

POSSIBILITIES OF DEVELOPING INTERACTIVE E-LEARNING SYSTEM FOR BORDER GUARDS TRAINING IN THE STATE BORDER GUARD COLLEGE OF THE REPUBLIC OF LATVIA

Mārtiņš Spridzāns¹, Jans Pavlovičs², Diāna Soboļeva³

¹Mg. paed., Lecturer of General Subjects Department of the State Border Guard College, e-mail: martins.spridzans@rs.gov.lv, Rēzekne, Latvia

²Mg. paed., Lecturer of General Subjects Department of the State Border Guard College, e-mail: Jans.pavlovics@rs.gov.lv, Rēzekne, Latvia

³Mg. paed., Lecturer of General Subjects Department of the State Border Guard College, e-mail: diana.soboleva@rs.gov.lv, Rēzekne, Latvia

Abstract. *Efficient use of educational technology and digital learning possibilities has always been the strategic area of high importance in border guards training at the State Border Guard College of Latvia. Recently, issues related to training during the Covid-19, have spurred and revived the discussion, topicality and practical need to use the potential of e-learning opportunities which brought up unexpected, additional, previously unsolved, unexplored, challenges and tasks to border guards training. New opportunities and challenges for trainers, learners and administration of training process both in online communication and learning administration contexts. In order to find out and define further e-learning development possibilities at the State Border Guard College the authors of this research explore the scientific literature on the current research findings, methodologies, approaches on developing interactive e-learning systems in educational contexts, particularly within the sphere of law enforcement. Based on scientific literature research findings authors put forward suggestions on improving the e-learning systems for border guards training.*

Keywords: *digital competence development, e-learning, online communication.*

Introduction

The rapid advance of science and technology is related to the quality of life, including health, civic engagement, social connections, education, security, life satisfaction and the environment (OECD 2018). E-learning as an integral part of 21st century has become mainstream in the education sector and has been massively adopted in higher education, including in military training contexts. Evaluation of e-learning systems is vital to ensure successful delivery, effective use, and positive impacts on learners (Al-Fraihat, Joy, & Sinclair, 2019). In order to facilitate border guards training process, systemize training materials and provide open learning possibilities the State Border Guard College (hereinafter – SBGC) introduced e-learning system in Moodle 2008. According to researches of



the lecturers of the SBGC the topicality of distance learning has increasing character, particularly with distant learning implementation during Covid-19 lock down. Earlier researches indicate that since 2014, the number of qualification improvement programs and personnel trained in the e-learning format is increasing and it is demanding to update training materials, develop a mechanism to ensure regular updating of the content in the e-learning system, explore the possibility of applying the latest trends in e-learning (Pavlovics, 2018). The development of e-learning in the State Border Guard College is one of the concern topics within the Ministry of the Interior in order to analyse the best practices in e-learning, finding common solutions and possibilities to unify the e-learning platforms among subordinated law enforcement training institutions (Spridzans, 2018).

Despite the fact that SBGC infrastructure is ready to work in distant learning mode according to authors empirical observations the personnel of SBGC was unprepared for lecturing online lessons during Covid-19 lock down period. In order to avoid similar issues in the future, to find out the possibilities to enhance border guards e-learning possibilities the authors of this research have used the monographic and document analysis method, hence providing the opportunity to explore, analyse and summarize other research findings results on the topic concerned. Authors believe that more emphasis should be put on SBGC lecturers' digital competence development, guidance and appropriate assessment in order to further develop border guards' e-learning systems.

Research period includes 2014 – 2020, authors have also summarized analytical judgments based on previous researches, as well as using the authors' personal pedagogical experience. The research methods included setting research objectives, the selection of methods for data gathering, processing, and analysis of the data and interpretation of the data. Key results of research findings are summarised in conclusions and suggestions of this article putting forward suggestions in order to develop e-learning system at SBGC.

E-learning implementation trends and approaches within militarised and civil education contexts

Recent changes in education contexts have also left impact on border guards as military training institution. Researchers note that information technologies requires a number of changes in higher military education. The relatively short-termed military education turns into a lifelong learning. It becomes more widely profiled than specialised. In this regard researchers suggest to put a priority should not on learning and utilization of concrete examples of a new technique but forming a common military

culture for the officers of different types and kinds of forces, which should provide an efficient military professional activity (Terziev & Nichev, 2017). According to research of Persson B. (2018) study officers and the cadets indicated that interactive learning was a good compliment to more traditional education. Other researcher findings conclude that unless a traditional course is extensively reconfigured for e-learning delivery, there likely will be no improvement in soldier performance. Courseware design and delivery, more than delivery technology and facilities are to be the defining variables in e-learning success (Wood, Douglas, & Haugen 2002).

One of the major issues in successful e-learning course implementation is teacher-student communication. Teachers and the students are used to traditional face-to-face interaction and, in order to reach better learning outcomes, the teachers must conduct an in-depth research related to best practices on interaction in e-environment, need to generate frequent communication and motivate students to participate, structure discussions so that they are meaningful to students, facilitate interactions, encourage student collaboration, analyse progress and gather and provide feedback (Spridzans, 2018). Similarly the research (Liaw et al., 2007, Selim, 2007) indicate vital role of students' and instructors' attitudes and interactions vital in e-learning success. The findings of Islam (2013) suggest that beliefs about perceived usefulness and perceived ease of use, and how an e-learning system is used influence students' perceived learning assistance and perceived community building assistance. In turn, perceived learning assistance and perceived community building assistance influence the students' perceived academic performance.

According to European Network of Education Councils the integration of ICT in the learning process calls for a higher level of didactical and pedagogical competences of teachers. This impacts on the different aspects of the whole learning process: modelling and targeting the learning process to the developmental needs of the learners, assessing the competences. Flexible and collaborative approaches are gaining more attention. More team work amongst teachers offers opportunities for role differentiation (expert in development of courses, coach, managing learning processes) and for more effective differentiated teaching of children and young people with a variety of needs. New learning practices such as distant teachers, peer teaching, flipped classrooms should be stimulated (EUNEC, 2014)

Čižmešija et al. (2018) define meaningful application of modern digital technologies in the educational process to contribute to the quality and efficiency of learning and teaching by imperative for each higher education teacher to acquire and continuously improve his/her digital competences for planning, delivering and assessing the educational process and communicating and interacting with his/her students and peers.

Researchers encourage teachers to be open to teaching in a digital environment and adapt their teaching styles to new technologies and with the aid of appropriate digital resources, teacher should also be able to create new and adapt the existing digital educational content, following key aesthetic principles in their design, respect and advocate high ethical principles, copyrights, licences and other legal provisions governing the use of digital technology. Goodwyn (2017) indicated the need to highlight lead teachers which are recognized and respected by teachers as exemplary teachers since they have demonstrated consistent and innovative teaching practice over time. They continue to seek ways to improve their own practice and to share their experience with colleagues. Teachers are the main actors in turning on new technologies to rich and innovative learning environments. They have to rethink their evaluation and assessment practices to informal learning. They have to redefine their roles from deliverers of knowledge to co-creators and developers of competences (Goodwyn, 2017). Also Duffy & Cunningham already decades ago asked us to focus education and training needs to shift from passive reception of data to student knowledge transformation wherein an individual constructs new knowledge through interactions and negotiations by using constructivist principles include building on student prior knowledge, making learning relevant and meaningful, giving students choice and autonomy, and having instructors act as co-learners. Researchers also encourage educators to design tasks where learners solve real world problems, reflect on skills used to manage one's own learning, address misconceptions in their thinking, categorize problems around themes and concepts, and generally take ownership for their own learning (Duffy & Cunningham, 1996). Undoubtedly teachers are the ones to make changes in education systems, however, teacher training and in-service professional development institutions often lack the vision and capacities to promote innovative teaching methods and an extensive and integrated use of technologies (EUNEC, 2014). Further research suggests that middle leaders (heads of department and subject coordinators who are also teachers) and other informal teacher leaders have importantly increasing role and they are a vital link between teachers and senior leaders and are perfectly positioned to support the learning of their colleagues, hence middle leaders need ongoing development to enhance their skills in working alongside others to investigate their practice, articulate and share their knowledge, ask the right questions about evidence, trial new strategies and evaluate impact. They also have to be able to understand and facilitate professional learning, access, critique and share external knowledge, practice coaching skills, and develop trust with colleagues (Porritt & Spence-Thomas, 2017).

The topicality of teacher competence development to enhance e-learning capacity for border guards training

Research suggests that the use of technology in education and the associated professional development are relatively new phenomena. Even so, they have gone through several stages of evolution, each stage has been influenced by both the available technologies, our understanding of the psychology of learning, and the readiness of faculty to use the technology with their students. For most teachers the transition from teaching in classroom to online involves exposing faculty to a number of activities and experiences that over time will increase their knowledge, skills and confidence (Howard et al., 2005).

Teachers must be aware of specific technologies that pertain to each area of content, new pedagogical skills and concepts to be mastered, ways of dealing with unintended consequences of new tools and information sources and specialized knowledge about teaching with technology, some of which lies in the interactions between technology, content and pedagogy (Cunningham & Allen, 2010). Another important element to be used in order to develop e-learning systems would be effective professional development which is strongly enhanced through collaborative learning and joint practice development, creating professional learning communities within and between schools (Harris et al., 2012). The impact of any professional development is increased if other people within the school can benefit from it by the principle of cascading which is cost effective, however much depends on the time available to cascade and the quality and confidence of the individual, and their perceived status in the school. Cascading happens at the start of new initiatives but the impact is reduced if there is no support or input later on. Researchers suggest that people should have half day's non-contact time after each day's course to cascade and set up ways to implement new ideas. For some individuals and groups improvement seems too problematic a concept to mention. First it implies that things are currently not as good as they might be, the acknowledgement of which may be accompanied by a sense of personal discomfort and lead to social difficulties. Hence in some circumstances individuals maybe best advised to talk about enhancing their practice rather than improving it (Swann, 2012). In similar view is also Collin Brock (2015) when in the context of education reforms and teacher development concludes that sometimes the system can create a space in which innovation can take place, in this context he points out that the disadvantage is that innovation can be perceived as shock, which has to be reacted to, rather than as a necessary operation of professional life, which has to be encouraged (Brock, 2015).

International collaboration to improve e-learning systems for border guards

The State Border Guard College of the Republic of Latvia Border and Coast Guard Academy of Finland, Estonian Academy of Security Sciences, State Border Guard Service under the Ministry of the Interior of the Republic of Lithuania from September 1, 2018 participate in Erasmus+ Strategic partnership project “Development of e-learning systems for border guards” where e-learning systems in border guards’ education institutions are compared and analysed in order to define e-learning success factors. During four international meetings and workshops at national level best practices for developing e-learning systems for border guards are going to be summarized. The results of the needs analysis clearly indicate the importance to have strategic approach to e-learning development, need to enhance teacher digital competence improvement, and develop clear guidelines on how to develop and use e-learning systems at its best potential. The needs and SWOT analysis on project implementation and sustainability indicated the topicality and need for project outcomes with the main issues of concern:

1. Lecturers understanding on design and implementation of e-learning in the learning process is different among the partner countries. There is a need to have a strategic approach with regards to design and implementation of e-learning systems particularly by constant teachers’ in-service training;
2. With the growth of digital technologies and their potential to facilitate teaching and learning processes there is a need to audit and update e-learning systems, making student centred learning approach at focus by providing collaboration, knowledge sharing and meaningful learning opportunities.
3. It is necessary to summarize the best practices on interactive content development, demonstrate practical examples on how to transform traditional learning materials into e-learning environment.
4. Teachers need to see examples how interactive training materials are developed in other institutions, provide separate section where they can see examples of other teacher created e-learning resources and experiment on their own.

As the result of this Project guidelines for improving e-learning systems in border guard training institutions shall be developed with practical examples and demonstrations on creating interactive training content. The guidelines are intended to increase teachers’ and IT experts’ theoretical knowledge and practical skills in using Moodle and other and tools for developing interactive learning content and can be used by border

guard and other law enforcement training institutions managers who are planning to introduce update or audit their e-learning systems, trainers who need to update their knowledge and skills in using e-learning tools and develop common methodologies for e-learning implementation (Erasmus+ strategic partnership project materials, 2020).

Conclusions and suggestions

Based on research results the authors conclude that that education technologies and e-learning practices evolve as society evolves and are particularly emphasised during non-standard educational events, as currently experienced in pandemic context. Successful implementation of full-fledged e-learning potential can only be reached by teacher digital competence development thus leading to strategic integration of technologies in the learning processes meaningfully. Furthermore, teacher competence development should be prioritized and organised on regular basis in order to facilitate efficient e-learning opportunities. Successful implementation of e-learning process requires support to teachers to learn formally and informally, cascade the knowledge obtained within the community of practice. Administration of education institutions need to communicate e-learning development strategy clearly at all levels of subordination, experts in the field of e-learning should lead, direct and adequately supervise functioning of e-learning systems.

Based on research findings authors put forward the following suggestions in order to improve border guard e-learning systems.

1. Having in mind the recent global contexts e-learning topicality should be revisited, particularly by highlighting teachers' digital competence development necessity.
2. Teachers' digital competence development should theoretically and practically include the topics concerning the use of meaningful and interactive e-learning solutions, communication peculiarities and best practices in organising and implementation of online communication.
3. Teachers' digital competence development should be implemented not less than once a year e.g. preceded by the annual attendance of methodological seminars by law enforcement education institutions or in combination with civil institutions focusing on practical usage of learning management systems, peer learning, observation, interacting with other educators in order to share best practices in military education pedagogical approaches, as well as the best examples for the development of digital teaching aids and its application in teaching processes.

4. In order to further develop e-learning systems strategic communication and cascading of information should take place. Management should objectively evaluate and encourage further development of educators' digital competence taking into account military environment peculiarities by designing a tailor made digital competence evaluation mechanism.
5. International collaboration projects, such as Erasmus+ strategic partnership project for the development of e-learning systems at border guards training institutions and other international projects where teachers have the possibility to see best practices in developing and implementing e-learning systems play crucial role in further development of e-learning systems at local level, hence initiation and implementation of such collaboration projects focused on digital content development for operationally efficient border guards training should be organised on a regular basis.

References

1. AL-FRAIHAT, D., RA'ED MASA'DEH, M., & SINCLAIR J. (2020). *Evaluating E-learning systems success*. An empirical study Computers in Human Behavior, Volume 102, pp. 67-86.
2. BROCK, C. (2015) *Education in the United Kingdom*, Bloomsbury, London UK.
3. ČIŽMEŠIJA, A., DIKOVIC, M., & DOMOVIĆ, V. (2018). *Handbook for teaching competence enhancement in higher education*, Co-funded by the Erasmus + Programme of the European Union. Ministry of Science and Education of Croatia, ISBN: 978-953-8103-21-6.
4. CUNNINGHAM, C.A., & BRIANA, L.A. (2010) *Philosophical Question about learning technologies*. The Sage Handbook of Philosophy of Education. Sage. London, UK, 2010.
5. DOUGIAMAS, M. (1999). *Reading and Writing for Internet Teaching*. Retrieved August 7, 2020, from <https://docs.moodle.org/38/en/Pedagogy>
6. DUFFY, T. M., & CUNNINGHAM, D. J. (1996). *Constructivism: Implications for the design and delivery of instruction*. In D. H. Jonassen (Ed.), *Handbook of research on educational communications and technology* (pp. 170-198). New York: Scholastic.
7. EUNEC. (2014). the European Network of Education Councils. *Learning in the digital age. Report of the seminar of the European Network of Education Councils*, Athens, 5-6 May 2014 with the support of the European Commission DG Education and Culture, Brussels, August 2014 EUNEC secretariat, Kunstlaan 6, bus 6, 1210 Brussels.
8. GOODWYN, A. (2017). *Expert Teachers An international perspective*. Routledge, New York.
9. SELIM, H.M. (2007). Critical success factors for e-learning acceptance: Confirmatory factor models. Retrieved August 7, 2020, from https://www.academia.edu/12101768/Critical_success_factors_for_e_learning_a_cceptance_Confirmatory_factor_models

10. HARRIS, A., STOLL, L., & HANDSCOMB, G. (2012). Great professional development which leads to great pedagogy: nine claims from research. Research and development network national themes: theme two National college for school leadership.
11. HOWARD, C., BOETTCHER, J. V., LORRAINE, J., & SCHENK, K. (2005). Encyclopaedia of distance learning. Volume 2. Idea Group, USA.
12. ISLAM, N. (2013). *Investigating e-learning system usage outcomes in the university context* Computers & Education Volume 69, November 2013, Pages 387-399 Retrieved August 7, 2020, from <https://doi.org/10.1016/j.compedu.2013.07.037>
13. LIAW, S.S., HUANG, H.M., & CHEN, G.D. (2007). Surveying *instructor and learner attitudes toward e-learning* Computers and Education, 49 (4) pp. 1066-1080.
14. PAVLOVICS, J. (2018). VII International scientific and practical conference Border security and management scientific journal of internal security and civil defence No 2(7) 15.-16.05.2018. ISSN 2592-849X pp 120.
15. PERSSON, B. (2018). *Artillery Simulation as a Pedagogical Tool in Military Education*. In: Naweed A., Wardaszko M., Leigh E., Meijer S. (2016) *Intersections in Simulation and Gaming*. ISAGA 2016, SimTecT. Lecture Notes in Computer Science, vol 10711. Springer, Cham.
16. PORRITT, V., SPENCE-THOMAS, K., EARLEY, P., & GREANY, T. (2017). *School leadership and Education system reform*. Bllomsbury, London, UK and Carol Taylor.
17. SPRIDZANS, M. (2018). VII International scientific and practical conference Border security and management scientific journal of internal security and civil defence No 2(7) 15.-16.05.2018. ISSN 2592-849X pp 144.
18. SWANN, J. (2012). *Learning, teaching and education Research in the 21st century. An evolutionary analysis of the role of teachers*. Continuum International, Publishing group, Great Britain.
19. TERZIEV, V., & NICHEV, N., Pedagogical digital competence, Retrieved August 7, 2020, from https://www.researchgate.net/publication/316314915_Pedagogical_Digital_Competence-Between_Values_Knowledge_and_Skills
20. WOOD W., DOUGLAS D., & HAUGEN S. (2002). E-learning in the military: meeting the challenge. Retrieved August 7, 2020, from <https://pdfs.semanticscholar.org/fa61/f89ec9d1f45d2da79e49934a0a5647026c94.pdf>

Acknowledgements

This research was performed within ERASMUS+ Programme KA2 STRATEGIC PARTNERSHIP PROJECT No. 2018-1-LV01-KA202-047003 “Strategic partnership for the improvement of e-learning systems in border guard training institutions” and Transformative Digital Learning in Doctoral Program of Pedagogical Science in Latvia (DocTDLL) lzp-2018/2-0180 projects.