher education institutions: conflictological competence of teachers and students. In: E-learning Beseda, J, (eds.): *Unlocking the Gate to Education around the Globe. 14th conference reader* :Available at: http://disconference.eu/wp-content/uploads/2017/01/DisCo-2019-_E-learning-_-Unlocking-the-Gate-of-Education-around-the-Globe_14conference-reader.pdf (Accessed 19 May 2020).

Houlman, D., 2018. *Emotsiynyy intelekt*. K.: Vivat.

Київський університет, 2020. Smart KNU - це реальність. Центр комунікацій. Available at:http://kunews.knu.ua/smart-knu-ce-realnist/ (Accessed 5 March 2020).

Koshechko, N., 2018. *Innovatsiyni tekhnolohiyi navchannya studentiv z pedahohichnoyi konfliktolohiyi.* Visnyk Kyyivs′koho natsional′noho universytetu imeni Tarasa Shevchenka, Seriya: Pedahohika, K.: VPTS "Kyyivs′kyy universytet", Vyp. 1 (7), pp. 31-36.

Koshechko, N., 2019. *Emotional intelligence of future teachers for prevention of pedagogical conflicts*. Visnyk Kyyivs′koho natsional′noho universytetu imeni Tarasa Shevchenka, Seriya: Pedahohika, K.: VPTS "Kyyivs′kyy universytet", Vyp. 2 (10), pp. 15-19.

Maiier, N. and Ustymenko, O., 2018. Modern methods and technologies for developing pre-servi V ce foreign language and culture teachers' methodological competence. *Advanced Education Journal*, 10. Available at: https://doi.org/10.20535/2410-8286.133090 (Accessed 18 April 2020).

Prepotenska, M. and Angelova V., 2018. Urban studies: universal interdisciplinary strategies. *Advanced Education Journal,* 9. Available at: https://doi.org/10.20535/2410-8286.133988 (Accessed 18 April 2020).

Postoiuk, N., 2018. Peculiarities of using information and communication technologies in teaching in higher education. Available at :http://pedvisnyk.knu.ua./index.php/pedvisnyk/article/view/56 (Accessed 20 March 2020).

Skiba, M., 2020. Український університет нового покоління, 2020. Available at: https://www.uifuture.org/publications/reports/25393-ukrainskiy/universytet/novogo/pokolinnia (Accessed 28 April 2020).

Taras Shevchenko Kyiv National University, 2020. Презентація нової платформи дистанційного навчання. Available at: http://www.univ.kiev.ua/news/11021 (Accessed 29 April 2020).

Taras Shevchenko Kyiv National University, 2020. Презентація платформи дистанційної освіти "KNU Education Online". Available at: http://www.univ.kiev.ua/news/11090 (Accessed 25 May 2020).

THE IMPORTANCE OF USING ZOOM PLATFORM ONLINE VERSUS TRADITIONAL CLASSROOM LEARNING

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Abstract

During the pandemic situation created with the widespread of Corona Virus, online teaching became a must-use teaching and learning approach in Albanian Universities. Many online platforms are used this academic term not as a matter of choice. They are considered a solution to the education process in the time of Quarantine. The aim of this paper is to treat online teaching versus traditional teaching in Higher Education in Albania. It highlights the importance of using Zoom as a web platform to support virtual classrooms, online University subjects, office hours as well as investigate the students' attitude towards e-learning and its impact on students' success. Since it works with many devices, such as phones, tablets, computers, videoconferencing rooms, collaborative screen sharing, and video recording, it is considered a very good solution for this academic year. A survey has been conducted and sent out to students who are using Zoom platform during the second term of academic year 2020 to examine the importance and impact of online learning in contrast to traditional classroom learning. Using Zoom proved really beneficial to the learning process. The majority of students found Zoom easy to use, and Zoom's audio or video quality and its ability to record lectures, satisfactory. The survey proved that online learning although it came as a necessity, proved as effective to our students as traditional classroom learning.

Key words

Zoom Platform. Advantages. Disadvantages. Online teaching and learning.

INTRODUCTION

On line learning versus face-to-face learning in higher education have been discussed for many years. The use of ICT has increased distance teaching and learning in Education. Mehrotra, Hollister, and McGahey (2001), note that distance education, is not only a possibility for higher education in the future, but also a current reality which creates opportunities and challenges for educational institutions, offering students more choices of study, no matter from whom they learn and where they are; a reality making education accessible to many people.

Higher education institutions not only in Albania but all over the globe were faced with the necessity for distant teaching and learning due to the pandemic situation of corona virus. It brings to the foreground the advantages and disadvantages of using Zoom platform to support virtual classrooms, University subjects and office hours and examines the students attitude towards Zoom-learning and its effect on their success, in Aleksandër Moisiu University, (UAMD). All UAMD Faculties and Departments, have adopted the face-to-face and online modes of delivering instruction. According to (Garrison and Shale, 1987), distance education infers that educational communication occurs non contiguously. It's a two-way communication between teacher and student to facilitate and support the teaching process. To mediate this two-way communication process technology is used.

As Koohang and Durante (2003) mentioned with the rapid growth of online learning, introducers of online learning need more understanding of students perception this learning form, as well as find the most effectively applied approaches to enhance learning process.

According to Bali & Liu (2018), online learning was previously regarded as lack interactivity in comparison to face-to-face one. It would result in a lack of social presence, social interaction, and students' satisfaction. Anyway it is more convenient and cost effective than traditional educational learning.

RESEARCH QUESTIONS

This study was designed to address the general questions:

1. "Are there differences in student learning and perception in face-to-face and online education?"
2. "Do students prefer face-to-face instruction to on line instruction concerning their acquisition and ability to remember and reproduce?
3. When did they learn more or better in a classroom environment or in an online environment?"
4. Do they value the fact of using technology for their courses?

Answers to this questions may help the faculty determine whether face-to-face learning or online learning or using the two forms(in a blended way) to achieve better student results, can be used in the future.

REVIEW OF RELATED LITERATURE

This section reflects on the literature regarding this study. It starts with an overview of the theories of distance learning; Distance education theories, developed from leading scholars in the discipline, such as Holmberg, Wedemeyer, Moore and Peters developed theories of distance education that placed the learner in the center of educational process (Holmberg 2003; Moore and Anderson, 2003). As Saba (2003) notes, distance education's roots in the US date back to the 1800's; however, "The American Journal of Distance Education, the first scholarly journal, was not started until 1987, by Michael G. Moore.

Hanson et al (1997) mentioned that the term 'distance education' has various meanings and uses and changes in technology challenge the traditional ways in which distance education is defined. According to Peters (2002) distance learning is going to change the teachers and learners roles in the learning process. Curtis and Lawson (2001) applied characteristics of collaborative face-to-face learning to the study of online learning as well. Tiene (2000) noted that students reactions were positive to on line learning, although they preferred the face-to-face one. Online discussion is a valuable addition to the teaching process but not a substitution for face-to face one.

Meyer (2003), An and Frick (2006) produced similar results when students compared their online discussions to their unspecified earlier experience with face-to-face discussions. Cuthrel (2007) and Artino (2010) wrote that many students prefer online classes to face-to-face classes for their convenience of time and choice to work when they could. Moreover, online education is more cost-efficient, and learners can work at their own pace to complete their studies. The lecturer must have a thorough understanding of theory and practice to be effective, in both online learning and face-to-face one for a better student participation.

PROBLEM STATEMENT

The state of online instruction compared to face-to-face teaching strategies, lecturer/student interaction, and student/student interaction, among others is not yet known and practiced in our institution. The aim of this research paper is to treat online teaching using Zoom versus traditional teaching in Higher Education in Albania, with regard to Aleksandër Moisiu University. The paper dwells upon literature from other similar articles in order to develop a critical analysis of the most important issues treated. The questions to be answered in this study are relevant for students on Face-to-Face and Online Teaching and Learning

METHODOLOGY

Subjects

The study was conducted in the Department of Foreign Languages at "Aleksandër Moisiu" University of Durrës. The subjects of the study consisted of 53 students from the following branches: English Language and German-English language. They were chosen from the first year –the third year of the respective bachelor degrees. To be specific, the sample of the study consisted of students who were chosen at random. Their participation in the survey was anonymous and voluntary as well. The study was conducted in April 2020. It was noticed that the subjects demonstrated a positive attitude towards the use of technology in general and Zoom platform in particular, which was also evident in the fact that none of them refused to take part in the study. The opinions of students enrolled in the faculty of Education in "Aleksandër Moisiu" University, are polled with regard to the differences between Zoom teaching and face-to-face teaching.

Instruments

The instrument used in this case was a questionnaire that consisted of two main parts. The first one included background information about the students involved in the study and questions about zoom platform such as: students' academic level, their gender, difficulty using Zoom platform, level of satisfaction concerning audio, video and screen sharing in zoom platform etc. The second part of the questionnaire contained three blocks of questions. The first was "Learning environment", the second was "Face-to-face communication" and the third "Technical skills (email, blackboard, internet, computers)". The Likert scale was used for the three of them (ranging from 'strongly disagree' to 'strongly agree'). We used quantitative methods to analyze the data. This questionnaire was sent out to students who actually use Zoom during the second term of academic year 2020 to examine the importance and impact of online learning in contrast to traditional classroom learning.

Research questions

The research questions that we aimed at answering in this study are as follows:

1. How comfortable are students with Zoom platform?
2. What was the level of satisfaction concerning audio, video and screen sharing qualities of Zoom platform?
3. How often did they have technical difficulties using Zoom platform during the courses?
4. What is the students attitude concerning class environment and online environment?

DATA ANALYSIS

At first we focused on students' academic level. In our case the students that participated in the survey were from the first, second and third year of bachelor degree. As we can see from graph no. 1, 36% were first year students , 24% were second year students and 39% were third year students. The findings are presented in figure 1.

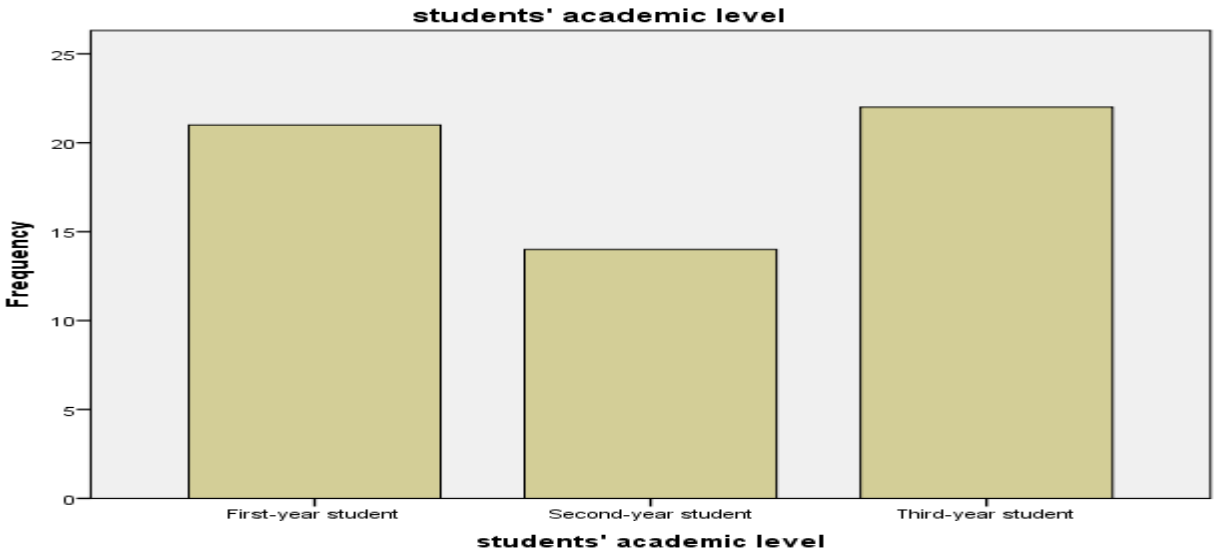

Figure 1 Students' academic years distribution (Source: Own)

Secondly, we wanted to know the gender of the students surveyed. The questionnaire data revealed that 87% were female students and 13% male students. The findings are presented in figure.2.

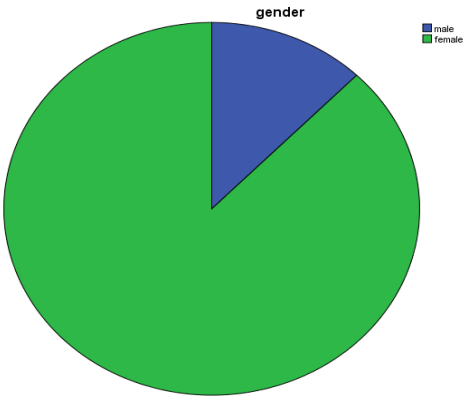

Figure 2 Gender distribution (Source: Own)

Furthermore, of great interest was also finding out what device they used to connect to Zoom platform in their online courses. The questionnaire revealed that most of the students (around 80%) used their Smartphone, 12% used their laptop computer for their online courses in Zoom and nearly 4% admitted using the desktop computer. The findings are presented in figure 3.

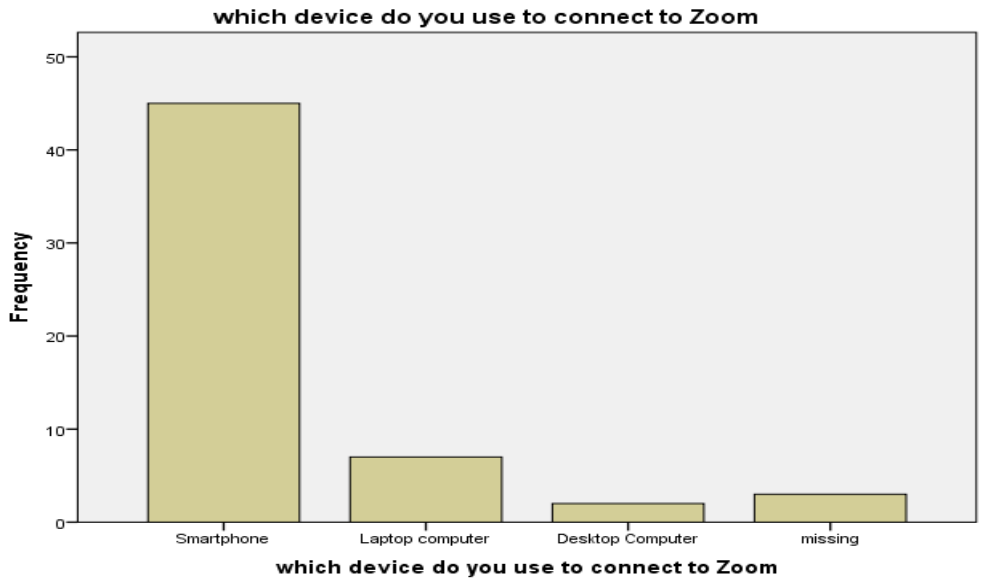

Figure 3 Device used (Source: Own)

Part of the questionnaire was the information provided by students concerning the level of agreement concerning various statement about Zoom experience. As was to be expected their answers varied, however it is important to emphasize that students generally enjoyed using zoom (58%), believe it is easy to use (47%) and useful for learning (49%). 54% admitted that they would recommend Zoom for use in other classes. The findings are presented in figure.4.

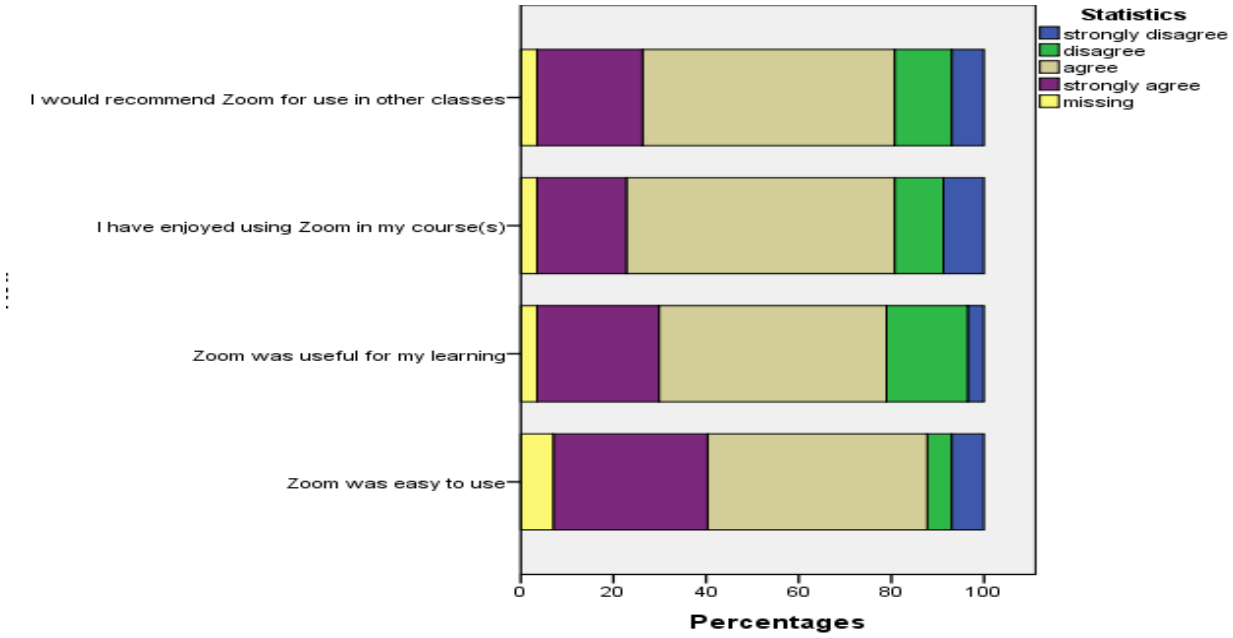

Figure 4 Opinion about Zoom (Source: Own)

Furthermore, we were interested in finding out students' level of satisfaction with three of the main qualities of Zoom platform (audio quality, video quality, screen sharing quality). The results showed that around 43% and 44% were ***moderately satisfied*** respectively with the video and audio quality. Whereas, 42% agree that they are ***very satisfied*** with the screen sharing quality of Zoom. Out of the three of them, students seem to be less satisfied with the audio quality. The findings are presented in figure. 5.

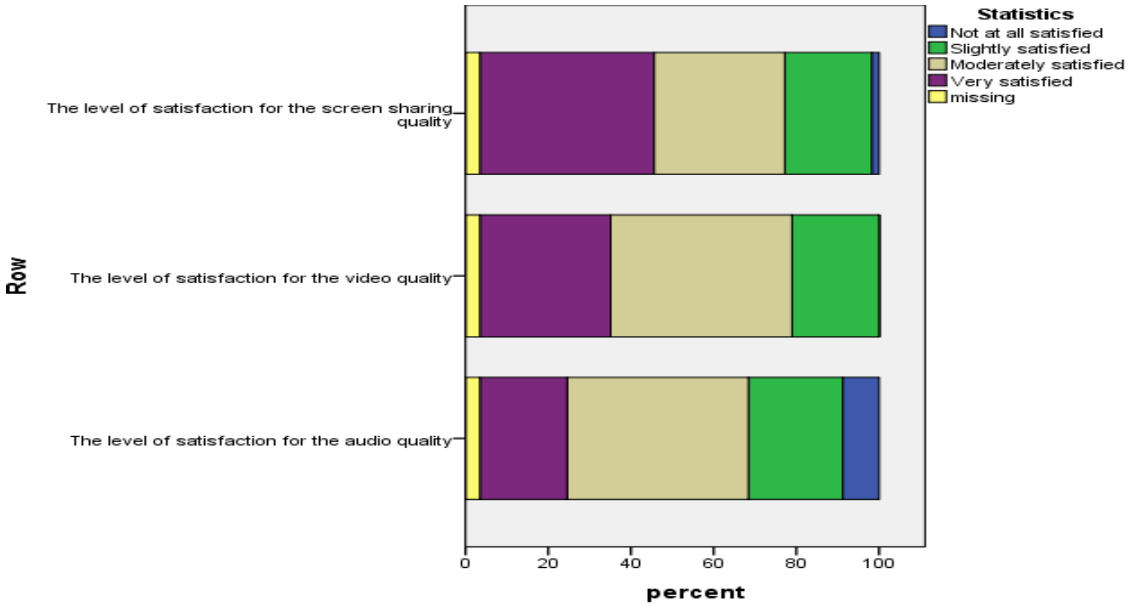

Figure 5 The level of satisfaction for Zoom functions (Source: Own)

Another element we wanted to analyze was the issue of technical difficulties. More specifically, we asked our students to indicate how often (if any) they had technical difficulties using Zoom in their courses. The questionnaire data revealed that nearly 36% sometimes had technical difficulties, compared to 26% (who rarely had technical difficulties) and 22% (who never had technical difficulties). The findings are presented in figure. 6.

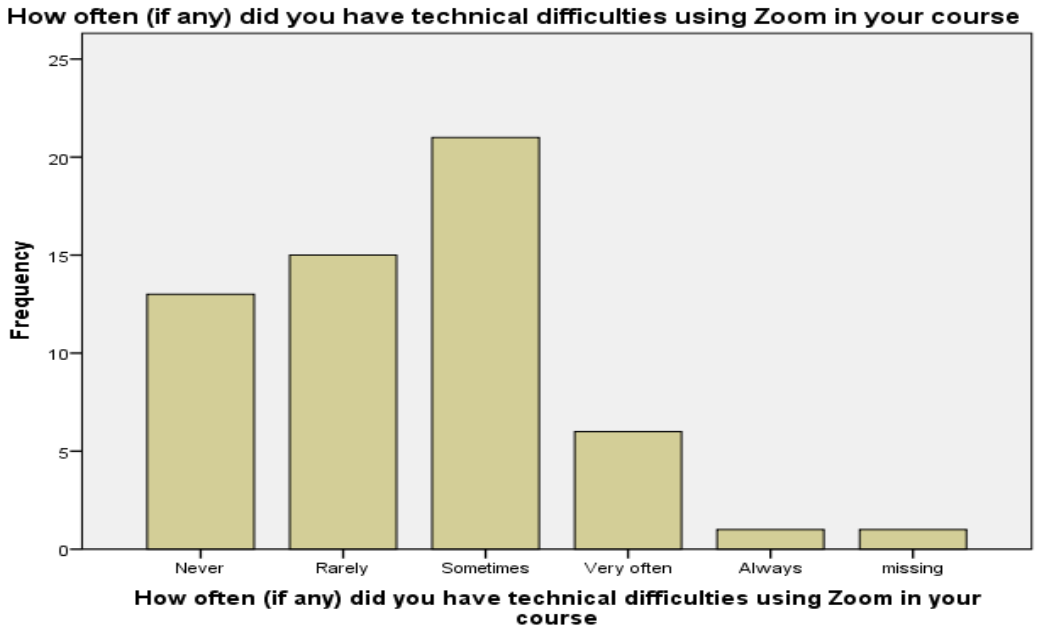

Figure 6 Frequency of technical difficulties (Source: Own)

The students were also asked concerning their level of comfort in using different types of technology. The analysis of the data revealed that the majority of them (around 65%) were comfortable with various types of technology. 21% declared that they were ***very comfortable*** versus only 10% who admitted being ***uncomfortable w***ith technology. The findings are presented in figure 7.

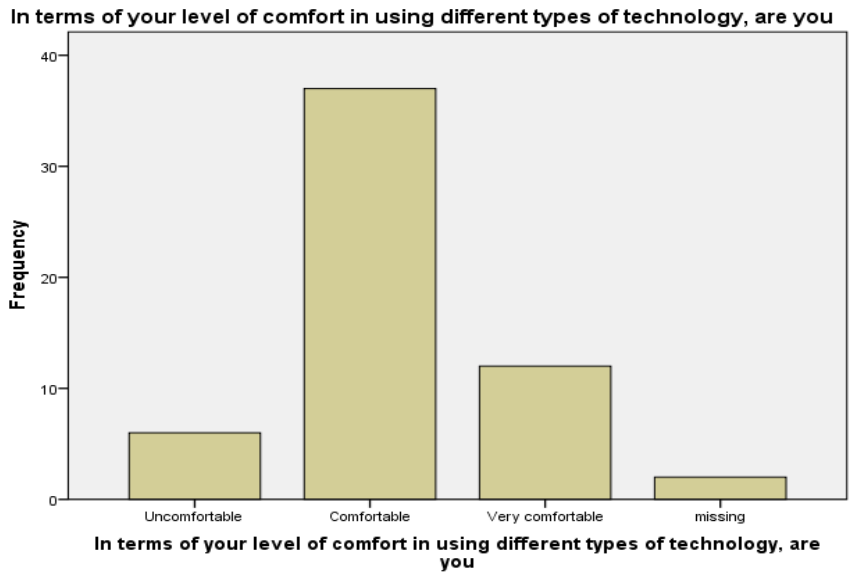

Figure 7 Frequency of technical difficulties (Source: Own)

Concerning the first blocks of questions named "Learning environment" the Likert scale was used, with values ranging from 1- strongly disagree to 5- strongly agree. As we can notice from the mean values presented further on (table no.1), statement 1 (*The learning environment helps me comprehend the course materials*), statement 2 (*A classroom environment makes it easier for me to communicate with my instructor*) and statement 4 (*A classroom environment makes it easier for me to communicate with my classmates*) received the highest mean scores, respectively (M= 4.00) (M= 4.11) and (M= 4.25) whereas statement 9 (*I'm more comfortable responding to questions by email than orally*) and statement 5 (*An on line environment makes it easier for me to communicate with my classmates*) received the lowest mean score respectively (M=3.11) and (M= 3.46) As we can see, the students perceive the class environment as a better option in relation to comprehension of course material, communication with the instructor and the classmates compared to online environment. However, we must emphasize that the difference is not very noticeable which leads us to believe that students consider online environment as supplementary to class environment. The findings are presented in table 1.

Table 1

Descriptive Statistics

	N	Mean	Std. Deviation
The learning environment helps me comprehend the course materials	57	4.00	.756
A classroom environment makes it easier for me to communicate with my instructor	57	4.25	.786
An online environment makes it easier for me to communicate with my instructor	57	3.47	.966
A classroom environment makes it easier for me to communicate with my classmates	57	4.11	.859
An online environment makes it easier for me to communicate with my classmates	57	3.46	.946
I feel comfortable responding to questions presented in the course	57	3.72	.996
Because of the course content I'd rather take this class on-campus than online	57	3.82	1.136
The learning environment contributes to my overall satisfaction with the course	57	3.63	.975
I'm more comfortable responding to questions by email than orally	57	3.11	1.129
The course format makes it easy to meet my learning needs	57	3.44	.887
The learning environment helps to learn the course materials better	57	3.65	1.044
Valid N (listwise)	57		

(Source: Own)

The next block of questions is "**Face-to-face communication**". Even for this block of questions Likert scale was used, with values ranging from 1- strongly disagree to 5- strongly agree. Based on the mean scores, we can say that the results indicate a very good consistency of the students' answers. As we can see from table 2, the results complement the students answers in "Learning environment" section. The mean score for statement 1 (*Face-to-face instruction would help me to learn more*), statement 2 (*Face-to-face instruction would help me to understand the course concepts better*), statement 3 (*Face-to-face instruction would be a better way for me to learn the content/course materials*) and statement 6 (*Being in a class with face to face communication would improve my ability to learn*) are respectively (M= 4.09), (M= 4.11), (M= 4.09) and (M= 4.00) and show a clear preference for face-to face instruction. Judging by the results, we could say that students perceive face-to face instruction helpful in various aspects such as learning more, understanding the course concepts better, improving their ability to learn. The findings are presented in table 2.

Table 2

Descriptive Statistics

	N	Mean	Std. Deviation
Face-to-face instruction would help me to learn more	57	4.09	.969
Face-to-face instruction would help me to understand the course concepts better	57	4.11	.859
Face-to-face instruction would be a better way for me to learn the content/course materials	57	4.09	.950
Face-to-face instruction would contribute to my overall satisfaction of the course	57	3.98	.855
My interpersonal skills have improved by taking this course	57	3.49	.889
Being in a class with face-to-face communication would improve my ability to learn	57	4.00	1.000
I would prefer face to face instruction to online instruction	57	3.86	1.141
Valid N (listwise)	57		

(Source: Own)

The last block of questions is "**Technical Skills (email, blackboard, internet, computers)**". Likert scale was used even for this block of questions, with values ranging from 1- strongly disagree to 5- strongly agree. Based on the mean scores, we notice a very good consistency of the students' answers. Furthermore, concerning the data in table no.3, the results appear to be in unison with the two previous blocks. Statement 5 (*I value the use of technology for this course*) received the highest mean score (M= 3.96). It shows that almost all the students seem to appreciate the use of technology in their course. Concerning the other statement like statement 1 *(My technical skills(email,internet) have improved since taking this course)* and statement 3 *(The use of technology interferes with my ability to accomplish the required coursework*), with respective mean scores (M= 3.49) and (M= 3.39) the students are mostly indecisive or neutral in their answers. The findings are presented in table 3.

Table 3

Descriptive Statistics

	N	Mean	Std. Deviation
My technical skills(email, internet) have improved since taking this course	57	3.49	1.037
Access to the internet makes it easier to communicate with my classmates	57	3.60	1.100
The use of technology interferes with my ability to accomplish the required coursework	57	3.39	.959
Access to the internet makes it easier to communicate with my instructor	57	3.70	.999
I value the use of technology for this course	57	3.96	.844
Valid N (listwise)	57		

(Source: Own)

LIMITATION OF THE STUDY

One of the main limitations of this study is related to the fact that in Albania there are not many studies related to the impact of face-to-face versus online teaching.

Secondly, a larger sample would have provided more specific results. But since we were in the middle of the COVID-19, it was difficult to get a larger sample that could be considered representative.

CONCLUSION

Albanian Universities now have the ability to provide online learning or distance learning opportunities through different platforms. University Aleksandër Moisiu chose Zoom and Google classroom platforms to enable education process during the pandemic situation. Even though online learning resulted in less social interaction, and synchronicity in communication, Zoom learning had some advantages to the students. It was a good choice in the pandemic situation, not only about the academic year but also its was a way to get the students involved during the quarantine time and a very good solution for the second term of academic year 2019-2020.

In a final analysis, students seem to feel that in a comparison of face-to-face and online Zoom discussions, the advantage goes to both of them. There are positive characteristics of each setting for a discussion and negative ones as well. But what may be most intriguing is how the differences in the two settings may be useful for encouraging different types of learning experiences that are valuable to both of them.

The analysis of the questionnaires administered to students of English and German language with the SPSS program produced the following conclusions:

1. In relation to the participation in the survey, 36% were first year students, 24% were second year students and 39% were third year students.
2. The sample consisted of 87% female students and 13% male students.
3. Most of the students (around 80%) used their Smartphone to connect to Zoom, 12% used their laptop computer for their online courses in Zoom and nearly 4% admitted using the desktop computer for the same purpose.
4. Concerning students' beliefs about the platform, they generally enjoyed using zoom (58%), believe it is easy to use (47%) and useful for learning (49%). 54% admitted that they would recommend Zoom for use in other classes.
5. In relation to students' level of satisfaction with three of the main qualities of Zoom platform (audio quality, video quality, screen sharing quality). The results showed that around 43% and 44% were moderately satisfied respectively with the video and audio quality. Whereas 42% agree that they are very satisfied with the screen sharing quality of Zoom. Out of the three of them, students seem to be less satisfied with the audio quality.
6. About the issue of technical difficulties, the data revealed that nearly 36% of the students surveyed sometimes had technical difficulties, compared to 26% (who rarely had technical difficulties) and 22% (who never had technical difficulties).
7. The analysis of the data revealed also that most of the students (around 65%) were comfortable with various types of technology. 21% declared that they were ***very comfortable*** versus only 10% who admitted being **uncomfortable** with technology.
8. Concerning the environment of learning students perceive the class environment as a better option (at least) in relation to comprehension of course material, communication

with the instructor and the classmates compared to online environment. However, we must emphasize that the difference is not very noticeable which leads us to believe that students consider online environment as supplementary to class environment, which supports Tiene (2000) points out that "Online discussion is a valuable addition to the teaching process but not a substitution for the face-to face one. This holds true in our findings as well.

9. The students surveyed show a clear preference for face-to face instruction compared to online instruction. Judging by the results, we could say that students perceive face-to face instruction helpful in various aspects such as learning more, understanding the course concepts better, improving their ability to learn.
10. Concerning Technical Skills (email, blackboard, internet, computers)", the survey shows that almost all the students seem to appreciate the use of technology in their course. But they are mostly indecisive or neutral in their answers for statements *(My technical skills (email, internet) have improved since taking this course)* and *(The use of technology interferes with my ability to accomplish the required coursework*),

Online lecturing with Zoom proved successful to the process of acquisition. The majority of students found Zoom very easy, and its ability to record lectures, satisfactory. The survey proved that online learning although it came as a necessity, proved as effective to our students as traditional classroom learning.

REFERENCES

An, Y., and Frick, T., 2006. Student perceptions of asynchronous computer-mediated communication in face-to-face classes. *Journal of Computer-Mediated Communication*, 11(2), pp.485-499.

Artino, A. R., 2010. Online or face-to-face learning? Exploring the personal factors that predict students' choice of instructional format. *The Internet and Higher Education,* 13(4) pp.272-276

Bali, S. and Liu. M C., 2018. Students' perceptions toward online learning and face-to-face learning courses. *MISEIC 2018 IOP Publishing. Journal of Physics*. Available at: https://iopscience.iop.org/article/10.1088/1742-6596/1108/1/012094/pdf (Accessed 24 June 2020).

Curtis, D.D. and Lawson, J.M. 2001. Exploring Collaborative Online Learning. *Journal of Asynchronous Learning Network,* Available at: DOI: 10.24059/olj.v5i1.1885 (Accessed 24 June 2020).

Cuthrell, K. and Lyon. A., 2007 Instructional strategies: What do online students prefer? *MERLOT Journal of Online Learning and Teaching,* 3(4), pp.357-362

Garrison, D. R. and Shale, D., 1987. Mapping the boundaries of distance education: Problems in defining the field. *The American Journal of Distance Education*, 1(1), pp.7-13.

Hanson, D., Maushak, N.J., Schlosser, C.A., Anderson, M.L., Sorenson, C. and Simonson, M., 1997. *Distance education: Review of the literature (2nd ed.).* Washington, DC: Association for Educational Communications and Technology. Ames, Iowa: Research Institute for Studies in Education.

Holmberg, B., 2003. A theory of distance education based on empathy. In: M. Moore & W.G. Anderson (eds.) *Handbook of distance education,* Mahwah, NJ: Lawrence Erlbaum Associates, pp.79-86.

Keegan, D., 1986. *The foundations of distance education*. London: Croom Helm.

Koohang, A. and Durante, A., 2003. Learners' perceptions toward the web-based distance learning activities/assignments portion of an undergraduate hybrid instructional model. *Journal of Informational Technology Education,* Vol.2, pp.105-113.

Meyer, K. A. 2003. Face-to-face versus threaded discussions: The role of time and higher-order thinking. *Journal of Asynchronous Learning Networks* 7(3), pp. 55–65.

Moore, M.G. and Anderson, W.G., (eds.). 2003, *Handbook of distance education*. Mahwah, NJ: Lawrence Erlbaum Associates-

Mehrotra, C.M., Hollister, C.D., and McGahey, L. 2001. *Distance learning: Principles for effective design, delivery, and evaluation*. Thousand Oaks, CA: Sage Publications, Inc.

Peters, O. 2002. *Distance Education in transition*. Oldenburg: Germany: Biblioteks-and informations system der Universität Oldenburg.

Saba, F. 2003. Distance education theory, methodology, and epistemology: A pragmatic paradigm. In: M. Moore and W.G. Anderson (eds.) *Handbook of distance education.* Mahwah, NJ: Lawrence Erlbaum Associates, pp.3-20.

Tiene, D., 2000.Online discussions: A survey of advantages and disadvantages compared to face-to-face discussions. *Journal of Educational Multimedia and Hypermedia*, 9(4), pp.369–382.

Wedemeyer, C.A., 1981. *Learning at the back door: Reflections on the non-traditional learning in the lifespan.* Madison, WI: University of Wisconsin Press.

TRANSGRESSION OF EDUCATION: VECTORS OF GLOBALIZATION, DIGITIZATION, ECOLOGY OF CULTURE

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Abstract

In the context of globalization, the world is changing significantly politically, economically, and above all, technologically. Because of the unfolding technological revolution, there is a challenge to create new socio-cultural coordinates of world civilization, where education should become a creative workshop for the tuition of future specialists. The urgency of understanding this process for scientists lies in many aspects, and the most striking of them is that the new dimension of education requirements emerges in the aftermath of a new reality. The end of the last millennium, as well as the outline of contemporary culture, has passed the thorny path, but all progressive and best items were laid by the institutionalized education that formed the subject of knowledge and transformation of the world. Today's reality and place of educational preferences in it already has other meaning-oriented intentions. The digital world today cannot be described simply as a digital take or an auxiliary resource for technologically advanced living conditions, including tuition. It is a matter of profound changes in the cultural-creative order: from new communicative, social systems of interaction to ontological foundations of identification of reality itself. The main strategy should be the transgression from the closed circle of digitization of the chronotype of educational history into new horizons of the sense-organization of human development, both in terms of content of knowledge and the purpose of obtaining them. The new paradigm of education aims to focus the educational process on developing the depth of thinking, creativity, cultivating patience and concentration in the younger generation. Education is meant to become a sphere of becoming and nurturing a personality that can be not only a consumer, but also the creator of the ecology of culture of the informative world as the House of its being in all manifestations of social (real, media, virtual) reality.

Keywords

Education. Globalization. Digitization. Transgression. Ecology of culture.

INTRODUCTION

The challenges of each era carry a dialectical source - a semantic contradiction whose sprouts have the potential to be the impetus for an existential, civilizational breakthrough as a transition to a new plateau of development.

In the history of humanity, the experience of overcoming the seemingly inevitable doom to destruction (due to climatic, biological reasons, threat of external conquest, etc.) provides examples of the beginning of a new prosperity. Contrary to apparent decline, an upgrade impulse may occur. Of course, this is not a mystical miracle, but the horizons of creativity: transgression, which mostly is culture-genesis - from the depths of spirituality awakens the focus on the original path of unique civilizations of the world.

Toynbee (1948) wrote about such threats and challenges that integrate the impulse for quality changes in social life. In another vector of methodological research, but with the same idea of building civilizations on the consolidating platform of a breakthrough into a new value-meaning coordinate system, thought K. Jaspers in the concept of “axial time”.

Numerous researchers and educators in their theoretical and practical studies, despite excellent strategies, have nevertheless engaged in substantially related pursuits of life-affirming intentions. The crosscutting thought for many approaches is the following: a prerequisite for qualitative transformation is the exit from the comfort zone, the rethinking of existing landmarks in terms of their inertia, artificial embeddedness in the context of culture. That is, the re-vision (re-construction of perspectives, outline of the future) of those characteristics which hinder to look beyond the imaginary borders, to push the horizons of the unattainable, the impossible.

Globalization challenges are multifaceted, large-scale and systemic, ranging from economic, political, and to threats to the ecosphere of our co-existence. The perception of these risks, as a test to change the focus of the petty on the meaning of life, makes it necessary to raise the question of the potential of creativity - the value of education as a source of culture and sociality as humanity. One aspect of such a polyphonic score of deconstruction of horizons of expectation is the ecology of culture. This trend does not fit into the traditional scientific structure and does not bring the innovations of discoveries, but it is a necessary look today for the only resource of sociality that man has - culture.

Etymologically, “eco” and “logos” is the knowledge of a single home for coexistence. “Oikumene” for the Ancient World was a meaningful horizon - the territory of the inhabited land, and therefore formed the boundaries, landmarks of the known. However, the extent, relative continuity (including rivers, even seas) of the earth is not only a characteristic of the topos - the place, but above all the understandable way of being, and therefore - the culture. It is her continuity that reflects the idea of a familiar, shared living home. Its territory can be changed, but redeveloping, abandoning the culture will mean losing the house itself.

PROBLEM STATEMENT

Question about the role of ecology of culture in the modern education system, as the semantic landmarks of transgression regarding the conditions of self-identification crisis, is a question about the reconstruction of values in the halo of entelechy. It is an Aristotelian category that captures the integrity of an idea, purpose, and method of achieving it – “techne”. In relation to the modern culture, it is necessary to state the loss of the indicated integrity, the wandering of the meaning "techne" in the darkness of the disappearing idea. This is not at all the position in Jean-Jacques Rousseau`s tradition of a return to nature or an indication of environmental threats that are associated with an

overly rapid and profound human intervention in an ontologically balanced, although dialectically moving, structure of being. The object of cultural ecology postulates that the semantic landmarks of the Oikumene are in the culture itself. Individuals carry consciously and subconsciously the image of the House as a heavenly Eden into a new space. This image is the world of "mother culture". Individuals operates with it in the formation of their living space. It can be a geographically different place, the inner "Me". Also, the information space of modern digital media "broadcasts" the landscape of native culture.

It is also important to note that ecology in its traditional understanding of the system of knowledge about the adaptation of organisms to the outside world or otherwise - the interaction of living and inanimate nature, with respect to humans, guides us in the question of how the cultural system can be this adaptive mechanism of sociality. So hermeneutical, phenomenological, semiotic studies in different spheres of culture (for example, social communication, specific to a particular ethnos, nation, civilization temporality, protection of life, health) provide a new dimension of understanding and practical overcoming the impact of destructive deadlock myths and stereotypes.

First, the problem of the cult of ignorance, which is "ideologically justified" is that the worldwide communication network accumulates and always makes available any information. Therefore, information as knowledge (primarily humanitarian) is one's own intellectual capital, worthless. Second, existential longing, loneliness, and hopelessness in alienating the subject in various forms and spheres of being. Third, the dethronement of the nodal clichés of the globalization sense, which offset the uniqueness of one's own culture. There are also many other issues that are solved in the semantic orientations of education, upbringing - human creation.

METHODOLOGY

In the article we used qualitative method, because we explored the content and relationships between globalization, digitalization, ecology of culture and their role in the process of educational transgression. The problem of the crisis of culture, which entered the educational content of humanities and led its methodological strategies, addressed the authors of different historical periods. The discourse of the twentieth century was based on the writings of Toynbee, Spengler, representatives of existential philosophy (Camus, Sartre, Heidegger, Jaspers), and hermeneutical explorations - Gadamer, theories of post-structuralism by Bart and semiotics by Dili, Eko, Krysteva and other researchers. The subject area of ecology of culture is stated by Likhachev. The contemporary context of the issue is related to the theories of globalization by such researchers as Giddens, Bauman, Castells, Beck, Kanklini, Stiglitz, Chomsky, and others. Studies of education as a space of culture and human creation are reflected in the works of such researchers as Ushinsky, Sukhomlinsky, Nembrini, Robinson, Gorbunova, Gusakovsky. Such Ukrainian scientists as Onishchenko, Pavlova, Pushonkova reflect their own scientific research on the problem of ecology of culture through the prism of meaningful connections of natural and social in narratives, informational landscapes of visuality, traumatism of metaphors of culture, aesthetic potential of physiological feelings.

In a situation of existential confusion of modern man, blurring the boundaries of their identity in the context of current media narratives and virtual practices, the

transgression of conceptual approaches to understand the ecology of culture becomes relevant. The updated construct of this semantic platform will reveal the cultural-creative mission of education in the conditions of globalization and digitization of the modern information space.

RESULTS

Globalization of the end of the XX - beginning of the XXI centuries is a conscious directed process of establishing a new chronotope of history, which is based on new information technologies, financial and economic strategies, political preferences, etc. The globalized world of a unified media space, alienated from the ontic (Heidegger, 2015) of the cyberspace, comes to the fore. Even the use of the terms "media space" and "cyber time" in philological construction - one form, is incorrect, since the rhizomatic multiplicity of these coordination structures appears to be fundamental. In the "cover" of choice, we have a standardized filler of crushed "nothing". In such a fascinating "play" (Ritzer, 1996) culture, beginning from approaches to education and upbringing, we "entertain" without sense and without a chance for self-identity.

However, the opposite in content characteristics of the present is also quite correct. The digital technologies that accompany, and in fact, ensure, globalization, have become a breakthrough in the world of new opportunities. The span of several decades separates us from all previous history by a paradoxical fact: everything that happened in linear or cyclical time, geographical space is now flowing into the digital world of multiple realities, variants of choice, virtual and Internet practices. Yesterday's history, thanks to its digital proximity, "plausibility", the information content of the present, in its semantic enlightenment, can update much more extensively than in "its" time. The events themselves have the potential of educational and cultural enrichment.

Everything that could only hypothetically be witnessed by a contemporary of previous historical periods and, accordingly, living in "one's own time" not to be in the context of its realities, to be the bearer of the chronotype of the "past" - nowadays digital reconstructions and museum archives are "coming to life" in their authenticity. So today we have a unique educational, cognitive resource that can make us virtual witnesses of diverse historical experiences - to realize that without digital technology it would not be possible: to reproduce temporally scattered narratives in such visual, sensory authenticity.

The notion of "chronotope" conveys the need to understand the specific for a certain segment of the history of experiences of time and space of being, inscribed in this context by man. Thus, the Socratic anthropological trajectory of understanding time-space through the lens of the search for meaning, the dialogic status of the eager truth of the subject, is emphasized. In other words, man through their social practices conveys in the forms of education, science, art this pulsation of time, the perception of the topos. That is, only the fabric of the authenticity of culture (language, literature, fine arts, etc.) retains this uniqueness.

Although chronotope is one of the important features of the cultural era, we do not accept the simplification of this concept. The imitation of its content, which can occur in the reduction of the chronotope to the one-dimensional interpretation of the social constants of time-space, the image of man in structurally, hierarchically different segments of culture, negates the hermeneutical idea of understanding those or other interpretative motions that are shaky for perception from "outside." Operation of the

chronotope concept requires the subject to qualify as a restorer of precious antiquities. Moreover, the proclamation of the principles of social existence without being immersed in its multi-layered structure, which is ambiguously reproduced by single phenomena, artifacts of culture, in parallel with the need for professional interpretation of architectonics, tempo-rhythms of the text, etc. Therefore, an interdisciplinary approach - a complex knowledge of history, art, archaeology, ethnography, and many other fields of science - is important in this respect. Cultural studies possess this methodological resource. In order to recreate the civilizational context of history is to reconstruct the House of culture, both as an integral structure and as the meaning of its individual details.

Emphasizing this issue today, we consider this kind of experience potentially useful in understanding the current state of culture. The digital resource of globalization with its impressive features (the immense information content, the ubiquity of world communication networks, the "reality of virtuality" (Castells, 2010)), at the same time created the conditions for ambivalent modalities of social development. Along with the progression of the possibilities of cultural, educational improvement, the choice of versatile cognitive strategies, the appeal to historically, mentally distant experience, modern reality demonstrates the loss of value-semantic "gravity" of culture - the mental "body" of self-identity. This variant of "weightlessness" is especially dangerous for a young man for whom a leap into the unknown is a natural property of age. The gravity of culture has a possibility to keep an individual in the orbit of social identity. Thus, the question of the conceptual choice of the educational development strategy becomes vital today.

Therefore, because of the technological revolution, education as a centre of culture and human creation receives a mission - the task of conceptualizing a new paradigm of its functioning and development.

At the end of the last century, we hoped that online education, as a product of the same technological revolution, would help bridge the gap between the complex socio-cultural challenges of the information age that replaced the industrial age and traditional approaches to didactics of education. It is now clear that information technology in education serves as a new tool to meet the needs of the global information space, but it is not "Ariadne's helper thread" in the maze of a new chronotope of history. That is, using musical terminology - the instrument is not capable of playing "by itself", but can only give a chance to master their unique timbres, registers of a skilled artist - the creator. And if, in his time, the genius of J.S. Bach wrote preludes and fugues (a collection of "DWK", 1722-1744) for an instrument that did not yet exist, then the educational system faces an even more difficult task - to develop the basis of sociality, entry into the space of culture, acquisition of knowledge, using a tool on which everyone already "plays", sometimes not understanding the notes, rules and at least observing at least elementary literacy.

The current system of education in the context of information and globalization seeks to give even more information ("the ghost that cannot be caught up"), while practical, effective, in-demand skills of interaction with the world, critical thinking, concentration on specific tasks remain on the margins, and they are completely ignored. The education system works according to the formula: "to give more and more new information, and the person will be born saying itself". While we have to move in the direction of deepening and creativity, we are moving in the opposite direction - towards simplification - it is much more comfortable to go "side by side", "hand in hand"; the question is only who is leading the movement.

We hope for an alliance, a partnership with artificial intelligence, but we mythologize this relationship. We find ourselves in the "cozy shadow of solutionism" as a belief that complex issues can be solved by combining business acumen and technological innovation, by following a computer-based thinking mechanism that works by "algorithmizing" all processes. Instead, we need to realize that artificial intelligence technology will do better than humans in everything that needs speed, and therefore we need to develop into a modern student those qualities that will remain the prerogative of the individual. Among them, the most important is the awareness of the basics of human being, the ability to self-reflection, not wandering in the information noise in search of the replacement of the inner world of an individual or the perception of advanced information, professional opportunities (through artificial intelligence) as a panacea, a way of "prosthetics" (Pushonkova, 2011) own intelligence, spirituality, sensuality. Thus, the main challenge for modern education - civilization - requires new approaches in order to prepare the next generation for life in the new globalized information world. It is also critically important to have a strategic vision of what will happen in 20-30 years, since all this must be considered in the educational process already. Otherwise, we run the risk of preparing young people for the professions that are likely to become the field of activity for intelligent robotic systems. So, it is no longer about replacing, but displaced, "overcame" human intelligence. In our opinion, this is not only a matter of changing profession, specialization, etc., but above all socially critical "traumatism of culture" (Pushonkova, 2011), which can be a consequence of strategic mistakes in the development of education.

The new paradigm of education aims to orient the educational process to the development of a person's depth of thinking, creativity, cultivating patience and concentration in the younger generation, finding connections between different fields of knowledge. Understanding education as a sphere of formation and upbringing of a person who can be not only the consumer of a certain "cultural surrogate" but also the creator of culture as the House of his being, should again become the central nucleus of the paradigm of education and upbringing. In these circumstances, only the efforts of the educators, in our opinion, is not enough, because solving the question of a model of education that can equip a person with cultural competencies in the face of the global risks of the present, requires the consolidation of the efforts of specialists of different professional directions. The conceptualisation of the epistemological model of education - the approach of formation of non-block, modular, narrow-profile knowledge with a list of certain competencies, and the formation of algorithms of scientific-oriented and ideological deep knowledge with the projection of prospects for further self-improvement - is a system that actualizes in the informative globalization world the collective work of specialists in philosophy, cultural studies, psychology, cognitive science, experts in artificial intelligence technology in the direction of formation of new educational landmarks. Their embodiment in the educational process will allow one to transgress into the space of creativity as a subject of one's own House of Culture.

It is important to consider what dimensions of ecology of culture correspond to the tasks of conceptualizing the epistemological system of education. This is first and foremost, the formation in the individual - the subject of the educational process - a holistic, balanced in their directions of knowledge, the foundation of identification. The place of ecology of culture is here to organize fragmented unsystematic knowledge that exists in the information space not only into a digital series of software, but to deploy the "face" of the evolution of culture: science, morals, traditions, religion, art in the historical logic of presentation of these forms of human being. An important tool for

creative breakthrough, the transgression of opportunities, projects and their results, will be for the person to adjust the most subtle device of worldview and understanding. And we are not talking about scale, the scope of the "package" of knowledge for the formation of universal "renaissance" personality, it is about the depth of immersion in the subject, the ability to understand the details in the architectonics of constructing holistic knowledge.

It is just like the smallest architectural detail, e.g. the columns of a temple, can reveal to the expert through its proportions, individual elements, etc. the model of the world encoded in the semiotics of this temple, the chronotype of history, the temporality of culture. According to this approach, quantitative “absorption” of information is of secondary importance, but the experience of incorporating it into something more important is what makes humanity acquire this information and learn to store it. For example, each ethnic group grew, forming its own tradition (ritual, communication system, beliefs, etc.). Knowledge of different rites, even real or virtual participation in them of modern man is not able to reveal the meaning of certain movements, actions, semantics of attributes. Rather, it will resemble a costume party in a desacralized sketch of this rite. Instead, understanding the basis of life as a worldview guideline, inscribed in each ritual, will reveal those aspects of culture that will not lose their meaning for a person of different historical eras. Among them are those designed to preserve and extend life and health. And then certain communication algorithms, food, elements of a culture of sensuality, physicality will not be perceived as exotic misunderstandings for us today but will inform the vital necessity of their observance (as standards of hygiene, basic nutrition, relationships and rules of social interaction). Of course, in civilization, both norms and restrictions have changed in different traditions with climate, landscape, ecosystem specificity. However, the need to construct a structure of social interaction, as the basis of culture (moral, ethical, spiritual, health, etc.), today requires its norms, restrictions and practical rationality in its organization. Thus, the cognitive, educational value of such knowledge lies not in direct imitation, but in rethinking these principles in the context of the present.

Another dimension of cultural ecology, which is directly related to the methodological strategies of R. Barth's poststructuralism (2012) and Y. Kristieva's semiotic systems (2013), is based on the vision of culture as a text with its structure, denotative and connotative values, information landscape, ways of interpreting the symbolic-semiotic series of visuals, social design opportunities, etc. That is, the text becomes everything that accumulates the meaning, purpose, technology of human activity. Each cultural artefact can be decoded in the context of a particular semiotic system. Revealing the specifics of this methodological approach to the postmodern era, a student begins to perceive, learn and retain information as text and text as a cultural phenomenon.

The modern information landscape of digital media needs a specific strategy for reading content, ways of navigation, as a new type of communication is being formed, that M. McLuhan predicted in the twentieth century. This type of audio-visual communication requires a certain strategy because it accumulates different semiotic codes. Therefore, completeness of content reading: media competence is the basis of media literacy depends on owning this new strategy. The main requirement is the compactness of the information, the speed and convenience of its reading by the digital media user. However, this cannot be a technique of "squeezing" basic ideas and "exposing" text. Moreover, in the conditions of the "death of the author" (R. Bart, 2012)

the reader becomes the author of the necessary meanings, and this implies multiplicity of discourses, not simplification - direct instruction.

Therefore, to understand the way of organizing the information landscape of modern "digital" content (e.g., interface, IT landscape) as a visually simplified message is incorrect. On the contrary, it is another principle - the combination of visual codes of the organization of the text, where graphic design (and in today's computer graphics - relief) inspires social design (a way of social organization). However, if the requirements of compactness, the complexity of visual codes, speed of reading, ease of use are the requirements of modern communication in the conditions of digital media, then the semiotic systems themselves, the sign structures, are rooted in different cultural traditions, ways of writing (not just phonetic) and multiple codes of the history of art. This way, education will be an understanding of this relationship. For example, in terms of demonstrating the difference in the organization of a visual message, the semantic composition of text in the works of art by artists of realism and modernism. They are fundamentally different as visual techniques, but each has its advantages and reflects a contextual connection with its time, pace of culture and associated with specific social practices. Mastering this knowledge will allow to understand the inheritance of visual strategies of different historical periods of culture, not cutting off the past, but integrating the experience into the modern actual living fabric.

The last educational dimension in the aspect of cultural ecology that we would like to consider in this article is the most painful. In fact, this is a question that can divide human history into "before" and "after", with the singularity that "after" is likely to cease to be already human history. The development of digital technology has prepared a leap into the era of transhumanism. All the gains that look most attractive today in terms of globalization requirements, such as various distance learning projects, active implementation of virtual practices (virtual teacher, travel, museum, interlocutor), digital technologies that are directly focused on the creation of a collective consciousness neuro-network as the cognitive over-power of the future may become doomed to the very nature of sociality. Ecology of education, as a system of coexistence of different elements of education, is built in the unbroken structure of interaction between student and teacher. The "presence" of offline communication is the only way of human creation. All the technologies that are breaking down this structure are stillborn in terms of social existence. If the digital model of education comes to the forefront of history, and its traditional structure flows into the archives of the past, the child does not receive a prime example of its learning - a person. Of course, modern technologies are almost ready to ensure at first glance an "ideal" learning process: development of the student’s cognitive resource; an array of today's information; the fact that artificial intelligence fills the lacunae that need human intelligence, etc. But it is difficult to organize basic support: solutions and control over all of them. It is crucially important to note, that overcoming the human presence in the socialization process - cyber-education with a remote human existence - carries the threat of destruction of the foundations of civilization.

DISCUSSION AND CONCLUSION

Thus, the considered aspects of cultural ecology, as prerequisites for transgression of educational landmarks based on digitization of the globalized information space, provide a projection of creative resource in overcoming the crisis state of imbalance of cognitive tools. The basis of the crisis today is the poly-paradigm of educational

concepts, which balance in the line with the impossibility of preserving traditional education models and, therefore, abandoning them and switching to digital "rails" of modernization. We have shown that such a variant of educational reform is detrimental because it carries the potential of destructive embeddedness in the ontological foundations of human being, and virtual practices, artificial intelligence programs can act as aids in acquiring new educational tools, without prejudice to the cognitive, sensory, emotional interference with the spiritual and physical nature of the subject.

Therefore, the modern epistemological concept of education must be based on the translation of the evolution of culture's experience of the communication process, first and foremost in the basis of human creation - the process of socialization. That is, the fundamental factor of the ecology of culture in the dimensions of education is the fundamentality of the "dialogic" socialization of the team (student-teacher), in which historical experience, scientific knowledge, digital technologies can provide a transgression of the impulse of the individual. The chronotope of today's identity itself is born in the original, not a copy, an idea, not a shadow, no matter how perfect the latter would be. So, we join the discourse started by our predecessors, which we tried to analyze, and see the conceptual perspectives of its deployment and the practical ones - the formation of the modern education paradigm. The formation of the modern education paradigm requires a strategy of priorities: the meaning of life goals and the tools to preserve them. The first is based on the existential integrity, mental and cognitive integrity of the person's biosocial status. The basis of the second is the scientific intelligence provided by the vast array and variety of digital technologies. Thus, by transgressing educational landmarks, expanding the horizons of social construction of reality, cultural experience emerges, extrapolated to the intellectual resource and digital technologies involved, but maintaining the interaction of the main socialization link in education – from teacher to student.

REFERENCES

Barthes, R., 2012. *The death of the author*. Available at: http://schools.aucegypt.edu/research/cts/Documents/Reading%206.pdf (Accessed 11 April 2020).

Basha A., 2018. Albanian the last two decades in the context of media and information literacy in libraries, education and life-long learning. In: J. Beseda and L. Rohlíková (eds.). *Disco 2018: Overcoming the Challenges and the Barriers in Open Education, 13th Conference Reader,* Prague: CHES, pp.111-137. Available at: http://disconference.eu/wp-content/uploads/2017/01/DisCo-2018-Overcoming-the-Challenges-and-Barries-in-Open-Education-13th-conference-reader-1.pdf (Accessed 5 April 2020).

Betancourt, S.G. and Pedreira, M.C., 2016. The use of new technologies in ibero-american classrooms: demystifying utopia. In: J. Beseda (ed.) *DisCo 2016: Towards open education and information society, 11th conference reader*, pp.126-132. Available at: http://disconference.eu/wp-content/uploads/2017/01/Disco2016-sbornik.pdf (Accessed 10 April 2020).

Castells, M., 2010. *The rise of the network society.* Malden, MA: Wiley-Blackwell,

Dautov, D. and Korochentseva, A. and Al Hussini, M., 2019. Features of clip thinking and attention among representatives of generations X and generations Z. *SHS Web of Conferences and [e-journal]* 70, (06001). Available at: https://doi.org/10.1051/shsconf/20197006001 (Accessed 10 April 2020).

Hajdegger, M., 2015. *Vremya kartiny mira.* Available at: http://www.philsci.univ.kiev.ua/biblio/Hajdeger.html (Accessed 11 April 2020).

Jaspers, K., 1965. *The origin and goal of history*. Yale University Press: London.

Kristeva, Yu., 2013. *Semiotika. issledovanie po semianalizu.* Moskva: Akademicheskij Proekt.

Lihachov, D., 1980. *Ekologiya kultury* Available at: http://svitk.ru/004_book_book/16b/3564_lihahev-ekologiya_kulturi.php (Accessed 11 April 2020).

McLuhan, M., 2011. *The Gutenberg Galaxy: The Making of Typographic Man*. Toronto, Buffalo, London: University of Toronto Press.

Onishchenko, O., 2013. *Estetychnyi potentsial fiziolohichnykh pochuttiv: teoretychnyi analiz ta khudozhnia interpretatsiia.* Naukovyi visnyk KNUTKIM, 12, pp.188-198.

Pushonkova, O., 2011. Smysly kultury i modeli identychnosti v dyskursi travmy. Visnyk Cherkaskoho universytetu, 210, pp. 5-11.

Ritzer, G., 1996. *The McDonaldization of society: an investigation into the changing character of contemporary social life*. Thousand Oaks: Pine Forge Press.

Toynbee, A., 1948. *A study of history*. Oxford University Press: London.

LISTENING TO INFORMATION LITERACY NEEDS OF SECONDARY SCHOOLS IN THE CZECH REPUBLIC

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Abstract

If we see universities as innovation centres or hubs of learning society, then new knowledge from them should be distributed quickly because of the fast ageing of information. The goal of our applied research is to find a way to accelerate the transfer of knowledge about information literacy from university to high school using an online open mash-up environment. What are the needs of schools, teachers and pupils in information education? This paper arose from a qualitative education needs analysis, based on q-methodology and interviews with 8 teachers from 5 schools and a pre-test with open questions for 95 students. We can see several exciting phenomena: first, a discrepancy between the evaluation of isolated knowledge and applied knowledge or competencies. Teachers commented on the low level of critical thinking and assessment of information among students, but at the same time, they assessed them highly in these skills. The students in the pre-test did well – more than three-quarters of the student can name some elements of a credible source of information or about safe behaviour on the internet. Second, there is a vicious circle where teachers see that it is crucial for students to develop autonomous learning and knowledge development competencies, but at the same time, teachers do not trust the students. What is more, there is little possibility for students to build this autonomy in schools. According to this test, students have the unfortunate habit of searching for information before they start to act (40), although 74 students reported a specific application or method of how they learn on their own using the internet. Based on data and AASL standards for the 21st century learner, we have created a pilot version of the course at www.kisk.phil.muni.cz/onlife. This is an information and autonomous learning topic that is receiving the most attention nowadays.

Keywords

Information literacy, knowledge transfer, high school, university, online learning

INTRODUCTION

Information literacy is one of the most essential competencies today as it affects many aspects of human/social life. Learning and self-development is linked to the ability of obtaining information for work-life, where creativity with information is needed while exploring new situations and solving problems, or civic life, where it is necessary to understand the pressure of influences and misinformation in, for example, the field of politics (Candy, 2004). According to Freeburg (2017), we understand information literacy as dynamic skills, subjectivities, and creation processes that develop information. Due to the variability of information and communication technologies, it is necessary to ensure a flexible approach to acquiring these competencies. That means ensuring access to the latest information to gain knowledge and experience. This approach can be provided, for

example, by a university, which, in our view, plays the role of an innovation hub in society with a responsibility to citizens and specific target groups.

One of these specific groups are high school students. Current information and knowledge should be delivered to them so that they can use it with the help of their teachers. In this sense, the target group is also the teachers themselves, who approach information and knowledge together with students.

As part of the analytical phase of the applied research project, we identified the needs of teachers and students to design and create an educational environment that ensures the fastest possible transfer of knowledge from university to school, and the widest possible number of barrier-free users, using appropriate educational technologies to meet the needs of the target groups.

The main goal was to find out the needs of students, as well as that of teachers to pass on information literacy in secondary school. To this end, we conducted several research surveys answering numerous questions: What is the information literacy of students and their needs? What competencies do teachers consider essential and which are unimportant? According to teachers, what competencies do students have and what do they lack?

Literature review

Currently we can find interesting studies discussing conceptions and theories of information literacy and researching information literacy at secondary schools from the perspectives of teachers, of course design, of course evaluation or information literacy frameworks.

Beyond the Hyperbole: Information Literacy Reconsidered (Julien, 2016) discusses terminological confusion and criticizes the disconnection of information literacy from information behaviour and information practices in the literature. The authors of *Conceptions of information literacy: new perspectives and implications* (Webber and Johnston, 2000) identify the key definitions of information literacy and alternative approaches, including the pedagogical approach with comparisons among behaviourist, constructivist and relational approaches in teaching information literacy. In *Refining information literacy practice: Examining the foundations of information literacy theory* (Flierl and Maybee, 2020), the authors examine the philosophical commitment of the theories Critical Information Literacy and Informed Learning.

For our research, we chose AASL Standards Framework for Learners (AASL Standards Framework for Learners, 2017), which was used already in a few empirical studies. In *The Student's Voice on Information Literacy Skills: Using the 2017 AASL Standards Framework for Learners*, students' resource needs were examined using the Curate domain (Garrison, FitzGerald and Sheerman, 2018). Identifying the strengths and weaknesses (or barriers) of the overall implementation of the Standards Framework by school librarians was also examined in a large study (Burns, 2020). In the case of delivery formats, *A review of information literacy programmes in higher education: The effects of face-to-face, online and blended formats on student perception* (Morris, 2020) did not uncover any significant preferences among formats.

In *Teachers and information literacy* (Shannon, Reilly and Bates, 2019), we can find how teachers in Northern Ireland understand the concept of information literacy (IL) and how they reflect it in the curriculum. The teachers feel a lack of opportunities to develop their IL skills.

METHODS

As stated above for structuring our research, we chose the AASL Standard Framework. According to Bawden (2020), there are two types of information literacy models. Firstly, the "*older style of 'competence' models denoting individual skills and competences for problem-solving"* and, secondly, "*newer, more holistic, flexible and all-embracing 'relational' models"*. We see this model as more relational than others that are often used, for example, the Big 6 model (Eisenberg, 2008). AASL and include learning, so that is very close to the conception of informed learning by Bruce (Bruce, Demasson, Hughes, Lupton, Sayyad Abdi, Maybee, Somerville and Mirijamdotter, 2017).

The AASL Standards Framework is structured into six domains (inquire, include, collaborate, curate, explore, and engage) and according to four cognitive processes or goals (think, create, share, and grow). We used the AASL Standards Framework mainly for structuring the research surveys. The domains of the framework are described in Table 1.

Table 1: Domains of AASL Standards Framework

INQUIRE	Build new knowledge by inquiring, thinking critically, identifying problems, and developing strategies for solving problems.
INCLUDE	Demonstrate an understanding of and commitment to inclusiveness and respect for diversity in the learning community.
COLLABORATE	Work effectively with others to broaden perspectives and work toward common goals.
CURATE	Make meaning for oneself and others by collecting, organizing, and sharing resources of personal relevance.
EXPLORE	Discover and innovate in a growth mindset developed through experience and reflection.
ENGAGE	Demonstrate safe, legal, and ethical creating and sharing of knowledge products independently while engaging in a community of practice and an interconnected world.

The project involves five schools from one city, both grammar schools and secondary vocational schools. Because the project is in the analytical phase, the survey determined which methods were selected. Trained students from the Department of Information Science and Librarianship conducted interviews with students and teachers. We have involved them mainly due to their close relationship to secondary school

To obtain answers to research questions, we used a quantitative method to assess the secondary school student answers through an online test, but qualitative methods to understand teacher and student needs.

- The q-methodology for teachers was used to find out which competencies they see as important and how they assess their students in these competencies. The q-methodology is used for researching subjectivity such as values. The researchers create cards with statements that the participants rank e.g. from -3 points to +3 points. The analysis shows the less valued statements and the more valued statements by the group. The statements of our q-methodology were created based upon the competencies of the AASL framework, which we simplified to form one or two sentences. In total, each teacher worked with 24 statements (e.g. “Students are able to determine their information needs, identify suitable information sources, and work critically with them.”), which s/he sorted into prepared fields of paper. Four teachers divided the competencies on a scale

of importance: four teachers on a scale of evaluation of the competencies of their students. They commented on the whole process during the interview (thinking aloud). At the same time, we analysed the q-methodology in a less usual qualitatively, e.g. similarly to the research of Janík (2009). That means we put more emphasis on the teachers' commentary than on factor analysis.

- Semi-structured interviews with teachers were connected to the q-methodology by other research questions in three thematic areas – preparation for teaching information literacy and its current form, information literacy evaluation, and technologies used by teachers and schools.
- Online test for students consisted of a total of 18 questions, always 3 for one competence dimension.
- Semi-structured group interviews with students were structured by framework domains, with one question for each of the six. The goal was to help reveal how students think about the area and thus supplement the information obtained in the test.

Table 2: Questions for the interview with students

INQUIRE	Describe a problem or situation you have recently encountered. What was needed to solve it? What was the procedure? Was there a need to find something?
INCLUDE	For example, imagine you are the moderator of a presidential debate during which you can stop time. What information would you like to find? Where would you look for it?
COLLABORATE	Think about collaborative work while learning. What does it bring, and what does it take? What role does technology play?
CURATE	How do you sort your files? Do you keep them? Do you go back to them?
EXPLORE	Are you creating any digital content? Do you share it? Are you following/watching someone?
ENGAGE	What is intellectual property?

The interviews were attended by eight participating teachers who teach various subjects (Czech, ICT, physics, basics of social sciences and vocational subjects). A total of 95 students participated in the online testing. The interview was attended by a total of 8 groups consisting of 5 students per group. It should be noted that one school did not involve its students in the interviews.

The q-methodology was used where the sum of the points were assigned to the columns in the array, where the middle column was 0, and the columns on either side had positive (max +4 points) or negative values (max -4 points).

In the test, the responses were coded and quantified. Therefore, the results always correspond to the number of selected answer types.

Group interviews were analysed using open coding, but the key codes were again the dimensions of the frame.

RESULTS

In the table, it is possible to see the preferences of the dimensions of the teacher. The number of the domain is the sum of points, which each competence of the domain gains on the q-scale from four teachers.

Table 3: Results of q-methodology according to AASL Standards

Domain preferences		Domain evaluation	
CURATE	15	COLLABORATE	13
ENGAGE	5	ENGAGE	11
INQUIRE	3	CURATE	3
INCLUDE	-3	INCLUDE	-6
COLLABORATE	-8	EXPLORE	-7
EXPLORE	-13	INQUIRE	-13

In terms of importance, teachers ranked the competencies from the curate, engage and inquire dimensions as the highest. The second group of teachers ranked the level of their students and perceived as the weakest competencies those from the dimensions of inquire, explore, and include. However, due to the number of participants (4 teachers evaluating the importance of competencies and four teachers evaluating the level of students), these values, which we added up for individual dimensions, it is important to sort the competencies with the teacher's commentary below.

The INQUIRY domain

The need to strengthen the habit of students to solve a problem based on particular information

Students showed weaker habits in finding information to solve a problem in a given situation. Only 45 students described an activity plan in which finding information precedes the acting. Students also try getting help from those in their environment and sometimes pass on the problem to someone else. They often look for a close "elder" or "wise" person to help resolve the situation. For example, they call their mother to help find an alternative bus home, their brother or uncle to solve a computer problem, or their father to help with mathematics. Some students mentioned that they search for information to solve a problem on the internet using "trial and error".

The need for students to curate information

At the same time, it turns out that the teacher is an essential mediator of this habit and of information sources. Students describe their teacher as a "search engine" or that they would need a "resource starting point" from the teacher. Some students see teachers as an important person for finding the way to sources of information. "*The search engine is the professor*", said one student.

The need to include feedback in learning processes

Seventy-four students described feedback as constructive help in the form of fair and balanced information. However, its position in teaching remains a question, as one of the teachers included feedback in teaching as the worst managed competence. Another teacher mentioned that giving feedback does not happen very often due to time constraints. When it comes to mutual (student or peer) feedback, teachers show considerable distrust of students.

Need for self-directedness of students

Three teachers in the first group ranked the three weakest competencies of their students to be those that are closely connected with self-directed learning – 1) planning educational outcomes and their creation, 2) interaction in the learning community and 3) the already mentioned feedback. The second group of teachers ranked the same competencies as the most important. One teacher commented: "*A person comes to that*

school as someone who is taught but should leave in such a way that he can learn on his own. When he leaves school, he will not have the teacher, so who will teach him? Only he, no one else, will ever be there." According to another teacher, the fact that students create educational outcomes based on evidence is also a thing of the future – "*this is not IL; education would have to be reformed"*. Another teacher perceived his students as too "immature" for e-learning.

Table 4: INQUIRE – Student pre-test question analysis

51 students conveniently created a search query for Google search. 45 students described an activity plan in which the information search was done before acting. 74 students described the feedback as constructive help in the form of fair and balanced information. 77 students were able to describe something they had learned in school in the last week, and according to them, it could be used outside it as well.

Table 5: INQUIRE competence preferences by teachers

Students base their education on evidence and plan it. They create their own educational outcomes.
Students share their learning outcomes with an authentic audience, provide feedback and can learn from it themselves.

Table 6: INQUIRE competence evaluation by teachers

Students independently discover the topic by constantly searching for new knowledge, researching, trying to find connections with the real world and being able to make decisions based on information.
Students share their learning outcomes with an authentic audience, provide feedback and can learn from it themselves.
Students base their education on evidence and plan it. They create their educational outcomes.

The Inquire competence of the framework simply refers to the ability to solve a problem or situation based on the information and to continuously develop on the basis of feedback. According to the identified needs, however, it seems that for information literacy, a 45-minute full-time lesson does not fit into the schedule. Teachers themselves perceive information literacy as an interdisciplinary issue, which is also reflected in the school educational programs of the participating schools.

The INCLUDE domain

The need to strengthen the formation of one's own opinions and attitudes based on the information obtained

Students can create a topic for discussion. They are also aware of the diversity of perspectives and biases. However, only 22 students were able to formulate three pros and cons against three positions on their own proposed topic. Only 41 stated that they would look for information for arguments in information sources or experience. However, if they were asked directly where they would look for information, for example, to verify a statement in a debate, they mentioned Wikipedia, novinky.cz, demagog.cz, the Czech Statistical Office, Czech News Agency, and books if the information was old.

Table 7: INCLUDE – student pre-test question analysis

63 students appropriately named the topic that could be the subject of discussion and different opinions. 22 students were able to come up with 3 pros and cons for the discussed topic. 41 students stated that they would look for materials for their argumentation in information sources or experience. 74 students mentioned a specific application or procedure in which they learn with the help of the internet.

Table 8: INCLUDE competence evaluation by teachers

Students are aware of the wider learning community. They interact with students from several perspectives. They can evaluate them and present their own views and opinions.

The Include competence refers to the perception of the learning community and respect for diversity of opinion. The learning community is not just the class, but a broader community with which one can be connected, for example, through social networks.

The COLLABORATE domain

The need for appropriate opportunities for collaboration across environments

Most students (92) know the tools that allow them to collaborate online. They choose the environment for cooperation according to the number of classmates involved. In pairs, they may prefer face-to-face meetings; in a multi-member team, they may prefer the greater involvement of technology for efficiency. Students praise cooperation and perceive its importance, but at the same time, reflect the need to set appropriate team tasks. Some students voluntarily learn and prepare together by testing each other, considering this to be an advantage. They perceive the team task positively where information retrieval can be divided. They perceive team tasks negatively where they lose their "sense of teamwork" by breaking up into small groups, which then, for example, only stay together due to time pressure. They also negatively perceive the tasks in which strong students take the lead, who then work out the task for the others, who end up learning little as a result.

The need for group work management and learning skills

Students describe it as an advantage to learn together. However, they describe some disadvantages of group work, which some perceive as independent work that is then combined. They positively perceive the sharing of the task of the information search. If the cooperation is in pairs, they meet; if it is in a larger group, they cooperate via the Internet, Facebook; after the chat, via video calls. For larger groups, however, there is a risk that someone will "hide" because the task will be dominated by "smart students", "*but the other not so smart children will not learn anything if someone else does the work for them and then they are not involved.*"

However, the increase in competencies and experience in collaboration and learning across environments probably also applies to teachers. According to teachers, cooperation is a strong competence of students. These statements were ranked in first place by three out of four teachers: *"Students can identify opportunities for collaboration. They are interested in expanding their knowledge, developing it in a learning group and solving questions that arise from group interaction."* However, this is probably one of the misconceptions of how older generations perceive Generation Z. "*They are constantly on mobile phones*", remarked teacher B, "*and students are more online than in person*."

Without this understanding, however, it seems impossible for teachers to design appropriate collaborative activities and choose the appropriate tools and environments.

Table 9: COLLABORATE student pre-test question analysis

68 students described an opportunity for collaboration and preference for group heterogeneity.
92 students named a tool for online collaboration.
59 students would prefer a team with diverse views to work together.
20 students sometimes contribute to discussions under articles.

The CURATE domain

For some students, the primary sorting is to separate their files on a family computer. When they have larger folders, they do not sort. They have more order in their photos, but especially on their mobile phone in general. They also typically store them in a cloud linked to their mobile phone, and/or on external disks connected to their computer.

Mobiles as an essential tool for developing student information literacy

The use of mobile phones in teaching is either prohibited or exceptional in all participating schools. However, students stated that the mobile phone is often their primary means of communication, in which they can orient themselves and store files better than on a computer, which they often share with the family.

Computer and mobile devices as tools of equal importance in learning, but with different functions

This certainly does not mean that we should resign from computer training. However, it is crucial to consider the impact of the fact that a highly personal means of communication and information retrieval may be prohibited in school. The smartphone helps new ideas emerge, as well as knowledge and learning. Thus, both types of tools belong in teaching and learning, and it is necessary to distinguish the situations for which they are needed. Computers need to be seen as a tool for special purposes in secondary schools. This is because they are not available in every class, but only in computer classrooms, and at home they are shared, or not available at all. It would, therefore, be a good idea to look at mobile devices as the primary tool for working with information and files, as most students constantly have them at their disposal.

The need to master critical work with sources of information

Only 44 students stated credibility or critical evaluation of the content as a criterion for choosing a source of information. One of the teachers also included questioning the sources and subsequent organization of information as one of the weakest competencies of his students. The same competence then appeared among the most important.

Table 10: CURATE – student pre-test questions analysis

44 students stated credibility or critical evaluation of information as a criterion of the source of information.
67 students stated that they sometimes save resources, for example, in bookmarks.
61 students sometimes share interesting resources from the internet.
37 students stated that they sort their information or resources on a computer.

Table 11: CURATE competence preferences by teachers

Students can determine their information needs, identify suitable information sources, and work critically with them.
Students gather the necessary information by searching for sources representing different perspectives, systematically questioning the sources and organizing the selected information appropriately.
Students share information resources by making them available and evaluating jointly formed resources in which they ethically use the work of others.

Table 12: CURATE competence evaluation by teachers

Students gather the necessary information by searching for sources representing different perspectives, systematically questioning the sources and organizing the selected information appropriately.

The EXPLORE domain

Occasional sharing and untapped opportunity to engage with the online community

Forty students sometimes share their work on social networks. The others feel like "distant observers". The profiles that were observed/watched correspond more to the field of entertainment – celebrities, athletes, artists. Nevertheless, 62 students stated that they were following someone for their expertise. Regarding learning, the only site mentioned was a profile of childcare as preparation for motherhood. The interviewed students prefer Instagram to Facebook, and very few of them mention that they run a blog.

The opportunity to develop these competencies is also indicated by the inclusion of the statement "Students in the learning community share their topics of interest, collaborate on innovative ways to do research and on innovative solutions." According to two teachers, these were among the worst managed skills. Only forty students said they shared their work through blogs or social networks. This may indicate that students are not "as crazy" as portrayed by teachers, but they simply do not know how to use these tools more meaningfully for themselves.

Table 13: EXPLORE – student pre-test question analysis

40 students share their work via a blog or social networks.
48 students have recently read something about study that was optional.
62 students follow someone on social networks because of their expertise.
63 students stated that they repeatedly return to one topic.

Table 14: EXPLORE competence evaluation by teachers

Students in the learning community share their topics of interest, collaborate in innovative ways of research and on innovative solutions.

The explore dimension is linked to an experience that is iterative as a design process and also includes sharing and feedback. In the context of teachers, one can turn again to their role as a curator. That is probably a gateway for students to be able to follow interesting resources related to school topics. In this dimension, however, the role of experience in working with information was also pointed out, which only makes it possible to come up with a solution or share something at all.

The ENGAGE domain

The need to find the boundaries of intellectual property on examples of everyday use

All groups were able to describe what is meant by intellectual property, albeit with inaccuracies; for example, in the form of distinguishing general knowledge from the author's idea or, conversely, having intellectual property as almost equal to a patent. Students also feel that they are infringing on intellectual property or the law by downloading movies and music (which is not true). Thus, they are not sure where the boundaries of the idea relating to intellectual property are, or what the exact rules for sharing and downloading are. Some do not have the money to pay for services however much they would like them, and they see the point in paying for what they use. Others pay for services like Evernote and Netflix because of their parents.

Clarification of the meaning and practice of quoting and referring to sources

The uncertainties indicated above also result in uncertainty in quoting and referring to sources. Although we recommend that students use citation generators themselves, only two of the ninety-five high school students gave a suitable citation reference in the test.

On the other hand, only three teachers included ethical and legal management competencies, and responsible use and information sharing among their students' mastered competencies. However, this could also be distorted by the school's focus. The fourth teacher placed this competence on the opposite pole – of greater importance.

The teachers differed slightly in their view of the ethics of working with resources. While one teacher listed two of the most important competencies to be those regarding the ethical use and sharing of information, one teacher said that *"... the free communication of information is probably more important to me than whether they obtained the content legally or not at all.*" Thus, there is probably a need for teachers to clarify the information about the ethical handling of information, but also to discuss their positions (see discussion section), such as open science, etc.

Table 15: ENGAGE student pre-test question analysis

77 students stated that they did not find the information provided by us from the Sputnik disinformation server credible. 2 students gave a suitable citation of the source. 70 students mentioned some of the elements of the credibility of the information source as a criterion for the decision to share it (author, date, credibility, sources, comparison of information, etc.). 77 students gave at least one useful piece of advice for the safe use of the internet if they were to instruct their younger sibling.

Table 16: ENGAGE competence preferences by teachers

Students follow ethical and legal guidelines for the collection and use of information. They use information, technology and media responsibly for learning. They evaluate the information in terms of accuracy, validity, social and cultural context and suitability for a given need.
Students share new information with the global community responsibly, ethically and legally. They share information sources following the principles of modification and re-use. They use resources that are appropriate for the audience.

Table 17: ENAGE competence evaluation by teachers

Students share new information with the global community responsibly, ethically and legally. They share information sources following the principles of modification and re-use. They use resources that are appropriate for the audience.

The Engage competence has been relatively discussed both by teachers who consider the ethical treatment of resources important and by students who need to combine knowledge with experience to help them gain more precise outlines of the practical implications of the ethical treatment of resources.

DISCUSSION AND CONCLUSION

This section deals with the discussion and conclusion of the results with respect to the AASL framework used, but we are trying to go beyond it to some extent. Like any framework, it has its limits and ties to a particular pedagogical or philosophical paradigm, which determines what we understand as knowledge, competence or how we even perceive. In the framework of information literacy, it is perhaps all the more impressive that the topic concerns the very way of human cognition.

The survey showed us that information literacy really cannot be seen as a matter of the individual, it is tied closely to the environment. As such, we tend to the idea of Bruce et al. (Bruce, Demasson, Hughes, Lupton, Sayyad Abdi, Maybee, Somerville and Mirijamdotter, 2017), whose point of view is that the constructivist approach is not sufficient; we need to uncover more relational ways. Moreover, Limberg et al. (Limberg, Sundin and Talja, 2012) state that "… *learning is embedded in cultural practices and imbued with norms and values, since learning implies developing one's ability to understand and act in gradually more sophisticated ways within a specific practice*", which is in line with our position.

One of the critical points that we saw in this research is the experience in education (see Dewey, 1997). In the case of the students' experience, we saw a discrepancy between the evaluation of isolated knowledge and the applied knowledge or competences. The teachers commented on the low level of critical thinking and assessment of information among students, but at the same time, they assess them highly in these skills. The students in the pre-test turned out well – more than three-quarters of the students can name some elements of a credible source of information or about safe behaviour on the internet. As information literacy is like a puzzle of information behaviour (Limberg and Sundin, n.d.), we should teach students how to act in situations.

Secondly, experiencing it is hardly possible on this topic of information literacy; as it is tied with learning, it should be experienced in school, during the learning process itself. As John Dewey's pragmatist pedagogy claims, a school should be the world, not the imitation of it (Dewey, 1997). The cycle of work with information and the learning cycle in school should be complete, and it should be visible for students. What is more, it should be understood that the learning experience is closely bound with the information experience (Bruce, Demasson, Hughes, Lupton, Sayyad Abdi, Maybee, Somerville and Mirijamdotter, 2017). For example, where do the sources for learning come from? What are the resources which are useful to start with? How can you create and learn, and how can we create and learn together? How was our work with information? We found, for example, in these topics below, areas where the school climate or teacher's pedagogical style demonstrate good work with information.

Teacher's digital information curation. In the test and interview, we found that students have little connection to professionals or institutions dealing with school topics. Students also describe teachers as a "springboard for resources", but those teachers perceive these competencies as insufficient. What does this point to? The teacher is one of the people who can introduce students to the resources of the area. Here we perceive the teacher to play an important role as a curator of information, i.e. the one who mediates students' access to resources or the subject community in general (Černý, 2019; Černý, 2015).

Meaningful *onlife* collaboration during learning activities. From the analysis, it seems that students can work with online tools. However, both students and teachers seem to lack appropriate procedures and the ability to think about collaboration across environments. While students point to uncertainties in group work and learning, teachers have the idea of students are stuck to the screens of their mobile devices and the prevailing online socialisation. Environments cannot be thought of in isolation, such as the school classrooms or online chats. Online and offline environments are inextricably linked to one *onlife* environment, which we borrow here from Floridi's philosophy of information (Floridi, 2014). It does not matter if we use online or offline tools. What is important is that we use tools that have real consequences and effects. Teachers need to not only have an understanding but also the ability to accept this environment and use its various tools in the teaching itself. In this way, we can also talk about functional personal learning environments (Rahimi, van den Berg and Veen, 2015).

Feedback as part of the learning experience. Here we also perceive the problematic position of feedback in teaching. It is the feedback, in various forms (see e.g. Carless and Boud, 2018), that allows reflection and lessons to be learned from experience.

Lastly, students are not the only actors who need to experience something in school; teachers also learn in school. For example, there is a vicious circle where teachers see that students must develop autonomous learning and knowledge development competencies, but teachers do not trust students. What is more, there is little possibility for students to build this autonomy in schools. The situation is very similar in the topic of mutual peer feedback, where teachers do not perceive the competence of students in mutual assistance as sufficient, or even the specific benefits of peer assessment.

Thus, it seems that teachers need the opportunity to properly set up activities with students that will gradually increase the autonomy and responsibility of students and at the same time allow teachers to build confidence in the students, perhaps even confidence in this way of learning. As Shannon et al. demonstrate in their research (Shannon, Reilly and Bates, 2019)**,** the teachers' presumptions about information literacy and their own information literacy level has critical impact on the information literacy of their students. It should be noted that the situation of teachers who are under pressure from the expectations of at least parents and principals has not tended towards innovation based on the teachers themselves, as reflected, for example, by Šíp (2019).

RECOMMENDATIONS FOR FURTHER RESEARCH

Relational approaches are important for further research in their underlying conceptions of information literacy. We see some opportunity in the design-end researching of particular points from our conclusion, such as incorporating feedback into the information and learning experience, designing meaningful collaboration for students

and task management for teachers, and finally, learning how to design information and learning experiences not only for students, but also for teachers.

ACKNOWLEDGEMENTS

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REFERENCES

AASL Standards Framework for Learners, 2017. In: *American Association of School Librarians: Transforming Learning*. American Association of School Librarians. Available at: https://standards.aasl.org/wp-content/uploads/2017/11/AASL-Standards-Framework-for-Learners-pamphlet.pdf (Accessed 6 September 2020).

Bruce, C., Demasson, A., Hughes, H., Lupton, M., Sayyad Abdi, E., Maybee, C., Somerville, M. and Mirijamdotter, A., 2017. Information literacy and informed learning: conceptual innovations for IL research and practice futures. *Journal of Information Literacy*, 11(1), , pp.4-22. Available at: http://ojs.lboro.ac.uk/ojs/index.php/JIL/article/view/PRA-V11-I1-1 (Accessed 7 July 2020).

Burns, E., 2020. AASL National School Library Standards: Progress toward Implementation. *School Libraries Worldwide*, 26(1), pp.1-12. Available at: http://ezproxy.muni.cz/login?url=https://search.ebscohost.com/login.aspx?direct=true&AuthType=ip,cookie,uid&db=lxh&AN=143107787&lang=cs&site=eds-live&scope=site (Accessed 7 July 2020).

Dewey, J. 1997. *Experience and education*. The Kappa Delta Pi Lecture Series. New York: Touchstone.

Flierl, M. and Maybee, C., 2020. Refining information literacy practice:: Examining the foundations of information literacy theory: Refining information literacy practice:: Examining the foundations of information literacy theory. *IFLA Journal*, 46(2), pp.124-132. Available at: http://journals.sagepub.com/doi/10.1177/0340035219886615 (Accessed 7 July 2020).

Garrison, K., FitzGerald, L. and Sheerman, A., 2018. The Student's Voice on Information Literacy Skills: Using the 2017 AASL Standards Framework for Learners. *IASL Annual Conference Proceedings*. Available at: https://journals.library.ualberta.ca/slw/index.php/iasl/article/view/7142 (Accessed 7 July 2020).

Julien, H., 2016. Beyond the Hyperbole: Information Literacy Reconsidered. *Comminfolit*. 10(2). Available at: http://archives.pdx.edu/ds/psu/22347 (Accessed 7 July 2020).

Limberg, L. and Sundin, O. n.d., Teaching information seeking: relating information literacy education to theories of information behaviour. *Information Research*, 12(1). Available at: http://InformationR.net/ir/12-1/paper280.html. (Accessed 7 April 2020)

Limberg, L., Sundin, O. and Talja, S., 2012. Three Theoretical Perspectives on Information Literacy. *Human IT*, 11(2), pp.93-130. Available at: https://humanit.hb.se/article/view/69/51> (Accessed 7 July 2020).

Morris, D. 2020., A review of information literacy programmes in higher education. *Journal of Information Literacy*, 14(1), pp.19-40. Available at: https://ojs.lboro.ac.uk/JIL/article/view/PRA-V14-I1-2 (Accessed 7 July 2020).

Shannon, C., Reilly, J. and Bates, J. 2019. Teachers and information literacy. *Journal of Information Literacy*, 13(2) pp.41-72. Available at: https://ojs.lboro.ac.uk/JIL/article/view/PRA-V13-I2-3 (Accessed 7 July 2020).

Webber, S. and Johnston, B., 2000. Conceptions of information literacy: new perspectives and implications. *Journal of Information Science*, 26(6), pp.381-397. Available at: http://journals.sagepub.com/doi/10.1177/016555150002600602 (Accessed 7 July 2020).

DISTANCE LEARNING DURING THE COVID-19 PANDEMIC AND ITS IMPACT ON PUPILS OF PRIMARY SCHOOLS

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Abstract

Modern technology in education has been discussed for several years and doesn't seem to be ground-breaking. In the current pandemic situation, we recognize though that despite ongoing projects and training the teachers, we are not prepared for distance learning as expected.

We asked ourselves how pupils handle distance learning. We focused on a group of 41 pupils age 11-13 in our study. We found out how they are provided with materials for home-schooling, how do they communicate with teachers, and how are they assessed.

First, in a pilot study we asked 52 pupils how they work and what prefer in distance learning. We found out that 50% of pupils are able to work independently if they are provided with appropriate materials and communicate with the teacher. 40% of pupils ask parents for help. Given the preferred way of distance learning, pupils prefer videos with commentary from the teacher (58%). Furthermore, was found that most of the pupils (52%) are trying to follow the timetable set by the teacher. The following survey took place 1 month after the beginning of home-schooling. We found out what kind of materials work the best, what do pupils prefer, and what are they afraid of after returning to regular lessons.

We have interviewed two pupils with Special Educational Needs. They have greater difficulty learning than other children of the same age, and the school team makes them nervous. Distance learning seems to be more suitable for them in many aspects, it allows them to concentrate, and they don't feel under time pressure. Pupils with disorders in written expression will benefit from working on the computer or tablet.

The results of our study will help us to understand home-schooling from the perspective of pupils. It may be useful for teachers while preparing materials for distance learning.

Keywords

CoVid-19. Distance Education. Primary School. Research. Natural sciences.

INTRODUCTION

Information and Communication Technologies (ICT) have become an integral part of everyday life – smart phones in everyone's pockets are direct proof. The situation is the same in Czech school system where there have been talks of integrating modern technologies into classes for years. When talking about using ICT we usually use more precise term – cognitive technologies. This term lets us know that these technologies are being used during the cognitive process and are not being used for example only as a mean of communication with the pupils in the school. (Vaníček, 2009)

It may seem that integrating modern technologies in schools is not anything ground breaking. These days, primary and secondary schools are equipped with computer stations

of good quality, with educational software, there are also tablets and other technologies which should help the teacher. The pupils can use these to better acquire needed skills, knowledge and habits. Of course, it always depends on how these technologies are used in lessons, whether or not the teachers know how to use them, the same applies to the pupils. (Vaníček, 2009) There is the assumption, that these technologies, usable in contact learning, may also be used as a mean of e-learning or blended learning.

The CoVid-19 pandemic, the announcement of emergency state in the Czech Republic and the closure of all schools since the 11th of March showed everybody, that Czech teachers are not as prepared for it as one might think considering all ongoing or already finished projects, which should have prepared the teachers to effectively use these modern tools. Similar situation was nearly in all world (e.g. Putri et al., 2020; Tadesse and Muluye, 2020)

) Czech School Inspectorate stated in its report from the 15th of April, that the most commonly used platform of communication in schools is WhatsApp and that a great number of schools communicate with its pupils only via e-mail or social networks. Generally it was found out, that 72% of pupils communicate with their teacher. The main cause on the non-communication (28%) was insufficient home base – the absence of computer, bad connection to the internet and so on. (Česká školní inspekce, 2020a) Simi

That is why during the pandemic we had to ask: How are pupils handling this distance learning? In our research we focused on children between the ages of 11 to 13. Using a questionnaire we tried to find out how do the pupils get the materials for distance learning, what feedback do they get from the teachers, how do they communicate with the teachers and how are the children evaluated. First, in a pilot study we asked 52 pupils how they work and what do they prefer in distance learning. We found out that 50% of pupils are able to work independently if they are provided with the appropriate materials and they communicate with the teacher. 40% of pupils ask parents for help. 10% of pupils work with other classmates or older siblings. Given the preferred way of distance learning, pupils prefer videos with commentary from the teacher (58%). Furthermore, it was found that most of the pupils (52%) are trying to follow the schedule set by the teacher. If they don't follow this schedule it is because of deadlines from other subjects (21%).

In the next survey, which took place 1 month after the start of distance learning, we focused on pupils of the 7th and the 8th grade. Individual questions (34) were mainly focused on natural science subjects. We found out not only the children's opinions on the quantity of homework but we also paid attention to the time-consumption of math, physics, natural history, chemistry and geography during distance learning. We tried to find out which type of materials pupils like and also which type of communication with the teacher they prefer. One of the questions dealt with whether or not the pupils are scared of going back to school and why. This entry presents results of a study, which can lighten up the view on distance learning in the Czech Republic from the children's point of view. These findings can help the teachers to create better materials for the pupils in the future.

SPECIFICATION OF RESEARCHED GROUP

For our research we chose primary school in Pilsen-city county. Approximately 360 children (6-15 years of age) attend the school. Each grade has two classes (A and B) except for the 8th and 9th grade. Each class has approximately 20-25 children. For our

research we chose pupils of 7th and 8th grade (11-13 years of age). We focused on subjects connected with natural sciences, like math, physics, chemistry, natural history and geography. The number of hours for each subject in every class is visible in the chart.

Table 1: The number of hours for each subject in every class.

	7th grade	8th grade
Math	4	5
Physics	2	2
Chemistry	0	2
Geography	2	2
Natural History	2	2

(Source: Own)

The 7th grade we picked has 17 pupils, 6 boys and 11 girls. Two of them, a boy and a girl, have individual educational plan. Supportive measures are at a level 2, without teacher's assistant. Both have diagnosed slow working pace. In addition, the girl has dyslexia and bad literacy, the boy's reading and writing is below average, also the ability to move is reduced. According to the class teacher the group is good, the climate is calm, studying performance average, sometimes below average.

The 8th grade has 27 children, 12 boys and 15 girls. All pupils work according to the normal educational plan, there is no one with special educational needs. The class is lively, studying results are slightly above average.

The school assigns the curriculum through their web page, where they created a section called "Homework" during the corona crisis. Each grade has its own bookmark there which is further divided in present curriculum and the archive. Even though the school uses an online app for school register, class register and student's report book, they decided not to use this service for the homework. Employees try to send the homework in such a way, that most of the pupils would really read them. Every parent and older children (10+) have their own account. However, in reality most of them forget their login or they simply refuse to work with the app. It was for this reason, that the curriculum started to be distributed through free web page. For better access to information, school Facebook page was created at the beginning of the corona crisis, where you can see alerts to newly added homework. Usually, the homework are being added to the page once or twice a week, on Mondays and Wednesdays. Exercises from math, Czech language and other foreign languages are divided into two parts. The exercises from other subjects are being distributed only on Mondays. The form of the exercises varies. It may be a video clip, online interactive exercise, or work with textbook. Electronic feedback from the pupils to the teachers is sufficient, for example a screenshot or an e-mail. This corresponds with findings of Czech School Inspectorate. (Česká školní inspekce, 2020b)

The questionnaire was focused only on pupils and its purpose was to find out children's opinions about distance learning. We asked about time consumption of distance learning, about advantages and disadvantages. We also tried to find out which form of materials pupils like the most or which they don't like and why.

METHODOLOGY

A questionnaire is a very frequent method how to collect data in pedagogical research. It is basically a set of prior prepared questions on which the respondent answers

in writing. Instead of the term “questions” it is sometimes better to use the term “item” because not every item in the questionnaire is actually a question.

We used Google Forms App to create a questionnaire with 34 items. The questionnaire was created based on the findings from our test probe. Due to the specific situation in our school system, it was not possible to use any other researches done in the past. The items were further divided in six blocks, as you can see below:

- General questions about distance learning
- Video-consultations with a teacher and lessons online
- Video with recorded lessons on the internet
- Non-interactive materials (work with textbook, workbook etc.)
- Exercising on the internet
- Conclusion

General questions (contact questions) were there to create a contact between a respondent and the researcher. It generally introduced pupils to the topic. (Chráska, 2016) Second, third and fourth blocks were very similar, and they each had 5-6 questions. The questions were mostly closed ones. It means that the pupils could choose the most suitable answer for them (19 questions) or they could pick more than one answer, appropriate for them (9 questions).

Structured (closed ones) items are typical for a specific number of prior prepared answers from which the respondent can choose. Benefit of this is an easy evaluation of the results. Sometimes the respondents are pushed into prior prepared answers even though their own opinion differs slightly. Closed items can be further divided into dichotomic (yes/no) and polyatomic which contain more than two choices. We talk of choice questions, list questions and scale questions. Choice questions require the respondent to choose from prior prepared answers. We can also include here different types of scales. For example: “Do you watch IT news on the web regularly?” Mark your answer on the scale from 1-5. It has to be set, which value means regular news watching and which means the respondent does not care about this topic at all. List questions allow the respondent to pick several answers. For example: “Pick newspapers you read regularly.” Even while using choice questions or list questions we can include an answer called “others”, in which the respondents can write down their own answer. Scale questions offer the respondent several terms which he or she is to evaluate, for example according to how he or she likes them. In our research we used a lot of structured items but also some half-structured. When the pupils evaluated individual types of materials from the teachers, they could use grades as if they were in school (1=great, 5=fail). Children could also write their own opinion on the matter if they wanted to, but that was not mandatory. We used mostly closed questions because they are easier to evaluate. The final part of the questionnaire contained one open question. Even thought we were aware of the questionnaire being quite long, we avoided making it shorter, to obtain all the necessary data. The questionnaire was distributed through e-mails, using the CAWI (Computer Assisted Web Interviewing) method. Return ability was 100%. It was supported by the fact that it was given to the pupils as ICT homework. Two pupils with Special Educational Needs were shortly interviewed (5 questions) to help specify their opinions.

Acquired answers were being noted using the Google Forms and then they were exported in MS Excel chart. The data were evaluated quantitatively. The analysis of the data was done by using the descriptive statistics, where we tried to find out absolute and

relative number of answers for each item. Opened questions were analysed using the cluster method. According to Miovsky (2006, p.221) the researcher divides the statements into smaller sections which he later connects into bigger part (clusters). You can choose thematic, time or space overlap. We chose thematic overlap. Parts of the statements or sometimes the whole statements were clustered using Microsoft Excel. The content of these clusters was further checked and after this they were labelled with a name. Then we tried to determine the number of absolute and relative number of answers in each cluster. The results were summarized and expressed in absolute and relative frequencies as well. They were further transformed into graphs for better presentation to the reader.

RESULTS

In this chapter we will describe obtained results. We will mainly focus on the evaluation of the materials needed for distance learning.

In the initial (contact) part of the questionnaire we tried to find out if the quantity of homework is appropriate. We reacted to a series of information that children and parents were being overloaded during the pandemic. (Česká odborná společnost pro inkluzivní vzdělávání, 2020) 72.7% (32) of respondents think that the quantity is adequate, which is positive. The rest of the pupils stated that the quantity is too high (12, 27.3%).

Regarding the natural science subjects, some of the children spend the same time with them as in school (38.6%), some of them less (36.4%). They stated that they usually spend about 2-4 hours a day (43.2%) with natural science subjects. Two pupils admitted that they spend more than 6 hour a day with these subjects. In the next question we tried to find out how the children divide all the schoolwork. Whether they try to follow the regular school schedule or whether they prefer to do the work in a specific day. Whether they do the homework immediately as they appear online, or whether they do it near the deadline. 61.4% admitted that they prioritize the homework depending on the deadline. Then, they usually submit the work in last minutes. 15.9% of the respondents try to do the work as quickly as possible and have some free days. Only 2 pupils stated that they try to follow the regular school schedule.

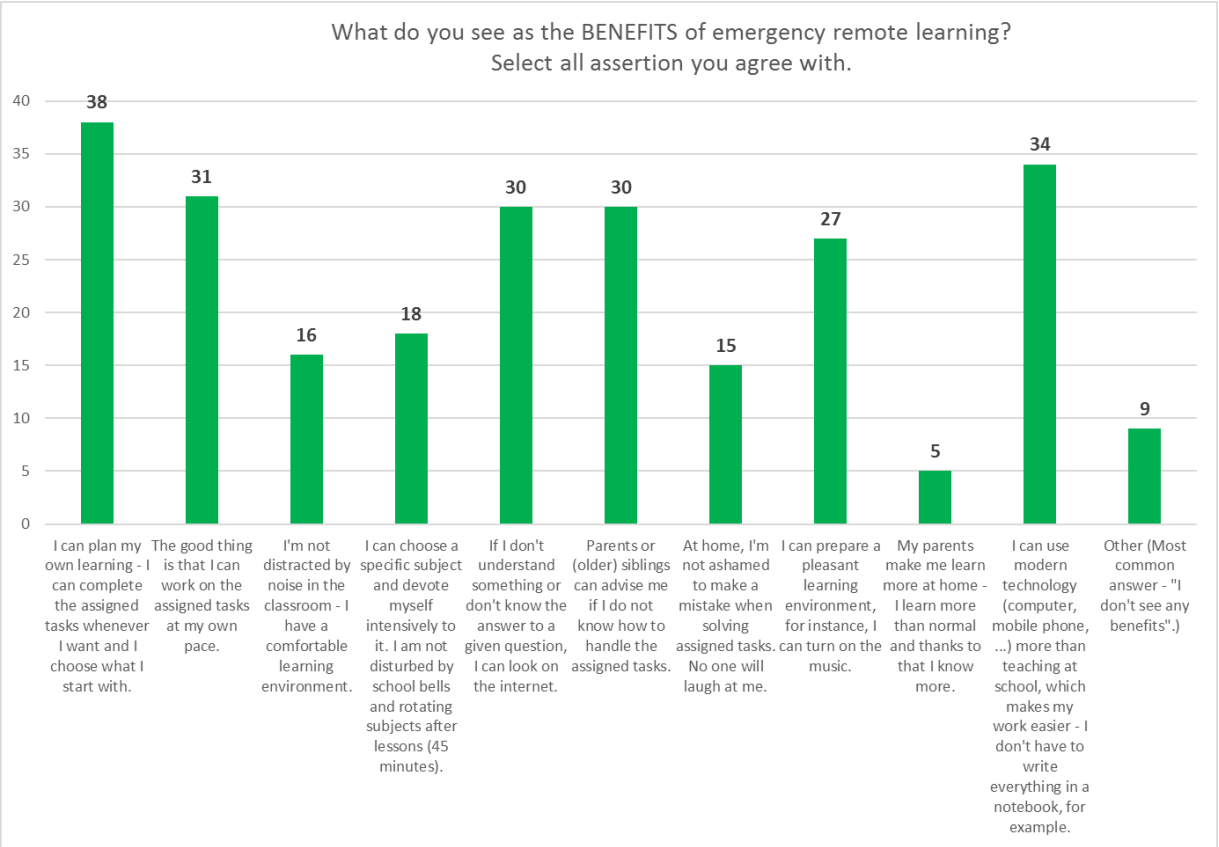

Figure 1: Benefits of emergency remote learning. (Source: Own)

We, of course, also tried to find out what advantages and what disadvantages children see in distance learning. The questions were half-closed. Children could pick more than one answer and they could also write their own. They consider as the biggest advantage the fact that they can plan the work themselves and decide what they want to start with (38, 86.4%). Many of them (30 and more) also said that they prefer the modern devices over the need to write everything on a paper. They say, it makes their work easier. Obvious advantage is the fact that they can all work in their own pace. Pupils also appreciate that they can consult their parents or siblings or even look something up on the internet. Some of them said they are calm at home and not distracted by the noise in a classroom. Couple of children wrote their own answer. They answered that they like to put on some music, they can sleep longer and altogether they feel better at home and that they probably learned more during the quarantine than they would learn for the same time in a school.

There are of course some disadvantages to distance learning. The part of the questionnaire which dealt with them was designed in a same way the previous one was. More than one answer, option to add own opinion. As you can see in the graph, the answers differed one from another quite a lot. Most of the pupils (30; 68.2%) said that they miss the teacher's live lesson and the option to exercise the curriculum under the teacher's supervision. Approximately half of the respondents (52.3%) said that they miss other classmates and the work with others. 43.2% of respondents admitted they need school order to work, otherwise they are not able to force themselves to. 38.6% agreed that they cannot concentrate on the work at home and that they are distracted easily.

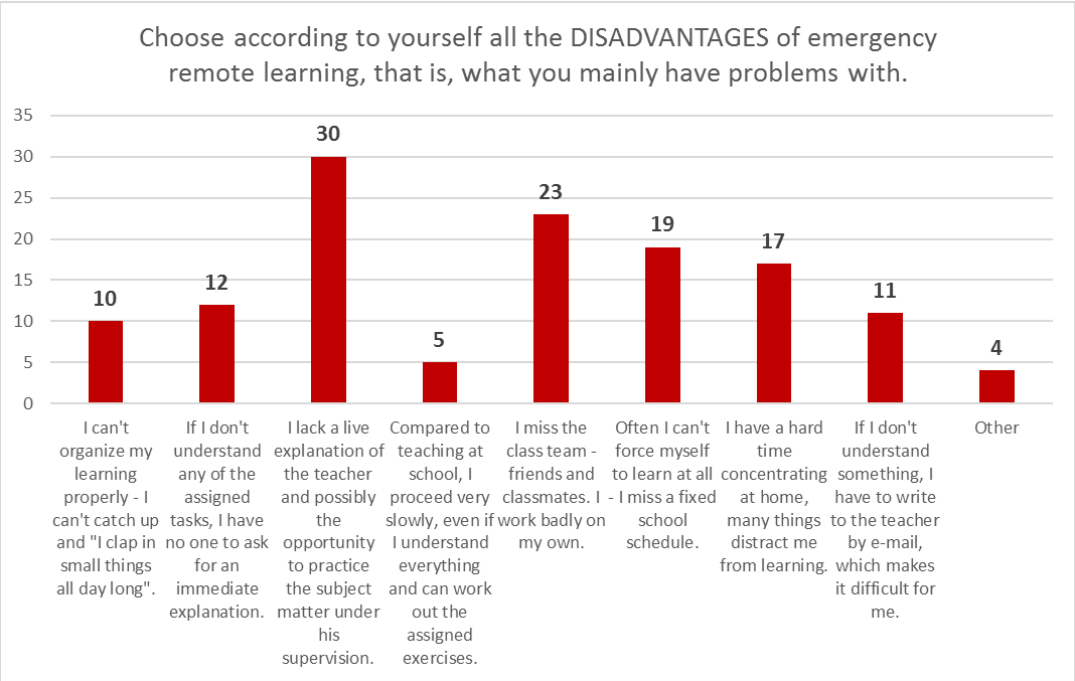

Figure 2: Disadvantages of emergency remote learning (Source: Own)

We also tried to find out if the children are looking forward to going back to school or not. It should be noted that in the time, when this survey took place, media were talking about possible return to schools in the second half of May 2020. This was fulfilled only partially, because only pupils of 9th grades returned to schools on the 11th of May, due to the necessity to prepare them for high school exams. Fourteen days later pupils from 1st to 5th grade returned as well, but the attendance is voluntary, and they are separated in different groups.

It means that there was no classic schoolwork in May. Three quarters of respondents feared of the possible return to schools due to excessive demands of the teachers. Pupils were scared that teachers would quickly try to get a lot of grades from tests. 52.3% of the children feared that they fell behind other classmates in the curriculum. Approximately quarter of respondents feared that they would get infected by the coronavirus and so they also didn't want to go back to school. 13 (29.5%) children said that they are looking forward to going back, because they miss the group and the distance learning is too prolonged.

Only 3 children said that their teacher doesn't pay enough attention to them, which is positive. 20 (45.5%) children stated that they are satisfied with the communication between them and the teacher. The rest of them said that the quality of communication depends on the individual teacher.

Last questions of the first part of the questionnaire were based around the type of homework, whether the children are annoyed by something, whether they can do them alone and what types of homework they prefer. Almost half of the respondents (47.7%) said that the amount of homework is ok, one quarter of respondents thinks the amount is too big. Only 4 children said that the homework are too difficult. The fact, that 43.2% of children stated that they can do the work on their own, corresponds with this finding.

25% of the children ask classmates for help. Regarding the type of homework, children could grade them as is school, 1-5. Materials created by the teachers were the most popular ones (presentations, work papers, interactive exercises (Quizlet, Learning

Apps etc), video lesson etc). By contrast, videos created by strangers were not very popular. We can assume that the children could have been confused by different terminology or by some other aspects of the videos.

Second part of the questionnaire deals with online teaching and video consultations. We tried to find out whether the children like it, if they have any technical difficulties, what device they use to connect etc. 29 children use their own phone, the rest of them uses notebook or a desk computer. In this school there are 4 teachers doing the online teaching. At first, they were using Jitsi Meet but due to some technical problems they all switched to Google Meet. 52% of the children agree that they like this approach. It cannot substitute the real lesson, but it is better than teaching via e-mail. 54.5% of the children were not having any difficulties, only a brief video or audio lags. 25 pupils would not change anything, they like this approach. 16 pupils do not like to be seen on the camera so the turn it off during the lessons. Some of them complained that more subjects should be taught online, that children should turn off their microphone when they are not talking to reduce the audio noise, or that the classes should start later then they do (they start at 9:00).

The next part of the questionnaire dealt with documents and video clips. 63.6% of the children said that they prefer videos created by their teacher, as stated above. Only 2 children prefer to watch videos made by strangers. 18.2% like to watch documentaries. Exactly half of the respondents use desk computer or notebook to watch the videos, 40.9% use smart phone. No one uses tablet. Children appreciate the most if the video is about 5-10 minutes (54.5%) or 10-15 minutes (31.8%). 40.9% of pupils watch provided videos regularly and finish them to the end. Children say that they help them to understand the curriculum. 36.8% of pupils only watch videos from the subjects they find hard to understand. Nobody picked the answer that they don't watch the videos at all. 30 pupils do not have any comments to the videos, and they like them. 14 children are bothered by the fact that they do not have direct interaction with the teacher and cannot ask questions. Some children answered that other teachers should make these kinds of videos as well, or that better technical equipment should be used.

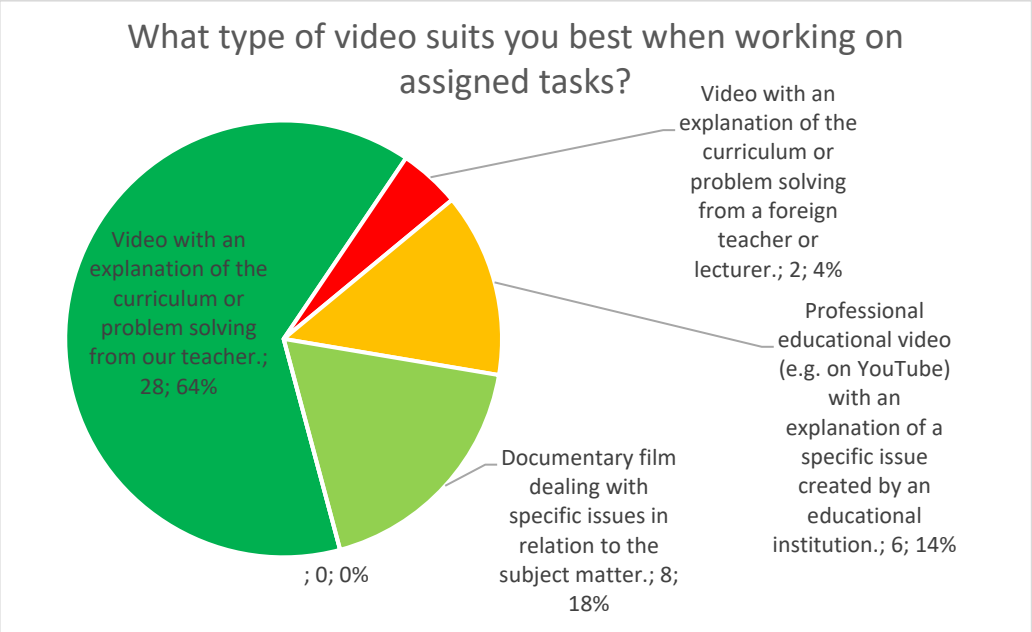

Figure 3: Type of video. (Source: Own)

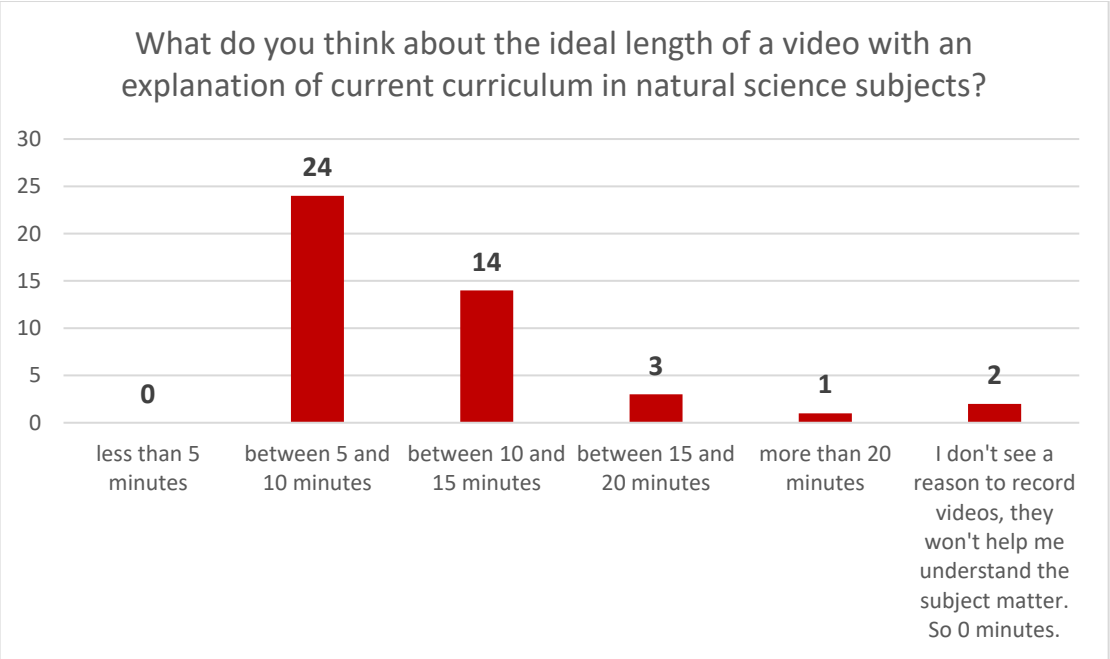

Figure 4: Ideal length of a video. (Source: Own)

In the next part we dealt with non-interactive materials – workbooks, textbooks and work papers. Children appreciate the fact that it reminds them the individual work at school. On the other hand, they sometimes find the explanation from the textbook hard to understand and are not sure they understand the exercises correctly (40.9%). 47.7% of the children miss teacher's talk, his lesson. On the contrary, 29.5% of children say that they like this approach. It is obvious that each child prefers different type of materials.

The last section about studying materials dealt with exercising on the internet (interactive exercises and work papers). 30 children said that these types of exercises suit them, because work with them is quick and they immediately see the feedback. 50% of respondents stated that they don't have any problems with these exercises. 61.4% of pupils use desktop computer or notebook, the rest of them work with smartphones.

The final part of the questionnaire was dedicated to children's own opinions. They were supposed to describe what they like and what they don't like about the distance learning. Most of the pupils find the distance learning quite convenient. There were hardly any opinions where the children would admit that they don't understand the curriculum or that they don't have anyone to ask for help. In the following table you can see some interesting statements we got.

Table 2: Final statement of pupils.

I would like if we had the same schedule as in school. To have a class with a teacher and he or she would tell us stuff.
I really like that fact, that I'm not limited and distracted by the class. On the other hand, I really miss my friends. But distance learning is convenient for me because I can do my homework whenever I want to, in the right moments when my mind is clear and bright and I can dedicate the rest of the free time to my hobbies. It doesn't take me long to comprehend the curriculum, so I am usually finished pretty quickly.
Every part of the distance learning agrees with me, I don't miss a thing. The only problem is that I'm not able to understand math and physics without the teacher, these are the only subjects I have problems with (sometimes I'm able to comprehend physics, but usually my father or classmate help me).
I would like to have more videos with the curriculum, otherwise I am satisfied.
To discuss the curriculum in a video-consultation with a teacher and to have less homework.
A lot of the teachers just give us the homework, but they don't try to connect with us and explain the new curriculum to us. Then, our parents have to help us and that is not an easy task for them these days.

(Source: Own)

CONCLUSION

This article tried to map primary school children's (11-13 years of age) opinions on the sudden start of distance learning due to CoVid-19 pandemic. During the first weeks of quarantine there have been many reports on how the pupils deal with the situation. The situation, which was previously unknown to all of us. Children, who took part in our research, are mostly satisfied with the state of things. They find the homework to be adequately difficult and in the right quantity. Only one quarter of all respondents thinks that the homework is too many. They really like that they can do the work whenever they want and that they are not bound by a school schedule. Also, the calm environment of home, where they can concentrate easily, is of course an advantage.

But there are of course disadvantages to distance learning. Children often said that they miss their friends or that they have problems trying to study at home. We tried to use our questionnaire to find out, which studying materials children like the most. That is described thoroughly in the chapter Results. For example, materials created by the teacher himself (herself) met with great success. On the other hand, materials created by strangers are not so popular. These materials may probably be confusing to pupils. In the researched group there are 2 pupils with Special Educational Needs, who have their own individual educational plan. After filling in the questionnaire, we interviewed these pupils (a boy and a girl) briefly. They both agree that they like the fact that they can work in their own pace at their homes. They are both introvert individuals and the school group make them nervous, according to their own words. They both fear the mockery of their classmates. In classes the girl hardly ever raises her hand, she tries not to speak at all. The boy has problems with delicate movements. Writing in an ordinary exercise book is difficult for him. In addition, what he writes looks very untidy. The possibility to work on a computer

really makes his work easier. He doesn't miss the school group much, because he plays almost no part in it, and the girl is keeping in touch with her closest friends through social networks. According to their class teacher, both of their results are now much better than if they were working in school. It raises a question. Maybe these pupils should be granted more individual work even after we return to "normal" schooling.

REFERENCES

Česká školní inspekce, 2020a. Vybraná zjištění České školní inspekce k distančnímu vzdělávání. *Česká školní inspekce*, 1. April. Available at: https://www.csicr.cz/cz/Aktuality/Vybrana-zjisteni-Ceske-skolni-inspekce-k-distancni. (Accessed 20 May 2020).

Česká školní inspekce, 2020b. Vzdělávání na dálku v základních a středních školách. *Česká školní inspekce*, 7. May. Available at: https://www.csicr.cz/cz/Aktuality/Tematicka-zprava-Vzdelavani-na-dalku-v-ZS-a-SS. (Accessed 20 May 2020).

Česká odborná společnost pro inkluzivní vzdělávání, 2020. Výzva k omezení nároků na distanční domácí výuku dětí v době karantény. *Česká odborná společnost pro inkluzivní vzdělávání*, 1. April. Available at: https://cosiv.cz/cs/2020/04/01/vyzva-k-omezeni-naroku-na-distancni-domaci-vyuku-deti-v-dobe-karanteny/. (Accessed 20 May 2020).

Haleem, A., Javaid, M., and Vaishya, R. 2020. Effects of COVID-19 Pandemic in Daily Life. *Current Medicine Research and Practice*, 10, pp.78-79. Available at: https://doi.org/10.1016/j.cmrp.2020.03.011 (Accessed 12 December 2020).

Chráska, M., 2016. *Metody pedagogického vý.zkumu. Základy kvantitativního výzkumu.* Praha: Grada Publishing.

Miovský, M., 2006. *Kvalitativní přístup a metody v psychologickém výzkumu.* Praha: Grada Publishing.

Putri, R.S., Purwanto. A., Pramono, R., Asbari, M., Wijayanti, L.M. and Hyun., C.C., 2020. Impact of the COVID19 Pandemic on Online Home Learning: An Explorative Study of Primary Schools in Indonesia. *International Journal of Advanced Science and Technology*, 29(05), pp.4809-4818. Available at: http://sersc.org/journals/index.php/IJAST/article/view/13867 (Accessed 12 December 2020).

Tadesse, S. and Muluye, W., 2020. The Impact of COVID-19 Pandemic on Education System in Developing Countries: A Review. *Open Journal of Social Sciences*, 8, pp.159-170. doi: 10.4236/jss.2020.810011. (Accessed 12 December 2020).

Vaníček, J., 2009. *Počítačové kognitivní technologie ve výuce geometrie*. Praha: Univerzita Karlova, Pedagogická fakulta.

TEACHING HISTORY WITH GAMIFICATION

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Abstract

"During recent years "gamification" has gained significant attention among practitioners and game scholars. However, the current understanding of gamification has been solely based on the act of adding systemic game elements to services." (Huotari and Hamari, 2012, p.17) According to McGonigal, an average young student can spend more than ten thousand hours gaming by the time they reach 21. (McGonigal, 2011) The pilot study presented in this paper evaluates the impact of a specially designed videogame entitled "1848" on the knowledge of 16-18 years old high-school students learning C# programming language and web-design. "1848" is a text-based, historical, interactive, story-oriented game where players act as one of the most famous Hungarian poet during the country's revolution on the 15th of March, 1848. While the players (pupils) solve puzzles related to the events, they also can make their own decisions between historically accurate and non-accurate options, and are able to influence the outcome of the events. The participants have already learned about this topic in the classroom and were asked to fill in a questionnaire one week before and one week after playing the videogame. Both questionnaires included the same items about the events as well as famous people and places of the Hungarian revolution in 1848. The collected data indicated that gamification as a relatively new way of teaching history can lead to higher willingness of learning and participation. Rewarding and scoring systems like the one in "1848" have a potential in motivating students to play the game more than one time. The second questionnaire showed that students' historical knowledge about the 15th of March, 1848 increased after playing the game. Meanwhile, a more elaborated and visually more attractive videogame might be necessary in order to reach a bigger impact in terms of gaining knowledge.

Keywords

Gamification. Videogame. Teaching Method. High-school. History. Serious Games

INTRODUCTION

In 1958, William Higinbotham created the very first video game, a simple tennis program (Chodos, et al., 2008). A few years later, in 1972, Pong was released, and it quickly became the first commercially successful game. By the year 2020 videogame industry has experienced incredible growth. Call of Duty: Modern Warfare was released on the 25th of October 2019, and earned $600 million in the first three days of release and reached $1 billion in revenue on the 18th of December (Activision, 2019). As education faces many challenges in terms of teaching methods, student motivation and engagement (Lee, 2011), video games and gamification can serve as a solution. Deterding (2012, p.16) states that "games can be powerful experiences, leveraging both motivation and engagement", and many scholars share this opinion, too (e.g. Gee, 2005; Prensky, 2001; Squire, 2002; Leonard, 2009).

Gamification has been defined by many researchers as the use of game mechanics in non-game contexts. (Deterding, et al., 2011; Huotari and Hamari, 2012; Johnson, et al., 2016; Rapp, et al., 2019). It has been successfully implemented in many platforms in order to enhance user experience and engagement. As a consequence of this success and the great interests in video

games among youngsters, many researchers try to determine how this form of entertainment and gamification can be used for educational purposes. (Al-Azawi, Al-Faliti and Al-Blushi, 2016; Domínguez et al., 2013; Watson, Mong, & Harris, 2011; Flores, 2015; Davis and Singh, 2015).

However, gamification became a word that is used in accordance with systems based on rewarding. (Nicholson, 2015) These systems often use badges, leader boards, achievements, experience points or other rewarding systems in order the have an impact on user behaviour. Nicholson created the term "meaningful gamification" as an antonym of these gamification systems. With this approach, the emphasis is on getting the users to play of their own free will rather than playing for the rewards. In his work, Nicholson sets out six main elements for designing a "meaningful" video game: *Play, Exposition, Choice, Information, Engagement, Reflection*. This concept is in the core of the video game presented in this study.

This paper introduces the findings of a research pilot where high-school students played with a specially designed historical video game entitled "*1848*". *1848* covers the key concepts of the Hungarian revolution on the 15th of March, 1848. This day is a National Day in Hungary, and the revolution is part of the general basic education. Due to this fact, most of the Hungarians are familiar with the famous historical figures, places and events which happened on this day. Due to the resources available to create this video game, a minimalist, old-style adventure-game approach was chosen. Later on, the main research will aim to investigate the game's impact on high-school students, where the players will be divided into four major groups based on their progression in their studies. The first group will consist of students who have already learned in a traditional way about the revolution, and will be presented with the game later. The second group will be made up of players who will learn with the help of the video game and a teacher in a classroom environment. The third group will use only the video game without the help of a teacher. As a control group, the fourth group will not play the game and will study the events in a traditional way.

In the pilot research, only students who have already learned about the revolution played with "*1848*". The aim of the pilot was to get feedback on the game itself and to get an insight of the possible outcomes of the future research. Two questionnaires were created in order to assess the students' knowledge of the topic before playing the game and study the change afterwards. The data acquired from this pilot is useful to modify *1848* to make it more appealing to students. The aim of the future research will be to raise awareness of the potential in video games and eventually design a game, which will have a positive impact on student engagement and knowledge.

METHOD

The primary purpose of the pilot research was to acquire feedback on "*1848*" and study the impact of the video game on students' knowledge and engagement. To this end, "*1848*" was designed using Nicholson's "meaningful gamification recipe" described earlier. In the game, students act as one of the most famous Hungarian poet, *Sándor Petőfi* during the country's revolution on the 15th of March, 1848. The video game has three major focus points in order to provide better understanding and knowledge about that era for the players: text-based adventure, character graphics, and backgrounds. These three elements of the game will be referred to as *layers*.

1848 (Figure 1) is a text-based adventure game, which means players needs to read what is happening, then choose what they want to do and how they want to react to the events. Each time the player is faced with the opportunity of choice, there are three possible actions: one

historically accurate, and two historically inaccurate. Every time a player makes a historically inaccurate decision, the game will tell the users that their choice was wrong but let them continue in the story. In order to emphasize the importance of the decisions, a score system was implemented. When players choose an accurate option, they receive points, referred to as *followers,* and lose them if they choose wrong option. Some of the choices available – which bear with crucial importance – even lead to a "game over". In this case – after they watch the story unfold and end –, the players can load their last checkpoint, and make the decision again, but they lose many followers. In the main menu of the game, players can find a leader board and check how well they have done compared to others.

Figure 1: 1848 (Source: Own)

At some point, *1848* challenges the players to solve puzzles using historical resource. Some of these puzzles are simple multiple-choice elements, where users have to pick the right answers to a question. Other need the player to recognize poems and historically important objects. Players can continue the story only after they solved the puzzles.

Character graphics are hand drawn representations of the famous people appearing in the game. This way players can recognize these historical figures out of the game's context. The same principle was used for the backgrounds, where well-known paintings, photocopies and drawings were modified in order to better fit the game's design.

1848 logs the player's performance, and for the purposes of the study, two questionnaires were created. Both questionnaires aim at measuring the knowledge of students before and after playing *1848.* The log file of the player allows to compare the in-game choices and answers given to the survey questions. The first section of the questionnaires are different: the one in the survey the players fill out before playing the game (referred as Questionnaire #1) contains items regarding gaming habits, and the other, which is in the survey used after playing the game (referred as Questionnaire #2), contains items asking for the player's opinions of the game. The second, third and fourth part of the two questionnaires address the three layers which *1848* uses. The second section of the surveys represents the major situations of the game, where players can select between the one historically accurate and two inaccurate options. In the survey, they appear as a direct, test-like question, whereas in the game, they are part of the narrative. The

third section is based on the recognition of the characters which appeared in *1848,* and the fourth section includes the places the player "visited" during the game. The pictures presented here are the real versions of the game hand-drawn graphics.

The study was set in three programming classes from a single high-school of economics and informatics. All three classes taught programming by the same teacher who created *1848*. Sixty-five students (8 females and 57 males) participated in the pilot study and played *1848*. The participants ranged from 16 to 20 years of age. The students overall school performance was not taken into account, and the classes were selected for the pilot study solely based on their ease of access to computers.

The game was introduced to the participants during their programming course, and the pilot study took three weeks to complete. During the first week, they were asked to fill out the first questionnaire, during the second, they played the game, during the third week, they were asked to fill out the second questionnaire. Before taking the first survey, the participants were asked to register in the game main menu, where they received a unique username. This username ensures anonymity and makes it possible to identify the players among the answers given to the questionnaires and *1848*'s log file.

The game can be completed in an average of 45 minutes, but the students had the opportunity to play it for 2.5 hours. This time limit allowed them – if they wanted to – to start over the game in order to achieve higher points. The participants were allowed to use their own earphones in order to completely immerse in the game.

RESULTS

In order to obtain reliable results, only those responses were evaluated where the student filled out both questionnaires and played through the game from beginning to end at least once. On this basis, 42 out of 65 answers had been taken into account. From these 42 students 47.6% stated that they play on a daily basis and 42.9% play more than once a week. According to the first section of questionnaire #1, the vast majority of students prefers action-adventure games like *Tomb Raider,* FPS games like *Call of Duty* and MOBA multiplayer games like *League of Legends*. A five-point Likert scale was used to determine the participants' opinion of the usefulness of video games in education, where 1 meant "*not useful at all*" and 5 meant "*very useful*". Most participants agreed on the usefulness of the video games with answers 4 (42.9%) and 5 (38.1%).

As stated before, the second section of the questionnaires contains items regarding the main decisions the participants had to make during playing *1848*. Comparing the results of the two questionnaires, it can be concluded that playing *1848* had a positive impact on student's knowledge. Out of 20 items, 17 showed positive change, which led to an overall *24.29%* improvement. Out of the remaining 3 items, 2 items showed a minor change (-7.2% and -2.4%), while one question in particular showed a more meaningful -19%.

Section three of the questionnaires examined how well the participants remember the famous people they met in the game. While *1848* was designed using the hand drawn representations of the original images, students had to recognize the important historical figures of the revolution by their original pictures. The overall improvement here was 12.55%. Out of 11 items, only 1 showed negative change with a total -7.1%. This negative result regarding this particular item is surprising, especially given the results of the pre-game questionnaire, which showed that all the participants recognized *Petőfi Sándor.* Investigating further and examining

the post-game results of the three students who picked the wrong answers, several repeating choices can be found indicating that this negative change could be the result of negligence.

Section four of the questionnaires shows how well the participants can recognize the important places they visited during the game. The pictures presented here are the backgrounds of *1848,* and they are changing according to the narrative. The overall improvement here was 7.99%. Out of the 11 items, only 2 showed negative change with -4.7% and -4.8%.

Examining the log file of *1848,* the results show that out of the 42 participants, only 7 played through the game more than one time. (16.6%) Out of these seven students, 3-3 players finished 2 and 3 times, and one 4 times. From the amount of time the last playthrough took for these players, it can be seen that during the replays, the participants "went for the highest score" and did not read the narrative. Further examination shows that playing through the game for the first time took an average of 37 minutes. Looking at the statistics of the followers, it can be stated that nobody reached the highest possible amount of followers in *1848,* but those who played the game multiple times got the closest to it.

The first section of questionnaire #2 differs from questionnaire #1 as it investigates the participants' opinions about the game itself. It consists of 8 items with a 5 point Likert type response scale and 2 descriptive questions. Table 1 and Table 2 shows that the majority of students enjoyed *1848* and would find it useful if it was included in the curriculum (76.2%).

Table 1: Did you enjoy *1848*?

Answer	Frequency	Percent
2	1	2,4%
3	6	14,3%
4	19	45,2%
5	16	38,1%

(Source: Own)

Table 2: Would it be useful to include it in the curriculum?

Answer	Frequency	Percent
3	2	4,8%
4	8	19,0%
5	32	76,2%

(Source: Own)

The vast majority of the participants stated that if they would be presented with a more modern version of *1848* – like Detroit: Become Human or Heavy Rain –, they would try it out, even at home. However, *1848* in its current form would be played at home – given the possibility – only by half of the participants, even though the majority stated the game helped them in their studies.

After playing the game, students were asked again whether video games could be a useful help in learning. The results show a positive change in the participants' opinion. 66.7% responded with 5 points from the initial 38.1% and 72,4% of the players felt the game helped them in their studies.

Regarding the game, the participants were asked what they would change to make it more appealing. 72,3% of the students stated that the game would be better and more motivating if it used 3D models, advanced graphics and if the characters had voiceovers. Overall, examining the answers, it can be stated that a more interactive videogame, which meets the expectations of the current generation would be more appealing to play. Some answers addressed the gameplay and mechanics of *1848* directly, which could be of use to improve the program and will be discussed later.

DISCUSSION

In this pilot study, the impact of *1848* on students' knowledge was investigated. Another goal was to test *1848,* and, based on the feedback, to modify the software if necessary before we move on to the main research. The game was designed to provide the expected knowledge of the curriculum to high-school students in a more detailed, interesting way. As stated before, *1848* was built around three layers. The events which took place on the 15th of March, 1848 were addressed on the text-based adventure layer. This is the layer that leads the players through the narrative and lets them interact with the program through their choices and is of the utmost importance. The second layer represents the images of the historical figures when they are talking during the narrative. The third layer holds the elements of the background and is the least emphasized part of the game.

The results showed that playing *1848* had a positive effect on the participant's knowledge about the events. Every aspect of the participants' knowledge was addressed by the three layers of *1848*, and, overall, the results showed an improvement. It can be stated that as the three layers of *1848* get less emphasis during gameplay, the amount of improvement also decreases.

Regarding the game, the participants' feedback showed that *1848* should be improved before using it in a future research. According to the students, some of the puzzles were too hard to solve. To make it less difficult, a timer-system implementation is suggested. This way the game will give the possibility to skip the puzzle after a certain amount of time. Many players mentioned the task where they had to identify the parts of the printing machine. They found it way too hard, even with the in-built help the game provided, and did not understand the necessity of this particular puzzle. Many of them suggested the removal of the printing machine exercise.

Another common suggestion was to build the game in a 3D environment, where the players can directly control the protagonist of *1848.* However, while these kinds of ideas are understandable, the limitations of this pilot study and the future research will not allow them. Building an immersive 3D experience is very expensive and it requires years to complete. However, minor changes and improvement regarding *1848* design can be achieved in a short period of time. Some participants thought that creating more alternative ways to finish the game would make it more exciting. Another finding was the students' needs of immediate feedback on their choices. *1848* in its current form only lets players check their answers at the end of the game. If the student makes a wrong decision, only a short caption will appear stating that "*Your choice is historically inaccurate*", and the game lets you play on. Based on the opinions of the participants, the correct choice should be considered to be presented immediately.

CONCLUSION AND LIMITATIONS

The pilot study has its limitations in the sample distribution. As described earlier, the original research will have four control groups. Since the research should be aligned with the curriculum, only the group which has already learnt about the Hungarian revolution was available for testing the game.

Additional limitations for the pilot study resulted from the available resources creating *1848.* In order the achieve the maximum impact video games can achieve on learning and motivation, scholars need to design a game, which is fun to play on its own and fits properly into the curriculum. According to the ESA Report (2019, p. 21), 26.9% of the American players bought action games, 20.9% shooters and 11.3% Role-Playing games. *1848* by default should be considered to be in the *"All other"* category, which is only 4.7% of the games sold in the

US. Our findings showed the trends represented in the report are in accordance with the participants' favourite genres. However, making an educational game which can be on the same level of quality like the trending commercial games would take the same amount of time, money and energy like those games. Regarding the limitations, it's worth mentioning that *1848* requires a high-level of reading comprehension and, regarding the puzzles, patience. Due to the lack of these, the game can quickly become boring and frustrating.

Barab, et al. (2005) points out that video games as a tool of education have great potential for motivating and engaging students. Tüzün, et al. (2009, p.74) found that computer games can be successfully used in formal learning environments and can have a positive impact on students' learning and motivation. As a pilot study, the results were satisfying and indicates that a simple video game such as *1848* can have a positive impact on students' knowledge. However, before moving on to the main research described earlier, some aspects of the game need to be addressed and improved.

Several studies reveal that many teachers have already been using video games as part of their lessons or have interest in using them. (e.g. Sandford, et al., 2006; Ruggiero, 2013; Kennedy-Clark, 2011) In the United Kingdom, it was found that 35% of the teachers have already used video games for educational purposes, and 60% would consider using them. (Williamson, 2009). Regarding the Hungarian teachers' attitude towards the possibility of using video games in their classrooms, there is no study to be found, and this issue needs to be addressed in the future. Bokor and Pelle (2015, p.42) states that "the application of gamification does not require the teachers to be game professionals." *1848* was designed to be as simple as possible and requires no significant gaming experience in order to play. It can be stated that those teachers who have already seen *1848,* showed much interest in the game and played it without any difficulty.

During the Covid-19 epidemic, teachers faced many challenges regarding their ways of teaching. The pilot results showed that most of the students felt the game helped them in their studies. Considering this fact, *1848* can be a valuable asset in the teachers' hand during lockdown, as it is possible to play it from a web-browser. This way it can be easily implemented in a digital classroom environment, serving as an interesting addition to the digital curriculum.

After improving *1848* based on the participants' feedback, the game should be tested among the 3+1 groups defined earlier in different high-schools and classes. As the results of the pilot study show, *1848* has its potential of becoming an appealing, simple and fun educational tool, and could help the students learn about the events of 15th of March, 1848.

REFERENCES

Activision Blizzard, Inc., 2019. Call Of Duty: Modern Warfare Is #1 Most Played Call Of Duty Multiplayer Of This Console Generation. Available at: https://investor.activision.com/news-releases/news-release-details/call-duty-modern-warfare-1-most-played-call-duty-multiplayer (Accessed 04 May 2020).

Al-Azawi, R., Al-Faliti F., and Al-Blushi, M., 2016. Educational Gamification Vs. Game Based Learning: Comparative Study. *International Journal of Innovation, Management and Technology* 7(4). pp.132-136.

Barab, S., Thomas M., Dodge, T., Carteaux R., Tuzun H., 2005. Making learning fun: Quest Atlantis, a game without guns. Educational Technology Research and Development, 53(1), pp.86-107.

Bokor T., Pelle V., 2015. Perspectives of Gamification in Teaching Sustainable Development. In: J. Beseda and Z. Machát (eds). *DisCo 2015 From Analog Education to Digital Education.* Prague: Center for Higher Education Studies, pp.31-45.

Chodos A., 2008. October 1958: Physicist Invents First Video Game. APS NEWS 17(9). Available at: https://www.aps.org/publications/apsnews/200810/upload/October-2008-Volume-17-Number-9-Entire-Issue.pdf (Accessed 04 May 2020).

Davis K., Singh S., 2015. *Digital badges in afterschool learning: Documenting the perspectives and experiences of students and educators.* Computers & Education 88, pp.72-83.

Deterding, S., 2012. Gamification: Designing for Motivation. *Interactions,* 19(4), pp.14-17. Available at: https://www.researchgate.net/profile/Sebastian_Deterding/publication/244486331_Gamification_Designing_for_motivation/links/0a85e53a049814673c000000/Gamification-Designing-for-motivation.pdf (Accessed 04 May 2020).

Deterding, S., Dixon, D., Khaled, R., and Nacke, L., 2011. From game design elements to gamefulness: Defining "gamification." In: A. Lugmayr et al. (eds.) 2011. MindTrek '11: *Proceedings of the 15th International Academic MindTrek Conference: Envisioning Future Media Environment*. pp.9-15. Available at: doi: 10.1145/2181037.2181040 (Accessed 04 May 2020).

Domínguez, A., Saenz-de-Navarrete, J., de-Marcos, L., Fernández-Sanz, L., Pagés, C., Martínez-Herráiz, J.J., 2013. Gamifying learning experiences: Practical implications and outcomes. *Computers & Education* 63(2019) pp.380-392. Available: http://dx.doi.org/10.1016/j.compedu.2012.12.020 (Accessed 04 May 2020).

ESA, 2019. *2019 Essential Facts About the Computer and Video Game Industry*. Available at: https://www.theesa.com/wp-content/uploads/2019/05/2019-Essential-Facts-About-the-Computer-and-Video-Game-Industry.pdf (Accessed 07. May 2020).

Flores J. F. F., 2015. *Using Gamification to Enhance Second Language Learning.* Digital Education Review 27, pp.32-54.

Gee J. P., 2005. Learning by design: Good video games as learning machines. *E-Learning and Digital Media,* 2(1) (2005), pp.5-16

Huotari, K., Hamari J., 2012. Defining Gamification - A Service Marketing Perspective. In: *MindTrek '12: Proceeding of the 16th International Academic MindTrek Conference*. New York, United States. Available at: https://dl.acm.org/doi/pdf/10.1145/2393132.2393137?download=true (Accessed 04 March 2020).

Johnson D., Deterding S., Kuhn K.-A., Staneva A., Stoyanov S., Hides L., 2016. Gamification for health and wellbeing: a systematic review of the literature, *Internet Interventions,* 6, pp.89-106

Kennedy-Clark, S., 2011. Pre-service teachers' perspectives on using scenario-based virtual worlds in science education. *Computers & Education*, 57(4), pp.2224-2235.

Lee, J., Hammer, J., 2011. Gamification in education: What, how, why bother? *Academic Exchange Quarterly*, 15(2), 146.

Leonard A. A., Minogue J., Y. Holmes S., Cheng M-T., 2009. Investigating the impact of video games on high school students' engagement and learning about genetics, *Computers & Education*, 53(1) pp.74-85.

McGonigal, J. 2011. *Reality is Broken: Why Games Make us Better and How they can Change the World*. New York, NY: Penguin Books.

Nicholson, S., 2015. A RECIPE for Meaningful Gamification. In: Wood, L., Reiners, T., (eds.) *Gamification in Education and Business*, New York: Springer. pp.1-20. Available at http://dx.doi.org/10.1007/978-3-319-10208-5_1 (Accessed 20 May 2020).

Prensky, M., 2001. *Digital game-based learning.* New York: McGraw-Hill.

Rapp A., Hopfgartner F., Hamari J., Linehan C., Cena F., 2019. Strengthening gamification studies: Current trends and future opportunities of gamification research. *International Journal of Human-Computer Studies,* 127, pp.1-6.

Ruggiero, D., 2013. Video Games in the Classroom: The teacher Point of View. In: *Games for Learning workshop of the Foundations of Digital Games conference*. Chania, Greece. Available at: http://fdg2013.org/program/workshops/papers/G4L2013/g4l2013_02.pdf (Accessed 07 May 2020).

Sandford R., Ulicsak M., Facer K., Rudd T., 2006. *Teaching with games: Using commercial off-the-shelf computer games in formal education.* Futurelab, Bristol. Available at: https://www.nfer.ac.uk/teaching-with-games-using-commercial-off-the-shelf-computer-games-in-formal-education (Accessed 07 May 2020).

Squire, K., 2002. Cultural framing of computer/video games. *International journal of computer game research*, 2 (1). Available at: http://www.gamestudies.org/0102/squire/ (Accessed 20 May 2020).

Tüzün H., Yilmaz-Soylu M., Karakuş T., İnal Y., Kizilkaya G., 2009. The effects of computer games on primary school students' achievement and motivation in geography learning. *Computers and Education*, 52 (2009), pp.68-77.

Watson W. R., Mong C. J., Harris C. A., 2011. *A case study of the in-class use of a video game for teaching high school history*. Computers & Education, 56(2) pp.466-474.

Williamson, B. 2009. *Computer games, schools, and young people: A report for educators on using games for learning.* Futurelab. Available at: http://www.futurelab.org.uk/resources/documents/project_reports/becta/Games_and_Learning_educators_report.pdf (Accessed: 07 May 2020).

USING MOBILE TECHNOLOGIES IN THE EDUCATIONAL PROCESS IN KINDERGARTEN – INTRODUCTORY SURVEY

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Abstract

Nowadays, digital technologies and mobile technologies in particular are part of everyday life of children, even at pre-school age. Children born after 2000 belong to the so-called Generation Z. This paper focuses on the results of a pilot introductory survey in which we used a questionnaire to find out about the application of mobile technologies, including augmented reality, in kindergarten education. We will present a proposal to integrate mobile technologies and augmented reality in preschool within current theories of cognition and discovery learning that contribute to the development of children's creativity and other important competences. We present the teachers' positions with respect to augmented reality, whether they have encountered it, whether they use it and implement it in their teaching practice. We were also interested in the types of mobile technologies they use, as well as the interconnection of these activities with the improved state education program for kindergartens. The results of the pilot survey will serve us as a basis for the dissertation thesis research design. We will also present a proposal for this research - experiment. We will focus on its possible objectives and preliminary research hypotheses.

Keywords

Mobile technologies. Creativity and competences of a child. Implementation of augmented reality into kindergarten education. Pilot introductory survey.

INTRODUCTION

Nowadays, digital technologies and mobile technologies are part of everyday life of children, even at preschool age. Sociologists classify children born after 2000 as the so-called Generation Z. Authors Joanne G. Sujansky and Jan Ferri-Reed (2009) in their book Keeping the Millennials claim that today's young people are used to do several things at once, e.g. while working on their laptop, they watch TV, while studying, they listen to iPad, chat or text. They do not strictly separate the virtual experience from the real one. They want to have fun even when they are working or studying. Many psychologists and sociologists divide generations into *"traditionalists"* (born between 1939 and

1947), *postwar generation – so called "baby boomers"* (1948–1963), *"Generation X"* (1964–1978), "*Generation Y*" (1979–1991) and *"Generation Z"* (born after 2000). There is no 100% agreement when it comes to individual years; there are experts who place Generation Y between (1983-1996). Other experts date Generation Z from 2000 to present day, yet others claim it only includes people born between 1994 and 2004 and any children born later belong to the youngest Generation Alpha. The term Alpha was coined by Australian researcher Mark McCrindle. He used this term to refer to children born after 2005. The last children who according to M. McCrindle will still belong to this generation will be born in 2025. By his estimate, two billions of Alphas will be borne by then (for comparison, Generation Z encompassed 1.8 billion people). Rothman (2016), based on the results of several research, talks about structural differences present in the brains of Generation Z and previous generations which are not caused by genetic factors but occur due to the impact of external environment and the way the human brain responds to them. Gibson (2016) claims that the constant contact of young children and youths with the screen that starts in their early childhood has caused a change in their neural circuits which significantly affects the working of their mind, their relationships, learning style, and self-concept. According to Gibson (2016), these changes result in the inability of pupils to keep their attention focused and in underdeveloped social skills, and according to Prensky (2001), at the same time, new cognitive skills have emerged, and pupils' learning style has changed (see Sharma et al., 2016).

The discussion in favor of or against the usage of DT by children of preschool age is still ongoing. McKenney, Voogt (2010) conducted 60 structured interviews and evaluated 1,852 questionnaires completed by parents and caregivers, which revealed:

- **Frequency**: 53% of children aged 0-6 years uses computers on a specific day, usually for less than one hour.
- **Type:** A popular type of application for children was to play games, either through websites (especially those connected with BBC's TV shows) or on CDs / DVDs.
- **Sex**: When listing favorite websites, the preferences of boys and girls were the same for the first three places (CBeebies, CBBC and Nickolodeon Junior) but they differed in the fourth and fifth place. The boys preferred Bob the Builder and Thomas the Tank Engine, while girls liked Barbie and Tweenies.
- **Parental approach:** Parents were mostly positive about their children and computers, regarding their acquiring of computer skills as well as software-specific knowledge and skills as beneficial.

There are several principles that need to be applied when implementing DT in educational activities in kindergartens. The publications of Kalaš and his colleagues (2011) and (2013) provide comprehensive information on the principles of digital technologies in pre-primary schools and their overall potential. Methodology of pre-primary education (2011) can also be stimulating for teachers' practice in this area. (Lynch, Vargová, 2016).

In Slovakia, compulsory pre-school education since the age of 5 has been enacted, starting in 2021, therefore we may expect legitimate findings on the use of mobile technologies in the education process of primary school children. The State Educational Program for Pre-primary Education for Kindergartens directly follows the State Educational Program for Primary Schools in all educational areas.

APPLICATION OF MOBILE TECHNOLOGIES AND AUGMENTED REALITY IN KINDERGARTEN EDUCATION

The integration of augmented reality into educational activities is one of the alternatives of developing digital literacy in pre-school education. In simple terms, augmented reality can be described as technology that adds, through an application, digital elements to the real world and in real time, thus creating enhanced perception. The digital elements can be in the form of an image, 3D object, animation or written information. We can see the modified perception on a monitor, tablet, smartphone or through glasses (see also Velichová, 2010).

The following applications are available and usable in the educational practice of kindergartens:

- Quiver-3D color App - Quiver primarily focused on developing graphomotorics, visual perception and attention. Worksheets for drawing and coloring are freely available and can be downloaded at http://www.QuiverVision.com.
- Dragon – the main objective is to develop social skills where children learn to help others.
- Sketch – the essence of this application is to create a virtual image on a paper as a template which children then trace and complete according to their own ideas.
- Shape cards and accessories – application aimed at developing mathematical literacy.
- Aurasma, Walla Me, QR code – focused on orientation in space, formulation and understanding of simple verbal instructions.
- Animal 4D – lets you observe animals in 3D space in the environment where they actually live.
- LEGO 3D – catalogue – lets you display all building blocks in 3D animation (Koreňová, 2016).

The visual impact of augmented reality has a direct influence on the child's motivation which represents one of the factors of effective preschool learning. The use of augmented reality mobile applications has a variety of ways to interact and find solutions which can not only significantly increase the child's motivation but also provides an interactive and maximum active means of implementing education (Koreňová, Gunčaga, 2018). The potential that augmented reality presents for a pre-primary education teacher can be applied to a variety of topics and also in meeting of a variety of educational goals.

SURVEY RESULTS

In designing the survey, we used methods of quantitative research aimed at identifying the positions and opinions of kindergarten teachers using a questionnaire. With regard to the topicality of the research subject, along with the fact that it is one of the first in our regional context, it was a truly exceptional kind of survey as the augmented reality in kindergartens is a novelty and a trailblazer in terms of the educational process in the Slovak Republic. In our quantitative research, we used questionnaires aimed at the current state of use of mobile technologies in kindergartens. Despite finding that relatively few kindergarten teachers in Slovakia have actually encountered augmented

reality, the method of teaching and learning with the use of augmented reality in pre-primary education is, according to them, usable directly in the teaching process and can enrich the educational process. The pilot survey using the questionnaire research tool was carried out from March 2019 to April 2019. Its objective was to find out the current state of equipment in kindergartens with respect to digital technologies and their use in pre-primary education. The subjects of the survey were pre-primary education teachers who had graduated from high school or university, gained experience through their own teaching practice and worked in various kindergartens across Slovakia. The selection of teachers was done electronically and was sent to approximately 2,000 respondents (the response rate was 24.45%).

We received responses from 489 respondents. The questionnaire was divided into 4 sections. The first section included the basic information about respondents (5 question), the second section concerned their kindergarten's equipment (5 questions), the third section was aimed at the use of mobile technologies in the educational process (6 questions), and the fourth and last section concerned training of pre-primary education teachers aimed at upgrading their digital competencies (6 questions). At the end, the respondents had the opportunity to include their comments, opinions and suggestions. We are including here selected questions and answers from the questionnaire specifically pertaining to mobile technologies and augmented reality in kindergartens:

Question 1: Do you use mobile technologies (MT) in the educational process? (Figure1) We have found that in the current state of equipment in kindergartens related to digital technologies, the respondents' answer (36.4%) was an unequivocal yes. 37.2% of respondents answered this question as sometimes (no more than once a week), 18.8% of respondents unequivocally refused mobile technologies in kindergarten, they do not use them even though they are available. Only 7.6% of respondents answered yes, almost always (i.e. daily).

Question 2: Have you encountered the term "augmented reality" in your kindergarten? (Figure 2) We have found that as many as (71%) of respondents have never encountered the term "augmented reality" in their kindergarten. 15.1% of respondents could not answer this question. Only 13.9% of respondents gave a positive answer, i.e. they had encountered the term "augmented reality" in their kindergarten.

Question 3: Are smartphones or tablets available in your kindergarten? (Figure 3) We have found that current availability of tablets and smartphones in kindergartens is low to zero. The teachers use these technologies only if children bring them from home or have one of their own. 17.6 % of respondents can use tablets or smartphones when children bring them from home, 18 % sometimes (no more than once a week), 29.9% have no way of teaching using a tablet or smartphone because there are none present in their kindergarten. 6.3 % always (i.e. daily) and 4.1 % of respondents uses them often. 24.1% said no tablets or smartphones were available to them in their kindergarten and they had no way of securing them. Based on these answers we have concluded that in further research it will be necessary to provide augmented reality tablets.

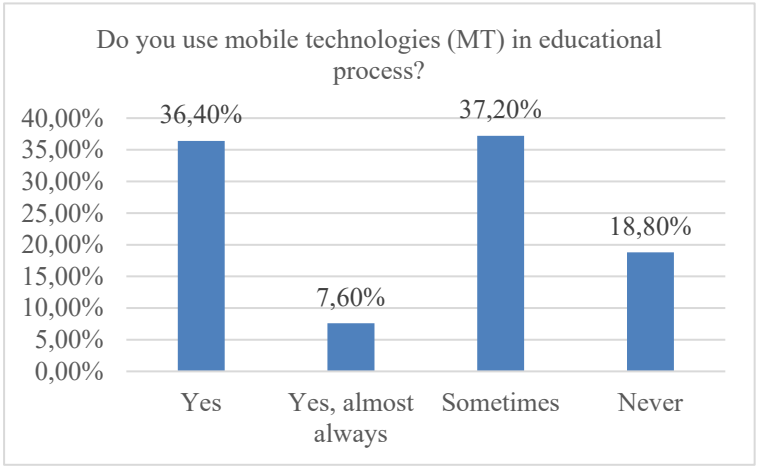


Figure 1: Do you use mobile technologies in educational process? (Source: Own)

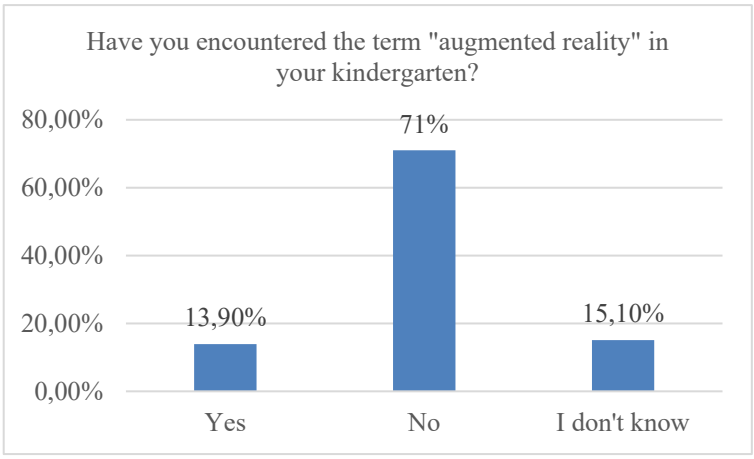
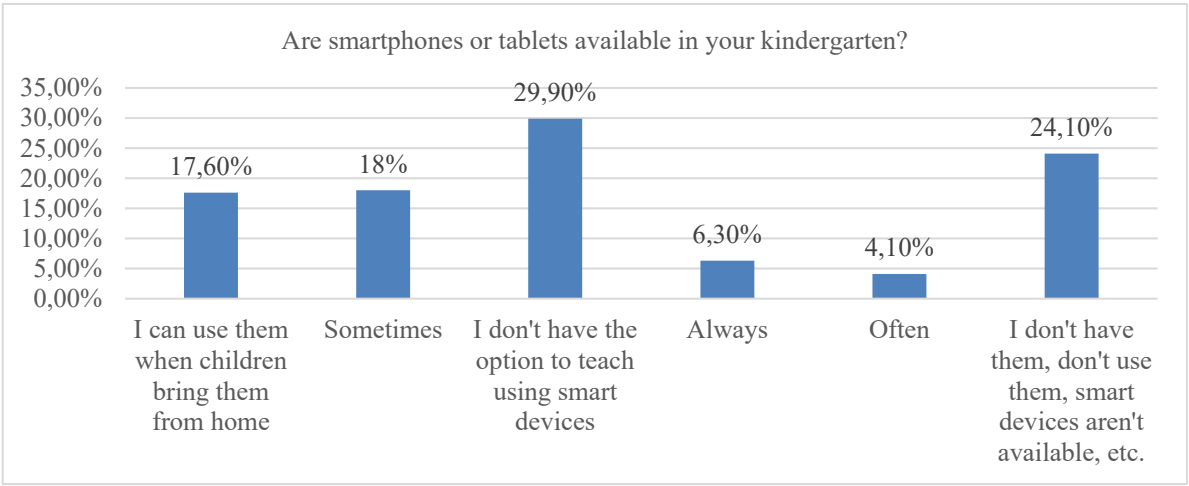


Figure 2: Have you encountered the term “augmented reality” in your kindergarten?



(Source: Own)

Figure 3: Are smartphones or tablets available in your kindergarten? (Source: Own)

By conducting this survey, we have found that:

1. to more than 50 % of respondents various mobile technologies are available in their kindergarten;

2. more than 70 % of respondents have never encountered the term “augmented reality” in their kindergarten;
3. to more than 80 % of respondent’s tablets are not available.

The probing was applied in the sense of gathering information and collecting facts about the phenomenon regarding the use of digital technologies in teaching. Such surveys focus on practical purpose; they do not investigate the relationships among variables and according to Ondrejkovič (2007), their objective is to know the current status (status quo) so the responses obtained based on the probing could form the basis in the shape of transformed items in the final form of the questionnaire. The overall content design of the questionnaire items represents the input of uncovering the issue being addressed at the level of pedagogical thinking, as well as presenting own didactic practice using augmented reality in teaching. The aim of the questionnaire as a research tool was to obtain facts and preferences about mobile technologies in kindergarten, as well as participation in training for teachers of pre-primary education pertaining to work and didactics with mobile technologies in relation to the research objective.

CONCLUSIONS AND SUGGESTIONS FOR FURTHER RESEARCH

In the investigation of the issue in question, we will focus not only on the use of quantitative methodology, but also on qualitative research, since in our pedagogical research it is possible to proceed in both directions when accepting both methodologies, i.e. both quantitatively and qualitatively. Pre-primary teachers will continue to be the subjects of the research, with the focus on opinions regarding the subject matter of the research that will be closely linked to other subjects of the research – preschoolers. Priority will be given to the opinions, beliefs, and ideas of pre-primary teachers which we will obtain based on the research methods of observation and interview, or focus group. We expect that the phenomena under investigation will provide us with a testimony in a variety of different phenomena. The research intention will be to create a model oriented on didactic support for the development of digital literacy of children in pre-primary education, including the use of augmented reality applications. The in-depth and semi-structured interview will aim to obtain detailed and comprehensive information about the phenomenon under investigation (qualitative approach), while the purpose of standardized structured interviews is to ask all respondents a several identical questions in the same order (quantitative approach) (Švaříček, Šeďová et al., 2007). Through the interpretation of the research findings, we will identify a range of opinions and views which will be the starting point of the induced theory on the application of augmented reality by pre-primary teachers in teaching. We have established the following preliminary research questions:

Q_1 What happens in the process of teaching and learning when using AR in the classroom?

Q_2 Will the use of augmented reality mobile technologies affect digital competences of children?

Q_3 How do parents and teachers perceive mobile technologies?

Q_4 Do the forms and methods of mobile technologies influence the quality of the educational process?

We want to examine these questions using questionnaire research, as well as qualitative research.

Using a selected sample of teachers and kindergartens in Slovakia and, if possible, in the Czech Republic, we would like to conduct research in the future with respect to the following preliminary working hypotheses:

H_1 The use of AR promotes active behavior in children.

H_2 The use of augmented reality mobile technologies affects the permanence of digital competences in children.

H_3 By using digital technologies in the educational process of teaching, children cooperate more.

H4 The quality of the educational process is influenced by the forms and methods of mobile technologies.

We expect that the proposed formulated research and subsequent findings will allow us to consider comprehensively the methods teachers use in their teaching and their overall didactic erudition in the monitored area. Qualitative research will allow us to use methods of structured interview, video recording, as well as direct observation in selected kindergartens. We will find out the effectiveness of current methods focused on mobile technologies and based on that we will create experimental materials and methodologies for individual educational areas in kindergartens for M-learning with an emphasis on augmented reality and we will verify them by experiment. We will provide augmented reality tablets for selected kindergartens. By experiment, we will verify AR digital competencies in children and their impact on the educational process in kindergarten and on children in the first year of primary schools. We will offer training on methodological materials to selected teachers (we will use a questionnaire to find out their opinions) and we will evaluate the research (experiment and qualitative research). The research material will be processed in Atlas-ti software.

In this paper, we tried to explain the issue of mobile technologies as material and technical equipment of kindergartens, as well as their use in the educational process. We expect that our further research and subsequent findings will support the efforts of teachers to ensure the educational process for children is interesting and adequate to the modern digital age, the age of Generation Alpha (see Fikar, 2018).

ACKNOWLEDGEMENT

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REFERENCES

Fikar, M., 2018. Moodle 3: príručka učiteľa (Moodle 3: teacher's guide). Bratislava: FCHPT STU v Bratislave. Available at: https://www.uiam.sk/~fikar/mdl.pdf

Kalaš, I., 2011. *Spoznávame potenciál digitálnych technológií v predprimárnom vzdelávaní. Analytická štúdia.* Bratislava: Ústav informácií prognóz školstva.

Kalaš, I., 2013. *Premeny školy v digitálnom svete*. Bratislava: SPN Mladé letá.

Korenova, L. 2016. Možnosti mobilných technológií v predprimárnom vzdelávaní = Possibilities of mobile technologies in pre-primary education. In: *DIDMATTECH 2016: New methods and technologies in education and practice*. Budapest: Eötvös Loránd University, pp. 225-230.

Korenova, L. and Gunčaga, J.,2018. Augmented reality in mathematics education for pre-service teachers in primary level. In: *APLIMAT: 17th Conference on Applied Mathematics*. Bratislava: STU, pp.597-605.

Lynch, Z. and Vargová, M., 2016. *Uplatnenie digitálnych technológií naprieč vzdelávacími oblasťami inovovaného Štátneho vzdelávacieho programu pre predprimárne vzdelávanie v materských školách.* Bratislava: ŠPU.

McKenney, S. and Voogt, J., 2010. Technology and young children: How 4-7 year olds perceive their own use of computers. *Computers in Human Behavior* 26, pp.656-664.

Ondrejkovič, P., 2007. *Úvod do metodológie spoločenskovedného výskumu*. 1.vyd. Bratislava: VEDA.

Prensky, M., 2001. Digitálni domorodci, digitálni prisťahovalci: P Art 1. *Na obzore*, 9 (5), pp.1-6. Available at: https://www.researchgate.net/deref/https%3A%2F%2Fdoi.org%2F10.1108%2F10748120110424816 (Accessed 20 September 2020).

Rothman, D., 2016. *A Tsunami of learners called Generation Z*. Dostupné na http://www.mdle.net/Journal/A_Tsunami_of_Learners_Called_Generation_Z.pdf

Sharma, A., Jelemenský, M., Valo, R., Kalúz, M., Fikar, M., 2016. Process control education using Laboratory Separation Process. *IFAC-Papers Online*, 49(6), pp.4–9.

Sujansky, J. Ferri-Reed, J., 2009. *Keeping the Millennials*. John Wiley and Sous.

Švaříček, R., Šeďová,K.a kol., 2007. Kvalitatívny výskum v pedagogických vedách. Praha: Portál.

Velichová, D., 2010. On boundary of geometry and art. *G – Slovenský Časopis pre Geometriu a Grafiku*, 7(14), pp.43-62.

LEARNING AND ASSESSMENT OF A STUDENT PERSONALITY IN THE DIGITAL AGE

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Abstract

At a time when the goals and nature of education are changing significantly based on new digital technologies, students are expected to receive better education. It is no longer enough to teach students to repeat the once known knowledge that the teacher passed on to them for memorization. They should get acquainted with the knowledge through their own activities, obtain it from various sources, thus understand them better and in context, link them with their existing knowledge, assess their meaning and value and apply them in real situations. Changing the way of teaching should lead to students really understanding the material, that they will acquire knowledge more permanently, and especially that they will use it in connection with the mastered skills either for further exploration of the world or in practical areas of life. Assessment also takes another dimension - from learning assessment to learning assessment. Feedback becomes an integral part of learning. Evaluation turns into an act of partnership between teacher and student. The article addresses the issue of learning and assessing a student's personality in the digital age and focuses on questions: how to provide students with guidance for improvement, how to support their inner motivation to learn, and how to help them navigate their own personalities in today's digital age.

Keywords

Digital age. Evaluation. Feedback. Portfolio. Learning and teaching.

INTRODUCTION

There are significant changes in the current school, when the nature and goals of education at all types and levels of schools are changing. It is assumed that young people will receive a better education, where they will get acquainted with the knowledge through their own activities, with the help of their own resources and existing knowledge.

Let's now look at the issue of student evaluation. We know that it is no longer enough to teach students to repeat the completed knowledge that the teacher passes on to them for memorization. Teaching must aim to enable students to really understand the material and be able to apply the acquired knowledge in real life (Portál, 2018). Evaluation also acquires another dimension. It changes from learning assessment to assessment for learning, of which feedback becomes an integral part (RVP, 2019). Assessment is based on a partnership between teacher and student.

The teacher purposefully gathers information about students' attitudes to tasks, about the use of already mastered learning practices, about how they can recognize what they still have to learn, how they try new ways, how to find important information, evaluate

knowledge, use it, use existing knowledge and link it to new ones. Students are working and the teacher looks at their thought processes. He does not gather knowledge about the student's teachings in order to give him a well-founded mark, but so that he can guide his teachings and lead the student to deepen knowledge. The teacher records, observes and evaluates observation records and makes other evidence of student learning. When it comes time for a summary, summative assessment, then he can provide students and parents with an overall report on the student's progress, strengths, and needs (Košťálová, Míková, 2007). The summative assessment may also include the results of work and activities whose basic task was not to provide the student with an opportunity to learn, but to measure his current performance and knowledge.

QUALITY EVALUATION AND QUALITY OF INFORMATION

We consider quality to be such an assessment that specifically explains how it leads the student to improve the learning process and its results (Portál, 2018). The chosen goal and method of evaluation should help the student understand his own learning and assess it well. It will improve his current learning and bring him independence in future learning. Quality performed assessment informs the teacher about how effective his educational programs are as well as how his teaching procedures and methods are in the case of a specific student. Based on this information, the teacher plans the next course of teaching. It provides the student with information on whether or not his activities and efforts lead to the desired goals. Information about the course of learning, obtained at a time when it can be used to correct progress, i.e. still during learning, is especially important for the student (Košťálová, Míková, 2007).

It tells parents whether their child is doing well at learning. Good evaluation is not limited to a comprehensive final report on the result of education. It informs parents clearly and in a timely manner about the strengths of their child's work and whether they need help and support in some areas (Fontana, 1997). In addition, it tells them what the school is striving for, what it considers important, what it emphasizes and what it is all about. The information obtained from the evaluation must be specific, timely and ongoing. Only then can a student use them to improve his learning.

The quality of the information obtained is closely related to the quality of the task. If the task is too easy or demanding, if the students do not understand the assignment or it is likely that external circumstances will adversely affect their work, we will obtain information from which we will compose only a distorted picture of students' abilities.

The quality of information is also influenced by the person of the evaluator, as he may be subject to stereotypes that cause him to see only what he wants to see, such as student indiscipline - poor performance (Fontana, 1997). When evaluating a student's performance, we consider his personal disposition, home background, classroom climate, current student condition (Skorunková, 2018).

The teacher's task is no longer to look for mistakes, but to find out where the student has reached his / her work on the way to the goal. This means that it recognizes and describes those aspects of the student's work that have been successful. This gives him information about how far he has progressed in his teaching. Knowledge of the state is important information not only for the student, but also for planning lessons. Obviously, in order for a teacher to be able to recognize where to focus his help as a student's learning guide, he must know what his student has done and where to continue with further

learning. The mistake itself does not tell him at which stage of the work the student lost track.

We can learn many important things by observing, listening to students' group discussions, presenting the student's own creations, consulting with him, self-assessment sheets or written reflections and reflections, or talking to parents or teachers of other subjects (RVP, 2019). We must then put the information into context and look for positive trends in the student's development, which we then strengthen. And let's not forget that in the evaluation we describe the progress, that is, in what the student has improved compared to his previous performance. Let us also give him space to uncover mistakes. After describing everything the student did, we will give him the opportunity to comment on his work. When he points out to some shortcomings himself, and thus, reveals his own mistakes, he gains more motivation than if we have pointed them out to him by ourselves (Furnham, Chamorro-Premuzic, and Nuygards, 2013).

AUTHENTIC EVALUATION AND AUTHENTIC LEARNING

It is a learning that is creative and understandable to students. The assessment considers the individual context of the student's performance and learning. Useful assessment is not limited to control at the end of a certain stage of the learning process but takes place in parallel with continuous learning. An example might be the teacher's comments and suggestions for improvement during the student's work, after which the student can complete the work. Assessment also focuses on the strengths of the student's work and summative assessment. The purpose is to get a final overall overview of the achieved performance. This means that after a certain time we summarize what the student has learned, e.g. at the end of the study period. In the evaluation, we should be clear about which reference framework we will use. In practice, the teacher uses all three frameworks, combining them in different ways (Handler and Hilsenroth, 2014, Portal, 2018).

An evaluation statement about a student always refers to some measure. Such a measure can be (Skorunková, 2007, 2018, Nákonečný, 1999):

- **Social norm:** The results are interpreted in relation to the results of other members of the group, most often the class.
- **Criteria, or standard:** The benchmark for assessment must be set before pupils start working. The evaluation of one student's work does not depend on how the work was done by others.
- **Individual relationship norms:** The student's current performance is compared with the performance he has achieved in the past and improvements are sought.

Self-concept is related to self-evaluation. From an early age, children find that someone reacts to their behaviour. Their successes and positive qualities are confirmed by parents, teachers and others. Their self-concept develops, the individual forms an image of himself. Only later, with the development of thought operations, does the ability to compare with someone develop. Only then does he begin to perceive other people's views on his behaviour and actions with a greater sense of objectivity and the ability to critically self-assess develops (Herrington, Reeves and Oliver, 2014).

This is also related to the development of self-esteem (Langmeier, Krejčířová, 2006, Wagnerová, 2000, Burkovičová, 2012):

- **In early school age:** success and failure are always perceived by the child in this context in the context of relationships with the closest persons. The recognition by the recognized authority of an adult carries more weight than the result itself. The role of the teacher is crucial at this age.
- **In middle school age:** The teacher recedes into the background and peers become more important. The child is looking for his position among them, he is no longer so egocentric, he can split up, be solidary. He can think more realistically based on his own experience. Children form groups, they act as a whole and allow everyone to create or promote something together. Peer pressure can have both positive and negative effects. At this stage of development, not only success in teaching, but above all success among peers is important for the development of acceptable self-assessment. Only later does dependence on foreign opinions decrease.
- **In older school age:** Puberty is a period of rapid physical maturation, which, however, is not accompanied by equally rapid mental maturation. Hormonal changes bring with them the fluctuations of emotional tuning and hypersensitivity of the young person to ordinary stimuli. He interprets what he once perceived as a joke today as an insulting and hostile attack that weakens his self-esteem. This period is often called the search for one's own identity. On the outside, it manifests itself as a demonstration of freedom and liberty, but on the inside, he experiences feelings of danger, his identity is still in its infancy, and he must look for support somewhere. He can no longer look for her in the family, because his developmental task is to detach himself from the family, so in this difficult period he is helped by his connection to a group of peers. Pubescents can detach themselves from a specific reality and think on an abstract level (what the world might be like). As for the teacher, they prefer one who does not emphasize his superiority and authority but consider them to some extent as equal beings. Such a teacher is able to strengthen their confidence, confirm their new identity and, through positive feedback, positively influence their motivation for schoolwork. The so-called personal standard becomes more important in self-evaluation. The student has experience with a certain evaluation of his / her own performance during the previous schooling, as a result he / she also gained a certain position in the class, so he / she can easily estimate what performance he / she must give in order to be comprehensively accepted.

EVALUATION FUNCTIONS

If we want the student to get as much information as possible through the evaluation, how he met the requirements, how he met the specified criteria, how he mastered the subject matter, then the evaluation will fulfil **a cognitive function.** If we assume that the student will be motivated for further work thanks to the evaluation, he will want to continue learning and learn ways to correct mistakes, it will be **a motivational function.** If we strive through evaluation for the student to learn to understand himself and create a positive self-defence, to learn himself and to evaluate his work realistically, then the evaluation should fulfil **a personal-developmental function** (Piaget, Inhelderová, 2011, Košťálová, Míková, 2007).

Let's look further at the use of descriptive language in school evaluation. What principles should we follow in school evaluation (Rakoušová, 2018, Tomková, 2017):

- **Let's describe the perceived:** We describe what we can perceive through our senses, and at the same time we relate it to the criteria we have set for the given work, or to the criteria valid in general (e.g. grammar rules).
- **Let's describe the progress:** This means how the student has improved compared to his previous performance.
- **Let's describe the student's feelings:** For example, he is happy.
- Let's give space to reveal mistakes: After describing everything that the student has succeeded in, we will give him the opportunity to comment on his work himself. When he points out some of the shortcomings of the work, he reveals his own mistakes. He will gain more motivation than if we have pointed them out to ourselves.

CONSULTATION OF THE STUDENT WITH THE TEACHER AS PART OF THE EVALUATION

During consultations, the teacher gives the student the opportunity to develop the ability to think systematically and analytically about his work and its progress, helps to individualize learning. The teacher listens, advises, clarifies, recommends, helps one specific student in a dialogue that has a private character. So, it is not a control tool.

Before implementing consulting activities, we should inform students how the consultation will take place so that they can prepare and know what to expect. They should know that a consultation is a conversation between two people that will focus on one problem, question or idea. We will agree with the students where the consultations will usually take place. A neutral place anywhere in the classroom is ideal. One important rule applies here - wherever we consult, we should sit on the same side of the table as the student. This signals to him that we are cooperating, not controlling. The student can also request a consultation himself if he feels he needs it, or they take place according to a regular schedule (Burkovičová, 2012).

During the consultation, we ask the student questions and lead him to ask them himself and to talk about his work independently. Our questions should reflect our interest in his work and ideas. We give him advice only at the end of the consultation and only to the extent that he can remember it without difficulty. Consultations should be short, about 3-5 minutes. This allows you to talk to more students.

In our schools, teacher - student - parent consultations are usually held, which serve to evaluate the course and results of student learning. When conducted as a balanced dialogue between student and teacher, they significantly strengthen the student's responsibility for their own work and support its development in the field of thinking, communication and problem solving. The teacher must remain in the role of the listener, who provides the student with descriptive feedback (Straková, 2017).

STUDENT PORTFOLIO AND EVALUATION

A student portfolio is a set of documents about student learning that arise over a period in achieving educational goals. It serves as a tool for monitoring, documenting and evaluating the learning process of a complex nature, which involves not only knowledge but also skills. The portfolio can take many forms and serve different evaluation objectives (Educationworld.com, 2020).

Reasons for using the portfolio (Štefflová, 2018, Tomková, 2017, RVP, 2019):

- It allows to connect teaching and learning with assessment - evaluation thus serves learning.
- Provides important and comprehensive information on the course and results of learning.
- Allows you to monitor multiple aspects of the process and the learning outcome in parallel.
- Gives the teacher and the student the opportunity to jointly monitor and discuss learning developments.
- Provides support in the evaluation, which is based on specific documents, students use it to participate in the evaluation of their own work.
- Teaches students to recognize and label quality in their own work (self-assessment).
- Teaches them to identify indicators of progress in their own work over time.
- It allows them to plan learning objectives and then monitor how much they achieve and what contributes to their fulfilment.
- It contributes to the feeling of responsibility for one's own work, and thus to the involvement in one's own learning.

Types of portfolios:

- **Working:** Connects assessment with learning. The teacher submits the assignments to the students together with the learning objectives.
- **Documentation:** It contains only some works - those that demonstrate the student's gradual improvement in the set learning objectives.
- **Representative:** The purpose is to show the best that the student has accomplished.

We could call a portfolio an effective learning tool through assessment. Through it, students learn to reflect on their work, learn to evaluate its quality, are led to reflect on the causes of progress they have made or have not made, and learn to look for concrete evidence of their success. At the same time, they learn that good work is not done all at once and that in order to make progress, it is necessary to invest time in looking back and evaluating what has already been done. The portfolio and working with it gives students the opportunity to monitor both the learning process and learning outcomes. The portfolio should primarily serve to reward the student's progress, efforts or creative achievements, and should encourage students to assess their own progress in their studies. A portfolio is an irreplaceable tool for documenting a student's work in a complex task. Students also include their own ideas, small projects and school work in the portfolio components. The teacher is a coordinator and advisor, he does not classify, he only provides space in the class so that students can compare the portfolio occasionally, gain new motivation and inspiration (Hartl, Hartlová, 2000).

When we are going to introduce a portfolio with students, we should consider **a few basic questions** (Rakoušová, 2018, MŠMT, 2007):

- With what intention do I want to introduce the portfolio? Will we be more concerned with the product or the learning process, or both? And who will be the "addressee" of the portfolio - who will view everything and draw information about the student and his work.

- What will we collect in the portfolio? Which materials are important for the collection goal? What will be the number of items that will make up the portfolio.
- Who will select items for the portfolio? How? Will it be a teacher or a student or both? How will the documents be included in the portfolio? How can they be excluded?
- How will the content of the portfolio be evaluated? Will target criteria be set in advance? Will they be determined by the teacher, or will students also participate in their determination?

CONCLUSION

When motivating students in the educational process, we choose innovative teaching aids in the field of digital technologies, inventive topics and try to attract attention. We use new methods and forms of education. We spend a lot of energy on optimizing teaching. It will help students to realize what and why they should learn, in what time horizon, what they have already done to achieve their goal and where they are today. To do this, they need some reflection, i.e. they need to be able to stop and think about what they are doing, why they are doing it, what they have already done and set certain goals, where they would like to go. Everyone who learns should also learn self-esteem. Self-assessment is very demanding and initially it is necessary to consult with classmates and the teacher (Erc.ie, 2020). Gradually, students gain more confidence, routine and objectivity and take more responsibility for their own learning.

The question of whether to evaluate verbally or with marks, which has long been unanswered in our schools, is not asked correctly. This problem disappears as soon as we realize what we really expect from the evaluation of students' work when using active learning methods. The control function of assessment recedes into the background in such teaching and continuous assessment comes to the fore (Košťálová, Míková, 2007). Its effect depends on how concretely and concisely we can inform the student in the evaluation process, how his / her learning takes place and what are results for the next stages of his / her work.

REFERENCES

Burkovičová, R., 2012. OSU, Katedra pedagogiky primárního a alternativního vzdělávání: Vstup do otázek vědy o výchově. Available at: http://www.osu.cz/fpd/kpa/dokumenty/veda_o_vychove.pdf (Accessed 30 September 2020).

Educationworld.com, 2020. Student Portfolios as an Assessment Tool. Available at: https://www.educationworld.com/a_curr/columnists/mcdonald/mcdonald025.shtml (Accessed 19 September 2020).

Erc.ie, 2020. Development of a Framework for the Evaluation of Teachers' Professional Learning. Educational research centre. Available at: https://www.erc.ie/programme-of-work/development-of-a-framework-for-the-evaluation-of-teachers-professional-learning-tpl/ (Accessed 29 March 2020).

Fontána, D., 1997. *Psychologie ve školní praxi: příručka pro učitele*. Praha: Portál,

Furnham, A., Chamorro-Premuzic, T., Nuygards, S., 2013. *Personality, assessment methods and academic performance*. London: University of London.

Handler, R. and Hilsenroth, M., J., 2014. *Teaching and Learning Personality Assessment.* CRC Press United Kingdom: Routledge Taylor and Francis Group.

Hartl, P. and Hartlová, H., 2000. *Psychologický slovník*. Praha: Portál.

Herrington, J., Reeves, T. C. and Oliver, R., 2014. *Authentic Learning Environments.* Springer: Handbook of Research on Educational Communications and Technology.

Košťálová, H., Míková, Š., 2007. *Školní hodnocení žáků a studentů*. Praha: Portál,

Langmeier, J., Krejčířová, D., 2006. *Vývojová psychologie*. Vyd. 4., přeprac. a dopl. Praha: Grada Publishing.

MŠMT, 2007. Evropské jazykové portfolio – motivace, reflexe a sebehodnocení. Available at: http://www.msmt.cz/mezinarodni-vztahy/evropske-jazykove-portfolio (Accessed 9 March 2020).

Nákonečný, M., 1999. *Sociální psychologie*. Praha: Academia.

Piaget, J. C., Inhelderová, B., 2011. *Psychologie dítěte*. Praha: Portál.

PORTAL.CZ, 2018. Co je autentické hodnocení a autentické učení. Available at: http://www.portal.cz/scripts/detail.php?id=25080 (Accessed 26 November 20).

Rakoušová, A., 2018. Metodický portál: Sebehodnocení žáků: Available at http://www.rvp.cz/sekce/512 (Accessed 9 March 2020).

RVP.CZ, 2019. Metodický portál (Hodnocení žáků, sebehodnocení žáků, žákovské portfolio). Available at: http://rvp.cz/filtr-ZUAA-DC-1 (Accessed 14 December 2020).

Skorunková, R., 2007. *Vývojová psychologie*. Hradec Králové: UHK.

Skorunková, R., 2018. Psychologie osobnosti a sociální psychologie. Hradec Králové: UHK. Sylabus k přednáškám.

Straková, J., 2017. Moderní vyučování: Výběr z překladu. Available at: http://www.modernivyucovani.cz (Accessed 19 September 2020).

Štefflová, J., 2018. Portfolio učí poznat sebe sama. *Učitelské noviny*. Available at: http://www.ucitelskenoviny.cz/obsah_clanku.php?vydani=19&rok=06&odkaz=portfolio.htm (Accessed 9 March 2020).

Tomková, A., 2017. Metodický portál: Žákovské portfolio a jeho cíle v primární škole. Available at: http://www.rvp.cz/clanek/512/1543 (Accessed 29 March 2020).

Vágnerová, M., 2000. Vývo*jová psychologie: dětství, dospělost, stáří*. Praha: Portál.

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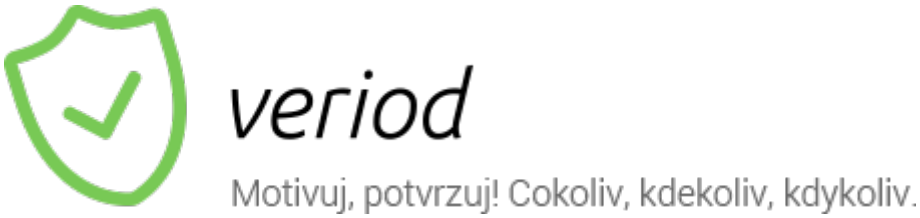

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