



University of Defence  
[www.unob.cz](http://www.unob.cz)



Centre of Simulation  
and Training Technologies



Veletřhy Brno, a. s.  
[www.bvv.cz](http://www.bvv.cz)

---

# DISTANCE LEARNING, SIMULATION AND COMMUNICATION 2017

Proceedings  
(Selected papers)

Editor: Miroslav Hrubý

Brno, Czech Republic  
May 31 - June 2, 2017

**© University of Defence, Brno, 2017**  
**ISBN 978-80-7231-415-7**

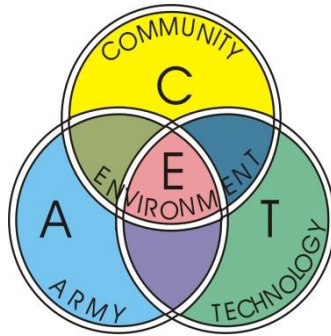
**International Conference**

**DISTANCE LEARNING, SIMULATION  
AND COMMUNICATION 'DLSC 2017'**

held as a part of

**CATE 2017**

**(Community – Army – Technology - Environment)**



under the auspices of

**the Rector of the University of Defence**

**and**

**the Dean of the Faculty of Military Technology of the University of Defence**

**on May 31 - June 2, 2017**

as an official accompanying programme of the International Exhibition of Defence  
and Security Technologies and Special Information Systems



**IDET 2017**



**Conference objectives:**

Experience and information exchange in the field of:

- the current status and prospects of distance learning and e-Learning in the preparation of military professionals and other target groups;
- using the computer modelling and simulation, especially (but not only) in the command and control process;
- language education of military professionals and other target groups, current and future communication systems, their development and usage.

**Professional patronage:**

- **Prof. Ladislav BUŘITA**  
Department of Communication and Information Systems, Faculty of Military Technology, University of Defence, Brno, Czech Republic
- **Prof. Erika MECHLOVÁ**  
Department of Physics, Faculty of Science, University of Ostrava, Ostrava, Czech Republic
- **Prof. Václav PŘENOSIL**  
Department of Information Technologies, Faculty of Informatics, Masaryk University, Brno, Czech Republic

**Organizers:**

- University of Defence, Kounicova 65, 662 10 Brno,
- Centre of Simulation and Training Technologies, Kounicova 44, 662 10 Brno,
- BVV Trade Fairs, Výstaviště 1, 647 00 Brno,
- Union of Czech Mathematicians and Physicists, Brno branch, Janáčkovo nám. 654/2A, 602 00 Brno.

**Venue:**

- Congress Centre, room B, BVV Trade Fairs, Výstaviště 1, 647 00 Brno.

**Organization committee:**

- Miroslav HOPJAN
- Milan JIRSA
- Oldřich LUŇÁČEK
- Jan VONDRA
- Markéta VRŠECKÁ

**Conference web site:**

- <http://dlsc.unob.cz>

# BLENDING LEARNING IN PRACTICE OF E-LEARNING MANAGERS TRAINING

Nataliia Morze<sup>1</sup> and Olena Kuzminska<sup>2</sup>

<sup>1</sup>Boris Grinchenko Kyiv University, 18/2 Vorovskogo Str, Kyiv, Ukraine,

<sup>2</sup>National University of Life and Environmental Sciences of Ukraine,

Heroyiv Oborony Str., 15, Kyiv, Ukraine

n.morze@kubg.edu.ua<sup>1</sup>, o.kuzminska@nubip.edu.ua<sup>2</sup>

**Abstract:** *The Web-based Instruction can open up (re)new opportunities for the development of educational environments. In fact, there is a variety of electronic learning (e-learning) environments that consider and combine different Information and Communication Technologies (ICTs) tools and instructional strategies; nevertheless, blended learning (b-learning) has been considered as “the most common mode of e-learning” in preparing future teachers. The article presents the results of experience teaching of masters Boris Grinchenko Kyiv University in pedagogical specialties by new specialization – «Management of e-learning». The authors see a great chance in use b-learning to training a new specialists pedagogic, to develop their professional, ICT and specific competences.*

**Keywords:** e-learning manager, competence, management of eLearning, pedagogical design, blended learning.

## INTRODUCTION

Among the factors that influence the development of modern education are rapid change in technology and requirements of professionals; universal development specialist; integration of knowledge; development of collective learning. The educational situation decentered, established constant over many years of professional competence of teachers are beginning to change - along with subject competence becomes important ICT competence and training function is transformed into task to help student learning. The NMC Horizon Project can be regarded as education's longest-running exploration of emerging technology trends and uptake [1].

According to the research, most universities now actively are implementing e-learning [2]. The university set up IT infrastructure, functioning e-library, e-research centers, development e-environment [3] and investigated the issue of training in e-learning, e-science, e-democracy and implementation of e-management approach at the university environment [4]. However, not enough attention is paid to training teachers for the effective implementation of e-learning in the educational process to ensure quality education. The introduction of specialization «Management of e-learning» in the training of masters bring partial solution of this contradiction.

When selecting methods and techniques of training professionals – managers of e-learning, it is advisable to use blended learning technology. The aim of the present article is to substantiate and analyze results of the experimental study to use blended learning into the educational process of new Master's specialization, conducted on the basis of Borys Grinchenko Kyiv University.

## 1. TRAINING MANAGER OF E-LEARNING MODEL AND ITS IMPLEMENTATION

The experience of the authors on the implementation of e-learning, in particular Boris Grinchenko Kyiv University is a member of European University Association [2], as well as analysis of international and national experience [5] are the grounds for introducing specialization «Management of e-learning» for Masters enrolled in specialties «Pedagogy of high school», «Elementary Education", «Preschool education».

For description and justification of the learning process at a certain specialization, individualization and flexibility was developed a generalized model of e-learning manager (Fig. 1). This model is an adaptation of the model ICT competencies of teachers and developed on the basis of their corporate standards of masters [6], the framework of competence of e-learning for teachers [7] and approaches to the development of ICT competence of masters by authored article.



**Fig. 1.** Training manager of e-learning model, competence approach

Source: own

The main objective of creating a model (in this study are not allocated profiles of individual groups or participants) can be considered as the allocation basis for the development and implementation of educational influence. Factors that affect performance such effects include not only the adequacy phenomenon participants (willingness to implement the designed model), but also the resources of the educational environment and the implementation model of educational process.

The resource base of educational environment of Boris Grinchenko Kyiv University is sufficient for the effective implementation of e-learning as a tool for training masters – the future managers of e-learning. As a model of implementation of the educational process was selected blended learning technology as a promising educational technology on the one hand, and as an opportunity to demonstrate in practice its effectiveness to future teachers.

## 2. TRAINING MANAGERS OF E-LEARNING

### 2.1 Implementing blended learning models

Experience implementing blended learning in universities [8] is the basis for the selection of elements «mixing» in preparing future managers of e-learning [9]:

- full-time and distance learning (curriculum for training 50%/50%);
- user-generated content and foreign materials (including Microsoft Imagine Academy);
- self-study and collaborative learning (implementation of joint projects, such as e-learning environment of modern school);
- robotics and education (most masters have professional experience, so the work becomes a source of learning content and learning content is available on demand in the context of the need to perform work in the workplace).

As the base model to implement blended learning [10] was rotation model. Given the specificity of specialties, mostly used flipped classroom model. However, among those students were enrolled on an individual schedule, so partial implementation became model of individual rotation, where students take online courses, attending classes full-time or get online consultation. Each item of selected models (individual work, group work and work with the teacher) takes its role in accordance with Bloom's Taxonomy [11]. According to this taxonomy performed a selection of ICT tools.

## **2.2 Common approaches to designing courses for the study of subjects**

Effective use of blended learning is not enough to move the materials of discipline in the electronic environment, special attention should be given to how to design e-learning courses and aspects of the educational process.

According to the authors, the design of e-learning course should be based on the principles of «backward design» [12]. Development of e-learning course does not begin on searching for content and development content of the subject by the relevant sector but to determine learning outcomes in the chosen discipline and selection of appropriate methods of assessment. Further determined the necessary resources (both components of information-educational university environment and external) and teaching strategies (including type of discipline): educational activities and scenarios of interaction between participants of the educational process in order to maximize involvement of students in virtual and classroom interaction. The last step is the selection and development of training materials. Properly designed e-learning course promotes individualization of the educational process, involvement of students to form their own initial contract trajectory, increasing motivation, accountability and student achievement in general. Selection of design technology [13] depends on the willingness of teachers and students to implement blended learning. However, the use of Blended Learning Toolkit [14] recommended for use as teachers and students (for example, to design their own courses).

## **2.3 Implementation sample**

Let us consider implementing management models of e-learning in teaching discipline «Innovative methods, technologies and monitor the quality of e-learning», one of the four disciplines of professional training within the specialization «Management of e-learning».

Approximate basis for action to implement blended learning in the study of this discipline are presented in the form of e-learning courses developed on platform LMS Moodle. In a blended education context, Learning Management Systems (LMS) can be thought to integrate collaborative and interactive learning activities; this, however, requires a strong institutional and sociocultural commitment from all stakeholders.

Training material of discipline has a modular structure. The first module «Education policy in the field of ICT educational institution» is an overview of innovative educational technologies, trends and education policy of educational institution. As a result of the study module students make ICT development plan of the institution or its structural unit, present it to the group. This task belongs to the competence, combining educational, scientific activities of students as well as social and professional, as the analysis of the current state of the institution in terms of ICT use and development of the educational environment and proposals for the development of ICT policy is one of the tasks of teaching practice. In studying the second module «Educational technology and science communication» students with means of scientific communication explore issues of effective use of innovative educational technologies. The result of work is (group work) webinars on the use of educational technology in schools of various types. As part of the training webinars are held for students of educational groups, but prepared materials can be used for the training of teachers, particularly during the practical training. The third module «Fundamentals of educational design» includes tasks aimed at research on the design of the educational process with the use of innovative teaching and ICT technologies, and educational aspects of e-learning and the creation of information support. As a result, students develop study module design of particular topic (selected in accordance with the subject area in which the student specializes) by technology of blended learning. Thus students are offered freedom on the choice of methods, forms and tools (ICT tools) to implement their own project. Assessment of quality e-learning, and the development of criteria and evaluation of individual projects developed by students in the 3<sup>rd</sup> learning module, is in the process of work on the module «Monitoring and evaluation of the quality of e-learning». The results of learning and self-study students represent educational and scientific seminar (module control). As a result of mastering the module «Informal education and training» students are building a roadmap own self, developing materials for teachers on issues of e-learning. Expert assessment development of students is in the process of educational practice. Students also have the opportunity to take professional certification program Teaching with Technology, because the university has an authorized certification center CERTIPORT.

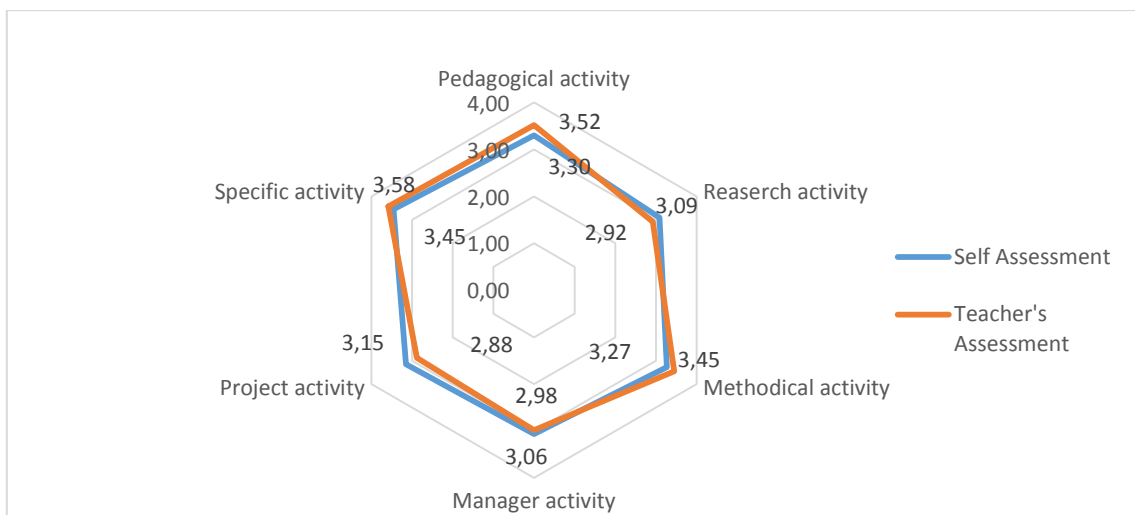
## **2.4 Learning outcomes**

Assessment of students' cognitive and communication skills in the process of mastering the discipline according to the developed model (Fig. 1) occurred by solving competency assignments, individual (e.g. creation of e-textbook for students) and collective (e.g. mapping of knowledge on certain topics) projects. Monitoring and evaluation components of the ICT competence held by online testing, and professional and specific by asking students performed at the beginning and at the end of the discipline.

The results of testing the level of ICT competence of students has increased by an average of 25 %. Entry level of professional and specific competences (self-evaluation of students) coincides with the control evaluation of teachers (conducted during the exam) and shows the quality training of masters (Fig. 2).

According to students that progress use technology of blended learning (80 %), most students prefer not deferred in time practical implementation (65 %) - the result of the use of inverted model of education; teachers opportunities to receive advice, including online (78 %); project work in small groups (70 %); peer to peer (70 %) and expert assessment (65 %). In their comments, the students expressed a high level of readiness to use ICT in their own careers (83 %).





**Fig. 2.** Level of students specific professional competencies (self-evaluation and evaluation of teachers, average values)

Source: own

## CONCLUSION

Analysis of the survey results shows the positive effect of a systematic approach to e-learning managers training by Blended Learning technology:

- likelihood of personal activity of students increases when students are involved to empirical activities based on their professional experience (work or practice in schools);
- combination of full-time and distance learning provides learning opportunities for each student according to the characteristics and pace of mastering educational material; available Internet connection is the only obstacle to obtaining relevant data;
- combination of formal and informal education provides personalized training when used inverted model of learning;
- competence performance of individual tasks and collective projects contributes not only professional competence but also the skills of the 21st century.

The introduction of e-learning as a subject of study and learning tool masters in conditions as close as possible to the profession leads to the fact that throughout the study, students are developing practical confirmation obtained educational results and system reflection of their own activities and have the opportunity to obtain expert assessment or consultation, cooperation and communication. Defining features of preparation of masters – the future managers of e-learning for different professions is the subject of further research.

## LITERATURE

- [1] NMC Horizon Report. [Online]. [Cit. 2017-03-16]. Available at: <<http://www.nmc.org/nmc-horizon/>>.
- [2] GAEBEL Michael, KUPRIYANOVA Veronika, MORAIS Rita, COLUCCI Elizabeth. *E-learning in European Higher Education Institutions: European University Association. Results of a mapping survey conducted in October-December 2013.* [Online]. [Cit. 2017-03-16]. Available at: <[http://www.eua.be/Libraries/publication/e-learning\\_survey](http://www.eua.be/Libraries/publication/e-learning_survey)>.

- [3] MORZE, Natalia, KUZMINSKA, Olena, PROTSENKO, Galina. Public Information Environment of a Modern University. In: *ICT in Education, Research and Industrial Applications: Integration, Harmonization and Knowledge Transfer. CEUR Workshop Proceedings*, p. 264-272. [Online]. [Cit. 2017-03-16]. Available at: <<http://ceur-ws.org/Vol-1000/ICTERI-2013-p-264-272.pdf>>.
- [4] MUZHIR Al-Ani. E-University Environment Based on E-management. *International Journal of Computational Engineering Research*. 05(04), p. 1-6. [Online]. [Cit. 2017-03-16]. Available at: <[https://www.researchgate.net/profile/Muzhir\\_Al-Ani/publication/275462223\\_E-University\\_Environment\\_Based\\_on\\_E-management/links/553cb6fd0cf29b5ee4b8aa06.pdf](https://www.researchgate.net/profile/Muzhir_Al-Ani/publication/275462223_E-University_Environment_Based_on_E-management/links/553cb6fd0cf29b5ee4b8aa06.pdf)>.
- [5] MORZE, Natalia, BALYK, Nadia, SMIRNOVA-TRYBULSKA, Eugenia. The analysis of foreign and domestic training programs for managers of e-learning. *EDUKACJA HUMANISTYCZNA: Pedagogium*, 2(31), p. 123-138. [Online]. [Cit. 2017-03-16]. Available at: <<http://wshtwp.pl/eh-2014-2/>>.
- [6] MORZE, Natalia, BUINYTSKA Oksana. Corporate standard of ICT competence of masters. *Informatsiini tekhnolohii v osviti*, 2014, vol. 19. p. 9-21. [Online]. [Cit. 2017-03-16]. Available at: <[http://nbuv.gov.ua/UJRN/itvo\\_2014\\_19\\_3](http://nbuv.gov.ua/UJRN/itvo_2014_19_3)>.
- [7] The eLearning Competency Framework for Teachers and Trainers. *EiFEL*, 2010. [Online]. [Cit. 2017-03-16]. Available at: <<http://www.eife-l.org/competencies/ttframework>>.
- [8] EL-MOWAFY, Ahmed, KUHN, Michael, SNOW, Tony. Blended learning in higher education. Current and future challenges in surveying education. In: *Special issue: Teaching and learning in higher education: Western Australia's TL Forum. Issues In Educational Research*, 23(2), 132-150. [Online]. [Cit. 2017-03-16]. Available at: <<http://www.iier.org.au/iier23/el-mowafy.html>>.
- [9] MAJUMDAR, Arunima. *Blended Learning. Different combinations that work*. [Online]. [Cit. 2017-03-16]. Available at: <<http://www.gc-solutions.net/blog/blended-learning-different-combinations-that-work/>>.
- [10] STAKER, Heather, HORN, Michael. Classifying K-12 Blended Learning. *Innosight Institute*, 2012. [Online]. [Cit. 2017-03-16]. Available at: <<http://files.eric.ed.gov/fulltext/ED535180.pdf>>.
- [11] VALCKE, Martin, DE WEVER, Bram, ZHU, Chang, DEED, Craig. Supporting active cognitive processing in collaborative groups: The potential of Bloom's taxonomy as a labeling tool. *Internet and Higher Education*, 2009, 12, p.165-172. [Online]. [Cit. 2017-03-16]. Available at: <<http://dx.doi.org/10.1016/j.iheduc.2009.08.003>>.
- [12] WIGGINS, Grant, MC TIGHE, Jay. *Understanding By Design*. [Online]. [Cit. 2017-03-16]. Available at: <[http://www.ascd.org/ASCD/pdf/siteASCD/publications/UbD\\_WhitePaper0312.pdf](http://www.ascd.org/ASCD/pdf/siteASCD/publications/UbD_WhitePaper0312.pdf)>.
- [13] TORRANCE, Megan. *Reconciling ADDIE and Agile*. [Online]. [Cit. 2017-03-16]. Available at: <[http://www.learningsolutionsmag.com/articles/display\\_article.cfm?id=1479&utm\\_campaign=ismag&utm\\_medium=link&utm\\_source=rss](http://www.learningsolutionsmag.com/articles/display_article.cfm?id=1479&utm_campaign=ismag&utm_medium=link&utm_source=rss)>.
- [14] Blended Learning Toolkit. [Online]. [Cit. 2017-03-16]. Available at: <<https://blended.online.ucf.edu/>>.

### Acknowledgement

The research leading to these results has received, within the framework of the IRNet project, funding from the People Programme (Marie Curie Actions) of the European Union's Seventh Framework Programme FP7/2007-2013/ under REA grant agreement No: PIRSES-GA-2013-612536 and statutory research.