ICT IN TEACHING ESP TO FUTURE CIVIL ENGINEERS AT TECHNICAL UNIVERSITY

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The paper analyses new technologies in teaching ESP to future civil engineers in their professional training. The research was held at the National Aviation University (Kyiv, Ukraine) and involved 86 second-year students majoring in "Civil Engineering" who study full-time. The distance learning profession-oriented course on the Moodle platform was applied in the experimental group as well as a set of intellectual games and brainstorming tasks. The study examined how students majoring in civil engineering perceive the implementation of ICT in the ESP learning environment and how these technologies improve students' ESP proficiency and their readiness for self-educationand lifelong learning. A student survey was held at the end of the experiment. The analysis of the responses in the questionnaire with open-ended questions revealed that students had positive perceptions of using different forms of ICT in the ESP classroom. After establishing the appropriate psychological and pedagogical conditions, the number of students in the experimental group having the productive and creative levels of readiness to use English in their professional activity have significantly increased compared to the control group. On-line learning enhanced students' motivation for self-study as well as improved their ESP proficiency.

Keywords: ICT; civil engineer; ESP; technical university; pedagogical conditions; Moodle; educational system; professional training.

Introduction

The dramatic changes taking place in the world and the crisis in educational systems require critical transformations in the paradigm of education, the principles of the organisation of the educational process, its content, and teaching methods. To meet the challenges of the modern world, higher technical educational institutions have to enable students to be creative and innovative, to think critically, to be able to solve problems, to learn and work collaboratively in positive working environments (Živković, 2016, p. 199). Nowadays higher education institutions that train future civil engineers tend to the advanced and innovative development of engineering education, trying to provide appropriate conditions for their successful professional development, further self-affirmation as well as career growth.

In addition, it is extremely important to create a computer-mediated learning environment that will encourage students' success. The priority for education is the introduction of modern information technologies, which ensure accessibility and effectiveness of future civil engineers' education. The training of civil engineers is a social and pedagogical system, aimed at forming the values of future specialists for their professional and personal development and self-improvement. Therefore, the purpose of a modern higher technical educational institution is to train the intellectual and creative elite having scientific, analytical and organisational knowledge, as well as being able to develop and master new technologies using a foreign language in a multicultural environment, to change the types and forms of activity without decreasing its effectiveness (Mikhnenko, 2016, p. 5), i.e., to show the high level of formation of the integrative quality of a personality called professionalism. Thus, the problem of the professional training of future civil engineers is vital both for the entire world and Ukraine.

One of the vital elements of a modern engineering education strategy is creating a new image of a graduate: an intelligent and broad-minded person, who has acquired the appropriate professional knowledge and practical skills and is able to make technically sound and environment-friendly decisions at any stage of the engineering activity. Civil engineers have to be able to adapt quickly to the rapid changes occurring in their professional lives, which requires lifelong learning for self-improvement and development of their professional competence. Thus, they must be well-educated, well-trained and practice competently, and this

must continue through their whole engineering career (Greenwood, 2011). Furthermore, in the era of globalisation and European integration, the role of English language acquisition is increasing for these specialists as well. Future civil engineers have to be acquainted with innovative projects and inventions in civil engineering, apply foreign experience in their professional activities, establish relations and maintain business contacts with foreign partners and take part in professional communication using the English language. This can be realised by means of a content-based curriculum, which involves studying English by concentrating on the specialised subject matter and applying authentic teaching materials (Živković, 2016, p. 199). The aforementioned requirements reveal the importance of learning English for Specific Purposes (ESP) by future civil engineers concentrated more on language in context than on learning grammar and language structures and where the goal of the learners is to use English in a particular domain (Williams, 2014, p. 137). Thus, the ESP course at a technical university is aimed at assisting students to be able to use English in future professional settings.

After investigation of the regulatory framework for higher education, we conclude that the professional training of future specialists is implemented in the educational system. We consider the educational system of the technical university as an integrally organised system, which allows revealing and forming personal qualities of future civil engineers required in the current global transformations; and as a set of conditions for developing students' professional competence in the unity of their professional and cultural development.

Having studied the current state of the future civil engineers' training at ESP classes at the National Aviation University, we have identified the following problems: a) the teaching materials that are available nowadays do not fully meet the modern requirements in ESP (Civil Engineering); b) the insufficient use of innovative technologies while teaching ESP aimed at stimulating students' activity and developing the required key competences; and as a result c) insufficient English communication skills for successful professional activity. The modern society demands competent civil engineers, ready to communicate effectively in international teams, work with technical documents and regulations written in a foreign language, use information resources to obtain the necessary information and apply it appropriately require the search for the effective technologies for improving the efficiency of the educational process at a technical university, since the quality and high qualification of future civil engineers, their professional competence and mobility, which are the factors of rapid economic growth of any country.

One of the effective technologies able to improve the civil engineers' training is the intensive use of Information and Communication Technologies (ICT) in the educational process both in the classroom and for self-study. The 21st century classroom needs students to face real-world problems that engage them in getting the following vital skills – communication, creativity, innovation, collaboration, problem-solving and critical thinking. By applying these skills students will be able to gain knowledge, be competent and productive communicators, successful collaborators, independent and inventive thinkers, problem solvers and career experts (Živković, 2016, p. 199). ICT is an excellent source to provide access to authentic materials according to students' needs. Živković (2016) states that "Internet-generated materials can be flexibly arrayed to engage students with topics and cognitive tasks relevant to students' professional futures" (p. 199). If ICTs are used appropriately, they are able to add significance and value to ESP learning since they have the potential to increase students' motivation for learning. ICT is an example of digital mediating technology, which is an instructional tool to provide more exciting and efficient learning environment (Drigas & Charami, 2014, p. 6).

In this system, university teachers are key persons for implementing the ICT use and adapting the learning environment to an e-learning platform. Thus, they play a significant role in curricular transformations, integrating ICT into the educational process and adapting students to lifelong learning in a networked world where knowledge is vital (Soydal, Alır, & Ünal, 2012, p. 282).

The purpose of the paper is to analyse the features and advantages of using ICT while teaching ESP to civil engineers in an educational environment of the technical university. The tasks needed to implement the purpose are the following:

1) to analyse the necessity of using ICT in ESP teaching to enhance students' English language proficiency and make the educational process more efficient through the integration of foreign language learning with professional training;

2) to define the characteristic features in teaching ESP using Moodle platform at a technical university;

3) to determine the pedagogical conditions for developing future civil engineers' readiness to use English in their professional activity by applying ICT in ESP teaching and to check the effectiveness of the implementation of these pedagogical conditions.

Methods

While researching the use of ICT in teaching ESP to future civil engineers in the system of their professional training at a technical university, a set of methods was used: a) *theoretical methods*: a systematic and comparative analysis of psychological and pedagogical, methodical, scientific and technical literature on the research issues; an analysis of existing teaching materials used to train future civil engineers (curriculum, plans, tutorials, textbooks, audio- and video materials, etc); interdisciplinary synthesis; systematisation of theoretical data, etc; generalisation of pedagogical experience for making conclusions and recommendations for the efficient use of ICT in in ESP classroom of technical university, etc.; b) *empirical methods*: tests, questionnaires, interviews, participant observation in the educational process,

The research was held on the basis of the National Aviation University and enrolled 86 undergraduate students majoring in "Civil engineering".

The pedagogical experiment was conducted in two stages. At the first stage we aimed at determining the state of the problem by using tests, questionnaires and interviews as well as analysing documentation, teaching materials and methods, considering the results of final tests, credits, examinations, self-study of civil engineers. The analysis of the results showed the inadequate English communication skills for the effective professional activity and revealed its causes: insufficient English level of the first-year students after school; insufficient knowledge of specialised subjects; a small amount of hours for classroom work; students' inability to organise their self-study appropriately by distributing time and efforts for preparation; lack of motivation; the prevalence of reproductive work in ESP classrooms; lack of ICT in teaching ESP, etc.

The introduction of reasonable pedagogical conditions to improve students' English language proficiency in the system of higher engineering education and stimulate them for lifelong learning involved the implementation of the second (formative) stage of the experiment.

1) enhancing students' internal motivation to intellectual activity and further self-education;

2) content and language integrated learning (CLIL);

3) developing and implementing multilevel tasks in the educational process using ICT ;

4) changing roles of a teacher and a student: a teacher becomes a tutor and students are engaged in active learning due to the use of ICT and interactive teaching methods.

The implementation of pedagogical conditions required a fundamental change in the methodological and pedagogical approaches to the organisation of the educational process in ESP classes, the transfer to problem-based learning. We took into account the fact that the system of higher professional education could help students master creative ways of solving professional and life problems, develop critical thinking skills, and reflection. To determine the level of students' motivation, we used the survey method (including psychological tests, questionnaires, interviews with students). We developed a multilevel complex of exercises based on using business games, case-study method, projects, brainstorming and discussions.

At this stage two groups were formed: an experimental group (EG) included 43 second-year students and a control group (CG) included the same number of students majoring in "Civil Engineering" who study full-time. The CG students were taught using traditional teaching methods. Other conditions for both groups were approximately the same: the English level; the number of students in the groups; the higher educational institution; topics of the syllabus and hours for classroom study and self-study.

To check the effectiveness of the proposed pedagogical conditions the following criteria were identified: 1) motivational; 2) operational; 3) organisational and technological; 4) social and personal.

According to these criteria the following levels of students' readiness to use English in their professional activity and self-education were determined: *reproductive* (insufficient motivation for education, future profession and ESP learning, low English level (A2 and less) and communication uncertainty to speak English, inability to solve non-standard professional tasks in English, low self-esteem, etc.), *productive* (extrinsic motivation, responsibility, awareness of the importance of speciality and foreign language communication skills, average level of the English language proficiency, readiness to solve non-standard problems in the professional environment using English, the need for constant professional self-improvement), and *creative* (intrinsic motivation in learning, cognitive motives, ability to solve standard and non-standard tasks creatively in English, ability to process information, high level of the English language proficiency, ability to change quickly the types and forms of intellectual activity, ability to solve problems independently and strong desire to use ICT in self-education).

Results

The research was carried out to examine how students majoring in civil engineering perceive the implementation of ICT in the ESP learning environment and how these technologies improve students' ESP proficiency and their readiness for lifelong learning. To check the pedagogical conditions for improving

students' English language proficiency and stimulating them for lifelong learning, we used pedagogical technologies for intensifying students' activities based on applying ICT in the ESP classroom. Moodle platform was actively used during experimental teaching (see also Dougiamas & Taylor 2003; Rice, 2006; Smyrnova-Trybulska et al., 2015). However, the analysis of previous research on the problem has shown that still there is a research gap in organising ESP classroom activities as well as self-study work of future civil engineers by means of ICT. We have developed a diagnostic tool that combines psychological and pedagogical techniques; a set of on-line tests for identifying the existing level of students' knowledge as well as a questionnaire to study students' attitude to ICT use in learning ESP.

We have also developed a distance learning profession-oriented course on Moodle platform for students majoring in Civil Engineering and a set of intellectual games and brainstorming tasks in addition to the modules in our textbook "Professional English of the Construction Industry" used in the classroom work by students majoring in "Civil Engineering" at the National Aviation University. This course includes the following modules: "Building Materials", "Elements of Architectural Constructions", "Types of Constructions", "Airport Design. World-famous Airports". All modules include reading comprehension tasks, listening, language in use, glossary, writing and a quiz or final test.

As an example, the module entitled "Airport Design. World-famous Airports", includes:

1) reading activity (the text entitled "Airports-Trailblazers", tasks "Multiple Choice", "True/False Statements", "Matching Terms and Definitions");

2) video watching ("London Heathrow Airport" taken from National Geographic Channel, tasks "Multiple Choice", "Short Answer");

3) language in use;

4) a glossary (a very productive resource assisting in giving definitions to the terms);

5) a forum;

6) a quiz.

Students worked in two modes while doing the course: a learning mode and a testing one. The learning mode gave them the possibility to see the correct answers after completing the task and to correct themselves. In the forum students could share their opinions and impressions about the course, indicating the most interesting activities and giving recommendations for others. One of the advantages of the online course was the possibility of self-correction while performing the learning mode, so the important individual approach was applied. Moreover, the students usually treated the performance of the online course tasks as a game, which was entertaining and differed from traditional activities in the textbook. Taking an online course is an interactive process aimed at stimulating each student engaged in the course to an independent problem-solving and self-education. Another advantage of the course was the possibility for the teacher to control students' self-study, and in such a way to manage and administrate groups containing a lot of students. This is especially valuable in the conditions of increasing hours for self-study and decreasing hours for classroom work.

This system has a wide range of components; due to the modular structure, the decision to use any of them was made when a particular course was being studied. This provides flexibility – we have the possibility to start using the system from any component (e.g., a forum, a glossary, a lesson, etc.) but gradually add other components.

To study students' attitude to ICT use in learning ESP, a questionnaire was created and applied at the end of the experiment in the experimental group. The analysis of the responses in the questionnaire with open-ended questions revealed that students had positive perceptions:

– students were enthusiastic about learning in a digital classroom; they had high motivation to complete online ESP course; they were interested in the proposed ESP activities *(motivational component)*;

– respondents could express their own ideas and be active in forming new understandings; they had the opportunity to promote originality and inventiveness, the skills required for their future career; they could use various idea creation techniques (e.g. brainstorming); they could demonstrate different ways of solving the problems; they were given autonomy in the classroom; they could choose their own way for demonstrating results; they could debate their ideas freely; ESP classes based on ICT enhanced students' professional knowledge and prepared them for effective professional communication; they could apply the acquired knowledge in more effective manner *(operational component)*;

– students admitted that modern ICT is one of the best ways to acquire new knowledge as these technologies assisted in active learning; the Internet is an excellent source to provide students with up-to-date authentic materials according to their needs and interest; the diverse on-line courses and materials comprised topics and cognitive tasks relevant to their future profession; they improved their understanding how to use computers and Internet effectively in the ESP classroom; ICT encouraged students to be responsible for and

control their own learning process; ICT assisted in developing students' presentation skills *(organisational and technological component)*;

– participants worked together to achieve their common goals (while working on the project); they had an excellent opportunity to share their experiences with other students; they acquired team-building skills by performing group activities; they could work together to intensify learning and to accomplish shared goals; their self-esteem and self-confidence increased after successful tasks performance *(social and personality component)*.

The results presented in Table 1 show that the level of students' readiness to use English in their professional activity was relatively similar in the EG and the CG at the beginning of the experiment. However, after creating the appropriate psychological and pedagogical conditions, the number of students in the EG having the productive and creative levels have significantly increased compared to the students of the CG, while in the CG there was the slight positive dynamics. The most significant changes in the EG were in the indicators of the motivational component (the reproductive level changed from 74.60 to 14.29, and creative level increased from 07.94 to 33.33) and organisational and technological components (the number of students with reproductive level decreased from 50.80 to 06.36 and the amount of respondents having creative level rose from 14.28 to 39.53).

Table 1

**Levels of students' readiness to use English in their professional activity
before and after the formative experiment, %**

Components	Groups Type	Level (from lowest to highest ⟶)					
		Reproductive		Productive		Creative	
		Before the experiment	After the experiment	Before the experiment	After the experiment	Before the experiment	After the experiment
Motivational	**EG**	74.60	14.29	17.46	52.38	07.94	33.33
	CG	79.36	66.68	14.30	20.63	06.34	12.69
Operational	**EG**	55.55	12.70	25.40	44.44	19.05	42.86
	CG	63.49	46.03	20.63	30.15	15.88	23.82
Organisational and technological	**EG**	50.80	06.36	34.92	54.11	14.28	39.53
	CG	58.74	36.50	28.57	39.70	12.68	23.80
Social and personal	**EG**	73.02	30.16	15.87	38.09	11.11	31.75
	CG	77.78	61.90	12.70	22.22	09.52	15.88

In fact, students learn more effectively when they are actively engaged in classroom activities and self-study process by having discussions, interacting with peers and teachers, analysing and critically evaluating information. These skills are highly required for their future professional activity. The results have shown that students have very positive attitudes towards ICT and their use in the learning environment.

Discussion

Embedding ICT tools in the effective ESP learning environment increases the potential to support insights into an innovative teaching and learning approach based on communication, interaction and collaboration (Živković, 2016, p. 199). The use of ICT while teaching ESP enables us to combine hard copy, graphics, video, audio recording and other visual aids. All types of activities are performed simultaneously, so information is learned more quickly and provokes higher interest. Being aimed at helping students to use a language for future professional activities, the ESP course is realised by means of a content-based curriculum, where students learn English by focusing on their specialism and using authentic materials. The Internet is an excellent source for providing authentic materials according to students' needs and a useful tool for creating a more versatile and more exciting learning environment.

While creating the course we took into account the results of the research of Horvat, Dobrota, Krsmanovic and Cudanov (2015) who investigated students' perception of quality characteristics of the Moodle learning management system and their satisfaction by the course according to these characteristics and sorted out the most important ones for our target group: the time needed to use the Moodle application; material volume, thoroughness and clarity; cooperation diversity; user-friendliness of the website; response time and feedback quality.

The following main features of Moodle system have been determined during our study, some of which were also noted by other researchers:

1. It gives the teacher wide opportunities for placing electronic learning materials that allow them to adjust the course to the requirements of the programme. The ability to involve cloud technologies facilitates this process as well (Mosiiuk & Minhalova, 2017, p. 170). Thus, the teacher creates a common information environment for the student within ESP discipline.

2. It provides the possibility of mutual communication between the students learning the course, and between the students and the teacher by using the synchronous mode (the participants of communication have to access the network simultaneously and use Chat, Internal messaging system, etc.) or the asynchronous mode (simultaneous access to the network is not required; contact is made using the Forum, e-mail, Task, Journal (Smyrnova-Trybulska, 2015, p. 231).

3. It includes multimedia electronic learning resources which increase the efficiency of the formation of students' language skills in the process of teaching ESP due to the influence of graphic and verbal stimuli that contribute to the design of their visual and auditory types of perception (Avramchuk, 2015, p. 103).

4. It stores the works performed by the students, the results of the discussion forums, the questions and the answers provided by them. At the end of the course, there is a peculiar "portfolio" of the whole group as well as of each participant of the course.

5. It provides special tools for ongoing monitoring and evaluation of the achievements of each participant and for getting the feedback after learning a definite topic.

6. It provides the opportunity to analyse the activity of any student engaged in the course, the time they have spent on learning the materials; to assess what elements of the course have been the most difficult for a group (or an individual student); to respond quickly to problems that arise.

Although the investigation made by Dogoriti, Pange and Anderson (2014) into the use of social networking sites (e.g. Facebook) and learning management systems (e.g. Moodle) in ESP teaching in higher education has demonstrated the students' preference for informal course discussions through social networks rather than the learning management systems, we conclude that the use of the platform of the learning management systems can provide better learning results due to the controlled educational environment where learners have to complete their assignments. However, the use of social networks in the learning process can be beneficial.

While using ICT in teaching future civil engineers at technical university, we have identified the following advantages:

− individualisation of training while preserving its integrity due to the flexibility of automated learning programmes, i.e. the possibility of adapting the educational process to the needs of a particular student, that gives students an opportunity to demonstrate independent research qualities;

− possibility to build an open education system that provides each student with their own trajectory of studying and self-education;

− creation of an effective system to manage the information and methodological support of the educational process;

− ability to communicate via the Internet with any person, regardless of their location;

− availability of ICT at any place and any time;

− simulation of the language environment.

We totally support Tan (2014) in that the use of ICT has changed the roles a teacher and a student in the educational process: the former is transformed from a translator of knowledge into a moderator of students' intellectual activity, the latter becomes an active participant able to transform information and perform intellectual activity. Teachers must complete the move from being lecturers to becoming organisers. It will become crucial for them to encourage students' critical thinking skills, promote information literacy, and introduce collaborative working practices to prepare students for their future professional activity (p. 643).

Thus, ICT is a powerful factor in motivating education and professional development of future civil engineers within the educational system of the technical university. On the one hand, they help reveal the importance of professional tasks, increase the relevance and novelty of the content of learning, since electronic learning materials can be constantly added and updated. On the other hand, ICT meets the intellectual interests of modern students who perform several tasks on mobile devices simultaneously (e.g., communicate with friends, search for information, and listen to music).

Conclusions

The necessity of using ICT in ESP teaching follows from the advantages they provide: individualisation of training; possibility to build an open education system; increase of students' motivation and others. Moodle system has been suggested as a valuable tool which provides an opportunity to organise the educational process including means of training, a system for monitoring and assessing students' learning.

We have determined pedagogical conditions for developing future civil engineers' readiness to use English in their professional activity and continue self-study by applying ICT in ESP learning: 1) development of students' internal motivation to intellectual activity and further self-education and self-improvement by using ICT; 2) integration of ESP learning and professional training of future civil engineers and activation of their cognitive and intellectual activity by using ESP distance learning courses and other ICT tools; 3) change in the function of a teacher and a student in the educational process. To check the effectiveness of the pedagogical conditions the main components and criteria, indicators and levels have been specified.

In our future research we intend to develop the methodological guidance on using Moodle in teaching ESP to civil engineers; also we are planning to implement this experience at Kirsehir Ahi Evran University in the related departments.

References:

Avramchuk, A. (2015). Ohliad dodatkiv systemy Moodle dlia proektuvannia multymediinykh elektronnykh osvitnikh resursiv z movnykh dystsyplin [Review of Moodle Plugins for Designing Multimedia Electronic Educational Resourses from Language Disciplines]. *Informatsiini Tekhnolohii i Zasoby Navchannia, 48 (4),* 103-121. Retrieved October 29, 2018 from http://nbuv.gov.ua/UJRN/ITZN_2015_48_4_9

Dogoriti, E., Pange, J., & Anderson, G.S. (2014). The use of social networking and learning management systems in English language teaching in higher education. *Campus-Wide Information Systems, 31 (4),* 254-263. https://doi.org/10.1108/CWIS-11-2013-0062

Dougiamas, M., & Taylor, P. (2003) Moodle: Using Learning Communities to Create an Open Source Course Management System. In *World Conference on Educational Multimedia, Hypermedia and Telecommunications (EDMEDIA)* (pp.171-178). Chesapeake, VA: USA. Retrieved October 29, 2018 from https://research.moodle.net/33/

Drigas, A., & Charami F. (2014). ICTs in English Learning and Teaching. *International Journal of Recent Contributions from Engineering, Science and IT (iJES), 2(4),* 4-10. Retrieved October 29, 2018 from http://online-journals.org/index.php/i-jes/article/view/4016/3326

Greenwood, P. (2011). Mobility of Engineering Professionals. *Up-dated information paper on mobility prepared for WFEO Standing CEIE.* Retrieved September 29, 2018, from http://www.enaee.eu/wp-assets-enaee/uploads/2012/03/MobInfPupdateVDec.2011.pdf.

Horvat, A., Dobrota, M., Krsmanovic, M., & Cudanov, M. (2015). Student Perception of Moodle Learning Management System: a Satisfaction and Significance Analysis. *Interactive Learning Environments, 23(4),* 515-527. https://doi.org/10.1080/10494820.2013.788033

Mikhnenko, H. E. (2016). *Formuvannia intelektualnoi mobilnosti maibutnikh inzheneriv v umovakh osvitnoho seredovyshcha tekhnichnoho universytetu [The Formation of Intellectual Mobility of Future Engineers in a Technical University Educational Environment].* Unpublished PhD's dissertation, National Aviation University, Kyiv, Ukraine. Retrieved February 18, 2019 from http://er.nau.edu.ua:8080/handle/NAU/18183

Mosiiuk, O. & Minhalova, Yu. (2017). LMS Moodle yak prohramna skladova orhanizatsii zmishanoho navchannia studentiv informatsiinym ekhnolohiiam [Moodle LMS as a Software Component of the Blended Learning Students of Information Technology]. *Naukovyi Visnyk Uzhorodskoho Universytetu. Seriia: "Pedahohika. Sotsialna Robota", 1 (40),* 168-171. Retrieved October 29, 2018 https://dspace.uzhnu.edu.ua/jspui/handle/lib/15262

Smyrnova-Trybulska, Ye., Švec, P., Tomanová, J., Drlík, M., Cápay, M., Malach, J., Kostolányová, K., & Chmura, M. (2015). Open Educational E-environment as Factor of Expanding Educational Offer and Increasing Quality of Education. In N. Morze & Ye.Smyrnova-Trybulska (Eds), *Open Educational E-environment of Modern University* (pp. 207-241). Kyiv, Ukraine: Borys Gricnhenko Kyiv University. https://doi.org/10.28925/2414-0325.2015.1.20741

Soydal, I., Alır, G., & Ünal, Y. (2012). Are Turkish universities ready for e-learning: A case of Hacettepe University Faculty of Letters. *Information Services & Use, 31,* 281-291. https://doi.org/10.3233/ISU-2012-0659

Rice W. H. (2006). *Moodle : E-Learning Course Development.* Packt Publishing: Birmingham.

Tan, X. (2014). Cloud Computing for Education: A Case of Using Google Docs in MBA Group Projects. In *BCGIN'11 Proceedings of the International Conference on Business Computing and Global Informatization* (pp. 641-644). Washington, USA: IEEE Computer Society.

Williams, C. (2014). The Future of ESP Studies: Building on Success, Exploring New Paths, Avoiding Pitfalls. *Intersections - l'anglais de spécialité, creuset multidomaine, 66,* 137-150. https://doi.org/10.4000/asp.4616

Živković, S. (2016). The ESP Technology-Supported Learning Environment. *European Journal of Social Sciences, Education and Research, 3,* 199-206. Retrieved October 29, 2018 from http://journals.euser.org/index.php/ejser/article/view/842/831