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## Editorial

The use of new technologies in education implies new teacher roles, new pedagogies and new approaches to teacher education (Makrakis, 2005). The successful integration of ICT into the classroom will depend on the ability of teachers to structure the learning environment in new ways, to merge new technology with new pedagogy, and to develop socially active classrooms, encouraging co-operative interaction, collaborative learning and group work. This requires a different set of classroom management skills. The teaching skills of the future will include the ability to develop innovative ways of using technology to enhance the learning environment, and to encourage technology literacy, knowledge deepening and knowledge creation. Teacher professional learning will be a crucial component of this educational improvement. However, professional learning has an impact only if it is focused on specific changes in teaching (UNESCO, 2011).

The authors of the papers presented in five chapters of Volume 1 Issue 2 have tried to find the answers to several current questions and showed some more important trends in the research on e-learning, that is – developing more adequate ICT tools and their effective use in education, educational intelligent systems, information and communication competencies in higher education, networking and developing of the educational IT space, formal and informal education based on ICT and e-learning.

Chapter 1 is devoted to the research on selected ICT tools for effective use in education and contains a manuscript “Discussion Paper on the Topic of More Adequate and Effective ICT Tools. Category: Tools for Making Didactic Videos.” The paper was prepared by an international team of researchers from five universities and four countries: Australia, Poland, Slovakia and Ukraine. The team of authors is composed of experts from different scientific areas connected with ICT, e-learning, pedagogy, and other related disciplines: Eugenia Smyrnova-Trybulska, Ewa Ogrodzka-Mazur, Anna Szafrńska-Gajdzica, Nataliia Morze, Rusudan Makhachashvili, Martin Drlik, Martin Cápaj, Júlia Tomanová, Peter Švec, Tomayess Issa, Theodora Issa, Maryna Romanyukha, Mykoła Nakazny and Lyudmyla Sorokina. The study aims at describing the role of multimedia in teaching. The authors claim it is considerable since multimedia offer various information presentation formats simultaneously. The combination of text, audio,

images, animation, video as well as hyperlinks has an advantage of using both of the two main channels – visual and verbal – for presentation in an efficient way. The authors have presented a ranking list based on quality and quantity assessment of choosing ICT tools and proposed some recommendations of features of a good presentation; furthermore, they analyzed some of the most frequent mistakes users make during elaborating a didactic video. The article describes some preliminary results of the implementation of Work Package 4 (WP4) “Selection and testing new IT tools” in the framework of the international research network IRNet.

Chapter 2 entitled “Information and Communication Competencies in Higher Education” contains the manuscript “Conditions of Effective Development of Information and Communication Competencies of Teaching Staff of the University,” prepared by a Ukrainian researcher Artur Kacharyan. The author summarizes the results of the pilot study on the implementation of the model of information and communication competencies of the university teaching staff conducted at the Borys Grinchenko Kyiv University, Ukraine and describes the basic stages of the research and the conditions of an effective implementation of the model. The article examines ways of improving the quality of higher education in Ukraine in the context of European quality standards for the university educational space. European standards and guidelines are considered in relation to internal quality assurance. The model of ICT competencies of teaching and research staff is studied and the structural components of this model – motivational target component, organizational and procedural component, contents and operational and technological component, diagnostic and effective components – are described.

Chapter 3 is devoted to the “Study on Networking and Educational IT Space” and includes the manuscript “On Networking. The Analysis of Selected Aspects,” elaborated by Eugenia Smyrnova-Trybulska and Przemysław Żebro. The authors present a study focusing on the theoretical and practical determinants of network functioning. In this study, some e-challenges are analysed in the context of new prospects of the informational-educational space based on the Internet global network. It also includes a presentation of some key definitions as well as some exemplary types of networks. Collaboration, self-training, and exchange of experiences, research results, didactic materials and teaching methods are focused on. Two cases are provided as examples – the Internet platform and network “Doskonalenie w sieci /Improvement in the Net/,” and the international research network IRNet, in the activity of which the authors of the presented article take an active part.

The second paper from Chapter 3 is entitled “The Experience of the Creation of Educational IT Space of the Region,” elaborated by Valentyna Khivrih. The researcher deals with the modern approaches to using information and communication technologies in the educational process, extracurricular activities and management at the regional level in order to enhance the creative potential of students, teachers and administrators. The article describes the conceptual bases of creating an information-educational environment of the region as a platform for information

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and achievement exchange between educators and the region's administration. It specifies the technology of implementing the content and technology component of the information-educational environment of the region as well as its main functional components. The author proposes the implementation model of the effective management of educational institutions in a form of a unified system for collecting, processing and storing valid statistical and operational information on the activities of pre-school, comprehensive educational institutions and territorial units of education management (in districts and cities). The article describes the integrated tools and technologies that are designed to ensure the educational needs of both students and teachers. The author also proposes the model of a single control centre for the information-educational environment of the region that organizes support for its exploitation and development.

Chapter 4 focuses on "Research on the Formal and Informal Use of ICT and E-learning in Secondary School." The first article, entitled "Creatively and Informally: Scratch and the Remix Culture," has been prepared by Wojciech Jan Zuziak from Poland, who demonstrates in his own study the attachment of education for creativity conducted with the use of coding (code to learn) to modern pedagogical theories. The social interactions between young creators are an important matter. The paper describes a prelude to the research on the phenomenon of remix of simple computer games created by a community of users in the Scratch environment. It presents selected problems of young creators connected with sharing their own creative work with other community members, such as authorship acknowledgement, formal acknowledgement for the first author placed on derived products (games), reactions of the first author to the creative development of his or her ideas by another creator or influence of a school grade on the will to share the project. The research on a group of students aged 15 to 16 described in the article will be repeated as a wrap-up of a series of lessons concerning creating computer games in the Scratch environment.

The paper entitled "The Development of Key Student Competencies While Studying Computer Science in Secondary School," elaborated by Taisiia Mukii, discusses the key competencies of the 21<sup>st</sup> century in the context of both the transition to a new humanistic paradigm of education and the results of PISA 2012 study "Creative Problem Solving." The author stresses the contradictions between traditional skills and 21<sup>st</sup> century competencies of the school graduate. The article also discusses the contradictions on the one hand between the public need of a personality with a highly developed intellectual, spiritual and moral potential, and the insufficiency of theoretical and methodological bases of the development of the student's key competencies, and on the other hand between the traditional methods of computer science teaching and the necessity to solve problems of the educational process in conditions of ICT use. The results of the application of the IT teaching methods based on the principles of humane pedagogy are presented, and their effectiveness is confirmed.

Chapter 5, “Reports,” features an article by Eugenia Smyrnova-Trybulska, Ewa Ogrodzka-Mazur, Anna Szafrńska-Gajdzica, Ewelina Doluk, Tatiana Noskova, Tatiana Pavlova, Olga Yakovleva, Natalia Morze, Piet Kommers, Paulo Pinto, Laura Alonso García, Rocío Yuste Tosina, Prudencia Gutiérrez Esteban, Martin Capay, Martin Drlik, Josef Malach, Tomayess Issa, Theodora Issa, Maryna Romanyukha entitled “Report on the Implementation of WP3 ‘Analyses and Evaluation of the ICT Level, E-learning and Intercultural Development in Every Participating Country’ in the Framework of the IRNet Project.” This article, prepared by an international team of authors – researchers from different scientific areas, connected with ICT, e-learning, pedagogy, and other related disciplines – focuses on the objectives and selected results of the IRNet (International Research Network). In particular, this article describes the research tools, methods, objectives, tasks, deliverables, and implementation of research trips. Besides, the article presents some of the more important events, such as (video)conferences, seminars, workshops, an e-round table debate, publications which were realized as part of the IRNet project. The researchers from Poland, Russia, Ukraine, the Netherlands, Spain, Slovakia, Portugal, Czech Republic and Australia analyze the results of WP3 in the context of the next stages and Work packages of IRNet project.

In conclusion, it ought to be stressed that the articles from this issue, prepared by authors from nine countries, have presented a comprehensive overview of different aspects of the development of ICT and e-learning in European countries such as Poland, Ukraine, Czech Republic, Slovakia, Russian Federation, Portugal, Spain and the Netherlands, as well as Australia. The researchers have presented interesting results received during the conducted study which could be considered as a next stage in the process of studying the conditions for continuing improvement and increasing the level of formal and informal education. In the implementation of the conclusions and outcomes of the research, what should be taken into account are the expectations of students and teachers concerning learning and teaching, development of skills in the area of ICT and e-learning competencies, elaborating of the effectiveness of the university open e-environment.

*Eugenia Smyrnova-Trybulska*

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