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Contents

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Editorial

Modern science undergoes enormous changes and transformations. Science 2.0 is a term used to refer to processes, trends, and phenomena related to the use of new technologies, and information and communication technologies in science, in particular tools, services, and online resources. This trend stresses the benefits of increased collaboration and cooperation between researchers and scientists. However, it refers primarily to the consequences of using these technologies. The authors of this volume analyse and discuss some important topics and try to find the answers on current research questions.

This volume includes seven articles gathered in four chapters. Chapter I – "Evaluating the Effectiveness of Teaching Information Systems Courses" – includes an article entitled "Evaluating the Effectiveness of Teaching Information Systems Courses: A Rasch Measurement Approach" prepared by Allaa Barefah and Elspeth McKay, researchers from the RMIT in Melbourne, Australia. In their paper, the authors stress that systems analysis and design (SAND) is an information systems course that is taught around the world in most higher education management of information systems programmes. However, the theoretical nature of this type of course presents challenges for instructors as they devise instructional strategies to convey the abstract concepts that are necessary for their students to understand, such as, how to draw data flow diagrams to correctly represent the informational specifications of an IS. Evidence suggests that one of the factors of the low success rates of many information systems design projects in the workforce is due to the graduate recruits' failure to acquire basic SAND knowledge. While a considerable amount of literature focused on integrating technology into the teaching practices to facilitate the knowledge acquisition, a few investigated its effectiveness to fulfil this particular purpose. This paper reflects on such challenges and proposes an evaluation approach to assess the effectiveness of technology integration in teaching an information systems course like SAND. The empirical interpretations represented in this paper are gathered through a series of quasi-experimental 2x3 factorial experiments that were conducted at four higher education institutions and based on the Rasch item response theory and measurement analysis. The preliminary analysis from this study provides reliable evidence to delineate key

instructional strategies when designing higher education information systems courses.

Chapter II, "ICT Literacy and Intercultural Competencies Development," includes two manuscripts. The authors of the article "The Impact of Online Services on Developing Students' Media Competence" are Irina Simonova, Tatiana Ustiugova, and Olga Yakovleva from the Herzen State Pedagogical University of Russia, Saint Petersburg. In this article, the authors describe their experience of introducing students to online services for developing electronic educational resources with multimedia content. The sample of research included pedagogical education students from different years of first degree (bachelor) studies. The article presents the results obtained in the Herzen State Pedagogical University of Russia. The authors developed an e-environment for a training module, with all the content and interaction algorithms. In the experiment, the authors measured various indicators of students' media competence development: informational, perceptual, motivational, contact, and interpretation (based on A. V. Fedorov's approach). After students had studied the proposed module, the analysis of their projects were made. The other paper, entitled "Internet Blogs' Potential in Education" was prepared by the authors Kateryna Poznanska, Maryna Romaniukha, and Liudmyla Sorokina from the Dniprodzerzhinsk State Technical University, Ukraine. This paper is devoted to general aspects of an Internet blog as an educational instrument and its prospects in education. The authors touch upon the connection between demographic challenges and the current educational trends, showing the main skills of Generation Z. A blog as a teaching tool can be broken down into a number of categories. The paper also discusses in short a few popular blogging platforms.

Chapter III – "Methodological Aspects of E-learning Implementation" – includes two manuscripts. The first paper, entitled "Use of Information Technologies in Upper Secondary Education – Practical Inspirations from Karol Miarka Upper Secondary School Complex No. 2 in Pszczyna," is elaborated by Natalia Maria Ruman from the University of Silesia in Katowice, Faculty of Ethnology and Educational Science in Cieszyn, Poland. In the foreseeable future multimedia will not replace natural teaching tools. However, there are a number of didactic situations where the use of indirect forms of reality description is advisable or even necessary. The article aims to present elementary pedagogical practice in the field of contemporary learning technologies and to show the creative quest and reflexive enrichment of the pedagogical style of teaching, in which particular skills are used. The presented problems contribute to future research into the analysis of teachers' skills development in terms of the use of computer programmes in school management. What presents a challenge to the Digital School is education in cyberspace, e-learning, new technologies and solutions, accompanied by simultaneous prevention of media-related risks. Schools need to keep abreast of the rapidly changing reality – only in this way can they produce beneficial educational results for society in the 21st century. The authors of the second article, "The

Influence of Personality on the Peculiarities of Going through Professional Crises in Workers of Trading Companies," are Olga Filatova and Nikolay Shamanin from the Vladimir State University named after Alexander and Nikolai Stoletovs, Russia. The article is devoted to the study of professional crises and their conditioning with the qualities of a person. The article presents the results of an empirical study of the influence of personal qualities on professional crises of employees of trading companies. It is assumed that in the process of professionalisation employees of trading companies go through a crisis of professional growth. Personality qualities influence the degree of dissatisfaction with basic needs and the level of general social frustration. During the crisis of professional growth, different qualities of a person, such as dominance, high intellect, normative behaviour, courage, as well as sensitivity, dreaminess and anxiety, radicalism and nonconformism, are influenced. This influence affects almost all the basic needs and spheres of life of employees of the trading company: the need for security and self-expression, and social needs, which are manifested in discontent with the relationships with people, their social-economic status, and social status. A particular influence on the transactions in the group of subjects is provided by such personality traits as anxiety, suspiciousness, and intellect. Depressiveness, bad mood, and gloomy feelings intensify the crisis of professional growth, provoking discontent with relations with colleagues. Due to the developed intellect, employees of trading companies feel the discontent with the level of wages more sharply, which intensifies the crisis of professional development.

Chapter IV – "Reports" – contains two articles. "Report on the Implementation of Work Package 6 'Implementation of Methodology' in the Framework of the IRNet Project," prepared by an international team of researchers from different scientific areas connected with ICT, e-learning, pedagogy, and other related disciplines, focuses on the objectives and some results of the international project IRNet (www.irnet.us.edu.pl). Eugenia Smyrnova-Trybulska (Poland), Josef Malach and Kateřina Kostolányová (the Czech Republic), Nataliia Morze (Ukraine), Piet Kommers (the Netherlands), Tatiana Noskova (Russia), Paulo Pinto (Portugal), Sixto Cubo Delgado (Spain), Martin Drlík (Slovakia), Tomayess Issa (Australia), and Maryna Romanyukha (Ukraine) describe, in particular, research tools, methods, and a procedure of the Work Package 6 "Implementation of Methodology," that is, objectives, tasks, deliverables, publications, and implementation of research trips in the context of the next stages and Work Packages of the IRNet project – International Research Network. The final paper, "Report from the International Scientific Conference DLCC2017 in Cieszyn and Katowice, Poland, 16–17 October 2017" is elaborated by Eugenia Smyrnova-Trybulska, Maria Stec, and Anna Studenska. It is devoted to the 9th edition of the International Scientific Conference DLCC2017: Theoretical and Practical Aspects of Distance Learning (www.dlcc.us.edu.pl), with the theme "Effective development of teacher's skills in ICT and e-learning" and reports from the IRNet project. The conference was

held on 16–17 October 2017 in Cieszyn and Katowice. It was organised by the Faculty of Ethnology and Educational Science at the University of Silesia in Cieszyn with cooperation of ten other universities and organisations. More than sixty researchers from ten countries and more than twenty universities participated in this conference. It is worth noting that the conference favoured exchange of experiences, strengthening international cooperation, common problems solving, implementing innovative methodologies, and creating a global educational space. During the conference, numerous themes were discussed: further directions in international cooperation, new common scientific and didactic projects, and internalisation of development in the conditions of digitalisation and globalisation. More information concerning the conference can be found on the website www.dlcc.us.edu.pl

Eugenia Smyrnova-Trybulska

1

Evaluating the Effectiveness of Teaching Information Systems Courses

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Allaa Barefah, Elspeth McKay
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Evaluating the Effectiveness of Teaching Information Systems Courses: A Rasch Measurement Approach

Abstract

Systems analysis and design (SAND) is an information systems (IS) course that is taught around the world in most higher education management of information systems (MIS) programmes. However, the theoretical nature of this type of course presents challenges for instructors as they devise instructional strategies to convey the abstract concepts that are necessary for their students to understand, such as, how to draw data flow diagrams (DFD) to correctly represent the informational specifications of an IS. Evidence suggests that one of the factors of the low success rates of many IS-design projects in the workforce is due to the graduate recruits' failure to acquire basic SAND knowledge. While a considerable amount of literature focused on integrating technology into the teaching practices to facilitate the knowledge acquisition, a few investigated its effectiveness to fulfil this particular purpose. This paper reflects on such challenges and proposes an evaluation approach to assess the effectiveness of technology integration in teaching an IS course like SAND. The empirical interpretations represented in this paper are gathered through a series of quasi-experimental 2x3 factorial experiments that were conducted at four higher education institutions and based on the Rasch item response theory and measurement analysis. The preliminary analysis from this study provides reliable evidence to delineate key instructional strategies when designing higher education IS courses.

K e y w o r d s: systems analysis and design, courseware design, higher education, Rasch model, instructional design, information communications technology tools

Introduction

Around the world, the undergraduate information systems (IS) course – usually called "Systems Analysis and Design" (SAND) – is taught as a core unit in most higher education Management of Information Systems (MIS) programmes (Topi et al., 2010). SAND provides students with an introduction to fundamental IS-design knowledge and skills for developing high-quality IS. The course has emerged within higher education to accommodate the industry sector's need for informed graduates (Kock, 2006). Since business organisations have been deeply affected by the technological advancements, the sector acknowledges the need for informed IS analysts/developers (Kock, 2006). This view of such professional practice is reflected in how universities design their information technology (IT) courses and other academic programme offerings. However, the Standish Research Group (The Standish Group, 2004) reported students' failure to acquire basic knowledge, concepts, and SAND processes, which was one of the major factors of the low success rates of many IS development projects. In this paper, we are proposing that this failure is in part due to the lack of sound instructional course development pedagogies.

An investigation of the literature has revealed that teaching SAND material was challenging for many reasons. Firstly, due to the theoretical nature of the course content, it is difficult for instructors to engender the students' interest in the course materials (Rob, 2006). In other words, it is not easy to teach a SAND course using hands-on activities like the ones that the students may have already encountered in other IS-related higher education courses, such as programming or database (Rob, 2006). Secondly, it is difficult to teach the course for students who may lack the practical industry sector experience that provides an insight into essential areas covered in SAND (Cybulski & Linden, 2000). Thirdly, it is crucial to ensure that the educational objectives of the course are in line with current industry demands and emerging market trends that reflect the constantly changing nature of technology (Fatima & Abdullah, 2013). However, there have been developments towards improving the instructional strategies that are adopted for SAND instructors have been trying to develop innovative ways to include the disparate knowledge domains required in this course pedagogy. Various approaches and techniques have been used to facilitate the teaching of SAND that include: problem-based learning, project-based role-playing, and group-based techniques. The most recent instructional approaches are web-based learning, educational games, and simulations, which show great potential in improving the SAND pedagogies by providing the industry's experiential user-view. Thus, this pragmatic knowledge-development model was chosen to: generally improve the pedagogies employed to achieve the instructional outcomes, based on a scientific systematic approach; bridge the industry–university gap, between workplace

reality and theoretical positions taken by academe; and test the effectiveness of technology enhanced learning to enable the necessary knowledge acquisition and skills development to be correctly monitored. More specifically, this research aimed to investigate the extent of information communications technology (ICT) tools that were used to support the teaching of IS courses and enhance the graduates as they impart this knowledge when they graduate.

This paper describes an on-going doctoral research study and presents its preliminary findings. The following section of this paper presents the proposed prescriptive IS-design model followed by a description of the study's instruments, including the design of the eTutorial module that was used to represent the instructional content used for the experimentation. The next section details the experimental approach adopted for data collection leading to the final section, which briefly describes the key preliminary findings. The paper closes with a conclusion.

The Prescriptive Information Systems Design Model

To facilitate the decision on an effective course delivery mode when teaching SAND, a prescriptive IS-design model was developed drawing on Branson, Rayner, Cox, Furman, & King (1975) instructional design (ID) model. Essentially, it incorporates all core IS-design stages, which involve: analysis, design, development, implementation, and evaluation (Figure 1). We believe that this model proposes a systematic validation procedure conducted to rectify the fidelity of practical aspects during the implementation and evaluation stage. The validation process commences with the plan of the required change in the instructional environment, followed by execution of the methodology, observation of the results, preliminary data analysis, instruments refinement, results-recording, and critical reflection on the subsequent outcomes. This orderly IS-design pattern documents the necessary practical delineations for the effective implementation of the model within the higher education context. Further, it fits well with the growing calls form literature for validating the IS-design models. A critical review of the literature shows the existence of a considerable number of "conceptual" and "procedural" IS-design models, yet only a few studies in this field focus on validating these models (Branch & Kopcha, 2014).

While the proposed model outlines key elements during major instructional stages, we believe that learners' cognitive preference and course delivery mode (see red-boxes in Figure 1) are key variables in the students' learning process, while the interactive effects of these variables on students' performance are largely left as unexplored. Instead, this research explores the interactive effects of these variables

and draws on this significance to enhance the IS-design pedagogical practices in higher education.

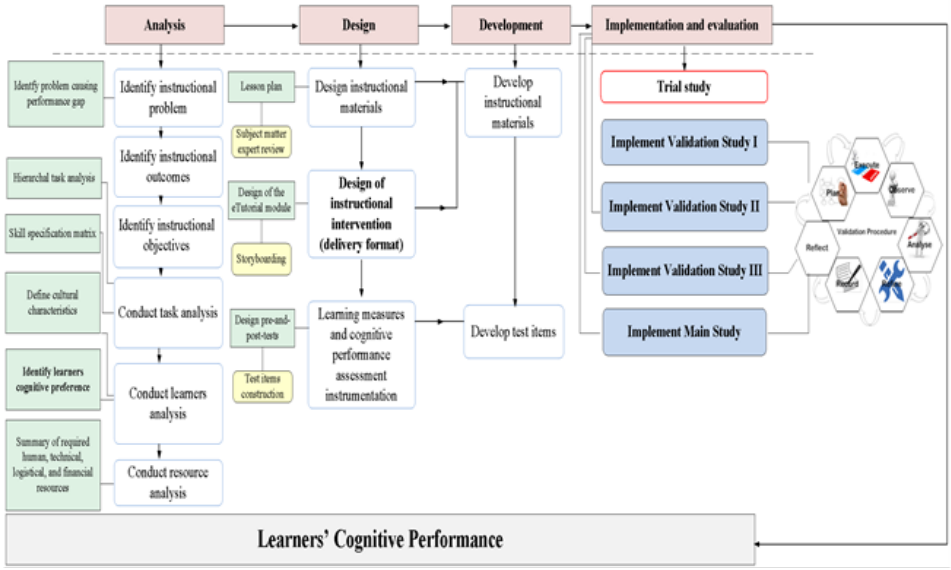


Figure 1. A prescriptive *IS-design model*.

S o u r c e : Own work based on Branson et al., 1975.

Course Delivery Mode (CDM)

CDM can be referred to as the process upon which to decide on the presentation of instructional content and the associated tasks and assessments (Porto & Aje, 2004). The continual emerging of new ICT tools impacts the e-learning paradigm thereby causing the evolution of new models and delivery formats in higher education (Nawaz & Kundi, 2010). At this point in time, there is a variety of instructional delivery modes, which include the most commonly applied pedagogies: the conventional classroom model of instructor-led/face-to-face (F-2-F), online/computer enhanced facilitation, and a blended combination of F-2-F and computerised instructional modes. Table 1 summarises the three common CDM and the associated instructional aspects used in this research.

There is a considerable literature that compares the effectiveness or suitability of different instructional/learning environments. Mixed results regarding the effectiveness of CDM have been reported in previous scholarly works. For instance, the online/computerised mode was considered as effective as the conventional F-2-F mode (Kyei-Blankson & Godwyll, 2010), and performance of students in a F-2-F group was better than in the online group (Urtel, 2008). The blended mode has been the focus of many studies in the literature and identified as the most effective delivery format (Kiviniemi, 2014).

However, findings from such analyses were questionable because of the limitations surrounding the measurement approach adopted by the researchers. Much of the research up to now has evaluated learners' academic performance through final course grades or reports, that is, students' raw scores, course completion or withdrawal rates, assessment scores, and students' records, which makes it difficult to draw accurate inferences without precise estimates. And so, this research adopts the Rasch measurement approach to correctly evaluate the cognitive performance offering more accurate measurement outcomes.

Table 1.
The summary of course delivery modes

	Instructional delivery mode/format		
Types of delivery mode	Conventional F-2-F	Computerised/online	Blended/mixed/ hybrid
Description	This is the traditional mode, which requires the physical attendance of learners to the classroom. The instructional material is delivered in the form of lectures within scheduled sessions ascribed to the course. Technology is not integrated during instruction.	Physical classroom and/or attendance are not required as the instructional material of the course is delivered electronically. Learners can access the content anywhere and anytime (synchronous/ asynchronous modes). There is a complete reliance on technology (ICT tools) to convey learning/instruction.	This delivery mode combines elements from the traditional F-2-F and computerised/ online modes. The use of ICT tools is mainly to support the instruction during the F-2-F mode.
Knowledge is	received	constructed	acquired
Technology use is	not essential	essential	recommended
Learning is	passive	self-paced	directed
The role of instructor is	a transformer of knowledge	a facilitator	a guide (a player)
The role of learner is	a receiver of knowledge	a constructor of knowledge	a player
The goal of teaching is	to prepare informative learners	to prepare competent learners	to prepare qualified learners
Instructional content is presented as	texts	texts, pictures, diagrams, games, audio, and video (animation)	texts, pictures, diagrams, games, audio, and video (animation)
The forms of teaching are	lectures, tutorials, or seminars	eTutorials, eModules, online-lectures, eSeminars	the mixture of traditional and online lectures, eTutotials and F-2-F seminars

S o u r c e: Own work.

Learners' Cognitive Preference

This research adopted Riding and Rayner's (1998) definition of the cognitive style construct, which can be referred to as the learner's preferred approach towards their information processing style. Up to now, the educational technology literature has tended to focus on the significance of learners' cognitive style/preference in relation to their academic performance when designing for higher education (Zhang, 2004). For example, a plethora of studies (for instance Boyle, Duffy, & Dunleavy, 2003; Thomas & McKay, 2010) investigated the matching claim that assumed an enhanced performance if instruction match learners' cognitive styles. Rayner and Cools (2011) suggested that when students use their preferred learning styles, they will learn more effectively because they are more engaged in the learning process. The multidimensional model of Riding and Cheema (1991) measured an individual's cognitive preference based on two cognitive dimensions: Wholist-Analytic (W-A), and Verbal-Imagery (V-I) (Figure 2). While the W-A dimension assesses how individuals prefer to process information (in wholes or in parts), the V-I dimension measures how the individual prefers to represent information during thinking (in a verbal or imagery form). The Cognitive Style Analysis (CSA) test is a computerised assessment tool developed by Riding and Cheema (1991) that has been used in this study to identify participants' cognitive preference.

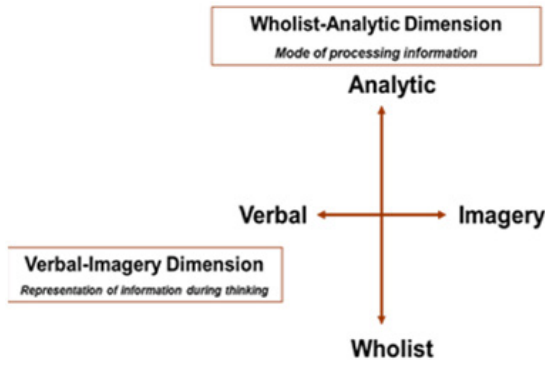


Figure 2. The cognitive style dimensions.

Source: Riding and Cheema, 1991.

Research Study Instruments

Prior to the design of the eTutorial module, sound ID activities underpinned the construction of the instructional content, including: the development of a thorough task analysis, a targeted lesson plan, and a skills development matrix. Table 2 shows the skills development matrix that was constructed based on the Gagné learning domains (Gagné, 1985) and used to design the tutorial tasks and the cognitive performance/assessment tests. Tasks were plotted across the matrix

based on difficulty, starting from the easiest skills moving to more complex ones. The matrix also shows the types of skill development tasks (in this case with either dichotomous or partial credit models) that were involved in the assessment instruments/tests. The skills development matrix was created to ensure that we had enough questions to measure the acquisition of the required knowledge and establish meaningful evidence to make reliable probabilistic inferences.

Table 2.
Skills development matrix (adapted from McKay, 2000)

DFD set development		Instructional objectives: DFD set development					
		Declarative		Procedural			
		Band-A	Band-B	Band-C	Band-D	Band-E	
		Verbal information skill concrete concepts; knows basic terms; knows 'that'	Intellectual skill basic rules; discriminates; understands concepts & principles	Intellectual skill higher order rules; problem solving; applies concepts & principles to new situations	Cognitive strategy identifies subtasks; recognises unstated assumptions	Cognitive strategy knows 'how'; recalls simple prerequisite rules & concepts; integrates learning from different areas into a plan for solving a problem	
Task No.	Learning domain						Task difficulty
5	DFD set development						difficult
4	DFD validation check						medium-to-difficult
3	DFD set classification						medium
2	Understanding of different levels of DFD's set						easy-to-medium
1	DFD symbols / notations understanding						easy

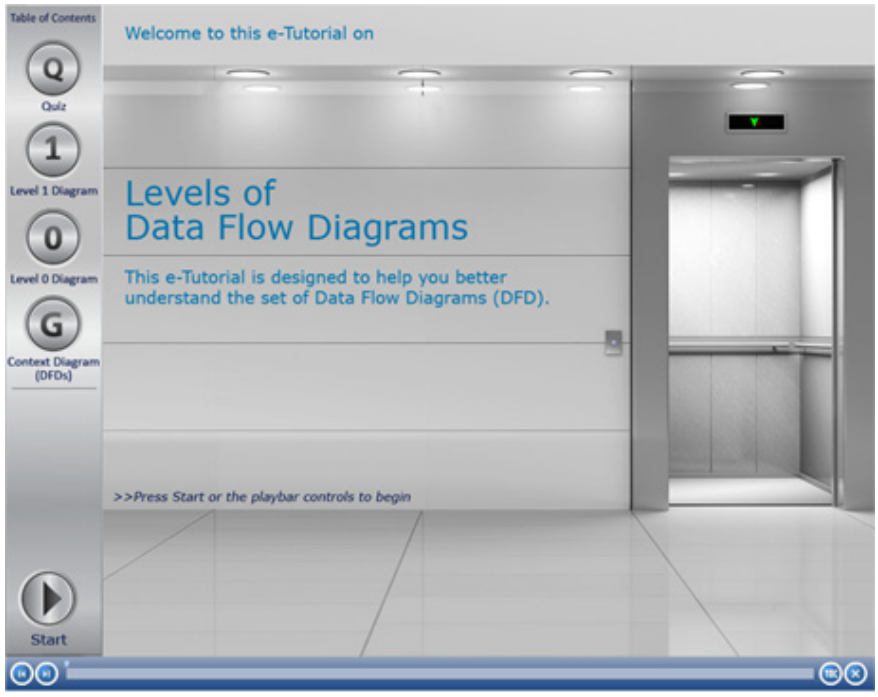
S o u r c e: Own work.

The resulting main assessment instruments were the pre-and-post-tests that were constructed following a systematic approach (Izard, 2005). Participants' raw scores were converted by the researcher into numeric values to align with the data analysis software tool QUEST interactive test analysis system, designed and built by Adams and Khoo (1996).

The Design of the eTutorial Module

The IS-design storyboarding activity was conducted to enable the web developer to build the online instructional module to meet IS-design specifications.

Some of the interactivity features were included to accommodate the needs of learners who have various cognitive preferences when receiving their instruction. For instance, the module commenced with a "welcoming page" (Figure 3) to introduce learners to the topic through the conceptualisation of the set of data flow diagrams (DFD) that reflected the concept of a multi-levelled building. An instructional page followed to inform users on the interactivity features that were available for use when they took the instructional module at their own pace (Knowlton and Simms, 2010). Two navigation bars were located on the computer screen in two positions: one located in the navigation bar at the bottom of the screen to allow smooth movement between the different module parts, and a general knowledge navigator button located at the left-side of the computer-screen to enable users to repeat a particular task or to choose certain other parts of a particular module. Further, the instructional materials were presented in the forms of: screen-based textual blocks; diagrams and pictures; and a combination of both, to suit the preference diversity of the learners who may prefer to receive their instructional materials in these various modes during their thinking (Figure 3). Colours were also used to highlight critical parts of the system to provide learners with some support with the structure, should they need this.



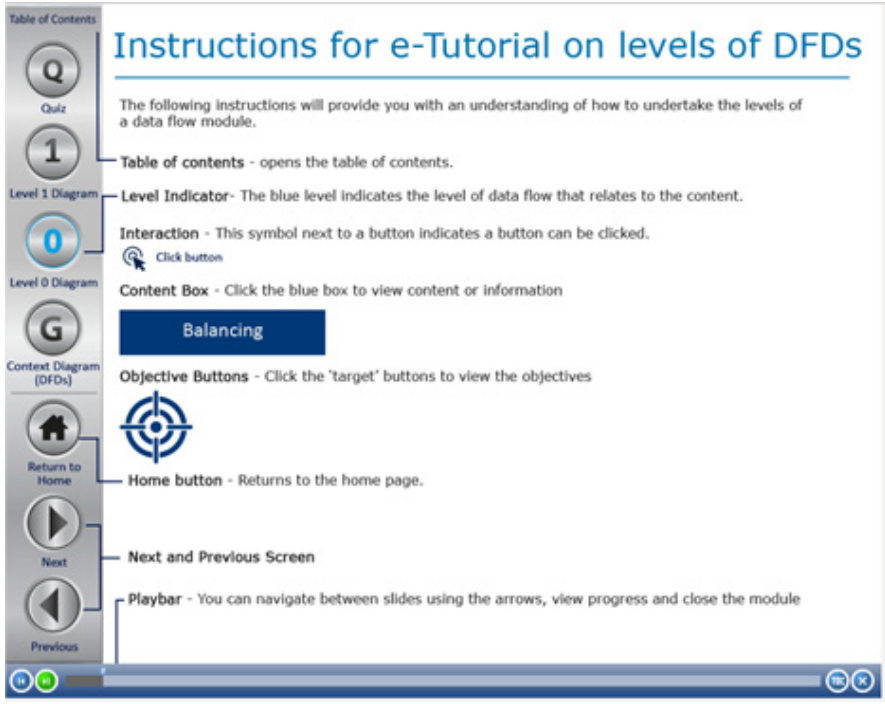


Table of Contents
Quiz
Level 1 Diagram
Level 0 Diagram
Context Diagram (DFDs)
Return to Home
Next
Previous
Instructions for e-Tutorial on levels of DFDs
The following instructions will provide you with an understanding of how to undertake the levels of a data flow module.
Table of contents - opens the table of contents.
Level Indicator- The blue level indicates the level of data flow that relates to the content.
Interaction - This symbol next to a button indicates a button can be clicked.
Click button
Content Box - Click the blue box to view content or information
Balancing
Objective Buttons - Click the 'target' buttons to view the objectives
Home button - Returns to the home page.
Next and Previous Screen
Playbar - You can navigate between slides using the arrows, view progress and close the module

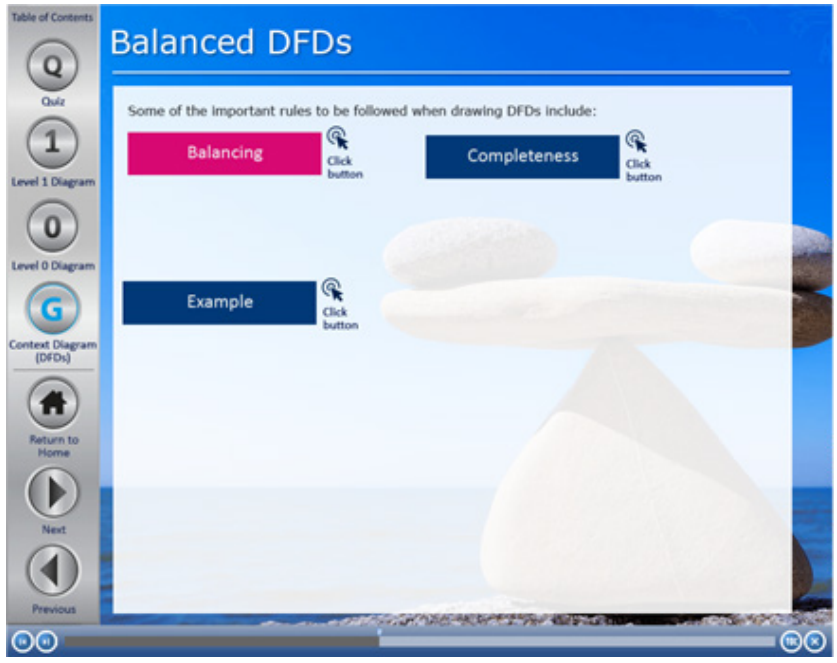


Table of Contents
Quiz
Level 1 Diagram
Level 0 Diagram
Context Diagram (DFDs)
Return to Home
Next
Previous
Balanced DFDs
Some of the important rules to be followed when drawing DFDs include:
Balancing
Click button
Completeness
Click button
Example
Click button

Figure 3. Screenshots of the eTutorial module.

Source: Own work.

The Experimental Procedure

A series of 2x3 factorial quasi experiments were conducted at four higher education institutions during different phases of this research project. A total of 167 undergraduates voluntarily participated in this study. The experiments were carefully planned to include four separate main experimental steps (Figure 4). The pre-test was a key activity during the first step, which aimed to assess participants' DFD knowledge prior to the intervention, followed by the random allocation by the researcher of the participants into one of three instructional environments: Treatment 1 (T1) – instructor-led/face-to-face (F-2-F), Treatment 2 (T2) – online/computer enhanced facilitation, and Treatment 3 (T3) – a blended combination of F-2-F and computerised instructional modes. The third step was the instructional intervention, where each group received their allocated instructional treatment. The final step was the post-test which aimed to measure participants' knowledge change after the intervention.

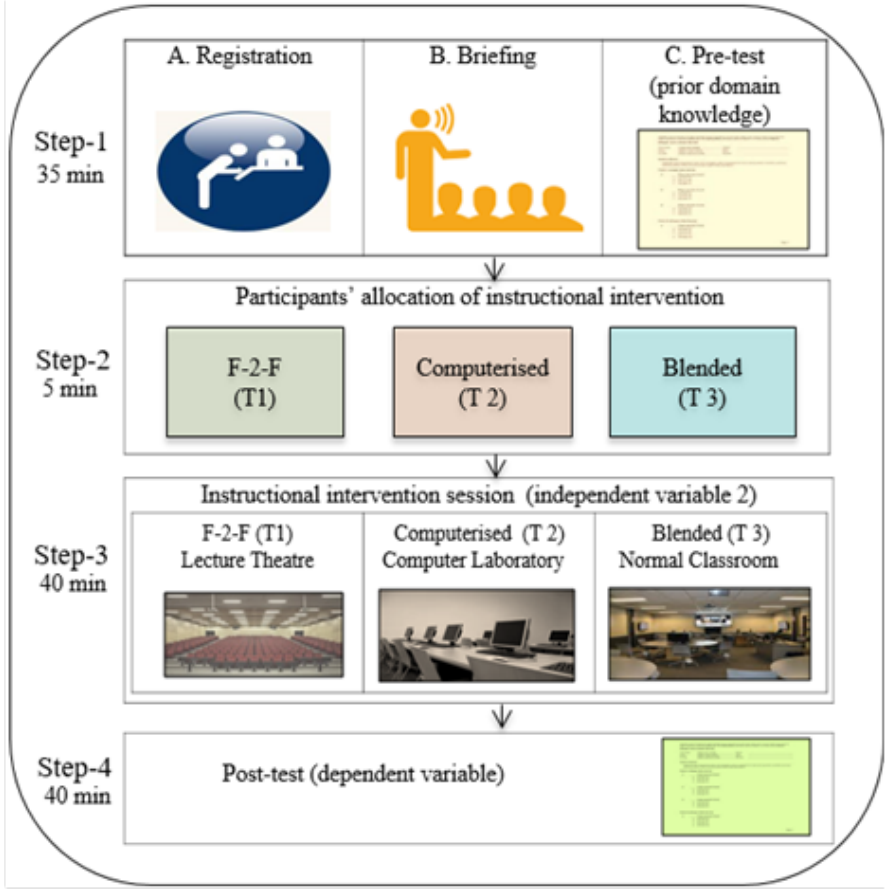


Figure 4. The experimental procedure.

Source: Own work.

Preliminary Findings

Because declaring the full data analysis for this research project is beyond the scope of this paper, the following section will present only preliminary key findings thus far from the main experiment study which involved 41 participants. The findings will be presented in two sections. The first part shows the results of the CSA test used for the allocation of participants into one of the three instructional treatments: T1 the conventional face-to-face classroom mode, T2 the computerised mode, and T3 the blended mode. The second section describes the validity of the

testing instrumentation followed by the cognitive performance evaluation. Results were analysed using the QUEST Interactive Test Analysis Software that was developed by Adams and Khoo (1996) based on the Rasch model and the Item Response Theory (IRT).

The Cognitive Style Analysis Test (CSA)

Riding and Cheema's (1991) CSA test results were used to randomly allocate participants into one of the three course delivery modes. Figure 5 is an illustration of this participant allocation process whereby their CSA outcome was labelled as: blue triangles for receiving T1, green diamonds for receiving T2, and red squares for T3.

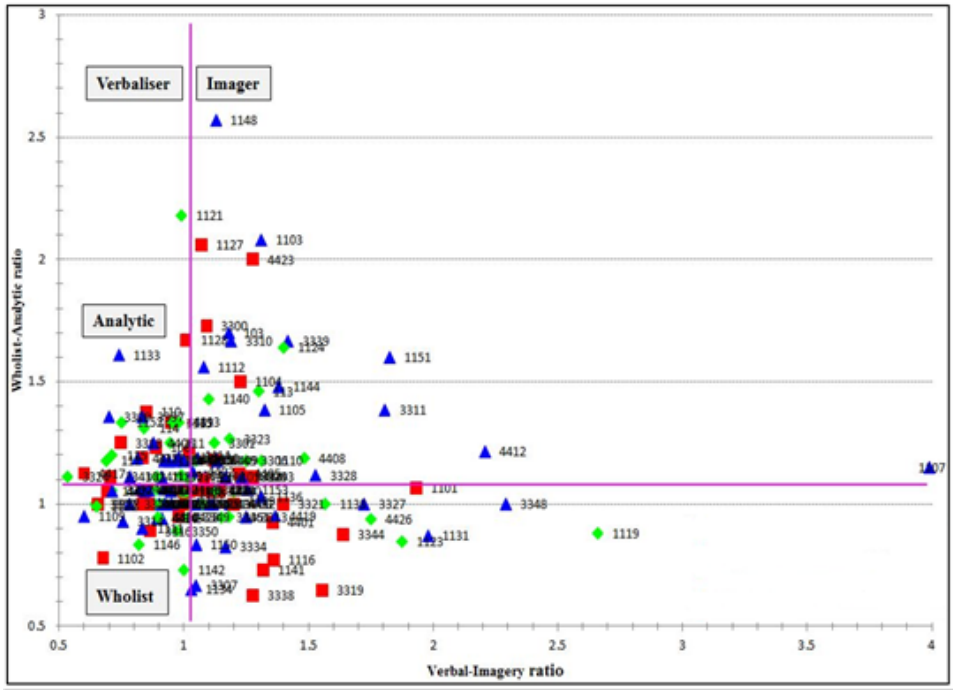


Figure 5. Allocation of participants to instructional treatment.

S o u r c e : Own work.

Performance Evaluation

The statistical performance of test-items

The QUEST item fit map (Table 3) was used to provide a visual representation of the magnitude of the fit statistic of test-items that were conforming to the Rasch requirements. Each question was represented by a star sign and needs to lie between the dotted lines (thresholds) which define the acceptable (Rasch model) range of

test-items. Table 3 (a & b) show the preliminary validation for test-items. So, all test-items outside the thresholds in Table 3a were misfit items, as they behaved inconsistently compared to the other test-items, and therefore were deleted from the analysis (Table 3b). A total of 10-test-item deletion runs were conducted to ensure that all items were a fit to the Rasch model (Table 3b); this process was vital to ensure that all test-items were valid and reliable for further analysis.

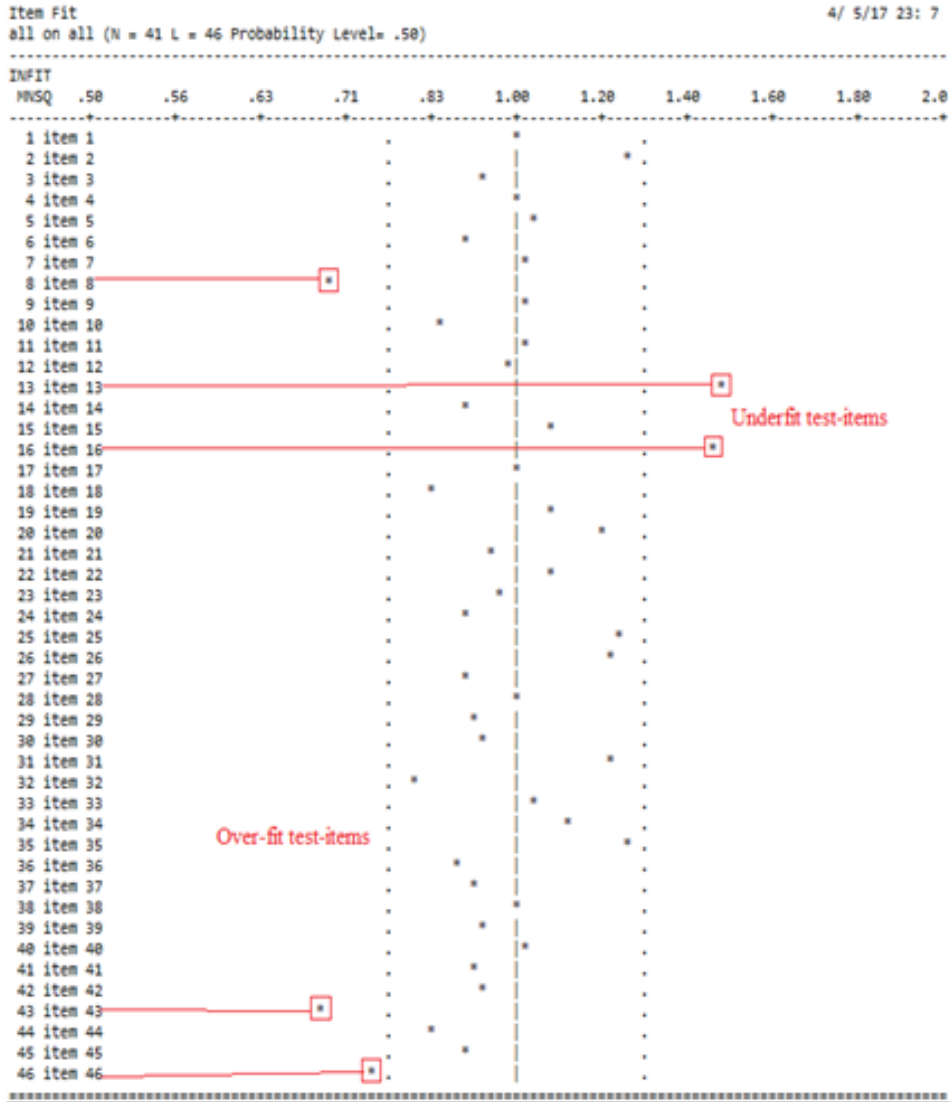


Figure 6a. An item fit map (pre-test misfit items).

S o u r c e : Own work.

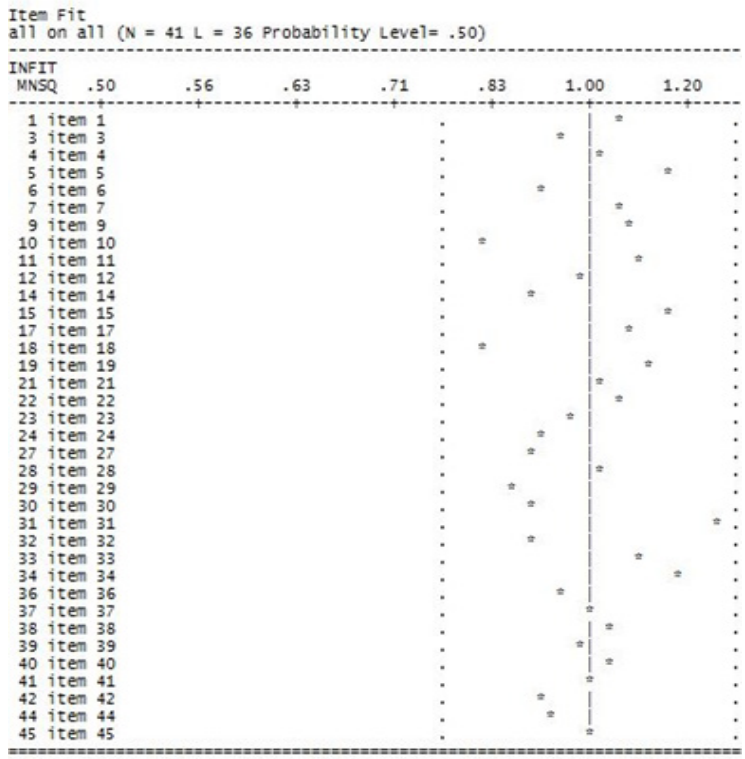


Figure 6b. An item fit map (pre-test misfit items).

S o u r c e : Own work.

The performance of test-items in relation to participants

The QUEST variable map enables the performance evaluation of both test-items and participants on the same unidirectional logit scale. For instance, Figure 6 (a & b) shows variable maps of the pre-and-post-tests from the main study; each X on the left side of each map represents one participant, who is plotted on the logit scale based on his or her ability. Consequently, the low performers are positioned at the bottom of the scale and high performers at the top. All the numbers on the right side of each map depict the test-items that were plotted by the QUEST estimate, based on their level of difficulty, with the easiest placed on the logit scale at the bottom escalating to the hardest at the top. The figures below show that participants performed better in the post-test than in the pre-test. The performance distribution in the pre-test was slightly above -1.0 and 3.0 logits; however, it shifted to lie between -1.0 and above the 4.0 logit value. The shift in the distribution may have resulted from the instructional intervention affecting participants' performance.

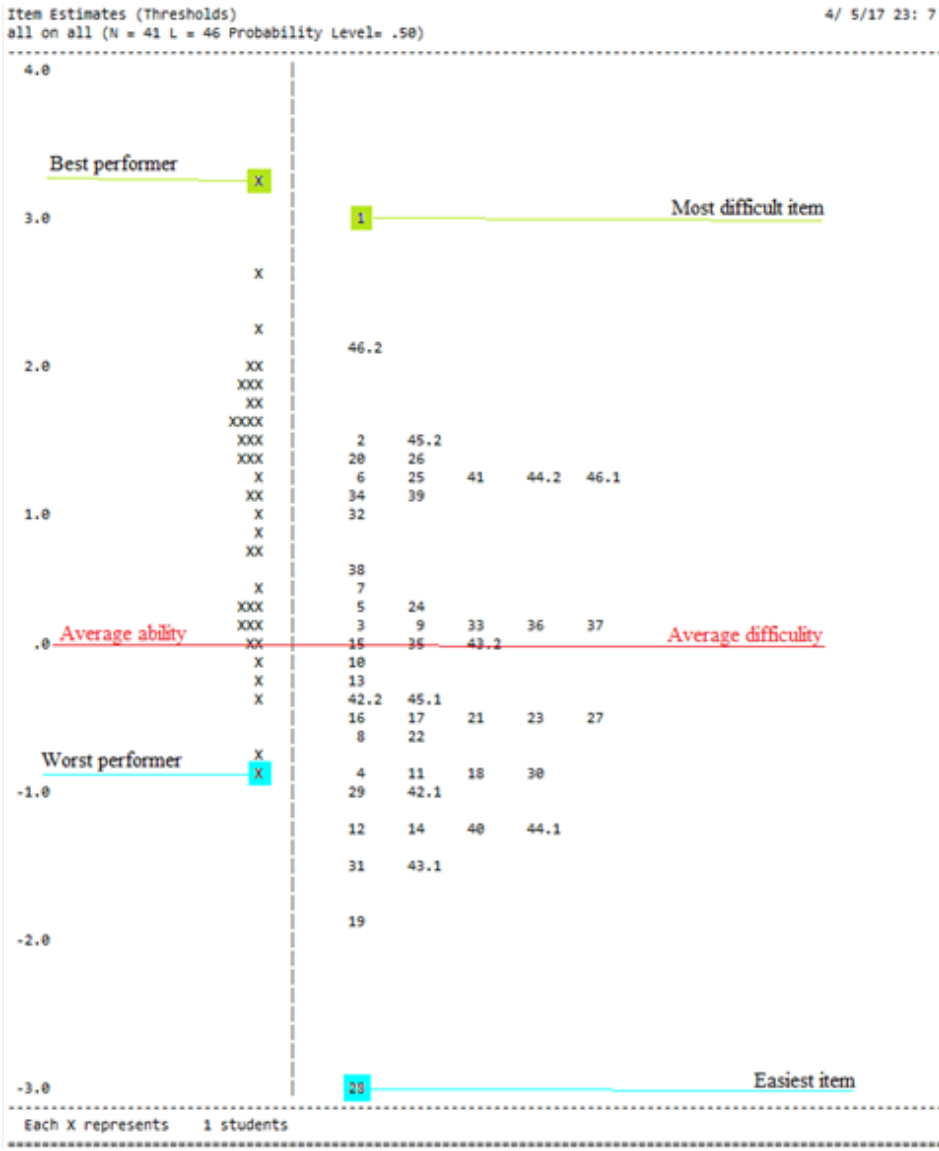


Figure 7a. A variable map of pre-test.

S o u r c e : Own work.

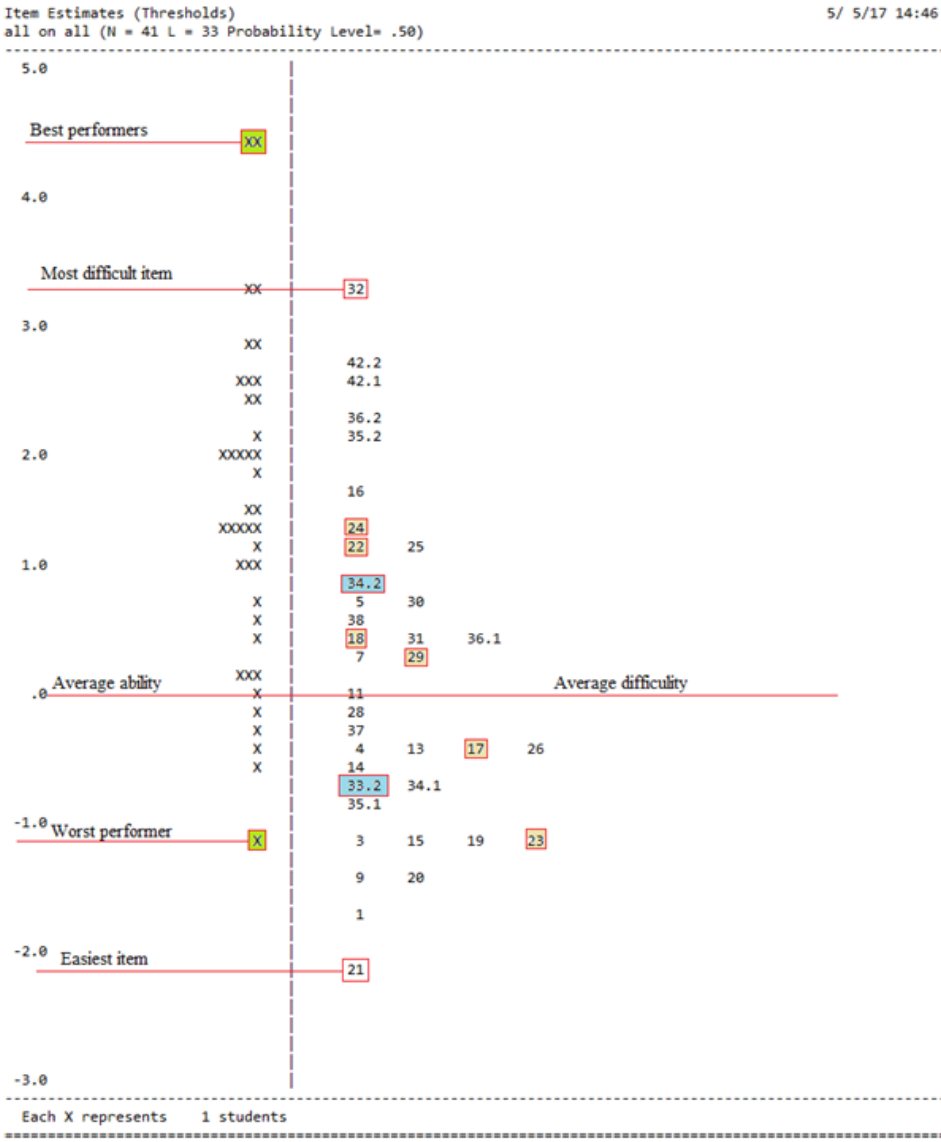


Figure 7b. A variable map of post-test.

S o u r c e : Own work.

Participant's cognitive performance

Further analysis of other QUEST estimate outputs (such as the kid-maps), revealed fine-grained details regarding the performance of each participant. Figure 7 is such a kid-map example that depicted a participant from the blended environment.

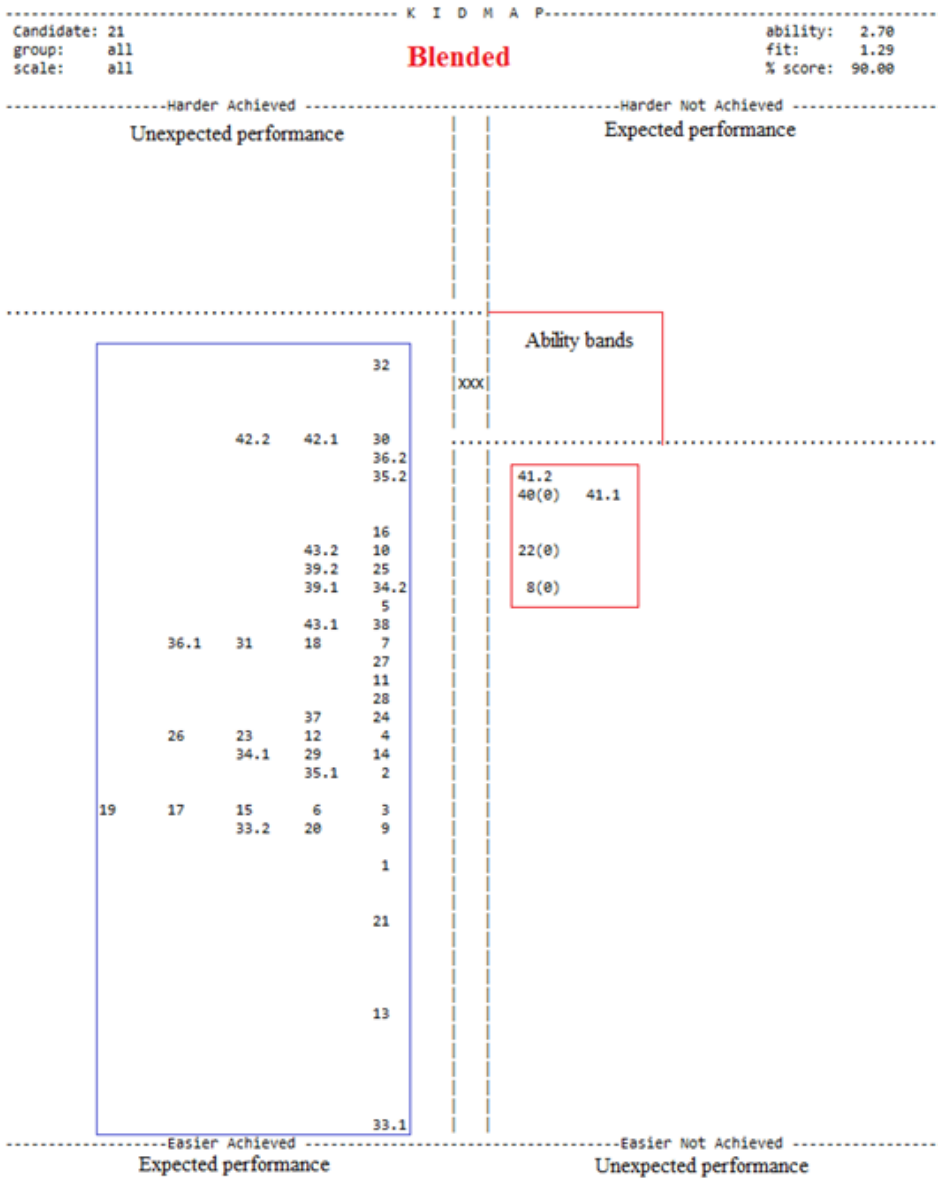


Figure 8. A QUEST kid map for one participant.

S o u r c e : Own work.

These kid-maps provided an estimated ability for a selected participant along with test-items expected to be achieved and not achieved by the participant. For example, the ability band of the participant shown in Figure 7 is defined between the dotted lines. All test items on the left side of the map were successfully achieved

by the participant (including the ones easier and harder to achieve), whereas the participant was not able to answer test-items located on the right side (including the ones easier and harder to achieve). This output enables fair evaluation and comparisons of cognitive performance variation of participants who received instruction from three different course delivery modes. For instance, in terms of task difficulties and performance, results show that all participants easily acquired declarative knowledge (knowledge that requires a learner's lower level skills) under the three experimental instructional modes. The computerised mode (the technology-enhanced T2) facilitates the knowledge required to answer tasks with a medium-difficulty level. However, the blended environment (T3, a combination of both instructional modes) enables the acquisition of procedural knowledge (knowledge that requires a learner's higher-level procedural skills). Thus, the design aspects of the blended mode may have contributed to the finding that the blended instructional strategy is the most effective course delivery mode for an IS course that has a strongly theoretical nature and abstract concepts such as the SAND. The specifications of the blended learning in this study involved a face-to-face collaborative students' instruction combined with an off-line eTutorial module. Accordingly, we can find several key issues for consideration in terms of the pragmatic implications for technology implementation under the computerised and blended environment. The design of the instructional content needs to be aligned with the availability of time and budget, and most importantly the learners' cognitive style. Balancing content, time, and budget was challenging to accommodate various learners' styles and deliver successful programmes. Thus, another key factor was to match the best course delivery mode necessary to achieve the instructional objectives. This does not imply the priority or popularity of one delivery mode over another, but simply the employment of the effective mode to positively interact with the learners' style and to facilitate knowledge acquisition. However, the type of knowledge acquisition varies with the complexity of its associated skill development requirements. And so, this study attempts to empirically validate the performance of participants with a gradual knowledge acquisition approach. It has been suggested that effective engagement and interactivity are two critical elements when designing for a computerised and blended environment. For successful learning, learners are required to be engaged and interact with other learners and an instructor. However, to achieve such a challenge, the pedagogy design may necessitate some off-line activities or instruction to ensure learners' involvement. Unlike the common view of the digitised instructional environment, the design specifications for computerised or blended pedagogy may require some aspects of the instructional content to be de-digitised for the purpose of matching learners' preferred instructional/learning style and subsequent delivery modes.

Conclusion

This paper has examined some of the issues surrounding the challenging pedagogical tasks of teaching an IS course in the higher education sector. The proposed prescriptive IS-design model was motivated by sound ID principles to lay the foundation of accurate performance measurement that verified the effectiveness of the ePedagogical practices involved. The careful design of the eTutorial module and the experimental procedure facilitated learners' engagement in their learning process. The adoption of the Rasch measurement model in analysing these results allowed the evaluation and comparisons of accurate statistical probabilistic inferences regarding the effectiveness of the integrate ICTs in the course delivery mode. The preliminary analysis presented in this paper highlights the key finding of the effectiveness of the blended environment and supports the decision of its validity to deliver a higher education IS course that involves theoretical and abstract concepts similar to SAND. Bearing in mind the small sample size of participants in this study, caution must be applied when interpreting such preliminary findings as they may not be applicable in other educational contexts.

References

Adams, R. & Khoo, S. (1996). Quest. Australian Council for Educational Research.

Boyle, E. A., Duffy, T. & Dunleavy, K. (2003). Learning styles and academic outcome: The validity and utility of Vermunt's Inventory of Learning Styles in a British higher education setting. British Journal of Educational Psychology, 73, 267–290.

Branch, R. M. & Kopcha, T. J. (2014). Instructional design models. In Handbook of research on educational communications and technology (pp. 77–87). New York: Springer.

Branson, R. K., Rayner, G. T., Cox, J. L., Furman, J. P. & King, F. (1975). Interservice procedures for instructional systems development. Executive summary and model. DTIC Document.

Cybulski, J. L. & Linden, T. (2000). Learning systems design with UML and patterns. IEEE Transactions on Education, 43(4), 372–376.

Fatima, S. & Abdullah, S. (2013). Improving teaching methodology in system analysis and design using problem based learning for ABET. International Journal of Modern Education and Computer Science (IJMECS), 5(7), 60–68.

Gagné, R. M. (1985). The conditions of learning and theory of instruction. New York: Holt, Rinehart and Winston.

Izard, J. (2005). Overview of test construction. In Kenneth, N. R. (Ed.), Quantitative research methods in educational planning. Paris: UNESCO International Institute for Educational Planning.

Kiviniemi, M. T. (2014). Effects of a blended learning approach on student outcomes in a graduate-level public health course. BMC Medical Education, 14(1).

Knowlton, D. S. & Simms, J. (2010). Computer-based instruction and generative strategies: Conceptual framework & illustrative example. Computers in Human Behavior, 26(5), 996–1003.

Kock, N. 2006. Systems analysis & design fundamentals: A business process redesign approach. Sage Publications India.

Kyei-Blankson, L. & Godwyll, F. (2010). An examination of learning outcomes in HyFlex learning environments. In Proceedings from E-learn: World Conference on E-learning in Corporate, Government, Healthcare, and Higher Education (pp. 532-535). Chesapeake, VA: Association for the Advancement of Computing in Education (AACE).

McKay, E. (2000). Instructional strategies integrating the cognitive style construct: A meta-knowledge processing model (contextual components that facilitate spatial/logical task performance) (Doctoral dissertation). Melbourne: Deakin University. Accessed 12 February 2010. Retrieved from http://tux.lib.deakin.edu.au/adt-VDU/public/adt-VDU20061011.122556/.

Nawaz, A. & Kundi, G. M. (2010). Digital literacy: An analysis of the contemporary paradigms. International Journal of Science and Technology Education Research, 1(2), 19–29.

Porto, S. & Aje, J. (2004). A framework for operational decision-making in course development and delivery. Online Journal of Distance Learning Administration, 7(2), 199–215.

Rayner, S. & Cools, E. (2011). Style differences in cognition, learning, and management: Theory, research, and practice. New York: Routledge.

Riding, R. & Cheema, I. (1991). Cognitive styles: An overview and integration. Educational Psychology, 11(3–4), 193–215.

Riding, R. J. & Rayner, S. (1998). Cognitive styles and learning strategies: Understanding style differences in learning and behaviour. London: D. Fulton Publishers.

Rob, M. A. (2006). Development of project documentation: Key ingredient in teaching Systems Analysis and Design. Issues in Information Systems, 7(1), 83-87.

The Standish Group. 2004. Accessed 10 November 2008. Retrieved from http://www.standishgroup.com/sample_research.

Thomas, P. R. & McKay, J. B. (2010). Cognitive styles and instructional design in university learning. Learning and Individual Differences, 20(3), 197–202.

Topi, H., Valacich, J. S., Wright, R. T., Kaiser, K., Nunamaker Jr, J. F., Sipior, J. C. & De Vreede, G.-J. (2010). IS 2010: Curriculum guidelines for undergraduate degree programs in information systems. Communications of the Association for Information Systems, 26, 18.

Urtel, M. G. (2008). Assessing academic performance between traditional and distance education course formats. Educational Technology & Society, 11(1), 322–330.

Zhang, L.-F. (2004). Field-dependence/independence: cognitive style or perceptual ability?—validating against thinking styles and academic achievement. Personality and Individual Differences, 37(6), 1295–1311.

Allaa Barefah, Elspeth McKay

Ocena efektywności kursu Systemy Informacyjne – wykorzystanie modelu Rascha

Streszczenie

Analiza i projektowanie systemów jest kursem poświęconym systemom informacyjnym, znajdującym się w programie nauczania większości studiów dotyczących zarządzania systemami informacyjnymi. Natura teoretyczna tego typu przedmiotu stanowi wyzwanie dla nauczycieli, gdyż muszą oni wymyślić strategie pozwalające studentom zrozumieć pojęcia abstrakcyjne, takie jak na przykład diagramy przepływu danych oraz poprawne specyfikacje systemu informacyjnego. Badania

wskazują, że jednym z czynników wpływających na niską jakość wielu projektów z zakresu analizy i projektowania systemów, przygotowanych przez pracowników zatrudnionych tuż po ukończeniu studiów, jest brak podstawowej wiedzy z tej dziedziny. Chociaż w literaturze przedmiotu dużo uwagi poświęca się sposobom wykorzystania różnych technologii w procesie nauczania w celu ułatwienia akwizycji wiedzy, tylko nieliczni badacze zajmują się jednak efektywnością takiej integracji. W niniejszym artykule przedstawiona została refleksja nad takimi próbami. Zaproponowane zostało również podejście umożliwiające ocenę efektywności włączenia technologii do nauczania takiego przedmiotu jak analiza i projektowanie systemów. Zaprezentowane wyniki empiryczne zostały zebrane podczas serii quasi-eksperymentalnych kategorialnych badań 2x3, które zostały przeprowadzone w czterech uczelniach wyższych. Do ich interpretacji użyto modelu IRT Rascha. Wstępna analiza dostarcza dowodów dla możliwości określenia kluczowych strategii potrzebnych do opracowania kursu na temat systemów informacyjnych.

S ł o w a k l u c z o w e: analiza i projektowanie systemów, projektowanie kursów, nauczanie na uczelni wyższej, model Rascha, scenariusz zajęć, technologie informacyjne i komunikacyjne

Allaa Barefah, Elspeth McKay

Оценка эффективности курсов обучения информационным системам: измерение по модели Раша

А н н о т а ц и я

Системный анализ и проектирование - это курс из области информационных систем, который преподается во всем мире в большинстве программ высшего образования по управлению информационными системами. Однако теоретический характер этого типа курса представляет проблемы для инструкторов, поскольку они разрабатывают учебные стратегии для передачи абстрактных понятий, которые необходимы их ученикам для понимания, например, как рисовать диаграммы потоков данных, чтобы правильно представлять информационные спецификации. Данные свидетельствуют о том, что один из факторов низких показателей успеха многих проектов дизайна информационных систем в деятельности сотрудников связан с тем, что выпускники не приобрели базовые знания системного анализа и дизайна. Хотя значительное количество литературы сосредоточено на интеграции технологий в практику преподавания для облегчения приобретения знаний, но мало исследована их эффективность для достижения этой конкретной цели. В настоящей статье отражены такие проблемы и предлагается подход к оценке эффективности интеграции технологий при преподавании курса дизайн информационных систем, например, системного анализа и дизайна. Эмпирические интерпретации, представленные в этой статье, собраны в виде серии квази-экспериментальных фактографических экспериментов 2x3, которые были проведены в четырех учреждениях высшего образования и основаны на применении метода Раша и анализе измерений. Предварительный анализ предоставляет надежные данные для определения ключевых учебных стратегий при проектировании курсов.

К л ю ч е в ы е с л о в а: системный анализ и проектирование, дизайн учебных программ, высшее образование, модель Раша, учебный дизайн, инструменты информационных и коммуникационных технологий

Allaa Barefah, Elspeth McKay

Evaluando la efectividad de la enseñanza de información

R e s u m e n

El análisis y diseño de sistemas (SAND) es un curso de sistemas de información (IS) que se enseña en todo el mundo en la mayoría de los programas de gestión de sistemas de información (MIS) de educación superior (HE). Sin embargo, la naturaleza teórica de este tipo de curso presenta desafíos para los instructores a medida que diseñan estrategias de instrucción para transmitir los conceptos abstractos que son necesarios para que los estudiantes entiendan conceptos como: cómo dibujar diagramas de flujo de datos (DFD) para representar correctamente el especificaciones de un IS. La evidencia sugiere que uno de los factores de las bajas tasas de éxito de muchos proyectos de diseño IS se debe a que los formandos no adquirieron conocimientos básicos de SAND. Si bien una cantidad considerable de literatura se centró en la integración de la tecnología en las prácticas de enseñanza para facilitar la adquisición de conocimiento, algunos investigaron su eficacia para cumplir con este propósito particular. Este documento reflexiona sobre estos desafíos y propone un enfoque de evaluación para evaluar la efectividad de la integración de la tecnología en la enseñanza de un curso de IS como SAND. Las interpretaciones empíricas representadas en este documento se recopilan a través de una serie de experimentos factoriales casi experimentales de 2x3 que se realizaron en cuatro instituciones de educación superior y se basaron en la teoría de respuesta de ítems de Rasch y en el análisis de medidas. El análisis preliminar de este estudio proporciona evidencia confiable para delinear estrategias de instrucción clave al diseñar cursos IS.

P a l a b r a s c l a v e: análisis y diseño de sistemas, diseño de cursos, educación superior, Modelo Rasch, diseño instruccional, herramientas de tecnología de la información y la comunicación

II

ICT Literacy and Intercultural Competencies Development

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The Impact of Online Services on Developing Students' Media Competence

Abstract

In this article, the authors describe their experience of introducing students to online services for developing electronic educational resources with multimedia content. The sample of research included pedagogical education students from different years of first degree (bachelor) studies. The article presents the results obtained in the Herzen State Pedagogical University of Russia. The authors developed an e-environment for a training module, with all the content and interaction algorithms. In the experiment, the authors measured various indicators of students' media competence development: informational, perceptual, motivational, contact, and interpretation (based on A. V. Fedorov's approach). After students had studied the proposed module, the analyses of their projects were made.

K e y w o r d s: e-learning resources, online services, multimedia, electronic information-educational environment, media competence

Introduction

Current research in the field of education highlights the role of media in the education environment that fosters students' activities and facilitates competence development (Noskova, Yakovleva, Pavlova, & Smyrnova-Trybulska, 2015). Recent changes in education are closely connected with the introduction of social media in the learning process (Thoma, Hutchison, Johnson, D., Johnson, K., &

Stromer, 2017). In-service teachers and academic researchers investigate the questions of media literacy and the connection between students' engagement into media environment, their motivation (Zylka, Christoph, Kroehne, Hartig, & Goldhammer, 2015), and progress (Pounaki, Givi, & Fahimnia, 2017).

In Russia, modern federal state educational standards (FSES) of both secondary and higher education pay special attention to the high-tech educational environment. In the FSES of higher education, e.g., Bachelor of Education (44.03.01), one of the directions of pedagogical activity of the graduates is described as the formation of an educational environment with the use of ICTs to ensure the quality of education. This implies the necessity of certain competence for pre-service teachers that allow them to develop and enrich an electronic information educational environment with different multimedia educational resources.

During the pre-experimental stage of our research, we conducted a survey among 150 bachelor students – future teachers – in different courses and directions of study. The results demonstrate that 115 (–77%) respondents agree that it is necessary to explore the work with multimedia content in the framework of the educational programme. Students admit that they have the need and motivation. However, only 13 (–9%) agree that they can handle it on their own, or already have some skills of creating similar content, and 19 (–13%) do not require a focused study of this topic. The results indicate that most students are interested in the ability to develop and handle a variety of multimedia content, are ready to learn how to design it, but not always have the opportunity to do it by themselves (Simonova, & Ustiugova, 2015).

The creation of multimedia resources requires teachers' time, knowledge, and skills to use the applications for multimedia content creation. However, not all teachers possess the necessary competence and have enough time to prepare high-quality electronic resources by themselves. Currently, there are several approaches to solve this problem in Russia. Firstly, several resources databases have been created with the support of the state in order to help teachers and students. For example, the collection of digital educational resources (http://school-collection.edu.ru/), the single window access to information resources (http://window.edu.ru/), or the "More than a lesson" resource (http://academy.mosmetod.ru/) are widely used. Secondly, different companies are also developing and offering various resources for primary and secondary school ("CM-school" of "Cyril and Methodius" company, "Aclass," "Universarium," etc.). In addition, there are many web portals and communities where teachers share their best practices.

However, the use of ready-made e-learning resources is not always convenient for teachers who have their own view on organising resources that they intend to use in the classroom. Often there is a need to use only a fragment of a "ready-to-use" e-learning resource found in the Internet. To do this, a modern teacher should possess ICT tools that provide the ability both to edit e-learning resources and to create new ones, still devoting an acceptable amount of time

Background of Research

In the information society, the graduates of higher educational institutions need to know how to develop, evaluate, and implement electronic educational resources for enriching the information educational environment (Laptev & Noskova, 2016). This makes it necessary to improve the media competence of future teachers in the learning process (Fedorov & Levitskaya, 2017). The aim of our study is to provide students with media competence of such a level that will motivate them to create own multimedia resources comparable to similar "ready-to-use" resources.

What is a media competence? R. Kubey gives the following definition of media competence/media literacy based on the research of A. V. Fedorov on media competence: the ability to use, analyse, evaluate, and transmit messages in various forms (Kubey, 1997, p. 2). In this definition, we can see the relationship between media and media technology, when a person needs to work with information of various types and be ready to analyse and evaluate it. After the terminological analysis, A. V. Fedorov makes the conclusion that media competence more accurately defines the essence of the existing individual abilities to use, critically analyse, evaluate, and transfer media texts in various types, forms, and genres, to analyse complicated processes of media functioning in society (Fedorov & Levitskaya, 2017).

In our study, we propose to understand media competence of a teacher as willingness to create and edit multimedia educational resources that include graphics, animation, audio and video snippets, infographics, and text (Simonova & Ustiugova, 2015).

With the aim of developing media competence of bachelors of pedagogical education, we created an educational module "Network services for creating multimedia" (http://multimedia-onlajn.mozello.ru). The module, in fact, is an e-environment enabling future teachers to develop their own e-learning resources.

The module contains nine laboratory works (7 mandatory and 2 optional ones), which may be studied in any sequence, because each study focuses on one of the main types of multimedia content: graphics and infographics, audio, video, animation, and text documents. In the framework of the module, students also study files conversion and work with non-linear presentations. All practical works are accompanied by brief theoretical material on the relevant subject and finish with control test, aimed at identifying students' knowledge on the studied topic.

In the experimental work, the module was included in the contents of the courses "Introduction to Informatics" and "Workshop on solving problems" for the 1st year students of first-degree pedagogical education studies (future teachers of informatics) and in the course "Methods of using information technologies in teaching" for the 3rd year students. Students learned to create different types of multimedia content with the help of online services and to use this content for developing various electronic educational resources.

Instruments and Methods

The e-environment of the module is presented in the form of a website that contains instructional materials (theoretical materials, practical tasks, control test, auxiliary demonstration materials, and selection of useful links) and communication facilities, implemented through discussion group in a social network Vkontakte. The social network Vkontakte is one of the most popular social networks in Russia among today's youth. We chose this network as a mass communication channel for the reasons listed below.

1. Most of the students already have an account in this social network; therefore, they do not need to remember logins and passwords, which eliminates the possibility of loss of identification information.
2. The selected platform provides the ability to place educational materials required to study the module, but also makes it possible to provide feedback and communication between a teacher and students. It is very important to provide support for students who perform tasks remotely.
3. The interface of the social network Vkontakte is familiar to students, and it significantly reduces the process of students' adaptation to the environment of the module.
4. The opportunity to make reposts from other thematic groups on multimedia technologies promotes the use of multimedia and creates conditions for increasing the level of students' media competence.
5. Social network Vkontakte offers the evaluation tool ("I like"), which is popular among young people, with a value of 1-point approval of other users. This informal assessment tool can be a motivator, providing a situation of success for students and prompting to better work.

Control test to each laboratory work is implemented using Google Drive (Google Forms). To check the results of the control test, the plug-in Flubaroo is used. It is a simple and flexible free tool to check tasks, made in the form of a test. Google Drive stores all the results of control test, e-journals, and results of surveys conducted among the students as the input control to identify their level of media competence and existing knowledge on working with multimedia content.

56 students in 2015 and 2016 studied the described module. The observation shows that 51 (91%) students were willing to interact with the teacher using the proposed environment: all students studying the module "Network services for creating multimedia" joined the group and participated in the discussions organised during the learning process. The statistics of addressing the teacher through personal messages used in the social network shows that 37 (66%) students at least once entered into a personal dialogue with the teacher. The analysis of students' personal messages showed that all questions (731) sent via the social network could be divided into 4 categories:

1) the issues related to laboratory tests, services, etc. – 241 (33%) of all messages;
2) organisational issues (clarification of deadlines, questions on reports, etc.) – 98 (13.4%) of all messages;
3) messages with a request to check the work done after the deadline of delivery – 278 (38%); and
4) messages initiated by the teacher (comments on work, reminders about submission of works, etc.) – 113 (15.46%).

In the experiment, the increasing activity of student–teacher interactions was noted at the end of term, when approaching deadlines for papers and tests. Because the described environment is based on well-known platforms (Google.com, vk.com), students had access to the tasks and examples from their desktops, laptops, mobile devices, and tablets. However, most of the tasks were intended to be run using computers and laptops, because not all of the studied services have a mobile version and an interface that allows the same quality to perform certain operations on a mobile device as on a computer.

We describe a scenario of teaching students in the paradigm of blended learning, including practice in the classroom and online. In the first practical lesson, the students join the networking group of the module – "Media online." They are acquainted with the structure of the website "Network services for creating multimedia." All laboratory assignments have a modular form, so students may do them in any order. Before starting the practical part, students are encouraged to study a small theoretical introduction that accompanies each lab. Students mark the "start" and "finish" point for each service they use to determine the average time required to create the complete product (graphics, animation, video, infographic, audio file, etc.), and to correct the task complexity and quantity. After completion of practical tasks, students need to undertake a test. Questions of the test are aimed at checking the acquired knowledge. This is not a strict test, but it helps students to determine what they should pay attention to if the number of correct answers is below 70%

Data Analysis

The theoretical phase of the study – including the analysis of Internet sources, publications, and best teaching practices – showed that, in spite of the fact that media competence ideas have a relatively recent origin, many authors are offering a variety of design options and approaches to the estimation of media competence development levels.

Table 1.
Table of media competence levels

Indicator	Level	Level's description
Informative	high	knowledge of terminology and basic concepts of multimedia environment; knowledge of current multimedia technologies and tools
	medium	knowledge of basic technologies; knowledge of multimedia information types; knowledge of tools and resources for creating multimedia content
	low	the ability to understand possible ways of processing multimedia information
Perceptual	high	the ability to understand the author's position and purpose of creating multimedia content
	medium	the ability to perceive the author's intention and ideas, implemented with the help of multimedia tools
	low	the ability to perceive the main idea of the multimedia content, the emotional component of it
Interpretive	high	the ability to analyse and evaluate multimedia content including design, information, etc.; the ability to suggest ways of improving content
	medium	the ability to assess the quality of multimedia content, analysis of similar works
	low	lack of skills to analyse media content critically; the emotional perception of multimedia content
Motivational	high	willingness to independently learn technologies and tools for creating and editing multimedia content; pursuit to confirm own competence in the field of multimedia technology
	medium	the ability to learn technologies and tools for creating and editing multimedia content; lack of a creative component in the execution of project tasks
	low	lack of desire to create multimedia content independently for academic and professional purposes
Contact	high	daily contact with various types of multimedia content (viewing, creating, editing)
	medium	contacts with various types of media and media texts a few times a week
	low	contacts with various types of media and media texts no more than a few times a month, if necessary

S o u r c e: Own work.

We have chosen the approach proposed by A. V. Fedorov, who gives a set of indicators of media competence development: motivational, contact, informative, perceptive, interpretative/evaluative, practical and operational (activity), and creative (Fedorov, 2007). In the study, the approaches of the leading British media researchers – R. Kubey (1997), W. J. Potter (2001), and A. Silverblatt and E. M. Enright Eliceiri (1997) – were used. Three levels of development were proposed – "high," "medium," and "low." We selected indicators presented in Table 1 and updated their content.

To determine the initial level of bachelor students' media competence development, we conducted a survey (years: 2015–2016). The diagram below (Figure 1) shows the results of a survey of 56 students studying the module "Network services for creating multimedia" in 2015 and 2016 (30 students in 2015 and 26 students in 2016). The data presented in the diagram was obtained by analysing the answers to certain questions of the incoming control that was offered to students before starting the module study. Questions were formulated in such a way that each response corresponded to a certain level of formation of one or another indicator of students' media competence. The diagram shows the averaged values.

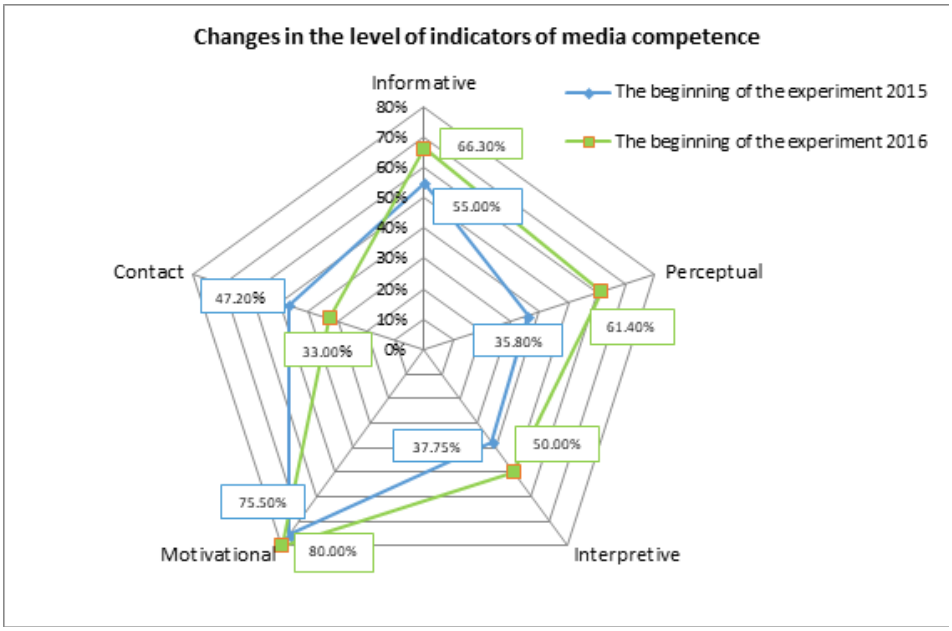

Figure 1. The results of the initial level of media competence evaluation for students (2015-16).

Source: Own work.

The following chart (Figure 2) shows that students of different ages and year of enrolment have almost the same motivational component development. The diagram does not show the results of such indicators as activity and creativity as their assessment at this stage of study is impossible.

Upon completion of training, in 2015, the following results were marked: students (30 people) have mostly a high level of information component (73%). Their perceptual component level is average (45%), interpretive and medium components levels are average (47%), motivational component level is high (80%), and contact medium component level is average (55%). The values of the levels are 0–40% – low level, 41–70% – average, 71–100% – high level (Figure 2). The presented results were obtained by analysing the individual projects of students made after studying the module "Network services for creating multimedia" and direct interviews with students. It should be noted that the results obtained do not pretend to be absolutely accurate; they are necessary for revealing the tendency of media competence development for bachelor students participating in the experiment, or determining the lack or absence of such competence.

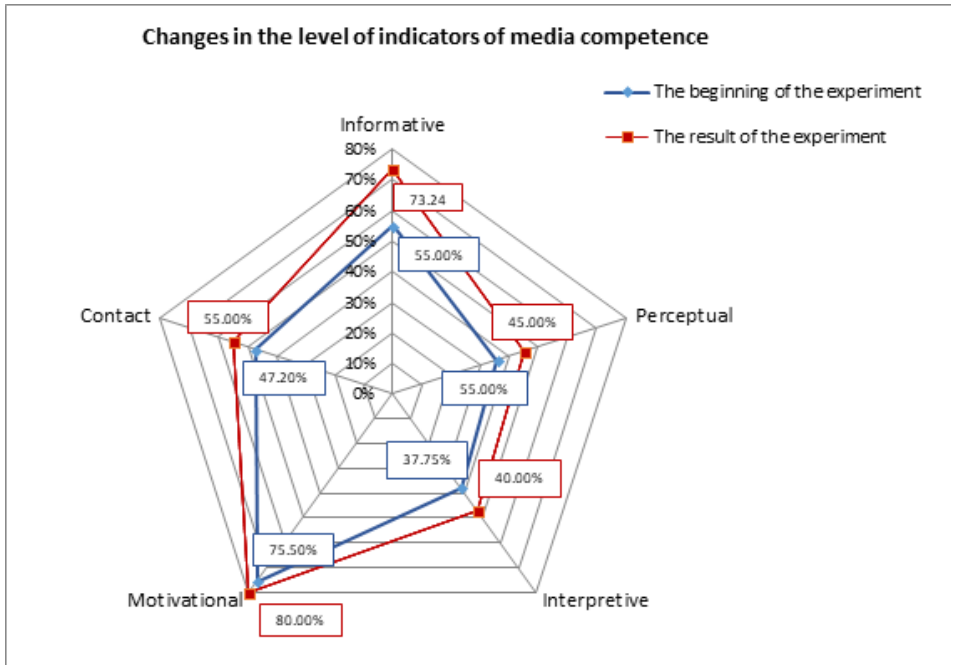

Figure 2. The results of students' media competence development (experimental group for 2015).

S o u r c e : Own work.

In 2016, when the module was studied by 26 students, we obtained the following results (Figure 3): information component level is high (70%), perceptual component level is average (64.92%), interpretation component level is medium (65.3%), motivational component level is high (83%), contact component level is average (48.3%).

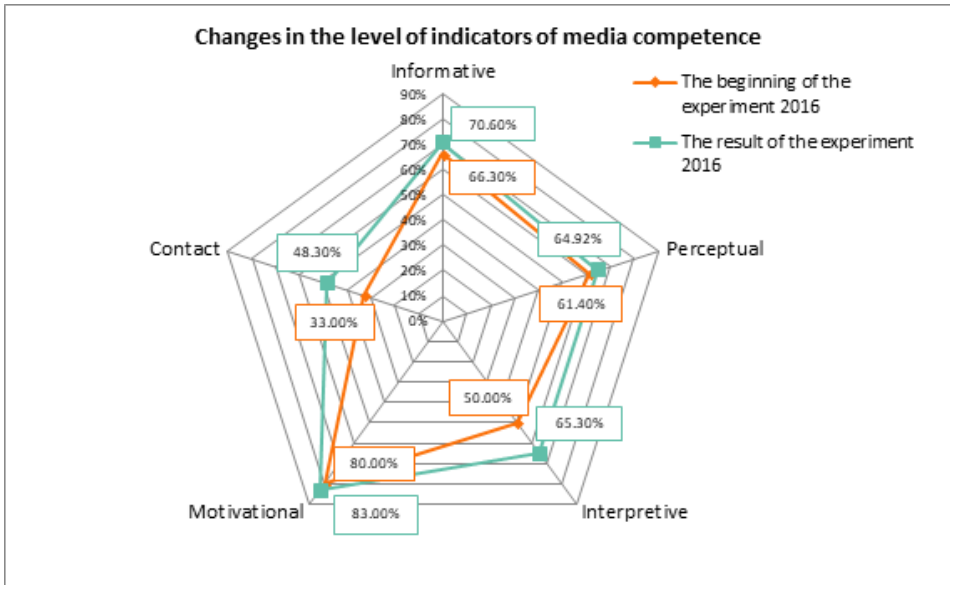

Figure 3. The results of students' media competence development (experimental group for 2016).

Source: Own work.

The diagrams show that students' indicators increased after studying the module.

Comparative Analysis of the Data for Two Academic Years

Statistics show that the students' initial level of the basic criteria does not differ much; however, the difference is clearly traced. We explain this by the fact that students have different basic training, the results are also affected by the initial level of students' motivation to perceive new information – their readiness to implement their creative abilities for the educational purposes. The information criterion tends to increase, indicating greater awareness among students about the possibilities of multimedia technologies and, primarily, their relevance in solving their everyday life problems: processing photos, posting audio and videos in online communities. Data shows that learning increases significantly the ability to analyse the content and to determine an author's intentions, while the emotional component of evaluation (like/dislike) fades into the background.

An important tool for the final evaluation is the fulfilment of the project tasks asking students to design their own e-learning resources that include graphics and infographics, animation, video, and audio (students may also mix sound and video). In the project, students can use non-linear presentations (Prezi) or a video. In the experiment, the presentations were placed in the cloud storage Prezi, and video files on the video hosting YouTube.

In our opinion, it is appropriate to propose the topic of the project tasks taking into account the stage of training in a pedagogical university. In the first year of study, the theme of the project can be linked with the interests of students in a particular field of knowledge and education. When discussing the choice of the topic, students describe the scope of their interests and, together with the teacher, develop a plan (structure) of a resource for presenting their project to other students. The teacher creates a set of process requirements (for using ICT tools) and content requirements. It makes it possible to define professional and pedagogical orientation of students and strengthen motivation for resource elaboration.

In the next stages of study (2–3 courses), it is advisable to offer students to make a resource in the field of the school course of Informatics. This allows them to get an idea about the structure of an electronic educational resource with the use of multimedia and to determine how much time is required for its development.

At the final stage, students present the project to the group. In addition, the projects are published in the e-environment. Teacher should encourage peer assessment and interaction (asking clarifying questions, etc.). Each project is assessed according to the requirements elaborated during group discussion. We should note that students give preference to projects that have novelty, game plot, and completeness of the topic. As examples of projects carried out during the study of the module, we can highlight the works of the first-year bachelor students of pedagogical education. The projects were developed on the topic "Measurement of information. The alphabetical approach." Students who have completed the module received theoretical materials, the main requirements to the projects, as well as selected examples of e-learning resources from the Internet. After the fulfilment of the projects, students were asked to assess each other and to express their opinion on each project. Discussion and evaluation of projects were conducted in the e-environment, particularly in the networking group "Media online," where students embed links to their e-learning resources. The projects were mainly shaped as websites, videos, and presentations.

Among students' projects, we particularly distinguish works with the use of screen casting technology, with the addition of sound, video, and animation. Some students recorded the sound themselves and added various multimedia elements (graphics, infographics, and text). Such projects included not only well visualised and structured material, but also practical tasks to be completed after watching a video or a presentation.

Discussion

The analysis of projects on the theme "Measurement of information. The alphabetical approach," made some time after students had completed the described module, showed a growth of students' creative media competence level compared to projects made during the study. Students acquired certain knowledge and skills after studying the module "Network services for creating multimedia," so they showed their creativity and developed meaningful projects that could be included in their personal portfolios of future teachers.

Time was one of the indicators that we monitored: students were asked to mark "start" and "finish" of work with a particular service. As a result, we obtained an approximate time required to create a particular multimedia resource – images, movies, animation, electronic document, infographic. In addition, students noted the time required for the preparation of the final project and the project on "Measurement information. The alphabetical approach." A survey of students who participated in the module showed that, on average, they need three hours to create a multimedia resource on a particular topic, including graphics, animation, video with audio, and infographics.

The experiment showed that the teacher in the developed e-environment should regularly provide advice and support (both in person and remotely), process test results, and validate and evaluate works and projects. Statistics show that 85% of students successfully correct errors when advised by the teacher, and 97% of students correct mistakes and inaccuracies in the labs (Simonova & Ustiugova, 2016).

Observations show that the time required for a teacher to facilitate students' work in the designed e-environment is approximately 3–4 hours per week. The obtained estimated time includes such processes as:

- assessment of tests,
- news aggregation for the group in the social network,
- answers to students' questions, and
- assessment of students' assignments (laboratory works).

Conclusion

The e-environment elaborated and described in the paper makes it possible for students to study and master various tools for their own multimedia content creation and development of their own e-learning resources, while requiring an average of about 3 hours per one resource. Moreover, the environment provides students'

interaction with each other and with the teacher through all the necessary conditions created. The module structure of laboratory works allows students to choose their own educational route within the course, and detailed instructions and theoretical blocks provide the possibility to study the module remotely. This e-environment gives a teacher the opportunity to monitor students' progress and performance in a timely manner, to point out mistakes, and to solve organisational issues.

It is necessary to invite students to explore new media, which are sufficiently simple to master, but allow for developing quality projects without consuming much time (Noskova, Pavlova, & Yakovleva, 2016). This supports the development of students' media competence, together with their ability to create multimedia content.

References

Fedorov, A. & Levitskaya, A. (2017). Media education and media criticism in the educational process in Russia. European Journal of Contemporary Education, 6(1), 39–47.

Fedorov, A. V. (2007). Медиакомпетентность личности: от терминологии к показателям. Инновации в образовании, 10, 75–108.

Kubey, R. (1997). Media education: Portraits of an evolving field. In R. Kubey (Ed.), Media literacy in the information age. New Brunswick & London: Transaction Publishers.

Laptev V. V. & Noskova T. N. (2016). Педагогическая деятельность в электронной среде: перспективы нового качества. Педагогика: Научно-теоретический журнал, 10, 3–13.

Noskova, T., Pavlova, T., & Yakovleva, O. (2016) Social media for shaping professional experience of master degree students. In E. Smyrnova-Trybulska (Ed.), Theoretical and practical aspects of distance learning. E-learning methodology — Implementation and evaluation (pp. 91–101), volume 8. Katowice–Cieszyn: Wydawnictwo Uniwersytetu Śląskiego, Studio Noa.

Noskova, T., Yakovleva, O., Pavlova, T., & Smyrnova-Trybulska, E. (2015). Students in the information environment: A study of educational and extracurricular activities. International Journal of Continuing Engineering Education and Life-long Learning, 25(4), 394–410.

Pounaki, E. E., Givi, M. R. E., & Fahimnia, F. (2017). Investigating the relation between media literacy and information literacy of students of communication science and knowledge and information science. Iranian Journal of Information Processing Management, 32(2), 581–604.

Potter, W. J. (2001). Media literacy. Thousand Oaks–London: Sage Publications.

Silverblatt, A. & Enright Eliceiri, E. M. (1997). Dictionary of media literacy. Westport, Connecticut–London: Greenwood Press.

Simonova, I. & Ustiugova, T. (2015). Сетевые сервисы для создания и редактирования мультимедийного контента. In Новые образовательные стратегии в современном информационном пространстве: Сборник научных статей (pp. 259–263). HSPU Publishing House.

Simonova, I. & Ustiugova, T. (2016). Развитие медиакомпетенций студентов средствами сетевых технологий. In Новые образовательные стратегии в современном информационном пространстве. Методология электронного обучения: Сборник научных статей по материалам международной научной конференции 1 – 13 апреля 2016 года (pp. 51–59). HSPU Publishing House.

Thoma, J., Hutchison, A., Johnson, D., Johnson, K., & Stromer, E. (2017). Planning for technology integration in a professional learning community. Reading Teacher, 71(2), 167–175.

Zylka, J., Christoph, G., Kroehne, U., Hartig, J., & Goldhammer, F. (2015). Moving beyond cognitive elements of ICT literacy: First evidence on the structure of ICT engagement. Computers in Human Behavior, 53, 149–160.

Irina Simonova, Tatiana Ustiugova, Olga Yakovleva

Wpływ usług online na rozwój kompetencji medialnych u studentów

Streszczenie

W niniejszym artykule autorzy przedstawiają swoje doświadczenia związane z wykorzystywaniem przez studentów usług online do tworzenia zasobów edukacyjnych z komponentem multimedialnym. W badaniu uczestniczyli studenci różnych lat studiów pedagogicznych pierwszego stopnia. W artykule omówiono wyniki uzyskane w Rosyjskim Państwowym Uniwersytecie Pedagogicznym im. A.I. Hercena. Autorzy stworzyli specjalne środowisko e-learningowe dla modułu szkoleniowego. W czasie trwania eksperymentu opracowano wskaźniki mierzące rozwój kompetencji medialnych u studentów. Wykorzystując podejście A.V. Fedorova zbadano poziom pozyskiwania informacji, percepcji, motywacji, kontaktu i interpretacji. Analizie poddano prace studentów wykonane po zakończeniu pracy z modułem szkoleniowym.

Słowa kluczowe: zasoby e-learningowe, usługi online, multimedia, elektroniczne środowisko informacyjno-edukacyjne, kompetencja medialna

Irina Simonova, Tatiana Ustiugova, Olga Yakovleva

Применение on-line сервисов для развития медиа компетенции студентов

Аннотация

В этой статье авторы описывают свой опыт обучения студентов использованию онлайн-сервисов для разработки электронных образовательных ресурсов с мультимедийным контентом. В выборку вошли бакалавры педагогического образования разных лет обучения. В статье представлены результаты, полученные в Российском государственном педагогическом университете им. А.И. Герцена. Авторы разработали электронную среду для учебного модуля со всеми алгоритмами содержания и взаимодействия. В эксперименте авторы измеряли различные показатели развития компетенции студентов: информационную, перцептивную, мотивационную, контактную и интерпретационную (на основе подхода А. В. Федорова). После того, как студенты изучили предложенный модуль, был проведен анализ их проектов.

Ключевые слова: электронные образовательные ресурсы, мультимедиа, онлайн сервисы, электронная информационно-образовательная среда, медиа компетентность

Irina Simonova, Tatiana Ustiugova, Olga Yakovleva

El impacto de los servicios en línea en el desarrollo de la competencia mediática de los estudiantes

R e s u m e n

En este artículo, los autores describen su experiencia al introducir a estudiantes a servicios en línea para desarrollar recursos educativos electrónicos con contenido multimedia. La muestra de investigación incluyó a estudiantes de educación pedagógica de diferentes años de estudio. El artículo presenta los resultados obtenidos en la Universidad Pedagógica Estatal Herzen de Rusia. Los autores desarrollaron un e-entorno para un módulo de capacitación, con todos los algoritmos de contenido e interacción. En el experimento, los autores midieron varios indicadores del desarrollo de la competencia de los medios de los estudiantes: informativo, perceptivo, motivacional, de contacto e interpretación (basado en el enfoque de A. V. Fedorov). Después de que los estudiantes hayan estudiado el módulo propuesto, se realizó el análisis de sus proyectos.

P a l a b r a s c l a v e: recursos de e-learning, servicios en línea, multimedia, entorno de educación e información electrónica, competencia de medios

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Internet Blogs' Potential in Education

Abstract

The paper is devoted to general aspects of an Internet blog as an educational instrument and its prospects in education. The authors touch upon the connection between demographic challenges and the current educational trends, showing the main skills of Generation Z. A blog as a teaching tool can be broken down into a number of categories. The paper also discusses in short a few popular blogging platforms.

K e y w o r d s: education and learning, Web 2.0, blogs, blogging platforms, educational blogs

Introduction

The innovation process includes three components, namely: creation, development, and application of innovations. The key criterion for innovation is efficiency. Any innovation is designed to ensure the effectiveness of the educational process.

In the field of higher education, we distinguish the following types of innovations that are capable of improving the competitiveness of higher education institutions: "innovations in the content of higher education, innovations in the pedagogical process, innovations in organisational structures of higher education, innovations in the activities and relations between teachers and students, innovations in the field of educational services, development of cooperation with

social partners, personnel customers, and innovations in the field of international cooperation of higher educational institutions" (Šeliuk, 2013, p. 31).

The efficiency of innovation activity depends mostly on the way all participants of this process interact with each other. The system of relations arising in the innovative educational activity is aimed at the formation of subject-to-subject relations between the teacher and the student. Such a system radically changes the teacher–student relationship, turning them into partners who are responsible for the results of their work (Morze & Ignatenko, 2010, p. 32).

ICTs and a Younger Generation

Previous Research and Prospects in Education

The study of the main trends in the evolution of higher education in Ukraine was made possible due to the fundamental research in this thematic field by domestic and foreign specialists. Here, we must mention the research by V. Andrushchenko, V. Astakhova, V. Bakirov, V. Volovich, I. Gavrilenko, and others. The aspects of introduction of the Internet services in the educational process of educational institutions are discussed in the papers by O. G. Glazunova, V. P. Karpovskaya, N. V. Morze, K. M. Obukhova, V. V. Osadchy, Ye. D. Pataraquin, and others. It becomes evident that recent Internet developments provide a plethora of modes of study. However, the concept of an Internet blog and its advantages for teachers in terms of cooperation and interaction is not presented thoroughly in the academic scientific literature; therefore, there is a need for a more detailed study of the possibilities of blogs as means of interaction between a teacher and students.

According to a study realised within the framework of European Commission to identify new ways of obtaining education and training in Europe in 2020–2030, one of the experts expressed, among others, the following predictions:

- open online learning will become traditional;
- mobile devices will be used as the main instrument of learning;
- teaching materials will gradually become digital;
- open educational resources will be widely used by all subjects of the educational process;
- the community will not rely on experts as to the quality of knowledge and training programmes, but will move towards high-quality knowledge, verified through Internet resources;
- there will appear systems and services to provide mutual group learning;
- blogs and other multimedia materials published online will be considered as reliable scientific data;
- virtual mobility will blur boundaries between national education systems; and

- individual learning environments will develop more intensely than institutional online learning environment (Attwell, 2010).

The educational forecasts go in line with demographics. Modern students are representatives of Generation Z. Born and growing up in the information age, representatives of Generation Z, like no one else, can effectively work with information. They are able to analyse it literally "on the fly." They are constantly online and are constantly browsing through heaps of new information. The elder generation members tend to complain that people no longer write letters by hand and do not sit for 8 hours in a row at the table with books, totally focused. However, the fact remains – the world has changed, and we all are now getting new competences to adapt to new conditions. Generation Z might become the most educated one in the running history of mankind, mainly because of their exposure to an almost unlimited amount of information and teaching materials, as well as due to their skills to deal with all these resources. This means that the teacher should take this circumstance into account and confidently direct the students to the desired content.

A sociological survey with Ukrainian youth devoted to the values was held ("Динаміка користування Інтернет…"). Survey results show that 88.5% of young people regularly use a computer at home and 90.4% use the Internet. For comparison, only 21.8% and 22.6% of the interviewed young people use computers and the Internet at work. Answering the question "How often do you use the Internet?," 3% of the respondents commented that they use it once a day, 26% – twice or thrice a day, 65% are constantly online and 6% use the Internet rarely. Consequently, most of the youth are constantly online. This is due to the fact that now one can access the Internet not only with one's computer but also with the phone and other gadgets. Thus, since almost anyone now possesses a mobile telephone, then it is possible to be constantly online.

The social network is a large environment that brings together a huge number of people. Here one can find friends by interests, discuss any questions, comment on anything, and express one's thoughts completely free and, most importantly, absolutely anonymously. All these aspects attract young people. Therefore, in order to communicate in social networks, young people most often go online.

At the same time, the main purposes of using the Internet are the search for versatile thematic information, information for study or work (53.2%), communication in social networks (45.5%), and news (45.3%).

Taking into account the high percentage of young people using the Internet to search for versatile thematic information, the one for teaching, fulfiling their professional duties, as well as for communicating in social networks, there is a need to manage educational activity of young people.

Traditional forms of conducting classes in higher educational institutions are: lectures, seminars, laboratory and practical works, tests and examinations, and defence of coursepapers and diploma projects. Currently, it considerably

improves their vividness to rely on such modern ICT instruments as: multimedia presentations, blogs, Wikiquotes, geoinformation services, webcasts, virtual worlds, etc.

Table 1.
Distribution of answers to the question "For what purpose do you most often use the Internet?"

to look for different thematic information, information for studying, performing professional duties, etc.	53.2%
to communicate in social networks	45.5%
to hear the latest news	45.3%
to download or listen to music, watch films	38.7%
to communicate in chats, Skype, etc.	26.1%
to play computer games or download them	22.1%
to send and receive emails	18.5%
to search and download e-books	7.8%
difficult to answer	0.6%
to buy something online, to pay bills	0.4%
to work online	0.4%

S o u r c e: "Динаміка користування Інтернет…".

Current trends and demographic challenges call for a revolution in educational ideology, for a remote educational mode. For the systematic application of remote technologies based on Web 2.0 technologies in today's higher education institutions, special educational content management systems such as LCMS (Learning Content Management System) can be used, as they make it possible to implement tasks in the educational process related to the educational system of information society.

A Blog as a Teaching Tool

The most accessible and most widely used Web 2.0 services are network diaries (blogs) – small websites whose authors (bloggers) can manage access to information posted on the blog: make it accessible to all users or only to a specific audience. "Blog" comes from English bloging (blogging) – the entrance to the "World Wide Web," in which people keep their collection of records (Labud'ko, 2013). "It wasn't until 1997 that the term 'weblog' was coined. The word's creation has been attributed to Jorn Barger, of the influential early blog Robot Wisdom. The term was created to reflect the process of 'logging the web' as he browsed. 1998 marks the first known instance of a blog on a traditional news site, when Jonathan Dube blogged Hurricane Bonnie for The Charlotte Observer. 'Weblog' was shortened to 'blog' in 1999 by programmer Peter Merholz. It's not until five

years later that Merriam-Webster declares the word their word of the year" ("A brief history of blogging…"). The advantages of this technology include:

- the openness of information content to all participants;
- the efficiency of presenting information and access to it;
- a free individual schedule of visits for participants;
- interactivity – members of the network community (students, teachers, academic staff of educational institutions, administration of higher educational institutions, etc.) can leave their own records in the blog, read posts and publications of their colleagues, comment on the messages and respond to comments, and link posts and comments using hyperlinks.

The Advantages of Blogs in Teaching

The principles and features of Web 2.0 allow the use of free network software to organise the interaction of university instructors and to plan open lectures, webinars, educational events, intellectual competitions, etc. Despite the fact that school methods offer "closed" questions with unambiguous answers and continue to bring up children within an outdated cultural paradigm, modern students – former schoolchildren – are starting to think differently due to ICT technologies. Therefore, students should be offered "open" questions so that they could understand their "self" and reason, and thus develop their position to perceive the environment, self-reflect on it. Thus, students' personality is manifested and, accordingly, the person's identity is formed; as a consequence the person will never become a manipulated cog in the system.

Comparing traditional world of corporate education to digital learning, Hinchcliffe argues: "This is sharp contrast to the digital era, where knowledge is pervasive, instantly searchable, consumable on-demand, and kept continuously up-to-date by millions of daily global contributors to the online commons. This allows learning – for better or worse, depending on the critic – to be far more situational, on-demand, self-directed, infinitely customized, even outright enjoyable, depending on the user experience, all of which leads to more profound engagement of learners" (Hinchcliffe, 2017).

Summarising the pedagogical potential of blogs, let us first of all stress that in the process of receiving knowledge, transforming knowledge, and further publishing their works, students learn to construct knowledge based on relations and communication, that is, on interaction. For teachers, the works published by students are an opportunity to draw conclusions about how they transform and convey the meanings and strategies mastered within the framework of social experience. For students, such a publication is the ground for further reflection and analysis, which allows them once again to turn to their reflections and reconsider them, thus enriching their own experience. The possibility of posting comments to posts facilitates feedback and potential support for new ideas, while the chance to include hyperlinks to other resources helps students understand the interconnections

and the context of knowledge, its structure and reception. References to sources help the reader determine how relevant the author's blog is to his or her conviction (Labud'ko, 2013).

Hicks lists general benefits of using blogging as a classroom tool; it improves student involvement with study materials, provides more chances for students to collaborate with each other, and enriches students with another channel of communication with the professor (Hicks, 2013).

There are interesting results from book reviewing of a university professor in an open blog. There is evidence that such reviewing is quite detailed even compared to reports from peers chosen by the editorial office (Young, 2009).

Apart from evident benefits for distance learning on the whole, where instructors and students from different parts can teach and learn together, let us refer to a few important points, made by a group of Spanish colleagues:

- teacher–student interaction continues in distance mode;
- blogs are environments of compromise for students with various mindsets;
- some weblogs are open for team work and group learning;
- it simplifies final assessment:
- a wider student community can get an insight about information technology;
- participation in blogs gives students some experience in using information technology before employment;
- blogging promotes skills of informal interaction and creative self-expression.

At the same time, it is quite understandable that blogs represent a bigger effort from the teachers' side than traditional presence classes:

- managing a blog is quite time-consuming for teachers;
- for the project outcomes to be accurate, there should be a continuous flow of feedback from the teacher and fellow students from the weblog (Luján-Mora & Juana-Espinosa, 2007).

This idea is evidently supported by a number of researchers and educators, for instance here: "community and informal learning platforms need some initial content to ensure there is enough usefulness from the outset to achieve effective adoption by the workforce. This requires an investment in content production (short training videos, articles, and blog posts that can trigger participation and co-creation)" (Hinchcliffe, 2017).

Popular Blogging Platforms

The blogging mode can be chosen by the bloggers themselves. In case there is a need to make the blog individual, standing out in design and allowing special functions, then it is developed as a website. If it is more crucial for the author to easily upload new posts and manage publications, then specialised blogging platforms will be in use. They are called blogging platforms or services for managing blogs.

Below a few most popular blogging platforms are presented ("The 14 best free blogging platforms…"), based on their popularity, visitor statistics, and functional opportunities.

1. **Wix** (https://ru.wix.com) – here, there are around 500 creative templates; one can also find here a lot of extra features and apps, and superb hosting. The resource provides users with 500MB storage, 1GB bandwidth, and a free Wix account. There is an option of premium plans.
2. **Yola** (https://yola.com) – at Yola's free plan one is given a modest offer of two sites and three web pages, but also 1GB of both storage and bandwidth. It is easy to use; the resource provides users with dozens of customisable designs templates, a website builder, customisable flexible layouts, and functions of drag-and-drop.
3. **Jekyll** (http://www.jekyllrb.com) – Jekyll is described as a static site generator, destined for blog creation. The developer team call it "blog aware" since users create their content in the form of text files (Markdown), and then put them into folders. It means that writing blog posts equals managing text folders on one's PC, which should be named according to specific format. Then, Jekyll suggests a variety of Liquid-enhanced HTML templates which the resource fuses with users' content. Users receive a website relying on static assets and ready to be uploaded to any server. The customer can then host their projects on GitHub's servers for free. This gem can be installed on most systems: MacOS, Ubuntu Linux, Windows, and can be upgraded with time.
4. **WordPress** (http://www.creativebloq.com/tag/wordpress) – WordPress is open source software that can be used to create websites, blogs, complex portals, enterprise websites, or applications. WordPress features usability for average customers and the sophistication for experienced developers. WordPress boasts that as much as 30% of the web uses are serviced by WordPress. Here users will find over 40 000 plugins for specific needs: online store, galleries, mailing lists, forums, analytics, etc. WordPress is a vibrant community that hold monthly meetups in 436 cities worldwide.
5. **Tumblr** (https://www.tumblr.com) – Tumblr covers both blogging and social networking functionality so it can be argued it is in-between WordPress and Twitter. As to a blogging option, Tumblr is a microblogging platform allowing to follow other blogs, reblog, share, and more. Tumblr users find it easy to quickly post videos, GIFs, images, and audio formats. Users can connect their blogs to their Twitter and Facebook pages. It is free and very easy to use.
6. **Blogger** (http://blogger.com) – it is a blog-publishing service. The platform has been run by Google since 2003. Blogger provides basic blogging experience to its users. Blogger provides a modest number of templates to use, where one can modify the colours and layout using the built-in tools, but one cannot create one's own layouts. Blogger is supported by Google's strong security platform.

7. **Medium** (http://medium.com) – Medium is a socially-oriented place that promotes writing, organised in a number of predefined segments. The platform is focused on people, quality, original ideas, clean reading experience, engagement, and depth, as well as viewpoint, rather than advertisers, quantity, sponsored content, pop ups and banners, clickbait, and pageviews. Medium offers paid subscription either $50/year or $5/month.
8. **LiveJournal** (http://livejournal.com) – LiveJournal is a community publishing platform, combining features of blogging and social networking. LiveJournal welcomes creative individuals, and promotes interaction and personal expression in the community owing to its user-friendly interface and customisable journal. There are over 50 million journals organised in topics like politics, entertainment, fashion, literature and design, etc.

Blogs in Education

There is a wide discussion as to kinds of blogs according to the functions of educational activity. It has been argued that blogs can be of the following kinds: "a blog for professional community, a personal blog of a subject teacher, a blog to support an educational project, a workbook blog or a blog to present the learning materials of some topic" (Rožděstvenskaja, 2008).

Vividly, the variety of blogs could be represented by broader classes. According to Zaharova, "teaching blogs can be divided into two main groups: those of methodical and informative nature. Methodical blogs in turn are divided into thematic ones and blogs of subject teachers, while informative blogs can be presented by a blog of the class teacher (for the school – a class blog), a blog as a training project, a blog of the association, a blog for students' distance support" (Zaharova, 2015, p. 1).

In the group of methodical blogs, we have collected a short list of links to useful blogs for the teaching community.

A blog resource EduGugu (http://blog.eduguru.in/) suggests ideas on online learning, web tutorial, software development, call centre technology suits, and provides technical support for them.

Blog High Ed (http://www.bloghighed.org) is a higher education blogger network where we can read about current issues in higher education, namely the following experts: webmasters, marketers, vendors, counsellors, consultants, and more.

Casting Out Nines (http://rtalbert.org/blog) is a blog of ideas and opinions on mathematics, technology, and education from Robert Talbert, an associate professor in the Mathematics Department at Grand Valley State University in Allendale, Michigan, an inspired presenter and expert in the areas of e-learning, independent learning, and other areas.

Changing Higher Education is a blog from Lloyd Armstrong, University Professor Emeritus and Provost Emeritus at the University of Southern California

(Changinghighereducation.com), which presents the author's views on future developments in university education, with a specific interest in higher education financing and globalisation. There is a counterbalancing set of new resources and processes that can be used to help meet the challenges (changing economic conditions, technological advances, and globalisation provide numerous challenges to the status quo of American higher education) and create new opportunities – MOOCs, outcomes based learning, etc.

Coursera blog (https://blog.coursera.org/) provides insights and inspiration for teaching world-class courses online, on data science, computer science, business, personal development, and arts and humanities.

The blog of Eric Stoller (www.ericstoller.com/blog) suggests ideas on how educators can use social media for learning and engagement, and hints about teaching students about digital identity development. With a background in student affairs, academic advising, wellness, technology, and communications, Stroller focuses his energies on educating clients and captivating audiences.

Yet another blog GlobalHigherEd (https://globalhighered.wordpress.com) is designed to share information about progress in education policy, useful resources and the like in order to have a clear idea of the changes in educational organisations globally. The contributors are motivated to research in the ways knowledge spaces are growing increasingly connected with developments in "knowledge economy."

Conclusion

Blogs can serve as instruments of distance learning, where an important thing is that one can convey information. At the same time, we should keep in mind that possessing information or knowledge and understanding something are two different things. People build their understanding to a large extent through interactivity with other people, and here we observe a proper multiplication of knowledge through comparing different mindsets. Knowledge is developed inside a person's mind, so it is very complicated to pass it through the screen, while information can be passed. The most useful thing is to merge two methods: where one needs to understand something, interactivity should be applied, while in order to get information one should go online. Therefore, the qualitative student–teacher interaction through a blog can provide a dynamic cognitive activity. Hence, blogs have a great potential for active and interactive learning, intensive interaction between students and teachers, the development of higher-order thinking skills, and greater flexibility in the learning process.

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References

A brief history of blogging. Accessed 15 October 2017. Retrieved from https://www.webdesignerdepot.com/2011/03/a-brief-history-of-blogging/.

Ananny, M., Strohecker, C., & Biddick, K. (2004). Shifting scales on common ground: Developing personal expressions and public opinions. International Journal of Continuing Engineering Education and Life-long Learning, 14(6), 484–505.

Attwell, G. Crowd sourcing the European foresight study: your chance to be an expert. Accessed 10 October 2017. Retrieved from http://www.pontydysgu.org/2010/01/crowd-sourcing-the-european-foresight-study-your-chance-to-be-an-expert/.

Динаміка користування Інтернет в Україні: травень 2017. Accessed 1 October 2017. Retrieved from http://kiis.com.ua/?lang=ukr&cat=reports&id=705&page=1&t=5.

Generation Z: Як підвищити суб'єктність нового покоління. 7 думок про виховання та освіту від Олександра Саврука, декана Києво-Могилянської бізнес-школи. Accessed 30 September 2017. Retrieved from http://womo.ua/generation-z-yak-pidvishhiti-sub-yektnist-novogo-pokolinnya/.

Grannell, C. (2017). The 14 best free blogging platforms. Accessed 10 September 2017. Retrieved from https://www.creativebloq.com/web-design/best-blogging-platforms-121413634.

Hicks, K. (2013). The benefits of blogging as a learning tool, part 1. Accessed 18 September 2017. Retrieved from http://www.gettingsmart.com/2013/12/benefits-blogging-learning-tool-part-1/.

Hinchcliffe, D. (2017). The digital transformation of learning: Social, informal, self-service, and enjoyable. Accessed 30 September 2017. Retrieved from http://www.zdnet.com/article/digital-transformation-of-learning-social-informal-self-service-enjoyable-mooc-education/.

Kudryavtseva, I. A. (2012). Образовательный блог в деятельности учителя-предметника. In Proceedings from Теория и практика образования в современном мире: материалы Междунар. науч. конф. (Saint-Petersburg, February 2012) (pp. 408–410). Saint Petersburg: Renome. Accessed 30 September 2017. Retrieved from https://moluch.ru/conf/ped/archive/21/1646/.

Labud'ko, S. P. (2013). Блог як сучасний засіб взаємодії вчителів. Всеукраїнська науково-практична Інтернет-конференція «Електронні інформаційні ресурси: створення, використання, доступ» (Vinnitsya, 29–30 April 2013). Accessed 12 October 2017. Retrieved from http://liyalno1.blogspot.ru/2013/04/blog-post_30.html.

Luján-Mora, S. & Juana-Espinosa, S. (2007). The use of weblogs in higher education: Benefits and barriers. Accessed 1 October 2017. Retrieved from http://desarrolloweb.dlsi.ua.es/blogs/use-of-weblogs-in-higher-education-benefits-and-barriers.

Morze, N. V. & Ignatenko, O. V., (2010). Methodical features of webinars as innovative technology of education. In Information technologies in education, Issue 5 [collected scientific papers] (pp. 31–39). Kherson: HSU.

Ogrodzka-Mazur, E. & Gajdzica, A. (2015). "New professionalism" of the teacher and education towards interculturalism. International Journal of Continuing Engineering Education and Life-long Learning, 25(4), 487–497.

Roždestvenskaja, L. (2008). Такие разные блоги …. Accessed 16 October 2017. Retrieved from http://ljudmillar.blogspot.com/search?q=такие+разные+блоги.

Šeliuk, L. (2013). Модернізація освіти як інноваційний процесс. Вісник Інституту розвитку дитини. Філософія, педагогіка, психологія, 29, 31–36. Accessed 1 October 2017. Retrieved from http://nbuv.gov.ua/UJRN/Vird_2013_29_8.

Wang, Q., Quek, Ch. L., & Zhong, B. (2017). Teachers' time investment in online teaching. International Journal of Continuing Engineering Education and Life-long Learning, 27(1/2), 111–121.

Young J. R. (2009). Blog vs peer review final report: Lessons learned. Accessed 30 September 2017. Retrieved from http://www.chronicle.com/blogs/wiredcampus/blog-vs-peer-review-final-report-lessons-learned/7166.

Zaharova, M. V. (2015). Педагогический блог — инновационная форма взаимодействия в образовании (на примере проекта «Блогосфера» МКУ КМЦИКТ «Старт» города Краснодара и муниципального конкурса «Лучший блогер»). Образование и воспитание, 5, 1–3. Accessed 30 September. Retrieved from https://moluch.ru/th/4/archive/18/331/.

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Potencjał blogów internetowych w edukacji

S t r e s z c z e n i e

Niniejszy artykuł jest poświęcony ogólnym aspektom wykorzystywania blogów internetowych w edukacji. Autorzy zastanawiają się nad związkiem między wyzwaniami demograficznymi a obecnymi trendami w nauczaniu, skupiając się na umiejętnościach pokolenia Z. Wyróżniono liczne kategorie blogu jako narzędzia edukacyjnego. Przedstawiono także kilka popularnych platform do blogowania.

S ł o w a k l u c z o w e: edukacja i uczenie się, narzędzia 2.0, blogi, platformy do blogowania, blogi edukacyjne

Kateryna Poznanska, Maryna Romaniukha, Liudmyla Sorokina

Потенциал Интернет блогов для образования

Аннотация

Статья посвящена общим вопросам Интернет-блога как учебного инструмента и его перспектив в образовании. Авторы затрагивают связь между демографическими проблемами и текущими тенденциями в области образования, демонстрируя основные навыки поколения Z. Блог как инструмент обучения можно разбить на несколько категорий. В документе также кратко обсуждается несколько популярных платформ для блогов.

Ключевые слова: образование и учение, веб 2.0, блоги, платформы блогов, образовательные блоги

Kateryna Poznanska, Maryna Romaniukha, Liudmyla Sorokina

El potencial de los blogs de Internet en Educación

Resumen

El artículo trata los aspectos generales del blog en Internet como un instrumento educativo y sus perspectivas en materia de educación. Los autores tocan la conexión entre los desafíos demográficos y las tendencias educativas actuales, mostrando las habilidades principales de la generación Z. El blog como herramienta de enseñanza se puede dividir en una serie de categorías. El documento también analiza en pocas palabras algunas plataformas populares de blogs.

Palabras clave: educación y aprendizaje, web 2.0, blogs, plataformas de blogs, blogs educativos

III

Methodological Aspects of E-learning Implementation

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Use of Information Technologies in Upper Secondary Education – Practical Inspirations from Karol Miarka Upper Secondary School Complex No. 2 in Pszczyna

Abstract

In the foreseeable future multimedia will not replace natural teaching tools. However, there are a number of didactic situations where the use of indirect forms of reality description is advisable or even necessary.

The article aims to present elementary pedagogical practice in the field of contemporary educational technologies and to show the creative quest and reflexive enrichment of the pedagogical style of teaching, in which particular skills are used. The presented problems contribute to future research into the analysis of teachers' skills development in terms of the use of computer programmes in school management.

What presents a challenge to the Digital School is education in cyberspace, e-learning, new technologies and solutions, accompanied by simultaneous prevention of media-related risks. Schools need to keep abreast of the rapidly changing reality – only in this way can they produce beneficial educational results for society in the 21st century.

K e y w o r d s: Internet, multimedia, computerisation, digital school

Preliminary Reflections – Information Technology

Information education is education preparing for life in information society. Today's students are tomorrow's teachers – they will be teaching other people. Educators and psychologists say that what causes various qualities to develop in children and youth is the influence that mass-media have on their audiences. The term "influence" can be taken to mean a direct response to a stimulus or a long process that manifests itself in various changes, often hardly perceptible, occurring in different periods of one's mental life, in development of norms, and in the ability to make moral and aesthetic judgments. Hilda Himmelveit has identified three types of influence that media have on children and youth. These include direct, cumulative, and subconscious influence (Himmelweit et al., 1958, p. 79, quoted in: Koblewska, 1980, pp. 89–90).

That is why it is necessary to introduce media education courses; young people should be taught how to develop their faculty of will, how to develop emotions, and how to mould proper attitudes which are the most important result of the educational process. Media education means shaping proper attitudes towards the mass-media. "Attitude" as such means an individual's relatively permanent stance (negative or positive) towards a specific object (Karkowska, 2007, pp. 167–179).

A classification of new media has been proposed, with the first two items being particularly relevant to work at school:

1) teaching and learning,
2) educational help,
3) obtaining professional qualifications, and
4) distance learning tool (Gajda, 2004, pp. 33–37).

IT will allow the student to acquire extensive knowledge and skills to use computers running various operating systems, to instal, configure, and use various types of software, as well as to independently develop software applications. The student will become familiar with the structure, principles of operation, and use of digital components and systems, microprocessor systems, as well as multimedia devices. He or she will also be responsible for the creation, configuration, and administration of computer networks. The student will be able to apply the knowledge acquired to the development of web applications, which today are inherent components of every website, and to create both static graphics and animations as website elements (Batorski, 2006, pp. 131–133).

The practical aspect should be emphasised in the whole teaching cycle. Learners should recognise both the tremendous benefits of the widespread use of IT tools and the risks that come with their ever-increasing use.

School and Media – A Practical Application

Media are standard teaching tools in many educational institutions, and outside schools they serve as communication tools, overcoming the barriers of distance and isolation, making it possible for many different people to study at many different places at the same time. Media education provides teachers with more freedom to choose how they teach a particular lesson. At present much emphasis is laid on modern teaching methods, based on the use of technical means as well as various multimedia programmes (Hatalska, 2002, pp. 47–48).

The use of multimedia presentations in the teaching and learning process involves presentations taking over some of the teacher's roles. Richard I. Arends defines them as interaction functions, and reviews them according to the mode of operation of a particular educational establishment (Arends, 2000, p. 264). Drawing on the works of cognitive psychologists, and Ellen Gagné in particular, Arends identifies three types of knowledge: declarative, procedural, and contextual one. Declarative knowledge is a systematised collection of information about the reality. Procedural knowledge is a set of skills and information about the ways in which particular activities are carried out. Contextual knowledge allows for the effective use of declarative and procedural knowledge; contextual knowledge also includes attitudes that are characterised by determination to use the information and skills acquired. These definitions are consistent with a psychological concept of representation systems which lays emphasis on teaching that supports students' active thinking and information processing.

Schools take steps aimed at making the student a creative individual, capable of obtaining necessary knowledge and skills independently. Schools work to ensure high academic standards, to prepare students for further education, and to provide conditions for each student's comprehensive development, as well as high quality of instruction and education.

Nowadays it is difficult to imagine school education without modern technologies. IT is an area that evolves rapidly. In order to keep up to date with IT, it is necessary to continuously update one's knowledge and skills. That is why it is so important for schools to have highly qualified teachers who are open to new ideas and further improvement of their skills, and head teachers who have a vision for their schools and are open to innovations, competent, and straightforward. What is also useful are specialised computer programmes for individual subjects, particularly in vocational schools.

In Upper Secondary School Complex No. 2 in Pszczyna, instead of interrelated loosely connected lessons, many subjects are combined into projects spread over several units. They are implemented by a group of students. These projects have the task of mobilising students to work independently, and during them materials

prepared by the teacher and the textbook are only indicative of the achievement of learning objectives using computer technology.

In the school chronicle there is a motto that indicates the aims of education in this institution, the development of the student, but it also related to the media: "Help others develop and make it the greatest joy of your life" (A. L. McGinnis). We are ready to share our knowledge, skills, and long-standing experience, in order to prepare our students for life as successful citizens in a changing world.

During lessons teachers use interactive whiteboards, interactive software for particular course-books, DVDs, and films; they prepare banks of additional exercises and resources for use in case the lesson objectives are completed earlier than expected.

Thanks to the use of technology at school, teachers can ask willing students, giving sufficient advance notice, to prepare (individually or in groups) media presentations on a specific subject; the students are required to search for information independently in a variety of sources of knowledge, to select the material gathered, and to present the results of their work in front of the class audience while the fellow students are asked to evaluate the presentation after it is given.

One of the school's strategic goals, as stated in its mission statement, is to increase the use of information technology in the didactic process. The school's overriding objective is to increase students' motivation to learn by making the educational process more attractive. Efforts are being made to improve the availability of information technology to students and teachers (computers, multimedia equipment, interactive whiteboards etc.) so that they could perform tasks related to various spheres of life.

The Pszczyna school has two computer laboratories, and in the library there is a multimedia centre. The school's ample educational facilities ensure young people's comprehensive physical and intellectual development as well as the opportunity to acquire qualifications or learn a trade.

All of the lab classrooms are equipped with study aids and modern audio-visual equipment. Of the lab classrooms especially worth mentioning, there are computer laboratories which are equipped with modern computer equipment and software allowing students –following both the IT technician curriculum and other study paths – to properly learn how to operate and use computers.

Preparing students for a career as an IT technician often involves the use of materials found on the Internet, in online directories, software and hardware manufacturers' websites, user forums, etc. As far as computer hardware is concerned, the materials used are always newest and up-to-date (e.g. latest equipment specifications), which is their advantage over textbooks about hardware which at the moment of printing are already outdated due to rapid development of technology.

Below, benefits of attending the classes for the student are presented. He or she:

- is capable of purposeful computer use in information society;
- is familiar with potential risks associated with computer use and uses computers in accordance with ergonomic standards and occupational hygiene guidelines;
- can practically and effectively use selected software – also available in computer networks – to obtain and process information (e.g. can prepare documents using word processors, can use spreadsheets to make calculations and graphics to present numerical data, can prepare effective multimedia presentations, and can process images, text, and sounds);
- can use a computer to design, plan, and independently execute projects;
- uses computers to study and at work;
- is familiar with ethical principles applicable to media use and can observe them in conscious, critical reception and creation of media messages;
- is familiar with methodology relating to teaching with latest information technologies;
- can use IT in the didactic process to develop class scenarios and educational materials, and to carry out other cultural and community-related activities;
- can search for and verify content on the Internet (that is, knows strategies for searching for information);
- can develop their own content using Web 2.0 tools (Internet 2.0);
- is familiar with e-learning fundamentals; and
- can deliver an educational project using IT (e.g. WebQuest).

The student can also obtain the latest software versions that are compatible with his or her hardware platform from the Internet. Before classes and lessons, it is necessary to set up and check hardware and software intended for use during the lesson. Sometimes it is necessary to solve technical issues. When preparing their workstations, students have to resolve certain technical issues unassisted. In such cases they go online, e.g. to download hardware drivers, instruction manuals, or software compatible with the hardware used, to find advice on Internet forums.

When preparing to take their examinations, students use online practice tests, e.g. www.egzamin-informatyk.pl, www.kwalifikacjewzawodzie.pl, www.technikinformatyk.pl, www.testy.egzaminzawodowy.info/technik-informatyk. These websites allow students to verify their theoretical knowledge and have instant access to test results.

Specimen practical assignments are obtained from the Internet; students complete them and subsequently discuss and evaluate them as a group. Students send in their homework and other assignments to a dedicated email address. The electronic register makes teachers' and tutors' work easier and more efficient by automatically generating statistical data and reports on the basis of current data. This, in turn, facilitates school management.

During lessons and integrated education classes, computer hardware and software is used to independently prepare teaching materials; multimedia projectors are used to present materials prepared, students give presentations of their

assignments and watch instructional movies. The students learn to use presentation software (Prezi) to create presentations and hold debates on topics of human relationship with media in the following aspects: social aspect – the functioning of an individual in a virtual world, Internet communities, digital course-books in education, computer games potential, media ecology, risks associated with medial culture, e-learning in education.

Within the e-learning framework, a Cisco instructor runs a School Cisco Academy and teaches the following courses: IT Essentials (hardware and software basics), CCNA (computer network basics), and Linux. The Cisco Academy provides access to the www.netacad.com international multimedia e-learning platform, where course participants have their individual accounts. Those attending courses follow their course curricula online, perform tasks and exercises, and take partial examinations, final examinations, and a practical examination in the instructor's presence.

Programming tools, such as HTML editors and office suites, allow the user to create interactive multimedia presentations that take into account the audience's cognitive abilities and preferences, and determine the audience's level of knowledge and competence.

Most of the programmes used to create educational media (Microsoft PowerPoint, Microsoft FrontPage, Macromedia Dreamweaver, free programs: Open Office, NVU, the Moodle educational platform) have extensive help systems, are available in Polish versions, and come with creators and presentation templates. What merits special mention is WebSite X5 – a creator that allows users to create a website step-by-step using ready-made templates. It is a comprehensive solution as it does not require any other programmes to work with, e.g. applications for exporting files to a WWW server. After watching a short instructional video on the Manufacturer's website, each user can create his or her own website very quickly. Unfortunately, no Polish version is available; still, the number of features that the user needs to master is very low. Thanks to extensive literature and easy availability of the software, each interested individual can quickly learn the basics of multimedia presentation creation.

Video projectors allow viewers to watch films and presentations on large screens. Applications that transfer images from a teacher's computer screen to his or her students' computers are available. NetOp School is a very good example of such an application. By interacting with the applications being presented by the teacher, the students co-create the presentation. The teacher can preview all the students' screens, remotely disable or shut down the computers, send out or download files, and record the students' activity (Jędryczkowski, 2008, pp. 59–83).

Students are involved in the IT-School project (https://it-szkola.edu.pl). They attend online lectures in selected subjects. The lectures are supplemented with quizzes, presentations, and tests. What is included in the lectures is also content related to teaching materials development methods as well as errors,

faults, and advantages of multimedia software. The lectures also address media use in education (also based on empirical experience), human communication with the computer, communication models, creative aspects and risks associated with manipulation. The school's website is maintained on Google Sites, where authorised users have access to materials for lessons and other resources.

Students need to be reminded that the Internet not only is meant for providing entertainment, but also is a tool for work-related purposes. Students should be taught how to use the Internet to solve technical issues, where to find reliable information, how to interpret and implement solutions obtained. Work should be consistently continued to develop a reliable professional attitude in students and to imbue them with a sense of responsibility for their work.

Here are some examples of the achievements of the Digital School in Pszczyna:

- Secondary technical school students pursuing extended curricula for IT technicians and mechatronic technicians, as well as systems and renewable energy curricula regularly visit the Silesian University of Technology in Gliwice for academic purposes. They enhance their knowledge on, for example, artificial neural networks.
- As part of the Unibot Silesian Science Festival [Śląski Festiwal Nauki Katowice Unibot] and University Scientific Society – Silesian College of the University of Silesia in Katowice [Uniwersyteckie Towarzystwo Naukowe – Wszechnica Śląska Uniwersytetu Śląskiego w Katowicach], every year a tournament/race is held for primary school pupils as well as middle and secondary school students, called "Eco-Race." As part of the university initiative (Unibot), construction and programming classes are held for children, youth, and teachers. "Eco-Race" is designed to encourage students to think creatively and to learn in interesting and unconventional ways. The idea behind the competition is to build an eco-racing vehicle that is made from 100% recycled materials. After such vehicles are constructed, they race over a distance of 4 metres (without electric power).
- Every year the school holds a competition as part of the "Euroelektra" Electrical and Electronic Knowledge Contest organised by the Association of Polish Electrical Engineers upon the request of the Ministry of National Education. Students from the Pszczyna school always score high in the Silesian Province ranking.
- Around November, the Grand IT Test competition is held. Contest participants take knowledge tests in various IT areas which are made available on the IT Szkoła website and on the Facebook profile (selected tests) over the period from November to May.
- The students' track record of success includes coming in third in the M@tando nationwide mathematics and IT contest. Waiting for the results to be announced, the students attended the "Timeline and Virtual Reality" workshop,

organised by RCS2/Apple. The prize award ceremony was graced by the Minister of National Education.

- Every year, the Pszczyna school students come in top positions in the MIKROPROFESOR Rev. Prof. Józef Tischner Nationwide IT Competition. It is a multidisciplinary competition, with one of its aims being to promote the use of IT in various spheres of life; the competition, however, concerns more than merely completing tasks related to particular IT areas.

These are but a few examples of how education supported by media and new technologies produces tangible instructional results and supports young people's interests and hobbies.

The students' greatest success to date is their internship stay in Portugal, where they learned the ropes, secret IT tips, and new technologies.

Figure 1. IT students with the school head teacher, Piotr Cygan (first on the right), in Portugal. Photo by Natalia Ruman.

Conclusion

According to European Commission forecasts, over the next few years in member states there will be a significant increase in demand for IT specialists. The most probable scenario envisages that by 2020 the number of IT specialists employed will increase by a total of approximately half a million. Demand for IT

specialists is increasing faster than their employment. It is important that learning outcomes be properly selected based on the curriculum. Labour market analysts point out that IT specialists most commonly use the following programming languages: SQL, HTML, CSS, and PHP. MSSQL, Oracle, and MySQL are the most popular database tools. According to statistics on IT specialists' competencies, most of them administer LAN networks (31%), and a slightly lower number deal with broadly understood http server service provision (30%). On the other hand, information from job offers provides a clear picture of employers' requirements. 41% of job offers target programmers (mostly web application programmers), 20% – network administrators, and 16% – computer system installation and servicing technicians (source: http://pzs2pszczyna.pl/index.php/kierunki-ksztalcenia/technik-informatyk, "Internet zagrożeniem?…").

Students are provided with solid theoretical knowledge of unchanging and always relevant computer science fundamentals, both theoretical and technical ones. Students will be able to apply for the following positions:

- IT system analyst,
- application designer and programmer,
- web application designer,
- computer game programmer (an engineering course),
- data analyst (an engineering course),
- software integration specialist,
- information management specialist (e.g. in healthcare establishments), and
- information security specialist.

Contemporary computer use in schools not only poses classic challenges before students but also requires them to demonstrate computer science creativity, i.e. to possess the ability to solve non-routine problems that call for artificial intelligence methods and techniques. It can be said that both in Poland and other countries there is a real need for "digital schools."

The use of technology in school today cannot be limited to computer use, web development, or learning programming. The widespread use of IT tools and the ongoing use of the Internet in other areas of social life has led to a growing educational dimension in the implementation of the computer science curriculum. Teachers primarily commit themselves to: educating students about cybercrime problems and about respecting the effects of other people's work (including the protection of copyright), developing skills in the computerised world, and making the students aware of the benefits and risks of technological progress.

References

Arends, I. R. (2000). Uczymy się nauczać. Warszawa: PWN.
Batorski, D. (2006). Korzystanie z Internetu – przemiany i konsekwencje dla użytkowników. In Ł. Jonak et al. (Eds.), Re: internet – społeczne aspekty medium. Polskie konteksty i interpretacje (pp. 119–152). Warszawa: Wydawnictwa Akademickie i Profesjonalne.
Gajda, J. (2004). Media w edukacji. Kraków: Oficyna Wydawnicza Impuls.
Hatalska, N. (2002). Multimedia w szkole. Nauka języków obcych. Nowa Szkoła, 4, 44–59.
Himmelweit, H., Oppenheim, A., & Vince, P. (1958). Television and the child: An empirical study of the effect of television on the young. London: Oxford University Press.
Internet zagrożeniem? Materiały Ośrodka Rozwoju Kompetencji Edukacjnych w Bielsku-Białej z szkolenia z dnia 11.05.2016 r.
Jędryczkowski, J. (2008). Prezentacje multimedialne w pracy nauczyciela. Zielona Góra: Oficyna Wydawnicza Uniwersytetu Zielonogórskiego.
Juszczyk, S. (2002). Metodyka nauczania informatyki. Toruń: Wydawnictwo Adam Marszałek.
Karkowska, M. (2007). Socjologia wychowania. Łódź: Wydawnictwo Wyższej Szkoły Humanistyczno-Ekonomicznej w Łodzi.
Koblewska, J. (1980). Szkoła i środki masowego oddziaływania. Warszawa: Wydawnictwo Państwowe Zakłady Wydawnictw Szkolnych.
Krzysztofek, K. (2007). WEBski świat: mądrość tłumów sieciowych czy zbiorowe nieuctwo? In A. Keen, Kult amatora. Jak internet niszczy kulturę (pp. 11–23). Warszawa: Wydawnictwa Akademickie i Profesjonalne.
Siemieniecki, B. & Lewandowski, W. (2000). Internet w szkole. Toruń: Wydawnictwo Adam Marszałek.
Smyrnova-Trybulska, E. (2004). Podstawy wykorzystania komputera. Sosnowiec: Wydawnictwo WSZiM.
Wojtuszkiewicz, K. (2007). Urządzenia techniki komputerowej. Warszawa: PWN.

Natalia Maria Ruman

Wykorzystanie technologii informacyjnych w szkole średniej Praktyczne inspiracje pochodzące z Powiatowego Zespołu Szkół nr 2 im. Karola Miarki w Pszczynie

Streszczenie

W przewidywalnej przyszłości multimedia nie zastąpią tradycyjnych narzędzi wykorzystywanych do kształcenia. Jednakże w licznych sytuacjach dydaktycznych wskazane jest użycie niebezpośrednich sposobów przedstawienia rzeczywistości.

Celem niniejszego artykułu jest omówienie podstawowych praktyk pedagogicznych z zakresu wykorzystywania współczesnych technologii w edukacji oraz ukazanie kreatywnych poszukiwań i pełnego refleksji ulepszonego nauczania wykorzystującego potrzebne do tego umiejętności. Zaprezentowane problemy posłużą do przeprowadzenia przyszłych badań nad rozwojem umiejętności nauczyciela z zakresu wykorzystania programów komputerowych do zarzadzania szkołą.

Wyzwanie dla cyfrowej szkoły stanowią edukacja w cyberprzestrzeni, e-learning, nowe technologie i nowe rozwiązania oraz zapobieganie towarzyszącemu im ryzyku. Szkoły powinny dotrzymywać kroku zmieniającej się rzeczywistości, bowiem tylko w ten sposób efektem ich pracy będą korzyści edukacyjne na miarę społeczeństwa XXI wieku.

S ł o w a k l u c z o w e: Internet, multimedia, komputeryzacja, cyfrowa szkoła

Natalia Maria Ruman

Использование информационных технологий на заключительных этапах среднего образования Практический опыт Комплекса средней школы К. Миарка № 2 в г. Пщине

А н н о т а ц и я

В обозримом будущем мультимедиа не заменит инструменты естественного обучения. Однако существует ряд дидактических ситуаций, когда использование косвенных форм описания реальности является целесообразным или даже необходимым.

Целью статьи является представить элементарную педагогическую практику в области современных технологий обучения и показать творческий квест и рефлексивное обогащение педагогического стиля обучения, в котором используются навыки. Представленные проблемы способствуют будущим исследованиям в области анализа развития навыков преподавателей с использованием компьютерных программ в управлении школами в их профессиональной деятельности.

Вызов для Цифровой школы представляют - образование в киберпространстве, электронное обучение, новые технологии и решения, сопровождаемые одновременной профилактикой рисков, связанных со средствами информации. Школы должны быть в курсе быстро меняющейся реальности - только таким образом они могут получить полезные образовательные результаты для общества в XXI веке.

К л ю ч е в ы е с л о в а: Интернет, мультимедиа, компьютеризация, цифровая школа

Natalia Maria Ruman

Uso de Tecnologías de la Información en Educación Secundaria Superior. Inspiraciones prácticas de K. Miarka Complejo de escuela secundaria superior n. ° 2 en Pszczyna

R e s u m e n

En un futuro previsible, el multimedia no reemplazará las herramientas de enseñanza tradicionales. Sin embargo, hay una serie de situaciones didácticas donde es aconsejable o necesario el uso de formas indirectas de descripción de la realidad.

El artículo tiene como objetivo presentar la práctica pedagógica elemental en el campo de las tecnologías de aprendizaje contemporáneo y mostrar la búsqueda creativa y el enriquecimiento

reflexivo del estilo pedagógico de la enseñanza, en el que se utilizan las habilidades. Los problemas presentados contribuyen a futuras investigaciones sobre el análisis del desarrollo de habilidades docentes utilizando programas informáticos en la gestión escolar en su trabajo profesional.

Lo que presenta un desafío para la Escuela Digital es la educación en el ciberespacio, el aprendizaje electrónico, las nuevas tecnologías y soluciones, acompañado de la prevención simultánea de los riesgos relacionados con los medios. Las escuelas deben mantenerse al tanto de la realidad cambiante, solo de esta manera pueden producir resultados educativos beneficiosos para la sociedad en el siglo XXI

P a l a b r a s c l a v e: Internet, multimedia, informatización, escuela digital

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Russia

The Influence of Personality on the Peculiarities of Going through Professional Crises in Workers of Trading Companies

Abstract

The article is devoted to the study of professional crises and their conditioning with the qualities of a person. The article presents the results of an empirical study of the influence of personal qualities on professional crises of employees of trading companies. It is assumed that in the process of professionalisation employees of trading companies go through a crisis of professional growth. Personality qualities influence the degree of dissatisfaction with basic needs and the level of general social frustration. During the crisis of professional growth, different qualities of a person – such as dominance, high intellect, normative behaviour, courage, as well as sensitivity, dreaminess and anxiety, radicalism and nonconformism – are influenced. This influence affects almost all the basic needs and spheres of life of employees of a trading company: the need for security and self-expression, and social needs, which are manifested in discontent with relationships with people, their social-economic status, and social status. A particular influence on the transactions in the group of subjects is provided by such personality traits as anxiety, suspiciousness, and intellect. Depressiveness, bad mood, and gloomy feelings intensify the crisis of professional growth, provoking discontent with relations with colleagues. Due to the developed intellect, employees of trading companies feel the discontent with the level of wages more sharply, which intensifies the crisis of professional development.

K e y w o r d s: personal qualities, professional crises, professionalisation, trading company, adaptability, need

Introduction

Professionalisation of the person, or professional socialisation, is a process that determines the person's access to certain professional values, including these values in the inner world of the person forming professional consciousness and culture. Russian psychologists propose to allocate primary and secondary professionalisation of the individual. Primary professionalisation is a process of becoming as a specialist. It includes the accumulation of professional skills and of professional knowledge, necessary for the successful commencement of professional activities. Secondary professionalisation is a transformation of a specialist into a professional. It includes the psychological, pedagogical, social, and value development of the individual, the formation of specific professional skills, and a creative approach to solving professional problems. Inclusion in the professional environment ensures the assimilation of the moral component of the professional personality, the formation of professional morality. The special psychological climate in the organisation significantly affects the creative activity of the subject, his or her aspirations for professional self-development (Angelovsky, 2011, p. 7).

The process of professionalisation is accompanied by crises. Crisis periods are an unconditional attribute accompanying the dynamic process of professionalisation of the individual. The psychological crisis is a stable internal barrier that prevents and deforms various manifestations of one's personality, affecting one's entire system of self-regulation. Professionalisation crises should be understood as short-term periods of cardinal reorganisation of professional consciousness and ways of professional activity, accompanied by a change in the direction of professional development (Volkov, 2014, pp. 235–241).

E. F. Zeer identifies normative and non-normative crises. Normative one is the crisis of: the choice of profession, of educational and professional orientations, of professional expectations, of professional growth, of a professional career, of professional self-actualisation, and/or of loss of the profession (Zeer, 2003, pp. 94–104).

When carrying out an analysis of personality transformations in the context of professionalisation, it is necessary to take into account the category of an internal conflict, which is the foundation for psychological science. In most theoretical concepts, it is internal conflicts, their content, and character that become the basis for personality models. The personality model reflects the influence of the profession on a person and his or her personal qualities necessary for successful professionalisation. Different authors include such qualities as decisiveness, self-esteem, intelligence, stress-resistance, sociability, emotional stability, courage in social contacts, high self-control, motivation to achieve (Filatova, 2011, pp. 6–8).

The purpose of our study was to examine the influence of personal qualities on the peculiarities of occupational crises in employees of trading companies.

The methodological bases of the research were the theory of activity and personality of K. S. Abulkhanova-Slavskaya, B. G. Ananyev, A. G. Asmolov, B. F. Lomov, N. N. Nechaev, G. V. Sukhodolsky, and V. D. Shadrikov, as well as concepts that reveal the psychological characteristics of professional crisis, found in E. F. Zeer, E. A. Klimov, A. K. Markova, E. Yu. Pryazhnikova, E. E. Simanyuk, and others (Filatova & Shamanin, 2007, pp. 12–14, 20–25).

In 2016–2017 we undertook the investigation on the basis of Magnit Ltd. in the city of Vladimir (Vladimir region, Russia). The study involved 50 people (30 men and 20 women), with an experience of at least 3 years. These employees are engaged in management activities.

Results of the Empirical Study

Results of the Variance Analysis

To carry out the analysis of the variance of the empirical data obtained, we used the electronic programme SPSS.

The results of the analysis of variance of the questionnaire 16 PF by R. Cattell (http://testoteka.narod.ru/lichn/2/09.html), given in Table 1 and Figure 1, allowed us to compile an average personality profile of the employees of trading companies of LLC CSN. On the basis of this profile, we compiled a personality portrait of an employee of a trading company.

Table 1.

Results of the variance analysis of the questionnaire by R. Cattell. Key: A: reserved/warm, B: problem-solving, C: emotionally stable/reactive, E: deferential/dominant, F: serious/lively, G: expedient/rule-conscious, H: shy/bold, I: sensitive/unsentimental, L: trusting/vigilant, M: abstracted/practical, N: private/forthright, O: self-assured/apprehensive, Q1: open to change/traditional, Q2: Self-reliant/group-oriented, Q3: tolerates disorder/perfectionistic, Q4: relaxed/tense

Categories	A	B	C	E	F	G	H	I
Mean±SD	6±0.7	8±2.1	4±2.1	6±0.7	5±0.7	4±0.7	5±0.1	6±0.7
Categories	L	M	N	O	Q1	Q2	Q3	Q4
Mean±SD	8±0.7	4±2.8	4±2.1	9±1.4	4±0.1	6±2.8	6±0.7	7±0.1

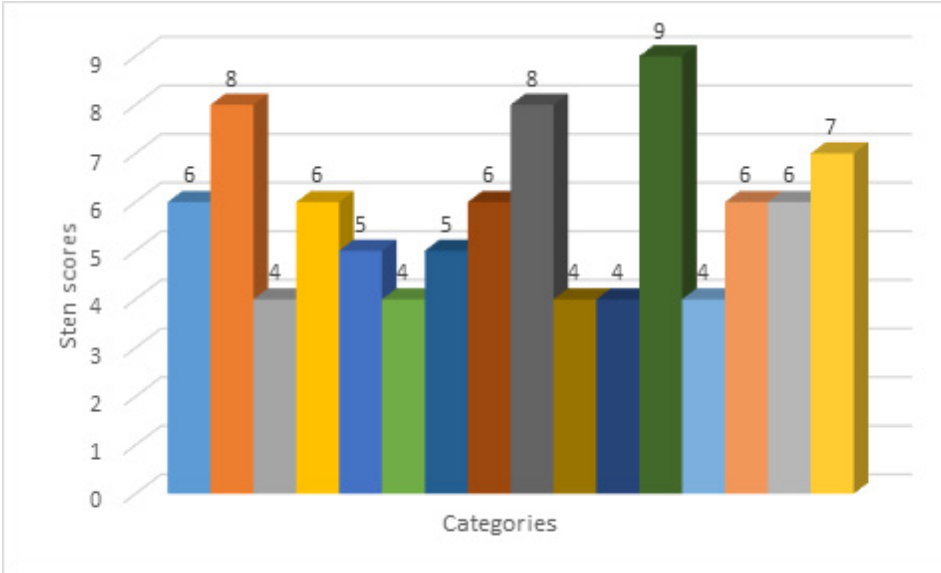

Figure 1. Data of the variance analysis of the questionnaire 16 PF by R. Cattell.

The range of data varies from 1 to 10 sten scores. Analysing the constructed profile, it can be noted that all scales are in the range of medium and above average values. The interpretation of peak factors (B, L, O) characterises the employee of the trading company, first of all, as an assembled and smart person with abstract thinking and high general mental abilities. The employee of the trading company is astute, quickly grasping, and able to adapt intellectually. At the same time, the employees of the trading company are characterised by suspicion and jealousy, internal tension, propensity to envy, great conceit, and irritability. They pay special attention to failure and require others to be responsible for mistakes. Interests are often directed at oneself, and in actions they are cautious and self-centered. However, this self-confidence is rather compensatory in view of the identified anxiety, insecurity, guilt, and concern. The employee of the trading company is incredulous, doubting, immersed in his or her "I," circumspect in his or her actions, and taking little care of others; he or she does not work well in the group. At the same time he or she worries that the group does not accept them. The employee tends to feel anxiety in difficult situations, often in a bad mood and in gloomy premonitions.

Results of the Study of Personality Adaptation Characteristics Using the Electronic Version of the Questionnaire "Adaptability"

The range of data varies from 1 to 10 sten scores. The results of the multi-level personal questionnaire "Adaptability," given in Table 2 and Figure 2, made it possible to differentiate the sample into two sub-groups. In most subjects (the

first sub-group), there is a low personal adaptive potential. At the same time, it indicates a borderline mental state. The process of adaptation of subjects is difficult, with possible disruptions and long-term impairment of the functional state. All subjects have a low neuropsychic resistance and are prone to conflicts. Analysing the components of the personal adaptive potential, we note that the lowest values were obtained on the scale "behavioural regulation." We can say that the testimony is characterised by the lack of adequate self-esteem and an adequate perception of reality. Relatively higher, but still at a low level, are the indicators on the scales "communicative potential" and "moral normativeness." In other words, in contact with others and with general socialisation, the subjects are relatively easier than in regulating their behaviour. However, the communicative abilities of the subjects are reduced; there are difficulties in building contacts with others, there may be aggression or the emergence of conflicts. They sometimes inadequately assess their place and role in the team and do not seek to comply with generally accepted standards of conduct.

Table 2.
Results of the multi-level personal questionnaire "Adaptability"

Categories	Low adaptive potential	Behavioural regulation	Moral normativeness	Communicative potential
Mean±SD	1.5±0.7	2.3±1.1	4.0±1.6	4.0±0.7

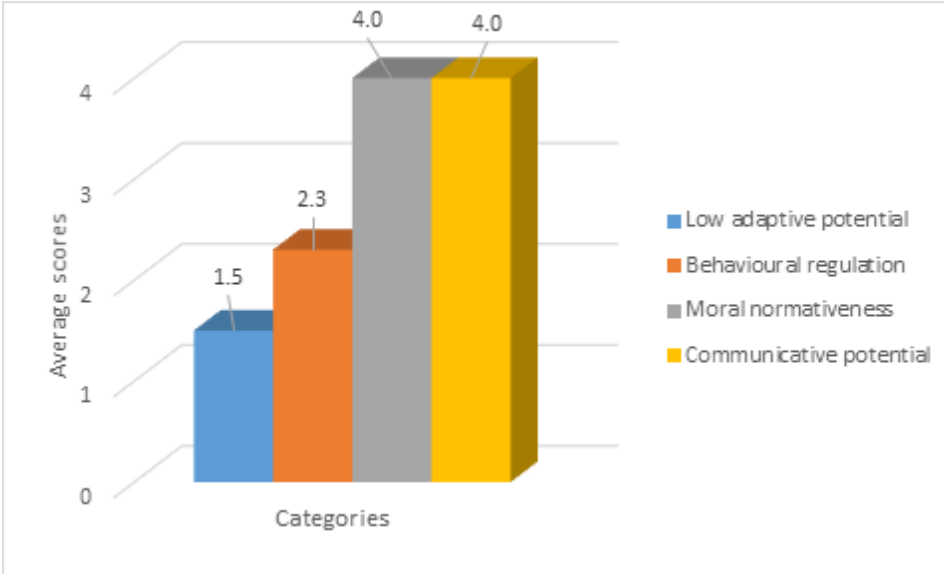

Figure 2. Data from the multi-level personal questionnaire "Adaptability." Norms: 1–3 – low values; 4–7 – average values; 8–10 – high values.

For the convenience of the analysis, we have constructed a graph in which the data for each scale are displayed for each subject. The graph shows that all indicators are below average. The only exception is the data of the subjects of the second sub-group, who showed results above the norm on the scales "oral normativity" and "communicative potential." All subjects of this sub-group were men, and therefore a relatively easier adaptability in dealing with people and a more adequate assessment of one's role in the team can be explained by the presence of gender differences. One of the subjects is characterised by a younger age and a little work experience in this team. However, despite the relatively higher indices of the second sub-group noted by us, the absolute majority of the subjects have a low personal adaptive potential, as we indicated earlier.

Results of the Study of Socio-psychological Adaptation of the Individual Using the Electronic Version of the Rogers-Diamond Questionnaire

The range of data varies from 1 to 10 sten scores. The specificity of the method is that this form of statements was used by the authors in order to reduce the influence of the phenomenon of identification. We can assume that this prevented the subjects from "trying on" the proposed statements.

Thus, we cannot unequivocally assert that subjects at the time of the study experience a crisis of expectations since the data of the two methods assessing the adaptive abilities turned out to be contradictory. Data from the multi-level personal questionnaire "Adaptability" showed that all subjects had a low personal adaptive potential, while methods of diagnosing social and psychological adaptation of Rogers-Diamond (Figure 3 and Table 3) argue the opposite, namely, the presence of high adaptation in the vast majority of subjects.

Table 3.
Results of the Rogers-Diamond questionnaire

Categories	High scores	Low scores	Average scores
Adaptivity	6	0	44
Disadaptivity	0	5	45
Accepting yourself	8	0	42
Not accepting yourself	0	8	42
Accepting others	6	0	44
Not accepting others	0	4	46
Emotional comfort	3	0	47
Emotional discomfort	2	5	43
Internal control	6	0	44
External control	0	4	46
Domination	3	0	47
Submission	2	1	47
Avoiding problems	1	2	47

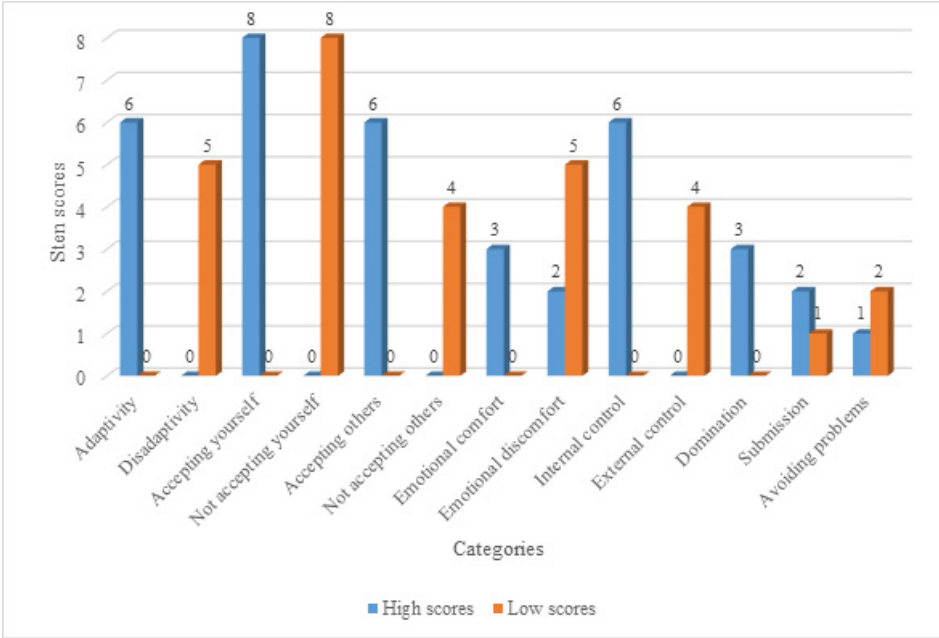

Figure 3. Data of *the Rogers-Diamond method for diagnosing socio-psychological adaptation. Norms: 1–3 – low values; 4–7 – average values; 8–10 – high values*.

We can assume that the subjects have a crisis of professional growth, which is characterised primarily by the dissatisfaction with basic needs. In order to conclude that this crisis exists, we will analyse the data of the following methods.

The results of the Rogers-Diamond method for diagnosing socio-psychological adaptation turned out to be opposite: high scores on the adaptiveness scales, "accepting yourself," "accepting others," and "internal control." The data are presented in Figure 3 in such a way that only high and low values for each scale are reflected. Values falling into the zone of uncertainty are not interpreted.

Results of Diagnosing the Degree of Satisfaction of Basic Needs (Author: V. V. Skvortsova)

The range of data varies from 1 to 10 sten scores. Methods for diagnosing the degree of satisfaction of basic needs (author V. V. Skvortsova) showed that in the absolute majority of subjects the main motivating needs are the need for material comfort and the need to ensure their future (Figure 4). In other words, we received a manifestation of such characteristics of the crisis of professional growth as dissatisfaction with the opportunities in the financial sphere, and in the sphere of development and career in 100% of cases.

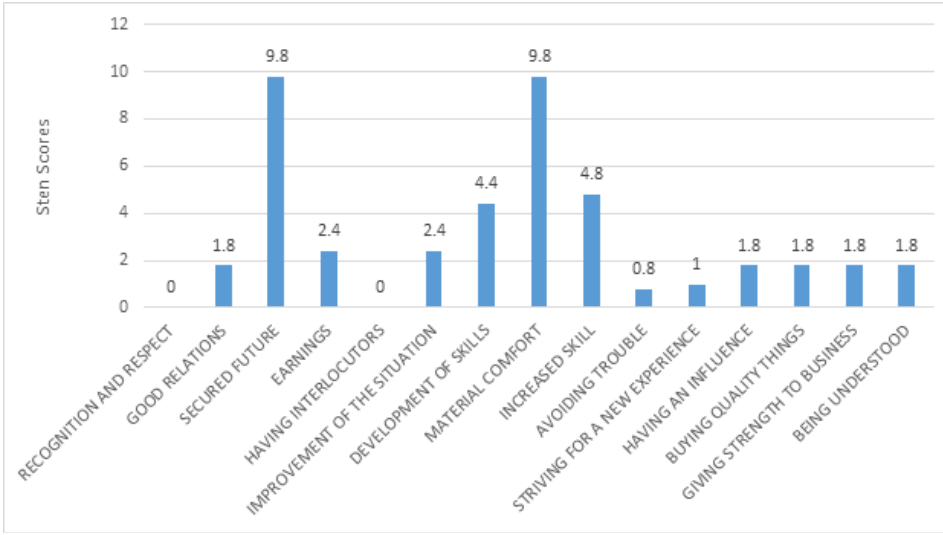

Figure 4. The methods *of diagnosing the degree of satisfaction of basic needs*.

Results of the Study of the Basic Needs of the Individual Using the Electronic Version of the Questionnaire (Author: L. I. Vasserman)

When analysing the data of the method for diagnosing the level of social frustration, L.I. Vasserman (figure 5), we received a moderate level of social frustration (dissatisfaction), which respondents consider necessary to note in the sphere of social relations (3.5< Q <4.5). This again confirms our assumption that there is a crisis of professional growth among the respondents.

Thus, the employees of the trading company are characterised by such personal qualities as: concentration and ingenuity, the presence of abstract thinking and high general mental abilities, insight, and the ability to adapt intellectually. Employees of the trading company are characterised by distrust, suspiciousness, and professional jealousy. They are envious in relation to colleagues. The employees of the trading company have internal tension and anxiety. They do not feel safe, and because of this they are often in a bad mood and in gloomy forebodings. Employees of the trading company are cautious in their actions, showing caution and egocentrism. They tend to doubt when making decisions, especially in difficult situations.

According to the data received, the employees of the trading company at the time of the study are experiencing a crisis of professional growth. This crisis (according to a classification by N. S. Pryazhnikova and E. Yu. Pryazhnikova) is characterised by dissatisfaction with professional opportunities in the position held, and dissatisfaction with career as a whole. As to determinative factors, there is a need for further professional development, the creation of a family, and the possible deterioration of financial opportunities.

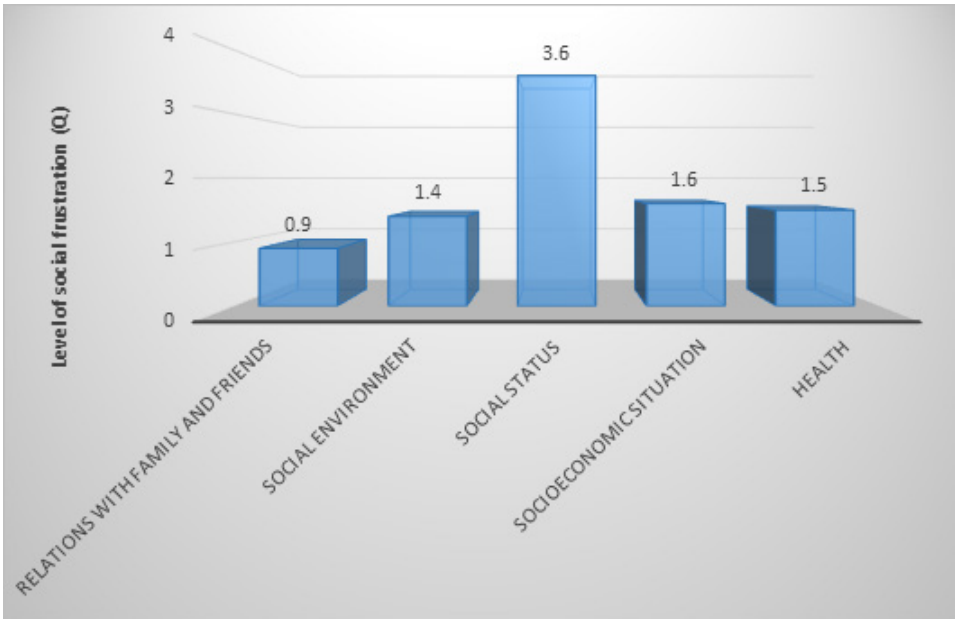

Figure 5. The level *of social frustration in the group of subjects. The level of social frustration (Q): 3.5–4 points – very high level of frustration; 3.0–3.4 – increased level of frustration; 2.5–2.9 – moderate level of frustration; 2.0–2.4 – undefined level of frustration; 1.5–1.9 – reduced level of frustration; 0.5–1.4 – very low level; 0–0.5 – absence (almost absence) of frustration*.

Results of Correlation Analysis

The previous crisis – the crisis of expectations – is not manifested due to the contradiction between the data of the two methods.

Having received characteristic personality qualities for a group of subjects using a 16-factor personal questionnaire by R. Cattell and diagnosing the existence of a professional growth crisis using the technique of diagnosing the degree of satisfaction of basic needs (Skvortsova) and methods of diagnosing the level of social frustration (Vasserman), we can proceed to the analysis of relationships.

For the analysis, we used the Spearmen rank correlation coefficient. Statistical calculations were performed using the programme Excel 2013. If critical value rs cr $\leq$ empirical value rs emp, then the hypothesis H1 is more probable.

Checking the relationships of each scale of the R. Cattell's questionnaire with the degree of satisfaction of needs and with the level of social frustration made it

possible to formulate general working hypotheses, which were specified for each individual case.

The hypotheses are:

- H0: There is no correlation between the scores of the scales of R. Cattell's questionnaire and the indicators of other methods.
- H1: The relationship between the scores of the scales of the R. Cattell's questionnaire and the indicators of other methods is statistically reliable.

As a result of the correlation analysis of the data, we compiled a correlation table that allows us to clearly see what factors of R. Cattell's questionnaire are related to what needs. Thus, we obtained the hypothesis confirmation in the following cases, for n=50 critical value rs cr = 0.28.

Factor E: "subordination–dominance" with a high degree of reliability (rs emp = 0.29) is associated with the degree of dissatisfaction of the need to increase the level of skill and competence in the method of diagnosing the degree of satisfaction of basic needs. In interpreting this connection, it can be argued that the more employees in the trading company exhibit such qualities as independence, stubbornness, lack of faith, the higher the degree of dissatisfaction with the need for improving skills and competence.

Factor B: intelligence with a sufficient degree of certainty (rs emp = 0.29) is associated with the degree of dissatisfaction of the "need for earning a living" by the method of diagnosing the degree of satisfaction of basic needs. The higher the overall level of culture, and the more developed abstract thinking and ingenuity, the more the employee of the trading company is dissatisfied with his or her ability to earn a living.

Factor G: "low normative behaviour–high normative behaviour" with a sufficient degree of reliability (rs emp = 0.34) is associated with the degree of dissatisfaction of "the need to buy good things" by the methodic of diagnosing the degree of satisfaction of basic needs. Consequently, the higher the responsibility, the inclination to moralise, the sense of duty, and the desire to observe social norms, the higher the need to acquire expensive and quality things.

Factor H: "timidity–boldness" with a sufficient degree of certainty (rs emp = 0.35) is associated with the degree of dissatisfaction of the need for self-expression by the method of diagnosing the degree of satisfaction of basic needs. In interpreting this relationship, we can argue that the more courageous, enterprising, and active the employee of a trading company manifests himself or herself, the more pronounced are the propensities to risk and adventurism, the more developed is the ability to make independent and unconventional decisions and to be a leader, and the greater is his or her need in self-expression.

Factor I: "stiffness–sensitivity" with a sufficient degree of reliability (rs emp = 0.31) is associated with the degree of dissatisfaction of such needs as having good interlocutors and buying good things by the method of diagnosing the degree of satisfaction of basic needs. The more sensitive and emotional the employee of

the trading company is, the higher are: his or her desire for romanticism, artistic perception of the world, the more empathic he or she is, able to understand other people, empathising with them, the bigger his or her dissatisfaction with interlocutors and with the possibilities to acquire things that are capable of to satisfy his or her aesthetic and artistic perception.

Factor M: "practicality–dreaminess" with a sufficient degree of reliability (rs emp = 0.41) is associated with the degree of dissatisfaction of one's social status by the method of diagnosing the level of social frustration. The richer the imagination, the more engrossed with ideas and dreaminess, the more discontent one is about one's professional activities and work in general.

Factor O: "calmness–anxiety" with a sufficient degree of certainty (rs emp = 0.33) is related to the degree of dissatisfaction of the need to have warm relations with people in particular and to the degree of dissatisfaction of interpersonal needs as a whole in the methodology of diagnosing the degree of satisfaction of basic needs. Therefore, the more worried, concerned, wounded, and hypochondriacal the employee of the trading company is, the more insecurities, the propensity for foreboding, depression, and sensitivity to the approval of others are in him or her, and the more they need warm relations with people; what dominates in the system of their needs are social (interpersonal) needs.

Factor Q1: "conservatism–radicalism" with a sufficient degree of reliability (rs emp = 0.30) is related to the degree of dissatisfaction of such needs as securing the future and security needs as a whole by the method of diagnosing the degree of satisfaction of basic needs. That is, the more the employee of a trading company is inclined to freethinking and experimentation, the more developed his or her analytical thinking and receptivity to change are, and the more he or she is guided by the security needs that manifest themselves in the desire to secure his or her future.

Factor Q2: "conformism-nonconformism" with a sufficient degree of reliability (rs emp = 0.40) is associated with the level of social frustration according to the method of diagnosing the level of social frustration. In particular, Q2 factor is associated with dissatisfaction with relationships with family and friends, the closest social environment and socio-economic situation. In interpreting this relationship, we can reliably state that the more independent the employee of a trading company is, the more he or she is focused on his or her own decisions, independent, and resourceful, the more he or she strives to have his or her own opinion and dominate the group, the higher the level of general social frustration is, and the more he or she is dissatisfied with relations with people, whether they are relatives and friends or friends and colleagues; also, the more he is not satisfied with the socio-economic situation.

Conclusion

Personal qualities of employees of the trading company determine the peculiarities of going through professional crises. It was found that the respondents at the time of the study go through a crisis of professional growth, which according to the classification by N. S. Pryazhnikova and E. Yu. Pryazhnikova is characterised by dissatisfaction with opportunities: in career, in professional development, in financial sphere, as well as in personal family life. Personality qualities influence the degree of dissatisfaction of basic needs and the level of general social frustration. Personal qualities such as dominance, high intelligence, normative behaviour, courage, and at the same time sensitivity, dreaminess, and anxiety, as well as radicalism and non-conformism, affect going through the crisis of professional growth. This influence affects almost all the basic needs and spheres of life of employees of the trading company: the need for security and self-expression and social needs, which are manifested in discontent with the relationships with people, and their social and economic status.

A particular influence on the transactions in the group of subjects is provided by such personality traits as anxiety, suspiciousness, and intellect. It is these personal qualities that are most evident in the employees of the trading company. Depressiveness, bad mood, and gloomy feelings strengthen the crisis of professional growth, provoking discontent with the relations with colleagues. In other words, employees of the trading company – thanks to the developed intellect and the ability to assess the situation in which there are their opportunities – feel the discontent with the level of wages more sharply, which intensifies the crisis of professional development.

The results of the research can be used to develop electronic programmes for professional selection and psychological support of personnel of organisations, and activities for rotation of staff. Our studies on adaptations of classical management concepts in the Russian reality convincingly prove the phenomenon of cross-cultural transformations.

References

Angelovsky, A. A. (2011). Профессионализм личности. Социальные агенты первичной и вторичной профессионализации. Сибирский педагогический журнал, 7, 70–79.

Filatova, O. V. (2011). Dynamics of the structural organization of the personality: concepts, techniques, models. LAP LAMBERT Academic Publishing GmbH&Co.KG, Germany.

Filatova, O. V. & Shamanin, N. V. (2007). Методологические основы психологии труда. Vladimir: ВлГУ.

Klimov, E. A. (1998). Введение в психологию труда (pp. 11–15). Moscow: Культура и спорт, ЮНИТИ.

Lomov, B. F. (1999). Методологические и теоретические проблемы психологии. Moscow.

TESToteka. Сборник психологических тестов. Accessed 11 December 2017. Retrieved from http://testoteka.narod.ru/lichn/2/09.html.

Šadrikov, V. D. (1982). Системогенез профессиональной деятельности (pp. 5–21). Moscow: Наука.

Volkov, A. A. (2014). Кризис профессиональной самореализации личности. Вестник Северо-Кавказского гуманитарного института, 4(12), 235–241.

Zeer, E. F. (2003). Психология профессий (pp. 94–104). Moscow–Ekaterinburg: Академический проект, Деловая книга.

Olga Filatova, Nikolay Shamanin

Wpływ osobowości na odczuwanie kryzysu zawodowego przez pracowników spółek handlowych

S t r e s z c z e n i e

Artykuł poświęcony jest studium kryzysów zawodowych i ich uwarunkowań wynikających z cech charakteru. Zaprezentowano wyniki badań empirycznych nad wpływem cech charakteru na kryzys zawodowy, jaki przechodzą pracownicy spółek handlowych. Przyjęto, że pracownicy odczuwają kryzys rozwoju zawodowego w czasie procesu podnoszenia kompetencji zawodowych. Cechy charakteru wpływają na poziom niezadowolenia spowodowany brakiem zaspokojenia podstawowych potrzeb i na poziom ogólnej frustracji. Następujące własności osobowe mają wpływ na kryzys rozwoju zawodowego: chęć dominowania, wysoki poziom intelektu, zachowanie normatywne, odwaga, wrażliwość, marzycielstwo, niepokój, radykalizm, nonkonformizm. Wpływają one na stosunek do prawie wszystkich podstawowych potrzeb i na wszystkie sfery życia pracowników spółek handlowych: potrzebę bezpieczeństwa, autoekspresji, potrzeby społeczne przejawiające się w niezadowoleniu z relacji międzyludzkich, ze statusu społeczno-ekonomicznego i społecznego. U badanych zauważono szczególny wpływ takich stanów, jak niepokój, podejrzliwość i intelekt. Skłonność do depresji, zły nastrój, bycie ponurym wzmacniają kryzys rozwoju zawodowego i powodują niezadowolenie z relacji ze współpracownikami. Zatrudnieni w spółkach handlowych oznaczają się wysokim intelektem i to on właśnie powoduje, że dotkliwiej odczuwają niezadowolenie z powodu poziomu zarobków, co z kolei intensyfikuje kryzys rozwoju zawodowego.

S ł o w a k l u c z o w e: cechy charakteru, kryzys zawodowy, profesjonalizm, spółka handlowa, zdolność do adaptacji, potrzeba

Olga Filatova, Nikolay Shamanin

Влияние качеств личности на особенности проживания профессиональных кризисов работников торговых компаний

Аннотация

Статья посвящена изучению профессиональных кризисов и их обусловленность качествами личности. В статье приведены результаты эмпирического исследования влияния личностных качеств на проживание профессиональных кризисов сотрудниками торговых компаний. Предполагается, что работники торговых компаний в процессе профессионализации проживают кризис профессионального роста. Качества личности оказывают влияние на степень неудовлетворённости основных потребностей и на уровень общей социальной фрустрированности. На проживание кризиса профессионального роста влияют такие качества личности, как доминантность, высокий интеллект, нормативность поведения, смелость, а также чувствительность, мечтательность и тревожность, радикализм и нонконформизм. Это влияние затрагивает практически все основные потребности и сферы жизни сотрудников торговой компании: потребности в безопасности и в самовыражении, социальные потребности, которые проявляются в недовольстве взаимоотношениями с людьми, своим социально-экономическим положением и социальным статусом. Особое влияние на транзакции в группе испытуемых оказывают такие качества личности как тревожность, подозрительность и интеллект. Депрессивность, плохое настроение, мрачные чувства усиливают проживание кризиса профессионального роста, провоцируя недовольство взаимоотношениями с коллегами. Сотрудники торговой компании благодаря развитому интеллекту, умению оценить ситуацию, в которой находятся и свои возможности, острее чувствуют недовольство уровнем заработной платы, что усиливает кризис профессионального развития.

Ключевые слова: качества личности, профессиональные кризисы, профессионализация, торговая компания, адаптивность, потребность

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Influencia de la personalidad en las crisis profesionales de los trabajadores de empresas comerciales

Resumen

El artículo está dedicado al estudio de las crisis profesionales y suS condicionamientos en relación con las cualidades de una persona. En el artículo se presentan los resultados de un estudio empírico de la influencia de las cualidades personales en las crisis profesionales de los empleados de las empresas comerciales. Se supone que los empleados de las empresas comerciales en proceso de profesionalización viven una crisis de crecimiento profesional. Las cualidades de personalidad influyen en el grado de insatisfacción con las necesidades básicas y el nivel de frustración social general. En la crisis del crecimiento profesional influyen en las diferentes cualidades de una persona, tales como la dominación, el alto intelecto, el comportamiento normativo, el coraje, así como la sensibilidad, la ensoñación y la ansiedad, el radicalismo y el inconformismo están influenciados. Esta influencia afecta casi todas las necesidades básicas y las esferas de la vida de los empleados de

la empresa comercial: la necesidad de seguridad y autoexpresión, las necesidades sociales, que se manifiestan en el descontento con las relaciones con las personas, su estatus socioeconómico y su estatus social . Una influencia particular en las transacciones en el grupo de sujetos es proporcionada por rasgos de personalidad tales como ansiedad, desconfianza e intelecto. La depresión, el mal humor y los sentimientos sombríos intensifican la crisis del crecimiento profesional y provocan descontento en las relaciones con los colegas. Los empleados de la empresa comercial debido al intelecto desarrollado, sienten el descontento con el nivel de los salarios más agudamente, lo que intensifica la crisis del desarrollo profesional.

P a l a b r a s c l a v e: cualidades personales, crisis profesionales, profesionalización, empresa comercial, adaptabilidad, necesidad

IV
Reports

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Report on the Implementation of Work Package 6 "Implementation of Methodology" in the Framework of the IRNet Project

Abstract

This article, prepared by an international team of researchers from different scientific areas connected with ICT, e-learning, pedagogy, and other related disciplines, focuses on the objectives and some results of the international project IRNet (www.irnet.us.edu.pl). In particular, the article describes research tools, methods, and a procedure of the Work Package 6 "Implementation of Methodology," that is, objectives, tasks, deliverables, publications, and implementation of research trips in the context of the next stages and Work Packages of IRNet project – International Research Network.

K e y w o r d s: International Research Network IRNet, methodology, ICT, e-learning, intercultural competences

Introduction

The objectives of the Work Package 6 "Implementation of Methodology" are: development and implementation of a justification for the computer-oriented, theoretical, and methodological scientific system of preparation of a contemporary specialist, in particular future and in-service teachers in the ICT area, e-learning, and intercultural competences at the pedagogical faculties of universities.

The following output has been partly produced:

- basic assumptions of the concept of developing IT competences of future and in-service teachers, leader staff in the use of information and communication technologies, e-learning and intercultural competences in their professional activities have been developed, theoretically justified, and experimentally verified; and
- a basis of a computer-oriented methodological system for forming teachers' IT competencies is to be defined and tested.

IT competencies include:

1. psychological and pedagogical fundamentals for teaching students;
2. an organisational-methodological basis of teaching;
3. implementation (by the educational system) of the social contract for preparing students – future teachers;
4. providing IT resources for the learning process;
5. information, methodological, and technical support of the educational and cognitive activity of in-service and future teachers with extensive use of remote forms of learning, based on Internet technologies;
6. adequate components of IT competences including those for e-learning; and
7. summary analysis of social media and their important role for extending research network and for the dissemination of the project outcomes.

Description of Activities and Work

Tasks

Task 6.1.

The following points have been partly improved:

- components to build a model of educational disciplines, in particular the content of theoretical material for learning programming in pedagogic and ICT disciplines of higher education institutions;
- approach to the development of ICT competences of future teachers, including e-learning;

- a theoretical model of information system development competence of future teachers;
- the concept of departmental (regional) environmental information and education, and information in a methodical system of a distance education platform;

The next development will receive: the location of regularly updated content, methods, and organisational forms of the preparation of in-service and future teachers in conditions of knowledge society and change of the education paradigm.

The main result will be an elaboration of a justification for the computer-oriented theoretical and methodological system of preparation of contemporary future and in-service specialists, in particular teachers, in the area of ICT, e-learning, and intercultural competences at the pedagogical faculties of universities.

The existing standards of teachers’ professional competences, comprised in the arrangement of key competencies – moral, praxeological, communicative, cooperative, creative, and computer ones – seem to be insufficient in educational undertakings conducted in culturally differentiated environments. Currently, these standards should be enriched with intercultural competencies which involve:

- personal competencies (cognitive, emotional, motivational, self-creative) expressed by experience and engagement in one’s own and others’ professional development based on the awareness of diversity, which means the knowledge of own and other cultures and of the significance of cultural determinants for educational processes;
- competencies in intercultural communication – enhancing the negotiating attitude, aiming at broadening subjectivity of others, comprising mostly socio-cultural and interactive abilities which are manifested in linguistic and non-linguistic skills in social behavior and evaluative behaviours in six identity fields;
- competencies in tolerant behaviours, manifested in some specific abilities to apply attitudes of tolerance in multicultural surroundings – attitudes which take into account permanent components (values, working knowledge, evaluation, and behaviours) specifying the actual attitude to a phenomenon; and
- competencies in transgression and emancipation behaviours, related to: the abilities to interact with the surrounding conditions, including multicultural surroundings; the abilities to free oneself from prejudices and stereotypes by consciously transforming oneself and others in mutual cultural learning; enduring the consequences of one’s own activity which frequently goes beyond traditionally accepted norms and values of the community and which transforms a particular (multi)cultural reality.

Some results were published in articles and books:

1. Ogrodzka-Mazur, E., Grabowska, B., Szafrańska-Gajdzica, A., & Kwadrans, Ł. (2016). Education of children and youth in culturally diverse environments: Experiences –problems – prospects. Munich: LINCOM Academic Publishers.

2. Kwadrans, Ł. (2016). A culturally different learner or a learner with special educational needs? In E. Ogrodzka-Mazur, B. Grabowska, A. Szafrańska-Gajdzica, & Ł. Kwadrans, Education of children and youth in culturally diverse environments. Experience – problems – prospects (124–152). Munich: Lincom Academic Publishers.
3. Grabowska, B. & Kwadrans, Ł. (2016). Multicultural and intercultural concepts in education. Педагогічна освіта: Теорія і практика. Психологія. Педагогіка, 26, 4–12. Retrieved from http://pedosvita.kubg.edu.ua/index.php/journal#.UoCjjeXfKUY.

Task 6.2. Summary analysis of social media and their important role for extending the research network and for the dissemination of the project outcomes – in progress.

Some results were published in articles and books:

1. Noskova, T., Pavlova, T., & Yakovleva, O. (2016). Social media for shaping professional experience of master degree students. In E. Smyrnova-Trybulska (Ed.), E-learning methodology – Implementation and evaluation, Scientific Monograph, Vol. 8 (pp. 91–102). Katowice–Cieszyn: Studio Noa for University of Silesia.
2. Yakovleva, O. V. (2016). Teaching in the XXI century: A practical experience of organizing students' thematic discussion via social media. In New Educational Strategies in Modern Information Space. E-learning Methodology Proceedings (Scientific papers) (pp. 73–78). Saint-Petersburg: HSPU..

Task 6.3. The participants' dissemination of some of their previous research work in the visited institution by giving lectures, seminars, or other activities, for example ICTE–2016, OU (the Czech Republic).

The participants disseminated some of their previous research work in the visited institution by giving lectures, seminars, or other activities during research trips to US, Poland (IRNet researchers from Ukraine and Russia) and to CU, Australia (IRNet researchers from Poland, Spain, the Czech Republic, and Slovakia). The project's reports (including this one) are also available at: the project web-site www.irnet.us.edu.pl, FB profile: https://www.facebook.com/IRNet-1669593856645370/, and Twitter profile: https://twitter.com/irnet_project

Task 6.5. Meeting in CU, Australia.

On 15 November 2016, a meeting and scientific seminar on the IRNet Project Implementation of WP5 results and conception of methodology WP6 IRNet project was held. Issues discussed were progressing the preparation of the MOOC "ICT tools in e-learning" (http://el.us.edu.pl/weinoe), and a new MA course degree in context of the future projects. Participants were IRNet researchers: prof. Eugenia Smyrnova-Trybulska (University of Silesia in Katowice, Poland), prof. Ewa Ogrodzka-Mazur (University of Silesia in Katowice, Poland), prof. Anna Gajdzica (University of Silesia in Katowice, Poland), dr Milan Chmura (Ostrava University, the Czech Republic), prof. Enrique Iglesias (University of Extremadura, Spain),

dr Tomayess Issa (Curtin University, Australia), dr Martin Drlík, dr Martin Cápay, dr Peter Švec, dr Júlia Tomanová (Constantine the Philosopher University in Nitra (UKF), Slovakia).

Task 6.6. Meeting and workshop "Formation 21 century skills of future teachers through the use of ICT" (UEx, Spain).

The meeting and workshop were held in March 2017 during a research trip of researchers from Ukraine, Russia, and Poland to UEx, Spain. Coordinators of the workshop were: Laura Alonso, Juan Arias, Sixto Cubo, Gemma Delicado, Prudencia Gutiérrez, Rafael Martín, Rocío Yuste (University of Extremadura). Participants were: Laura Alonso, Juan Arias, Prudencia Gutiérrez, Olga Yakovleva, Tetiana Liakh, Rusudan Makhachashvili, Nataliia Morze, Tatiana Noskova, Tatiana Pavlova, Maryna Romaniukha, Liudmyla Sorokina, Irina Vorotnykova, (University of Extremadura, Herzen State Pedagogical University of Russia, Dniprodzerzhinsk State Technical University, Borys Grinchenko Kyiv University).

The workshop "21st century skills for future teachers through the use of ICT" achieved the following objectives:

- to debate and reflect on 21st century skills of future teachers through the use of ICT; and
- to define the training of 21st century skills of future teachers through the use of ICT.

The workshop was developed face-to-face and online through Adobe Connect. Five different topics were discussed, and the following conclusions were achieved:

1. Background theories that support training of 21st century skills of future teachers through the use of ICT – there are different background theories in education (constructivism, cognitivism, connectivism, conductivism, humanism, social criticism, sociocultural theory, …), and most of them should be combined in order to be applied to the training of 21st century skills of future teachers through the use of ICT. For e-learning, connectivism is acquiring the biggest impact, although other theories such as sociocultural theory and critical social theory should be worked on deeply. During face-to-face classrooms, constructivism acquires a higher relevancy.
2. Definition of skills of future teachers through the use of ICT – using the blackboard of Adobe Connect, the participants elaborated a figure that represents most of potential teachers' key skills:

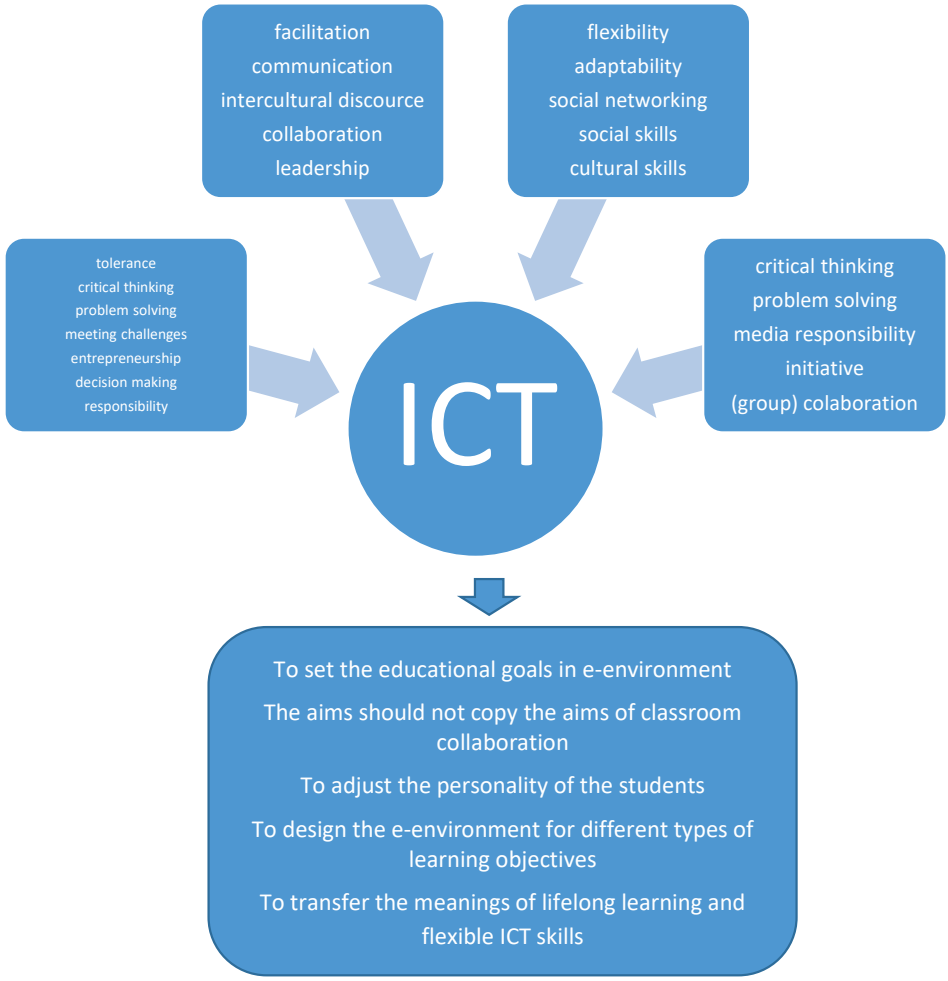

Figure 1. Teachers' key skills.

Source: Own work.

3. Intercultural skills in the 21st century – intercultural skills are necessary in a global world. IRNet project is a great example of using intercultural and ICT skills, although there are other important examples, such as e-tweening projects. To develop efficient collaboration between countries, it is important to be able to communicate in different languages. Intercultural skills should be one of the first skills to be taught in life.
4. Initial & continuous training models that that support formation of 21st century skills of future teachers through the use of ICT – each country and university has its own way to develop the training of pre-service and in-service teachers, and educational policies are a very important part of it. Although degree

programmes, master programmes, and PhD studies represent a common way of learning ICT skills for teachers, teaching practice and real experiences are a key point. However, more and more, the wall between formal and informal learning is disappearing, and Personal Learning Environments are part of real interchange of knowledge.

5. The future of the training of 21st century skills of teachers through the use of ICT – the future should answer the demands of global society, which changes considerably. However, more important skills for the future are flexibility and adaptability, for with this achievement future teachers should be critical thinkers, as this is the real difference between humans and technology.

Task 6.7. Workshop "Selection IT tools and their using for developing IT competences."

The workshop was conducted on 13 September 2017 at the HSPU, Russia. See https://www.herzen.spb.ru/news/14-09-2017_2/.

Deliverables

During the first part of implementation of WP6, the aims, the national and international documents, experience, and achievements were studied, for example:

- Organisation of the Australian professional standards for teachers
  - professional knowledge
  - professional practice
  - professional engagement ("Australian professional standards for teachers…," 2011)
- ICT Competency Framework for Teachers ("UNESCO ICT competency framework for teachers…," 2011)
  - "UNESCO's framework emphasizes that it is not enough for teachers to have ICT competencies to be able to teach them to their students. Teachers need to be able to help students become collaborative, problem solving creative learners through using ICT so they will be effective global citizens. The Framework therefore addresses all aspects of a Teacher's work." ("UNESCO ICT competency framework for teachers…," 2011, p. 3)
- European Digital Competence Framework for Teachers (DigCompTeach)
  - The teaching professions face rapidly changing demands, which require a new broader and more sophisticated set of competences than before. In the area of teachers' digital competence, there are several national (e.g. Norway, Slovenia) and international (e.g. UNESCO, ISTE) competence frameworks, each with their own underlying logic, specificity and level of development (Riina & Brečko, 2014, p. 1822). A digital competence framework for teachers at European level could reinforce national and/or regional initiatives by providing a common understanding of the digital competence needs for teachers at all levels. The objective of DigCompTeach is to identify and describe the key components of teachers' digital competence and to provide

an instrument for (self-)assessment, based on research and stakeholders' consultations.

The WP6 research of the IRNet project was based on desk research to review existing national and international frameworks for educators' digital competences and to map these onto the generic DIGCOMP framework. The reference model thus generated will be complemented by proficiency levels, indicating for each competence the learning objectives associated with basic, intermediate, advanced and expert digital competence. As a final product, a self-assessment tool, which allows educators to assess their own level of digital competence, was developed.

Some selected used documents were:

- DigComOrg - a European Framework for Digitally Competent Educational Organisations (https://ec.europa.eu/jrc/en/digcomporg, http://ec.europa.eu/education/policy/strategic-framework/expert-groups/2014-2015/digital-competences/index_en.html),
- ECDL Module ICT in Education (version 1.0),
- Promoting Effective Digital-age Learning (for school management courses),
- ICT coordinators (Rodríguez-Miranda, Pozuelos-Estrada, & León-Jariego, 2014).

The structure of syllabus has been elaborated:

1. subject,
2. ECTS credits,
3. goals/aims/learning outcomes,
4. curriculum,
5. teaching /learning strategies (teachers' approaches to study, teaching/learning methods, organisational forms, principles, LMS, etc.),
6. tasks for students,
7. assessment, and
8. resources.

The road map of WP6 (33-40: 8 months) is as follows:

1. September 2016 – analysis of existing syllabi, publication of the ICTE2016 Conference proceedings;
2. October – analysis of of all background documents;
3. November – draft of all versions of syllabi;
4. December – expert piloting of syllabi, publication of the monograph E-learning Methodology – Implementation and evaluation with some results of IRNet research;
5. January 2017 – expert piloting of syllabi;
6. February – final version al all syllabi;
7. March – assembly of all syllabi for publication of results (articles, study);
8. April – publication of the monograph Teacher's training for digital teaching/learning in multicultural environment (eds. UO).

WP6 syllabi, elaborated by all partners with the chosen coordinating leader (existing syllabi at IRNet team universities), are:

- MA course „E-learning in intercultural environment" Curriculum (US) (later updated as "E-learning in cultural diversity");
- IRNet syllabus for graduates (teachers of all subjects at primary and secondary schools) (HSPU);
- IRNet syllabus for graduates (teachers of informatics/ICT) (UKF);
- IRNet syllabus for proficiency (ICT coordinators at schools) (OU);
- IRNet syllabus for university staff (BGKU); and
- IRNet syllabus for school leaders (CU).

The innovative European MA course degree "E-learning in cultural diversity" has been elaborated. The purpose of study is to prepare the graduate for work in various educational institutions (schools, education offices, teacher excellence centres), public and non-public universities, state or private companies rendering educational and consulting services, in various business sectors as well as in companies dealing with development of distance courses. The graduate of the field of study "E-learning in cultural diversity," having achieved the assumed learning outcomes, is equipped with reliable in-depth interdisciplinary knowledge and skills in the fields of pedagogy, IT, and e-learning management modules, and has social competencies in the field of self-improvement and proper social attitudes.

- In the field of knowledge, the graduate knows and understands – to advanced extent – facts, theories, and methods: connected with the designing of electronic courses and multimedia didactic materials as well as complex dependencies between them, relating to application of technological solutions in distance education, and applied in cooperation with providers and clients of distance education services. The graduate knows the main areas in the field of management psychology.
- In the field of skills, the graduate: can solve complex and untypical problems connected with design, organisation, and realisation of distance education; develops and masters the methods and tools of work, single-handedly and in the team; uses their native language, spoken and written, allowing for participation in a discussion on the topics connected with the distance education; can use a foreign language to the extent allowing for using the basic literature in the field of the methodology of the distance education, and can communicate with providers and clients of the electronic courses in speaking and in writing.
- In the field of social competencies, the graduate: creates and popularises the models of proper conduct, including reliability and honesty in the performed work, can perform the entrusted tasks single-handedly as well as cooperate with other team members in the field of the developed multimedia materials, can assess the work of others and provide constructive feedback, can accept responsibility for the effects of their actions, communicates with providers and clients of distance education services independently, can make decisions on

important methodological issues of distance education, and is able to ensure high quality of the rendered distance education services. They are aware of the psychological mechanisms in the field of human resources management and are aware of the necessity to develop an effective form of action in the relation between the superior and the employee as well as between the employee and another employee.

The following deliverables were achieved for the WP6.

D 6.1. Month 37 – a report on the implementation of methodology, published on the project web-site (fulfilled).

D 6.2. Month 33 – 5 articles published in the ICTE–2016 Conference proceeding (fulfilled).

3 IRNet papers were included in: Kostolányova, K. (Ed.). (2016). Proceedings from Information and Communication Technology in Education (ICTE-2016), 17th Annual Conference. Ostrava: University of Ostrava. Retrieved from https://konference.osu.cz/icte/dokumenty/2016/proceedings ICTE2016.pdf.

1. Gybas, V., Kostolányová, K., & Klubal, L. (2016). Mobile technologies in the hands of special pedagogues – Yes or no? In K. Kostolányova (Ed.), Proceedings from Information and Communication Technology in Education (ICTE-2016), 17th Annual Conference (pp. 40–48). Ostrava: University of Ostrava. Retrieved from https://konference.osu.cz/icte/dokumenty/2016/proceedingsICTE2016.pdf.
2. Nagyová, I. (2016). Constructivism in teaching of basic computer skills. In K. Kostolányova (Ed.), Proceedings from Information and Communication Technology in Education (ICTE-2016), 17th Annual Conference (pp. 124–132). Ostrava: University of Ostrava. Retrieved from https://konference.osu.cz/icte/dokumenty/2016/proceedingsICTE2016.pdf.
3. Morze, N., Makhachashwili, R., & Smyrnova-Trybulska, E. (2016). Research in education: Survey study. ? In K. Kostolányova (Ed.), Proceedings from Information and Communication Technology in Education (ICTE-2016), 17th Annual Conference (pp. 114–123). Ostrava: University of Ostrava. Retrieved from https://konference.osu.cz/icte/dokumenty/2016/proceedingsICTE2016.pdf.

2 papers were published in ICTE Journal:

1. Malach, J., Kostolányová, K., Chmura, M., Ogrodzka-Mazur, E., & Szafrańska-Gajdzica, A. (2016). Social media at Czech and Polish universities: a comparative study. International Journal of Information and Communication Technologies in Education, 5(1), 41–58. Retrieved from https://periodicals.osu.eu/ictejournal/9_29_volume5-issue1.html.
2. Shelomovska, O., Sorokina, L., & Romanyukha, M. (2016). Advantages and barriers to the introduction of e-learning environment into academic teachers' activities in Ukrainian universities. International Journal of Information and

Communication Technologies in Education, 5(3), 21–33. Retrieved from https://periodicals.osu.eu/ictejournal/index.php?kategorie=8.

D 6.3. Month 38 – discussion papers published in the Scientific International Journal IJCEELL

Morze, N., Smyrnova-Trybulska, E., Kommers, P. A. M., Zuziak, W., & Gladun, M. (2017). Robotics in primary school in the opinion of prospective and in-service teachers. A comparison study. International Journal of Continuing Engineering Education and Life-long Learning, 27(4), 318–338.

D 6.4. Month 36 – – a monograph E-learning Methodology – Implementation and evaluation is published.

Smyrnova-Trybulska, E. (Ed.). (2016). E-learning methodology – Implementation and evaluation, Scientific Monograph, Vol. 8. Katowice-Cieszyn: Studio Noa for University of Silesia. The book includes 10 IRNet papers.

D 6.5. Month 39 – a scientific article "Selection IT tools and their using for developing IT competences" published in the Scientific International Journal IJWBC (in progress). The coordinator is prof. Josef Malach and the Ostrava University team.

Milestones (Month 32)

The milestones foreseen for the period were attained. The decision was made, after previous evaluation, on the implementation of the developed pilot methodology. Reports were published on the Project website (www.irnet.us.edu.pl), in the conference proceedings, and in the scientific magazine approved by peer review. In addition the reportages about project activities and events were published on the social portals: https://www.facebook.com/IRNet-1669593856645370/ and https://twitter.com/irnet_project.

D 3.3. Monograph Education of children and youth in culturally diverse environments is published. Ogrodzka-Mazur, E., Grabowska, B., Szafrańska-Gajdzica, A., & Kwadrans, Ł. (2016). Education of children and youth in culturally diverse environments: Experiences –problems – prospects. Munich: LINCOM Academic Publishers.

Secondments and Research Trips, WP6

Secondment of BGKU, HSPU, DSTU to US (October–November 2016)

During the secondment period, researchers from BGKU, HSPU, and DSTU continued working on the module "Formative assessment" for the collaborate e-course. The module contains several topics: topic 1 – What is FA?; topic 2 – formative assessment activities; topic 3 – how to select proper ICT tools for FA?

We prepared scripts for videos for each topic, presentations, and tests (including final tests). The course content included all ideas, developed within WP4 and WP5. During the secondment period, materials were prepared for uploading into the LMS Moodle that supports the IRNet collaborate course. In addition, materials for

videos were very accurately prepared, concerning timing, multimedia, language, and vocabulary. All the work was discussed during the meeting and workshops held during the secondment period.

The summary analysis of social media was carried out in several aspects. Most of the ideas were presented in the report for the DLCC conference, "Social media for shaping professional experience of master degree students." Particularly, the social media audience is based on self-organisation, and participants begin to interact with each other in the discussion of media messages and create new messages in this regard as a result of a network of cooperation. Message content producers enter into a relationship with the consumers of these messages and involve them in further content production. The current objective for teachers and prospective teachers is to design such education practices that evolve in a network environment with the interactions unfolding in electronic formats.

In addition, the issues of social media use were discussed during the seminar and workshop in Warsaw University of Technology (27 October 2016) "European educational programmes." The HSPU team presented the report "Informatization of teachers' professional activities and new educational practices" and took part in the discussion on the problems and perspectives of social media use. The seminar and workshop were held with the support of the Centre for Distance Education and Polish Scientific Society of Online Education. During the seminar and workshop, there were several meetings with the representatives of all these institutions.

Workshops:

1. 13 October 2016 – workshops on robotics in education, conducted by mgr Wojciech Zuziak during visiting two schools in Bielsko-Biała. The first school was ZSO ZCBM in Bielsko-Biała. We took part in the workshop on robotics together with pupils from this school. During the workshop, we programmed Lego robots in collaboration with children. In the second school (Szkoła Podstawowa Towarzystwa Szkolnego im. M. Reja), the researchers visited two different classes. The first one was in primary school, connected with using Scratch technology for learning to programme. Children made their own projects on tablets. The second class was in secondary school. It was an additional class for children who were interested in computer technologies and wanted to improve their skills. There pupils were making individualised projects, each in its own topic and level of difficulty.
2. 17 October 2016 – Project workshop, conducted by prof. Eugenia Smyrnova-Trybulska from US, Poland. The activities were as follows: getting acquainted with the electronic system of International Journal of Research in E-learning; registering and creating authors' and readers' profiles (the system is very comfortable and allows to submit and track all journal materials); discussing the prospects of the journal. Prof. Nataliia Morze presented their university's (BGKU) open journal system, and described all stages and options of the journal Open E-environment of Modern University.

3. 19 October 2016 – Project meeting and workshop. Prospective cooperation within new projects was discussed, for example, Erasmus Mundus, Horizon H2020, and also some possible other funds: http://ncn.gov.pl/finansowanie-nauki/konkursy/typy, http://ncn.gov.pl/finansowanie-nauki/konkursy?language=pl.
4. 27–28 October 2016 – seminar and workshop were held with the support of the Centre for Distance Education and Polish Scientific Society of Online Education during an academic trip to Warsaw. During the trip the researchers took part in several events, including the seminar and workshop in Warsaw University of Technology (27 October 2016) "European educational programmes." The HSPU team presented the report "Informatization of teachers' professional activities and new educational practices" and took part in the discussion on the problems and perspectives of social media use. Researchers from BGKU gave the following lecture "Open university educational e-environment in view of professional training quality issue," DSTU – "University students' personal learning environment," US – "Assumptions, objectives and expected results of the project for Universities in Eastern and Western Europe and Australia: Some results."
5. 28 October 2016 – visiting Copernicus Science Centre, an educational centre in Warsaw (http://www.kopernik.org.pl/). We took part in the educational activities and workshops, offered by the Copernicus Science Centre programme.

Secondment of LU, OU, US to BGKU (November–December 2016)

The transfer of knowledge activities during the secondment were focused on Education of children and youth in culturally diverse environments: Experiences – problems – prospects.

Workshops:

1. 8 November 2016 – lecture and workshop "Information competence for modern students," conducted by prof. Paulo Pinto with participation of students and academic teachers from BGKU.
2. 16 November 2016 – lecture and workshop "Natural and programming languages: Patterns and acquisition," conducted by prof. Paulo Pinto with participation of students and academic teachers from BGKU.
3. 28 November 2016 – workshop "Study and analyzing the forms, methods of effective use of the ICT, psychological and pedagogical fundamentals for teaching students," conducted by researchers from US, Poland dr hab. Barbara Grabowska, dr Łukasz Kwadrans, dr hab. Anna Szafrańska-Gajdzica with participation of sudents and academic teachers from BGKU.
4. 29 November 2016 – workshop "Cooperation in international exchange and scientific projects," conducted by researchers from US, Poland dr hab. Barbara Grabowska, dr Łukasz Kwadrans, dr hab. Anna Szafrańska-Gajdzica with participation of students and academic teachers from BGKU and researchers from OU, the Czech Republic.

5. 1 December 2016 – workshop "E-learning and intercultural competences in their professional activities," conducted by researchers from US, Poland dr hab. Barbara Grabowska, dr Łukasz Kwadrans, dr hab. Anna Szafrańska-Gajdzica with participation of students and academic teachers from BGKU and researchers from OU, the Czech Republic.

Secondment of US, UKF, UEx, OU to CU (November–December 2016)

IRNet researchers worked continually on Task 6.1 according to the presentation from 12 September 2016. Researchers familiarised themselves with the proposed methodology, which aims to develop and implement a justification for the computer-oriented, theoretical, and methodological scientific system of preparation of contemporary specialists, in particular future as well as in-service teachers in the ICT area, e-learning, and intercultural competencies at the pedagogical faculties of universities. IRNet researchers from US, UKF, UEx, and OU read and summarised the available professional standards for teachers like Australian Professional Standards for Teachers, DigComp 2.0, DigCompTech, and UNESCO ITC Competency Framework for Teachers. Researchers collaborated in the following outputs according to Task 6.1. Basic assumptions were developed and theoretically justified; the discussion was opened on how to experimentally verify the concept of developing IT competences of future and in-service teachers in the use of ICT and e-learning and other specialists in their professional activities. In addition, the analysis of the existing syllabus of the university in several study programmes related to the in-service teachers' education was elaborated. IRNet researchers discussed the proposal of the chapter "Teacher's training for digital teaching/learning in the multicultural environment" to be published in E-learning methodology – Implementation and evaluation monograph.

Workshops:

1. 15 November 2016 – meeting and scientific seminar on IRNet project implementation of WP5 results and conception of methodology of WP6 IRNet project. The activities included: progressing the preparation of the MOOC "ICT tools in e-learning" (http://el.us.edu.pl/weinoe), a new MA course degree in the context of the future projects. Participants of the meeting and seminar and IRNet project researchers are: prof. Eugenia Smyrnova-Trybulska, prof. Ewa Ogrodzka-Mazur, prof. Anna Gajdzica (University of Silesia in Katowice, Poland); dr Milan Chmura (Ostrava University, the Czech Republic); prof. Enrique Iglesias (University of Extremadura, Spain); dr Tomayess Issa (Curtin University, Australia); dr Martin Drlík, dr Martin Cápay, dr Peter Švec, dr Júlia Tomanová (Constantine the Philosopher University in Nitra (UKF), Slovakia).
2. 15 November 2016 – workshop during visiting the HIVE – "Western Australian visualisation, virtualisation and simulation researchers now have a new facility to meet their growing demands, with the opening of Curtin University's Hub for Immersive Visualisation and eResearch (HIVE)" ("Buzz about visualisation at new HIVE…"). "The movie industry tends to show learning in the future as an

ultra-realistic, immersive, and immediate process. While it's still a challenge to achieve such sophisticated solutions portrayed in movies, both industry and academia are catching up" ("Immersive technology in full use at Curtin's HIVE…"). During the meeting with Curtin University's Hub for Immersive Visualisation and eResearch (HIVE), the staff conducted a discussion about joint research of the IRNet Consortium and project partners with Curtin University and with HIVE in particular.

3. 17 November 2016 – Curtin Library tour and workshop, conducted by Director of Curtin University Library, and meeting with library staff, with participation of IRNet researchers: prof. Eugenia Smyrnova-Trybulska, prof. Ewa Ogrodzka-Mazur, prof. Anna Gajdzica (University of Silesia in Katowice, Poland); dr Milan Chmura (Ostrava University, the Czech Republic); prof. Enrique Iglesias (University of Extremadura, Spain); dr Tomayess Issa (Curtin University, Australia); dr Martin Drlík, dr Martin Cápay, dr Peter Švec, dr Júlia Tomanová (Constantine the Philosopher University in Nitra (UKF), Slovakia).
4. 18 November 2016 – workshop during visiting the Centre of Aboriginal Study (Building 211), with participation of IRNet researchers – prof. Eugenia Smyrnova-Trybulska, prof. Ewa Ogrodzka-Mazur, prof. Anna Gajdzica (University of Silesia in Katowice, Poland); dr Milan Chmura (Ostrava University, the Czech Republic); prof. Enrique Iglesias (University of Extremadura, Spain); dr Tomayess Issa (Curtin University, Australia); dr Martin Drlík, dr Martin Cápay, dr Peter Švec, dr Júlia Tomanová (Constantine the Philosopher University in Nitra (UKF), Slovakia) – in the excursion and workshop, conducted by the specialists and researchers of the Centre. There was a merit-related discussion concerning future cooperation in the area of intercultural competences development and use of social media in the strengthening of the international cooperation and future projects.
5. 22 November 2016 – workshop, meeting, and seminar with lecturers and researchers from Department of the Education (building 408), with the participation of dr Julian Chen (http://oasisapps.curtin.edu.au/staff/profile/view/Julian.Chen), dr Toni Dobinson (http://oasisapps.curtin.edu.au/staff/profile/view/162171A), dr Paul Mercieca (http://oasisapps.curtin.edu.au/staff/profile/view/P.Mercieca), and IRNet researchers prof. Eugenia Smyrnova-Trybulska (University of Silesia in Katowice, Poland), prof. Enrique Iglesias (University of Extremadura, Spain), dr Tomayess Issa (Curtin University, Australia), dr Martin Drlík, dr Martin Cápay, dr Peter Švec, dr Júlia Tomanová (Constantine the Philosopher University in Nitra (UKF), Slovakia). The meeting's main aims were: to share the progress of the IRSES programme with Curtin in order to identify opportunities and agree on the short and long term goals; short statement about Curtin's involvement in the IRSES programme; progress to date; future goals; joint MA course degree, and applying to Erasmus Mundus; joint PhD supervision – Curtin and other universities of the EU; exchange of

students and staff (Curtin and EU universities); future research collaboration and publications between EU with Curtin staff; future endeavours and future research (including publications: journals, conferences, chapters, books); Grants – EU and Australia; agreements – teaching and research.

Secondment of BGKU, HSPU, DSTU to UEx (February–March 2017)

The transfer of knowledge activities during this secondment was focused on:

- ICTs in higher education,
- internationalisation, and
- new methods for teaching and learning.

1. 1 March 2017 – IRNet project meeting; chair – prof. Eugenia Smyrnova-Trybulska, prof. Sixto Cubo; participants: BGKU team, DSTU team, US team, UEx team. The discussion was about: hosting plan tasks on WP6 and subsequent deliverables; components to build a model of educational disciplines, in particular the content of theoretical material for learning programming pedagogic and ICT disciplines of higher education institutions; approach to the development of ICT competences of future teachers, including e-learning; a theoretical model of information system development competence of future teachers; the concept of departmental (regional) environmental information and education, and information in a methodical system of a distance education platform.
2. 1 March 2017 – workshop on digital storytelling; moderators: UEx team (prof. Rafael Espado). The discussion was about:
   c) the concept of digital storytelling;
   d) results of measurement according to Nuclear Concepts theory;
   e) ICT tools for digital storytelling assessment;
   f) methods of digital storytelling assessment;
   g) measurement of digital storytelling skills enhancement:
      - mind mapping,
      - conceptualisation and categorisation,
      - concept similarities identification,
      - background and leftover knowledge accumulation through conceptual mapping.
3. 14 March 2017 – meeting and workshop "Formation 21 century skills of future teachers through the use of ICT" (UEx, Spain).

Coordinators of the workshop were: Laura Alonso, Juan Arias, Sixto Cubo, Gemma Delicado, Prudencia Gutiérrez, Rafael Martín, Rocío Yuste (University of Extremadura). Participants were: Laura Alonso, Juan Arias, Prudencia Gutiérrez, Olga Yakovleva, Tetiana Liakh, Rusudan Makhachashvili, Nataliia Morze, Tatiana Noskova, Tatiana Pavlova, Maryna Romaniukha, Liudmyla Sorokina, Irina Vorotnykova, (University of Extremadura, Herzen State Pedagogical University of Russia, Dniprodzerzhinsk State Technical University, Borys Grinchenko Kyiv University).

The meeting and seminar took place at Guidance and Teacher Training Service (SOFD).

The goal of the centre is to facilitate teacher education and training for teachers, with particular emphasis on their preparation for European convergence and the application of information and communication technologies. The department is structured around training programmes for lecturers, novice lecturers, and teaching innovation projects. Training programmes for lecturers are divided for areas:

- ICTs in higher education (concentrates around Moodle LMS and the ways to integrate technology into teaching in higher education; provides virtual, semi-virtual, attendance, and flipped classes);
- teaching, quality, and management (focuses on new methods for teaching and learning, problem-solving, and similar issues);
- research (aims to improve planning, data collection, analysis, and reporting);
- academic English (is organised up to intermediate and advanced levels).

The training in Innovation projects is structured around such areas as:

- ICTs in higher education,
- Internationalisation, and
- new methods for teaching and learning.

There is a growing trend among university staff in academic years 2012-2013 – 2016-2017 to improve different kinds of competencies. More information is available at https://www.unex.es/organizacion/servicios-universitarios/servicios/sofd/General%20Information.

Secondment of UEx, OU to HSPU (April–May 2017)

The transfer of knowledge activities during this secondment was focused on: analysis and research of new educational strategies in the contemporary digital environment, personal learning environment, and professional education and e-learning.

1. 12 April 2017 – final round table debates of the international conference New Educational Strategies in the Contemporary Digital Environment. The participants discussed the results and the outcome of the conference. The IRNet team presented several articles for the conference:
   b) Josef Malach, Kateřina Kostolányová, Milan Chmura, Ingrid Nagyová, & Tatiana Prextova (Faculty of Education, University of Ostrava, the Czech Republic), "ICT coordinators at school. Competences, performance and training";
   c) Juan Arias Masa, Rafael Martín Espada, Gemma Delicado Puerto, & Prudencia Gutiérrez Esteban (University of Extremadura, Spain), "Collaborative distance ongoing project for university students located in different campuses";
   d) Martin Cápay, Martin Drlík, Peter Švec, & Júlia Tomanová (University of Constantine the Philosopher in Nitra, Slovakia), "Experience-Based Learning: Best Practices for Informatics Education";

e) Tatiana Noskova (Herzen State Pedagogical University of Russia), "The implementation of teaching methods in the electronic information environment";
f) Olga Yakovleva (Herzen State Pedagogical University of Russia), "Solving the problems of up-bringing in the electronic educational environment of the university."

2. 19 April 2017 – international seminar "E-learning: New practices." Presenters and participants were the International IRNet project researchers from the University of Extremadura (Spain) and University of Ostrava (the Czech Republic). The Spanish team presented their experience in the presentation "IT tools for developing collaborative work in digital learning environments." The Czech team presented the report about "ICT coordinators at schools." The HSPU team shared some practical approaches from the experience of developing the module "Formative Assessment" in the e-course "ICT tools for e-learning."
3. 20 April 2017 – visiting musical computer laboratory and workshop; visiting the central server of the University.
4. 20 April 2017 – workshop "3D printing in education and science," conducted by the University of Potsdam. It involved meeting with students and presenting reports: University of Potsdam (Germany) – report "Professional education in Germany," University of Extremadura (Spain) – report "Personal learning Environment," University of Ostrava (the Czech Republic) – report "Andragogy."

Secondment of BGKU, HSPU, DSTU to OU (May–June–July 2017)

The transfer of knowledge activities during this secondment was focused on: new technological instruments to aid e-learning and learning, intellectual rights and electronic instruments for antiplagiarism, research into ways of managing international student and academic exchange, language studies as a prerequisite of students' performance in exchange programmes.

1. 16 May 2017 – visit to an eye-tracking laboratory and workshop, conducted by specialist and expert of laboratory Ing. Libor Jedlička from the University of Ostrava. The activities included: meeting with the laboratory staff, observing the work, discussing the main goals of the laboratory for students' research, a meeting in the eye-tracking laboratory with Ing. Libor Jedlička. Researchers were introduced to the main instrument of the centre – Tobii TX 300 Eye Tracker, made in Sweden. The centre has a wide range of applications for the pedagogy, mainly focusing on the way different types of learners perceive information, presented in digital mode; the Tobii station has all possible instruments for research – sensors to measure different sensitivity in order to measure stress from reading an unfamiliar text or deciphering puzzling tasks. Besides, the Tobii station is equipped with the software to measure the saccades (pauses of eye focus on a certain area of the text); it has great potential

in improving the layout of both printed and digital educational materials. Currently, the eye-tracking laboratory boasts a research into facilitation of reading adoption by primary schoolchildren.

2. 4 July 2017 – seminar with Dr, Ph Dr Prof. Julius Sekera – head of the Department of Social Pedagogy. The department has two main scientific and pedagogical interests: difficult life situations for children and parents, and social development and development of personality. Students mostly have internships in institutions dealing with child care, child crime, and psychotherapy. Bachelor students have internships in orphanages, in creative circles, while master students are sent to upbringing institutions, like therapeutical child colonies and re-socialisation communities. Prof Sekera has stressed the pressing problem of ghettoisation in the Gypsy community, which has serious social, economic, and urban consequences.
3. 4 Juy 2017 – meeting with Pavla Nemethova, an international officer from the Faculty of Social Studies. The Faculty of Social Studies cultivates extensive international links with over 50 universities, frequently welcoming guest lecturers from its international partners to teach courses for master's and doctoral degrees. Bachelor's degrees are: Social Work programme, Health Care, Social, Community Development programme. Master's degrees are: Social Work, Management of Social Work Organisations, Joint Degree programme in conjunction with international partner universities in Austria (Fachhochschule Campus Wien) and Slovakia (University of Trnava), Coordination of Rehabilitation, and Long-term Health and Social Care. A doctoral degree is Social Work. Faculty research teams collaborate with the European Research Institute for Social Work (ERIS) and focus on exclusion – a phenomenon which represents a serious threat to social integrity and cohesion in contemporary society. Researchers from the faculty work with a number of specific target groups: people suffering exclusion from housing, excluded seniors, individuals who suffer from long-term or terminal illness and/or permanent disability.
4. 28 June 2017 – seminar with mgr Ivona Cindlerova from the Centre of Foreign Language Preparation. The centre holds courses for all students of pedagogical faculty in English (90%), German, Spanish, and French. Besides, there are courses on Intercultural Studies for exchange Erasmus Students (mainly students from Spain, Poland, Portugal, Ukraine, and Lithuania). There is also a special professional language course for future primary school teachers.

Conferences

1. 5–7 September 2016 – ICTE2016, organised by the University of Ostrava, the Czech Republic, with the participation of near 75 participants from different countries. The book has been published: Kostolányova, K. (Ed.). (2016). Proceedings from Information and Communication Technology in Education (ICTE-2016), 17th Annual Conference. Ostrava: University of Ostrava.

Retrieved from https://konference.osu.cz/icte/dokumenty/2016/proceedings ICTE2016.pdf.

2. 9–11 October 2016 – International Scientific Conference DLCC2016 (www.dlcc.us.edu.pl) Theoretical and Practical Aspects of Distance Learning 2016 (E-learning Methodology – Implementation and Evaluation), held at the University of Silesia, Poland. Within a framework of the conference there were held several events particularly connected with IRNet activities.

Publications

1) Kostolányova, K. (Ed.). (2016). Proceedings from Information and Communication Technology in Education (ICTE-2016), 17th Annual Conference. Ostrava: University of Ostrava. Retrieved from https://konference.osu.cz/icte/dokumenty/2016/proceedings ICTE2016.pdf.
2) Morze, N., Makhachashvili, R., & Smyrnova-Trybulska, E. (2016). Research in education: Survey study. In K. Kostolányova (Ed.), Proceedings from Information and Communication Technology in Education (ICTE-2016), 17th Annual Conference (pp. 114–123). Ostrava: University of Ostrava. Retrieved from https://konference.osu.cz/icte/dokumenty/2016/proceedingsICTE2016.pdf.
3) Ogrodzka-Mazur, E. & Szafrańska-Gajdzica, A. (2016). The diagnosis of ICT and intercultural competences of pedagogy students. A Polish–Czech comparative study. In J. Malach, I. Červenková, & M. Chmura (Eds.), Pokroky v hodnocení klíčových kompetencí (pp. 8–21). Ostrava: Ostravská univerzita.
4) Klubal, L., Gybas, V., & Kostolányová, K. (2016). Comparison of various forms of online instruction support research in education: Survey study. In K. Kostolányova (Ed.), Proceedings from Information and Communication Technology in Education (ICTE-2016), 17th Annual Conference (pp. 114–123). Ostrava: University of Ostrava. Retrieved from https://konference.osu.cz/icte/dokumenty/2016/proceedingsICTE2016.pdf.
5) Nagyová, I. (2016). Constructivism in teaching of basic computer skills. In K. Kostolányova (Ed.), Proceedings from Information and Communication Technology in Education (ICTE-2016), 17th Annual Conference (pp. 124–132). Ostrava: University of Ostrava. Retrieved from https://konference.osu.cz/icte/dokumenty/2016/proceedingsICTE2016.pdf.
6) Malach, J., Kostolányová, K., Chmura, M., Ogrodzka-Mazur, E., & Szafrańska-Gajdzica, A. (2016). Social media at Czech and Polish universities: a comparative study. International Journal of Information and Communication Technologies in Education, 5(1), 41–58. Retrieved from https://periodicals.osu.eu/ictejournal/9_29_volume5-issue1.html.
7) Shelomovska, O., Sorokina, L., & Romanyukha, M. (2016). Advantages and barriers to the introduction of e-learning environment into academic teachers' activities in Ukrainian universities. International Journal of Information and

Communication Technologies in Education, 5(3), 21–33. Retrieved from https://periodicals.osu.eu/ictejournal/index.php?kategorie=8.

8) Morze, N. & Varchenko-Trotsenko, L. (2016). 3D-printing studying as a component of modern STEAM education. In T. Kozík, M. Šebo, & Z. Kráľová (Eds.), International Symposium on Embedded Systems and Trends in Teaching Engineering (pp. 258–263). Nitra: Constantine the Philosopher University in Nitra, Faculty of Education.
9) Morze, N. & Gladun, M. (2016). Training of primary school teachers for the implementation of educational robotics. In T. Kozík, M. Šebo, & Z. Kráľová (Eds.), International Symposium on Embedded Systems and Trends in Teaching Engineering (pp. 263–269). Nitra: Constantine the Philosopher University in Nitra, Faculty of Education.
10) Morze, N. & Varchenko-Trotsenko, L. (2016). Educator’s e-portfolio in the modern university. ICT in education, research and industrial applications. Integration, harmonization and knowledge transfer. In Proceedings from CEUR Workshop (CEUR-WS.org). Online Proceedings for Scientific Conferences and Workshops Vol-1614 (pp. 231–240). Accessed 26 June 2016. Retrieved from http://ceur-ws.org/Vol-1614/paper_68.pdf.
11) Shelomovska, O., Sorokina, L., Romaniukha, M., Bohomaz, K., & Nakaznyi, M. (2016). ICT-competence of university teachers in professional development and scientific activity. In E. Smyrnova-Trybulska (Ed.), E-learning methodology – Implementation and evaluation, Scientific Monograph, Vol. 8 (pp. 221–234). Katowice-Cieszyn: Studio Noa for University of Silesia.
12) Malach, J., Kostolányová, K., Chmura, M., Nagyová, I., & Prextová, T. (2016). The conceptual bases for designing module “Tools for adaptive learning and styles” within MOOC course “ICT tools for e-learning.” In N. Morze (Ed.), Open educational e-environment of modern university (pp. 34–40). Kiev: Borys Grinchenko Kiev University.
13) Morze, N. V. & Varchenko-Trotsenko, L. (2016). E-portfolio as a tool for openness and transparency of modern university education. Information Technologies and Learning Tools, 52(2), 62–80. Retrieved from: http://journal.iitta.gov.ua/index.php/itlt/index#.U32ne1Nf3dI.
14) Morze, N., Varchenko-Trocenko, L., & Tiutiunnyk, A. (2016). Introduction of STEAM education with the use of 3D technologies: modelling, scanning and printing. In N. Morze (Ed.), Open educational e-environment of modern university (2) (pp. 51–59). Kiev: Borys Grinchenko Kiev University.
15) Morze, N. (2016). Open educational e-environment of modern university. Introduction. In N. Morze (Ed.), Open educational e-environment of modern university (2) (pp. 7–10). Kiev: Borys Grinchenko Kiev University. Retrieved from http://openedu.kubg.edu.ua/journal/index.php/openedu/issue/view/2/showToc#.V-y1IDUudZc.

16) Morze, N. & Vorotnikova, I. (2016). Модель ІКТ компетентності вчителів. Journal ScienceRise: Pedagogical Education, 10(6), 4–9.
17) Grabowska, B. & Kwadrans, Ł. (2016). Multicultural and intercultural concepts in education. Педагогічна освіта: Теорія і практика. Психологія. Педагогіка, 26, 4–12. Retrieved from http://pedosvita.kubg.edu.ua/index.php/journal#.UoCjjeXfKUY.
18) Kwadrans, Ł. (2016). A culturally different learner or a learner with special educational needs? In E. Ogrodzka-Mazur, B. Grabowska, A. Szafrańska-Gajdzica, & Ł. Kwadrans, Education of children and youth in culturally diverse environments. Experience – problems – prospects (124–152). Munich: Lincom Academic Publishers.
19) Nakaznyi, M., Sorokina, L., Romaniukha, M., & Voronova, Z. (2016). The use of ICTs in Ukrainian technical universities. In M. Turčáni, Z. Balogh, M. Munk, & Ľ. Benko, (Eds.). (2016). Proceedings from DIVAI 2016 – Distance Learning in Applied Informatics. 11th International Scientific Conference on Distance Learning in Applied Informatics, 2–4 May 2016 (pp. 189–199). Constantine the Philosopher University in Nitra, Faculty of Natural Sciences, Department of Informatics. Nitra: Wolters Kluwer.
20) Romaniukha, M. & Leshchenko, O. (2016). Personal learning environment in higher education. In M. Turčáni, Z. Balogh, M. Munk, & Ľ. Benko, (Eds.). (2016). Proceedings from DIVAI 2016 – Distance Learning in Applied Informatics. 11th International Scientific Conference on Distance Learning in Applied Informatics, 2–4 May 2016 (pp. 225–235). Constantine the Philosopher University in Nitra, Faculty of Natural Sciences, Department of Informatics. Nitra: Wolters Kluwer.
21) Romaniukha, M., Shelomovska, O., Sorokina, L., & Voronova, Z. (2016). Students' independent learning in higher education. In N. Morze (Ed.), Open educational e-environment of modern university (2) (pp. 67–75). Kyiv: Borys Grinchenko Kyiv University.
22) Smyrnova-Trybulska, E. (2016). Selected aspects of effective use of didactic videos and MOOCs in education. In New Educational Strategies in Modern Information Space. E-Learning Methodology Proceedings (Scientific papers) (pp. 15–26). Saint Petersburg: HSPU.
23) Smyrnova-Trybulska, E. (Ed.). (2016). E-learning methodology – Implementation and evaluation, Scientific Monograph, Vol. 8. Katowice-Cieszyn: Studio Noa for University of Silesia.
24) Kommers, P. (2016). Education, culture and technology: Triangle for developing higher education. In E. Smyrnova-Trybulska (Ed.), E-learning methodology – Implementation and evaluation, Scientific Monograph, Vol. 8 (pp. 13–18). Katowice-Cieszyn: Studio Noa for University of Silesia.
25) Smyrnova-Trybulska, E. (2016). E-learning and open education quality – Some European and national standards and regulation. In E. Smyrnova-Trybulska

(Ed.), E-learning methodology – Implementation and evaluation, Scientific Monograph, Vol. 8 (pp. 51–72). Katowice-Cieszyn: Studio Noa for University of Silesia.

26) Noskova, T., Pavlova, T., & Yakovleva, O. (2016). Social media for shaping professional experience of master degree students. In E. Smyrnova-Trybulska (Ed.), E-learning methodology – Implementation and evaluation, Scientific Monograph, Vol. 8 (pp. 91–102). Katowice-Cieszyn: Studio Noa for University of Silesia.
27) Alonso-Díaz, L., Gutiérrez-Esteban, P., Delicado-Puerto, G., Yuste-Tosina, R., Cubo Delgado, S., & Arias-Masa, J. (2016). E-portfolio: Open educational resources for a new learning culture. In E. Smyrnova-Trybulska (Ed.), E-learning methodology – Implementation and evaluation, Scientific Monograph, Vol. 8 (pp. 143–156). Katowice-Cieszyn: Studio Noa for University of Silesia.
28) Traver, M. & Arias-Masa, J. (2016). Peer-assessment in higher education. In E. Smyrnova-Trybulska (Ed.), E-learning methodology – Implementation and evaluation, Scientific Monograph, Vol. 8 (pp. 187–194). Katowice-Cieszyn: Studio Noa for University of Silesia.
29) Morze, N., Pavlova, H., Makhahchashvili, R., & Smyrnova-Trybulska, E. (2016). Teacher-student collaboration: Challenges and opportunities. In E. Smyrnova-Trybulska (Ed.), E-learning methodology – Implementation and evaluation, Scientific Monograph, Vol. 8 (pp. 195–208). Katowice-Cieszyn: Studio Noa for University of Silesia.
30) Cubo Delgado, S., Alonso Díaz, L., Delicado Puerto, G., Arias Masa, J., Gutiérrez Esteban, P., Yuste Tosina, R. (2016). Evaluation of the implementation of ICT in the professional teaching and research development of university faculty. In E. Smyrnova-Trybulska (Ed.), E-learning methodology – Implementation and evaluation, Scientific Monograph, Vol. 8 (pp. 261–272). Katowice-Cieszyn: Studio Noa for University of Silesia.
31) Smyrnova-Trybulska, E., Morze, N., Zuziak, W., & Gladun, M. (2016). Robots in elementary school: Some educational, legal and technical aspects. In E. Smyrnova-Trybulska (Ed.), E-learning methodology – Implementation and evaluation, Scientific Monograph, Vol. 8 (pp. 321–342). Katowice-Cieszyn: Studio Noa for University of Silesia.
32) Gybas, V., Klubal, L., & Kostolányová, K. (2016). Individualized teaching process for pupils with moderate mental disability. In E. Smyrnova-Trybulska (Ed.), E-learning methodology – Implementation and evaluation, Scientific Monograph, Vol. 8 (pp. 343–352). Katowice-Cieszyn: Studio Noa for University of Silesia
33) Morze, N., Makhachashvili, R., & Zhyltsov, O. (2016). Collaboration in research activities: ICT tools assessment. In E. Smyrnova-Trybulska (Ed.), E-learning methodology – Implementation and evaluation, Scientific

Monograph, Vol. 8 (pp. 353–368). Katowice-Cieszyn: Studio Noa for University of Silesia.
34) Buinytska, O. (2016). E-education content management. In E. Smyrnova-Trybulska (Ed.), E-learning methodology – Implementation and evaluation, Scientific Monograph, Vol. 8 (pp. 451–466). Katowice-Cieszyn: Studio Noa for University of Silesia.
35) Morze, N., Smyrnova-Trybulska, E., Drlík, M., & Alvarez, I. (2016). Educational e-environment of modern university: Foreign experts' perspective. In N. Morze (Ed.), Open educational e-environment of modern university (2) (pp. 41–50). Kiev: Borys Grinchenko Kiev University. Retrieved from http://openedu.kubg.edu.ua/journal/index.php/openedu/pages/view/editorialPolicies#.WG473rkudVU.
36) Delicado Puerto, G., Arias Masa, J., Alonso Díaz, L., Yuste Tosina, R., Gutiérrez Esteban, P., & Cubo Delgado, S. (2016). Synchronous Virtual Classrooms in problem-based learning to mentor and monitor students in higher education. In New Educational Strategies in Modern Information Space. E-learning Methodology Proceedings (Scientific papers) (pp.10–14). Saint-Petersburg: HSPU.
37) Yakovleva, O. V. (2016). Teaching in the XXI century: A practical experience of organizing students' thematic discussion via social media. In New Educational Strategies in Modern Information Space. E-learning Methodology Proceedings (Scientific papers) (pp. 73–78). Saint-Petersburg: HSPU.
38) Noskova, T., Pavlova, T., & Yakovleva, O. (2016). Methodology of teaching students to use ICT tools for formative assessment in e-learning. In New Educational Strategies in Modern Information Space. E-learning Methodology Proceedings (Scientific papers) (pp. 145–149). Saint-Petersburg: HSPU.
39) Noskova, T. N., Pavlova, T. B., Yakovleva, O. V., & Smyrnova-Trybulska, E. (2016). Информатизация образовательной среды современного факультета. Проблемы и перспективы. Информатика и образование, 9(278), 11–18.
40) Noskova, T. N., Pavlova, T. B., Yakovleva, O. V., & Drlík, M. (2016). Анализ активности студентов в электронной образовательной среде университета: опыт России и Словакии. Информатика и образование, 9(278), 22–28.
41) Cápay, M., Drlík, M., Švec, P., & Tomanová J. (2016). Strategy for engaging students in learning activities. In Proceedings from E-environment in the open pedagogical education, 1 December 2016 (pp. 157–165). HSPU: Saint-Petersburg.
42) Cubo Delgado, S., Delicado Puerto, G., Gutiérrez Esteban, P., Alonso Díaz, L., Arias Masa, J., Yuste Tosina, R., & Smyrnova-Trybulska, E. (2016). Evaluation of the implementation of ICT in higher education. In Proceedings from E-environment in the open pedagogical education, 1 December 2016 (pp. 69–75). HSPU: Saint-Petersburg.

43) Noskova, T., Pavlova, T., & Yakovleva, O. (2016). Social media: New educational practices and competences. In Proceedings from Applied Linguistics in Science and Education, 24–26 November 2016 (pp. 310–315). Saint-Petersburg: HSPU.

***International Journal of Research in E-learning (IJREL)*, 1(2), 2015**

1) Smyrnova-Trybulska, E. & Żebrok, P. (2015). On networking. The analysis of selected aspects. International Journal of Research in E-learning, 1(2), 47–69.
2) Smyrnova-Trybulska, E., Ogrodzka-Mazur, E., Szafrańska-Gajdzica, A., dos Reis, A., Drlík, M., Cápay, M., Tomanová, J., Švec, P., Morze, N., Makhachashvili, R., Issa, Tomayess, Issa, Theodora, Romanyukha, M., Nakazny, M., & Sorokina, L. (2015). Discussion paper on the topic of more adequate and effective IT tools. Category: Tools for making didactic videos. International Journal of Research in E-learning, 1(2), 11–29.

***International Journal of Research in E-learning (IJREL)*, 2(1), 2016**

3) Issa, Tomayess, Issa, Theodora, & Issa, Touma B. (2016). Wiki tool in higher education: An Australian perspective. International Journal of Research in E-learning, 2(1), 11–27.
4) Morze, N., Makhachashvili, R., & Smyrnova-Trybulska, E. (2016). The roadmap of collaboration skills from programmed teaching to e-learning. International Journal of Research in E-learning, 2(1), 41–56.
5) Malach, J., Kostolányová, K., Chmura, M., Nagyová, I., & Prextová, T. (2016). Objectives and content of e-module "Tools for adaptive learning. Learning styles" within the MOOC course "ICT tools for e-learning." International Journal of Research in E-learning, 2(1), 28–40.

***International Journal of Research in E-learning (IJREL)*, 2(2), 2016**

6) Morze, N. & Buinytska, O. (2016). E-learning managers training to design high-tech electronic learning environment. International Journal of Research in E-learning, 2(2), 11–27.
7) Nakaznyi, M. O. & Nesterova, O. Yu. (2016). Technological and ethical challenges of translators training in Ukraine and issues of modern ICT development. International Journal of Research in E-learning, 2(2), 62–78.

References

Australian professional standards for teachers February. (2011). Retrieved from https://www.aitsl.edu.au/docs/default-source/apst-resources/australian_professional_standard_for_teachers_final.pdf.

Buzz about visualisation at new HIVE. Accessed 10 October 2017. Retrieved from http://news.curtin.edu.au/media-releases/buzz-visualisation-new-hive.

New 3D labs in Curtin. Accessed 10 October 2017. Retrieved from http://news.curtin.edu.au/stories/immersive-technology-full-use-curtins-hive/.

Redecker, C. (2011). JRC science for policy report. European framework for the digital competence of educators DigCompEdu.

Riina, V. & Brečko, B. (2014) How could teachers' professional collaboration in teacher networks be better studied as part of digital competence? In Proceedings from EdMedia 2014: World Conference on Educational Multimedia, Hypermedia and Telecommunications. Tampere, Finland.

Rodríguez-Miranda, F. P., Pozuelos-Estrada, F. J., & León-Jariego, J. C. (2014). The role of ICT coordinator. Priority and time dedicated to professional functions. Computers & Education, 72, 262–270.

UNESCO ICT competency framework for teachers. (2011). Retrieved from http://unesdoc.unesco.org/images/0021/002134/213475E.pdf.

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Raport z wdrożenia Pakietu Roboczego WP6 „Wdrożenie metodologii" opracowanego w ramach projektu IRNet

S t r e s z c z e n i e

Niniejszy artykuł, przygotowany przez zespół badaczy specjalizujących się w różnych dziedzinach naukowych związanych z technologiami komunikacyjnymi i informacyjnymi, pedagogiką oraz dyscyplinami pokrewnymi, przedstawia cele i niektóre rezultaty badań przeprowadzonych w ramach międzynarodowego projektu IRNet (www.irnet.us.edu.pl). W szczególności opisane zostały narzędzia badawcze, metody, a także procedury zawarte w pakiecie zadań nr 6 „Wdrożenie metodologii". W artykule omówiono cele, wykonane zadania, wyniki, publikacje, spotkania naukowe oraz kolejne etapy prac i przedsięwzięć projektowych.

S ł o w a k l u c z o w e: międzynarodowa sieć badawcza IRNet, metodologia, technologie informacyjne i komunikacyjne, e-learning, kompetencje interkulturowe

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Отчет о внедрении Рабочего Пакета 6 «РЕАЛИЗАЦИЯ МЕТОДОЛОГИИ» в рамках проекта IRNet

Анотация

В этой статье, подготовленной международной группой исследователей из разных научных областей, связанных с ИКТ, электронным обучением, педагогикой и другими смежными дисциплинами, основное внимание уделяется целям и некоторым результатам международного проекта IRNet (www.irnet.us.edu .pl). В частности, в статье описываются инструменты исследования, методы и процедура Рабочего Пакета 6 «РЕАЛИЗАЦИЯ МЕТОДОЛОГИИ», а именно: цели, задачи, результаты, публикации и осуществление исследовательских поездок в контексте реализации этапов и рабочих пакетов Проект IRNet - Международной исследовательской сети.

Ключевые слова: международная исследовательская сеть IRNet, методология, ИКТ, электронное обучение, межкультурные компетенции

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Informe sobre la implementación de WorkPackage 6 „IMPLEMENTACIÓN DE METODOLOGÍA“ en el marco del proyecto IRNet

Resumen

Este artículo, preparado por un equipo internacional de investigadores de diferentes áreas científicas, relacionado con las TIC, el e-learning, la pedagogía y otras disciplinas relacionadas, se centra en los objetivos y algunos resultados del proyecto internacional IRNet (www.irnet.us.edu .pl). En particular, el artículo describe herramientas de investigación, métodos y un procedimiento del WorkPackage 6 “IMPLEMENTACIÓN DE METODOLOGÍA”, es decir: objetivos, tareas, entregas, publicaciones e implementación de viajes de investigación en el contexto de las siguientes etapas y paquetes de trabajo de Proyecto IRNet - Red Internacional de Investigación.

Palabras clave: red internacional de investigación IRNet, metodología, TIC, e-learning, competencias interculturales

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Report from the International Scientific Conference *DLCC2017* in Cieszyn and Katowice, Poland, 16–17 October 2017

The theme of the 9th edition of the International Scientific Conference DLCC2017: Theoretical and Practical Aspects of Distance Learning (www.dlcc.us.edu.pl) was "Effective development of teacher's skills in ICT and e-learning"; the conference also included reports from the IRNet project. The conference was held on 16–17 October 2017 in Cieszyn and Katowice. It was organised by the Faculty of Ethnology and Educational Science at the University of Silesia in Cieszyn. The co-organisers were: the University of Ostrava (the Czech Republic); the Silesian University in Opava (the Czech Republic); the Constantine Philosopher University in Nitra (Slovakia); the Twente University (the Netherlands); the University of Extremadura (Spain); the Curtin University in Perth (Australia); the Borys Grinchenko Kiev University (Ukraine); the Herzen State Pedagogical University of Russia (Russia); the Dneprodzerzhinsk State Technical University (Ukraine); Ministry of Science and Higher Education, Poland; Polish Pedagogical Association, Branch in Cieszyn; Polish Scientific Association of Internet Education; and IADIS – International Association for Development of the Information Society.

The conference took place on Monday, 16 October, at the Faculty of Ethnology and Educational Science in Cieszyn, and on 17 October in Kazimierz Lepszy Hall in the main Rector's building at the University of Silesia in Katowice.

The conference included the following range of topics:

1. Effective development of teachers' skills in the area of ICT and e-learning:
- computer training for prospective and practising teachers in the area ICT and e-learning,
- teachers' and learners' competences in distance learning and computer science,
- distance learning and lifelong learning,
- self-learning based on Internet technology.

2. E-learning and intercultural competences development in different countries:
- legal, social, human, scientific, and technical aspects of distance learning and e-learning in different countries;
- psychological and ethical aspects of distance learning and e-learning in different countries;
- collaborative learning in e-learning.

3. E-learning methodology – implementation and evaluation:
- European and national standards of e-learning quality evaluation;
- evaluation of synchronous and asynchronous teaching and learning, methodology and good examples;
- MOOCs – methodology of design, conducting, implementation, and evaluation;
- contemporary trends in world education – globalisation, internationalisation, mobility.

4. ICT tools – effective use in education:
- selected Web 2.0 and Web 3.0 technologies;
- LMS, CMS, VSCR, SSA, CSA ;
- cloud computing environment, social media;
- multimedia resources and didactic materials, video-tutorial design.

5. Theoretical and methodological aspects of distance learning:
- successful examples of e-learning;
- distance learning in humanities and science;
- quality of teaching, training programmes, and assessment;
- e-learning for the disabled.

6. E-learning in the development of key competencies:
- key competencies in the knowledge society,
- use of e-learning in improving the level of students' key competencies.

7. Alternative methods, forms and techniques in distance learning:
- simulations and models in distance learning,
- networking,
- distance learning systems,
- m-learning.

8. E-environment and cyberspace:
- e-environment of the university,
- smart technology in education,
- Internet of things.

The conference was the essential event to summarise the results of the four years of the project entitled IRNet "International research network for study and development of new tools and methods for advanced pedagogical science in the field of ICT instruments, e-learning and intercultural competences" (www.irnet.us.edu.pl). The project has been realised in the framework of 7th Framework Programme, and financed by the European Commission and Polish Ministry of Science and Higher Education. Prof. Eugenia Smyrnova-Trybulska (Faculty of

Ethnology and Educational Science) is a coordinator of the international consortium that includes ten institutions from nine countries. The idea of the project is based on the needs originating from the contemporary reality. It is the period of the dynamic process of globalisation, when theory and practice of e-learning as well as knowledge on multiculturality acquire the significant sense. It is apparent that the implementation of new and innovative tools in the educational activity is the necessary condition in the development of society based on knowledge. These goals will not be reached effectively unless these innovative forms and methods in education, and distance education are implemented actively at all stages of education.

Over fifty scientific scholars from Poland and abroad participated in the conference, including members and professionals of the IRNet project, among others from the University of Ostrava (the Czech Republic), the Silesian University in Opava (the Czech Republic), the Constantine Philosopher University in Nitra (Slovakia), the Twente University (the Netherlands), the University of Extremadura (Spain), the Curtin University in Perth (Australia), the Borys Grinchenko Kiev University (Ukraine), the Herzen State Pedagogical University of Russia (Russia), the Dneprodzerzhinsk State Technical University (Ukraine), the Lusíada University (in Portugal), and many other universities. These universities involve RMIT University in Melbourne (Australia), the University of Lisbon (Portugal), the Abant Izzet Baysal University (Turkey), the University of Defence in Brno (the Czech Republic), the AGH University of Science and Technology in Cracow, the Medical University in Poznań, and the University of Technology in Gdańsk (Poland), and many others.

The guests and conference members were welcomed by the Dean of Faculty of Ethnology and Educational Science prof. dr hab. Zenon Gajdzica on the first day and by the Vice-Rector for Research prof. dr hab. Andrzej Noras on the second day of the conference.

The first day of conference included four sessions: the plenary session and three thematic ones. The lecture presented during the plenary session by Antonio Dos Reis (Portugal) together with Nataliia Morze (Ukraine), Olga Yakovleva (Russia), and Eugenia Smyrnova-Trybulska (Poland) was entitled "From Socrates behaviourism to digital constructivism."

The second lecture, entitled "How I'm training university professors to use video in classroom and online classes," was presented by prof. Filipe Carrera from the University of Lisbon in Portugal. The speaker shared the personal and long-standing experience in preparation and use of video in teacher training of the academic staff in Portugal, Ecuador, and many other countries in the traditional and online procedures.

The lecture entitled „Learning paradigms as input parameter for educational leadership" was presented by prof. Piet Kommers (the Twente University in the Netherlands), who is a well-known researcher in social-media, information

technologies, and e-learning, and the main editor and member of a few international scientific journals.

The fourth lecture, entitled "Support framework for online teachers at AGH-UST," was given by prof. dr hab. eng. Jan Kusiak and Beata Tworzewska-Pozłutko, PhD (AGH University of Science and Technology in Cracow, Poland), who shared their experience concerning online trainings for academic teachers organised at AGH by the E-learning Centre, which is one of the first such centres in Poland and a leader among academic e-learning centres in Poland.

During the session for teachers "Application of new technologies and communication media (TiK) at school in the light of new core curriculum," papers were presented by teachers-innovators from Poland and the Czech Republic; the papers were entitled "Quizlet – a new educational tool for teachers and students," "The robot's not so black as it's painted" – a presentation of the project concerning information technology in primary education, "Information technologies in the operation of primary schools," and "Universal teaching aid in the implementation of the new 2017 curriculum." The papers enabled pedagogues to share their experience and examples of good practice.

On the second day of the conference, during the plenary session, there were two lectures. The first one – "E-pedagogy and e-learning" – was given by prof. dr hab. Nataliia Morze from the Borys Grinczenko Kyiv University (Ukraine), Vice-Rector on Informatisation, Correspondence Member of Ukrainian ANP, and the author of over 300 scientific publications, numerous textbooks, and monographs. Subsequently, speakers from the RMIT, Melbourne University (Australia), prof. Elspeth McKay and Allaa Barefah, PhD, presented a lecture entitled "Evaluating the effectiveness of teaching information systems courses: A Rasch-measurement approach by means of virtual classroom Adobe Connect application."

Later during the second day of the conference, prof. dr hab. Iryna Sekret from the Abant Izzet Baysal University (Turkey) presented a paper using video recorded earlier by means of most modern applications and audio-visual tools. The paper was entitled "Designing the syllabus of the course 'Internet technologies in translation' with the reference to the translation competences and challenges of the market."

On behalf of the international team: Nataliia Morze (BGKU, Ukraine), Olga Yakovleva (HSPU, Russia), Tomayess Issa, Theodora Issa (CU, Australia), Eugenia Smyrnova-Trybulska from the University of Silesia in Katowice (Poland) gave a lecture on the topic "Some methodological aspects of MOOCs developing," in which the most important methodical foundations of MOOC "ICT tools in E-learning" were presented. MOOC is developed by the international IRNET consortium.

An important event during the conference was the round table debate led by Eugenia Smyrnova- Trybulska (the University of Silesia in Katowice, Poland) and Magdalena Roszak (the Medical University in Poznań, Poland). The participants of the debate were numerous scientists and experts from various countries: Piet

Kommers (the Netherlands), Martin Drlík (Slovakia), Nataliia Morze (Ukraine), Maryna Romanyukha (Ukraine), Tatiana Pavlova (Russia), Elspeth McKay (Australia), Jan Kusiak (Poland), and Iwona Mokwa-Tarnowska (Poland). During the debate, experts answered current questions connected with the conference theme: 1) Teachers' and learners' digital skills in different countries – formal regulation and informal approach. Teachers' skills and ICT competencies in E-learning: recommendations; 2) The quality of e-learning and ICT competencies of teachers – ways of increasing effectiveness; 3) Innovative specialisations and MA programmes at your university in 2014-2017; 4) Internalisation of higher education. Present and future internalisation at your university; 5) From traditional university to Open and Smart University. Suggestions and recommendations.

Apart from thematic sessions, the important element of the conference were the following workshops attended by the conference participants: "How to implement a flipped classroom," "Subjects on study: How to organize your students according to learning styles," and "Teacher's digital skills to be used in the school of the future." The workshops were led by prof. Antonio Dos Reis from Portugal, the author of over 500 didactic videos on YouTube with over one million views, Nataliia Morze (the Boris Grinchenko Kyiv University), and Olga Yakovleva (the Herzen State Pedagogical University of Russia in St. Petersburg). The guests and conference participants actively participated in a discussion and interactive activities.

During the conference, the film concerning the most important results of the EU project IRNet, developed by Paweł Pawełczyk, the Director of Distance Learning Centre of the University of Silesia in Katowice, was also presented.

The International Scientific Conference Theoretical and Practical Aspects of Distance Learning has a tradition. During the cycle of events research results on ICT and e-learning are presented by authors from various universities from the Visegrád Group (Poland, Slovakia, Hungary), other European countries, and Australia, participating in the EU IRNet project. The participants contribute significantly to the research area concerning new technologies in education and in incorporating current technological trends in teaching-learning methodologies. It is worth noting that the conference favours exchange of experiences, strengthening international cooperation, common problems solving, implementing innovative methodologies, and creating a global educational space. During the conference numerous themes are discussed: further directions in international cooperation, new common scientific and didactic projects, or internalisation of development in the conditions of digitalisation and globalisation.

More information concerning conference can be found on the website www.dlcc.us.edu.pl.

Figure 1. Participants of the round table debate led by Eugenia Smyrnova-Trybulska from the University of Silesia in Katowice and Magdalena Roszak from the Medical University in Poznań with the following professionals and experts from different countries: Piet Kommers (the Netherlands), Martin Drlík (Slovakia), Nataliia Morze (Ukraine), Maryna Romanyukha (Ukraine), Tatiana Pavlova (Russia), Elspeth McKay (Australia), Jan Kusiak (Poland), Iwona Mokwa-Tarnowska (Poland). Photo by Andrzej Szczurek.

Figure 2. Participants of the DLCCV2017 conference and the EU IRNet project. Photo by Andrzej Szczurek.

International Journal of Research in E-learning
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2. *Zastosowanie systemów CMS w tworzeniu przestrzeni informacyjno-edukacyjnej w Internecie*. Podręcznik akademicki. Ed. E. Smyrnova-Trybulska, S. Stach. Authors: E. Smyrnova-Trybulska, S. Stach, B. Fuklin, D. Staniek. Katowice: Wydawnictwo Uniwersytetu Śląskiego, Studio Noa, 2012, 194p. ISBN 978-83-60071-55-7 (http://www.wydawnictwo.us.edu.pl/node/3731).

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