



António dos Reis

Portugal

Sixto Cubo Delgado, Prudencia Gutiérrez-Esteban, Laura Alonso-Díaz

Spain

Eugenia Smyrnova-Trybulska

Poland

Tatiana Noskova

Russia

Nataliia Morze

Ukraine

Kateřina Kostolányová

The Czech Republic

Martin Drlik

Slovakia

Tomayess Issa

Australia

Report on the Implementation of Work Package 4 “Selection and Testing New ICT Tools” in the Framework of the IRNet Project

Abstract

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 some results of the IRNet international project. In particular, this article describes the research tools, methods, and some procedures of the Work Package 4 (WP4) “Selection and Testing New

ICT tools”: Objectives, Tasks, Deliverables, and implementation of research trips. Researchers from partner universities have analysed the results of WP4 in the context of the next stages and Work Packages of the IRNet project – International Research Network.

Key words: Information and communicational technology tools (ICT), road map, skills, Custom Satisfaction Evaluation Model (CSEM)

Introduction

Worldwide research has shown that ICT can lead to improved student learning and better teaching methods. A report made by the National Institute of Multimedia Education in Japan proved that an increase in student exposure to educational ICT through curriculum integration has a significant and positive impact on student achievement, especially in terms of “knowledge comprehension,” “practical skill,” and “presentation skill” in subject areas such as mathematics, science, and social studies. However, we can see that there are many education technology solutions which may cause confusion among educators about how to choose the right ICT tool. Let us have a look at the advantages and disadvantages of ICT tools for education, and discover what kind of education ICT solution is suitable for your school needs (ELMO).

In their article, Mikropoulos and Natsis (2011) analyse educational virtual environments. Authors McKenna, Baxter, and Hainey (2016) discuss the application of e-portfolio evaluation criteria to the blackboard LMS e-portfolio. Terry and Cheney (eds.) (2016) analyse the use of virtual and personal learning environments in the context of optimal learning. Brown (2004) looks at the development and evaluation of electronic portfolios for advanced degree programmes. Latest technologies and teaching in the new methodologies environment are analysed in Reis (2008), as well as virtual classrooms implementation (Reis, 2010b, and skills expected of teachers in the school of the future (Reis, 2011a). Other authors describe the research tools, methods, and some procedures of the Work Package 4 (henceforth: WP4) “Selection and Testing New ICT tools”: Objectives, Tasks, Deliverables, and implementation of research trips (Smyrnova-Trybuska et al., 2014; Smyrnova-Trybuska, Noskova, Pavlova, Yakovleva & Morze, 2016; Smyrnova-Trybuska et al., 2015; Smyrnova-Trybuska et al., 2016; Cápav et al., 2016). Researchers from partner universities have analysed the results of WP4 in the context of the next stages and Work Packages of the IRNet project – International Research Network.

Road Map of WP4 and Chosen Research Results

As part of Work Package 4, objectives were implemented that related to:

- selecting and testing new IT tools: social media, selected Web 2.0 and Web 3.0. Massive Open Online Courses, etc; evaluating synchronous and asynchronous tools, methodologies, and good practices; comparing and evaluating LMS (Learning Management Systems), CMS (Contents Management Systems), VSCR (Virtual Synchronous Classrooms), SSA (Screen Share Applications), CSA (Contents Sharing Application), cloud computing environment;
- identifying and defining profiles of a virtual campus, a virtual learning environment, and a virtual synchronous classroom; reviewing and comparing virtual classrooms (VCR) based on hardware equipment against the ones based on PCs; identifying VCRs better serving a teacher's or student's activities; comparing, from the technological point of view, the most known VCRs (PC based) available on the market; analysing the technological profile that virtual classrooms should have to ensure a good pedagogic result;
- characterising methodological and technological aspects of multimodal didactic communication; and
- identifying the general methodological aspects of VCR with a special focus on online tutoring, continuous online evaluation, and good practices; testing IT tools in effective developing of ICT and e-learning competencies as well as in design of intercultural competencies.

In this sense, different results have been established with regard to the following statements:

1. Effective use of the ICT instruments in education: "How should one teach in the 21st century? The teacher's skills and tools to work in the education environment;" the teacher's skills in the school of the future;
2. Perspectives of the school of the future;
3. New educational strategies in modern information space;
4. High-tech educational informational environment;
5. Innovations in higher education – modern communications and collaboration at the university using specific IT Tools; IT tools – good practice of effective use in education.

The main points of each result were discussed and compared with previous knowledge in the field of ICT Tools.

Results 1. Effective use of the ICT instruments in education: “How should one teach in the 21st century? The teacher’s skills and tools to work in the education environment”

From a qualitative perspective, some research was conducted, focus groups were created, and debates between countries proved useful in establishing the categories that define the skills of new century teachers. Those skills are related to:

- communication,
- collaboration,
- creativity,
- critical thinking and problem solving,
- productivity,
- social networking,
- reflection and feedback, and
- searching.

Other necessary skills of the teacher of the future are:

- the ability to present content in a multimedia format (presentations and didactic videos);
- the ability to provide face-to-face and online tutoring;
- the ability to make formative continuous assessment and evaluation;
- the ability to use an LMS; and
- the ability to work in a distance mode and to use a virtual classroom.

Results 2. Perspectives of the school of the future

From a qualitative perspective, using e-round table debates, various reflections on, insights into, and scenarios for the school of the future have been analysed. Information about debates is available at <http://areis-en-schooloffuture.blogspot.pt/>.

Main results point to the following reflections about the school of future:

- the need of developing new models, profiles, and challenges;
- virtual synchronous classrooms;
- MOOC and alternative technology to teach in the school of the future;
- face-to-face and distance learning in the school of the future;
- mobile learning; and
- creating communication bridges.

Results 3. New educational strategies in modern information space

Different papers presented by dos Reis et al. (2015), Alonso et al. (2014), Morze et al. (2014), Noskova et al. (2013, 2014a, 2014b), Smyrnova-Trybulska et al. (2014) have established the main points of new educational strategies in modern information space. At this stage, the researchers and authors emphasise:

- the significance of collaborative and networked learning based on the interactive tutoring feedback model;
- competencies of e-learning and ICT; and
- electronic resources for organising students’ independent work.

There are authors who have demonstrated favourable results of network learning to collaborate in their studies; however, contributions are smaller when we try to find a substitute for synchronous learning exchanges. Synchronous virtual classrooms (SVC) are suitable tools to promote collaborative learning by interactive tutoring when they respect the geographical facilities offered by distance learning, promoting the development and exchange of experience and learning. If we add to these circumstances a methodology based on collaboration through discussion and shared tasks, combining video conferencing, documents, synchronous boards, etc., it is possible to develop an attractive learning environment.

Results 4. High-tech educational informational environment

Smyrnova-Trybulska (2015), Švec, Drlik, Cápaj, and Tomanova (2015), and Gutiérrez et al. (2015) have analysed high-tech educational informational environment. We assume that the term “innovate” has its origins in the Latin “innovare,” which means “change or alter introducing new things.” Following Drucker (1985), innovation is a specific tool, a means to exploit change as an opportunity. It is the action of providing resources offering a novel capacity to produce “wealth.” Meanwhile, educational innovation has different connotations, as it involves planned and systematic exchange attempts. Thus, this potential change cannot be an isolated experience. However, change at the macro- and microstructural levels (Tejada, 2009) must be involved. This transformation should be new to the system in which it is being introduced, although it is original in itself. When someone innovates, he or she changes the state of things. That is, innovation is associated with an attempt for improvement, educational practice, effectiveness, and comprehensiveness.

In this regard, concerning innovation and ICT as investments, organisation is required, since it allows introducing revolutionary modernisation in the production process of goods and services. Therefore, reluctance to fully adopt innovation should be overcome; also, it is essential for it to be constructive in management, organisation, training, and communication. Needless to emphasise, ICT can represent a significant source of advancement for universities in notable processes that could convey increases in competitiveness and quality (Imbernon, 2008).

Results 5. Innovations in higher education – modern communications and collaboration at the university using specific IT Tools; IT tools – good practice of effective use in education

Smyrnova-Trybulska et al. (2015), Cápaj et al. (2015), and Nakaznyi (2015) have taken a close look at students’ beliefs and expectations about ICT-enhanced learning and perceived needs for intercultural development in the framework of the International Research Network (IRNet), aspects of distance and e-learning in Ukraine and the Slovak Republic, and substantive pattern of teaching practice organisation for the students of the translation department in higher educational institutions.

Researchers from different scientific areas, connected with ICT, e-learning, pedagogy, and other related disciplines, focus on the objectives and results of IRNet. In particular, they describe research tools, methods, and some procedures: objectives, tasks, deliverables, and implementation of research trips. Researchers from Poland, Russia, Ukraine, the Netherlands, Spain, Slovakia, Portugal, the Czech Republic, and Australia have analysed results of WP3 in the context of the next stages and Work Packages of IRNet.

In the process of reviewing key competencies for lifelong learning, it is important to take into account the recommendations of the European Parliament and the Council of Europe (Official Journal of 30th December, 2006) relating to eight key competencies which are defined as a combination of knowledge, skills, and attitudes appropriate to the context, which all individuals need for personal fulfilment and development, active citizenship, social inclusion, and employment. In addition to communication in the mother tongue, communication in foreign languages, mathematical competence, and basic competencies in science and technology, learning to learn, social and civic competencies, sense of initiative and entrepreneurship, and cultural awareness and expression, digital competencies occupy an important, prioritised position. In this document, this competence is described as “the confident and critical use of technology information society (IST) for work, leisure, and communication.”

With regard to teacher training in digital competence, we can say that numerous previous studies in knowledge, attitudes, perceptions, beliefs, and/or practices of teachers on new technologies – as they were called in the 80s and 90s – begin with practicing teachers and initial training, and lately have focused on studying the digital competence of teachers in initial formation.

However, there are few papers that delve into the problems of combining teacher training in digital and intercultural competence, despite the fact that there are some experiences (Borrero & Yuste, 2011). Consequently, there is not very abundant literature in the European context that refers to teachers’ digital and intercultural competence in initial or continuing training. However, it should be noted that there are the administrations at various levels that themselves have already begun to engage in political actions and create legislation that will make it possible to deepen work in this emerging field.

This paradigm is taken into account during the implementation of the IRNet project (International Research Network for the study and development of new tools and methods for advanced pedagogical science in the field of ICT instruments, e-learning and intercultural competences). Besides, IRSES and the Marie Curie Actions initiative are taken into consideration, too, aiming at helping research organisations either set-up or strengthen long-term cooperation. This study is part of the fourth IRNet Work Package, which aims specifically to identify and define profiles of a virtual campus, virtual learning environments, and virtual synchronous classrooms, to characterise methodological and technological aspects of multimodal

didactic communication, and to emphasise the overall methodological aspects of VCR with a special focus on online tutoring, online continuous evaluation, and good teaching practices.

Research Programme

It was organised in five steps to identify and characterise research activities, to distribute tasks, to make a survey to compare tools, and to present results, with details as follows.

Step 1

18 May 2015 at 11h00 CET – an e-round table

- Agenda: the analysis of the previous experience in the area of effective use of the ICT instruments in education:
 - “How should one teach in the 21st century? The teacher’s skills and tools to work in the education environment” – a debate, defining and distributing tasks.
- Documents available:
 - Reflections about scenarios for the school of the future (<http://areis-enschooloffuture.blogspot.pt/>), an e-round table debate about “The school of the future.” The participants, international experts in the field, were: Prof. P. Veiga (Former Prorector of Lisbon University), Prof. N. Pachler (Co-director of Education Institute of London University), Prof. D. Richardson (English Language Distance Teaching Coordinator at Linnaeus University), Prof. J. Duque (Director of Economy and Business Administration Faculty at Lisbon University), Prof. T. Hug (President of Multimedia Institute at Innsbruck University), Prof. X. Basogain (Multimedia Coordinator at University of the Basque Country), Prof. S. Bedin (WeZupport CEO, Sweden), Prof. Â. Pinto (PFISER international professional trainer), Prof. T. Passos (Dynargie professional Trainer coordinator);
 - Teachers’ skills for the school of the future (<http://areis-en-teachers-skills.blogspot.pt/>). Experts participating in the presentation were: Prof. P. Veiga (Former Prorector of Lisbon University), Prof. A. dos Reis (The Graal Institute, Portugal), Prof. G. Siemens (Athabasca University), Prof. N. Pachler (Co-director of Education Institute of London University), Prof. T. Hug (President of Multimedia Institute at Innsbruck University), Prof. D. Richardson (Linnaeus University), Prof. S. Cubo (Extremadura University), Prof. X. Basogain (University of the Basque Country), Prof. F. Carrera (Lisbon University), Prof. P. Pinto (Lusiada University);

- Comments in the community – The school of the future: methods, technologies (<https://plus.google.com/communities/114108209221659023662>, short – <http://goo.gl/fPJTyf>);
- WP4 – blog <http://areis-en-irnetseminar.blogspot.pt/>.

Table 1.

WP4 Tasks distribution

Research team	Tools
University of Silesia (US, Poland) – Coordinator Borys Grinchenko Kyiv University (BGKU, Ukraine) Curtin University (CU, Australia) Constantine the Philosopher University (UKF, Slovakia) Dniprodzerzhinsk State Technical University (DSTU, Ukraine)	Presenting content in multimedia format
Lusiada University (LU, Portugal) Curtin University (CU, Australia) Abant Izzet Baysal University (Turkey)	Face-to-face and online tutoring
Herzen State Pedagogical University of Russia (HSPU, Russia) University of Ostrava (UO, Czech Republic)	Formative continuous assessment (face-to-face and online)
University of Silesia (US, Poland) – Coordinator Borys Grinchenko Kyiv University (BGKU, Ukraine) Curtin University (CU, Australia) Herzen State Pedagogical University of Russia (HSPU, Russia) Abant Izzet Baysal University (Turkey)	LMS and information and control systems
Borys Grinchenko Kyiv University (BGKU, Ukraine) University of Silesia (US, Poland)	Remote collaborative work and virtual meetings
Herzen State Pedagogical University of Russia (HSPU, Russia) Constantine the Philosopher University (UKF, Slovakia) Abant Izzet Baysal University (Turkey)	Other recommended tools

Step 2

Actions:

- Forum – May to June 2015, activities until the end of May.
- Team members are expected to identify and recommend not less than 3 tools for each task up until the end of May. Identified tools for each team are expected to be reported in a Google drive document available for remote collaborative work:

Nº	Tool name	Web site where to find	Short tool description
----	-----------	------------------------	------------------------

- 1 June – IRNet members' e-meeting to debate conclusions about work on progress.
- June – an e-round table to present and discussion about forum conclusions at JUTE: “Educational Technology Resources and Emerging Trends in Teacher Training” (UEX team).

Step 3

Comparison and evaluation of ICT tools (July–September 2015)

- Appointing the team to organise the survey to compare tools.
- July – teams responsible for identifying tools should present items to be used as criteria to evaluate and compare tools by each task to implement a CSEM (Custom Satisfaction Evaluation Model).
- July–August – an appointed team prepares a survey based on identified items by the research members, to be used to compare and evaluate items.
- September–October – a survey to compare and conclude about tools, using a CSEM.

Step 4

- November 2015 – a statistic treatment of survey results and final conclusions.
- December – an e-round table “Recommended and selected IT tools for different teaching methods and processes” to present conclusions.
- Work done:
 - Research reports about each activity and tools identified are available in short papers reports and 34 didactic videos – produced by the researchers about each activity, identifying relevant and necessary tools – available in the following links. All printable documents are prepared to be automatically translated to all languages, and videos are published and prepared to have subtitles in the languages of all members’ languages, and open to be shared with the scientific community.

To be a “blended” b- teacher in the 21st century – reflections

<http://areis-en-bteacher.blogspot.pt/>

Videos available about all subjects

Details about how to watch YouTube videos

<https://youtu.be/Zb2IwoyKbe8>

Making Presentations and didactic videos

<http://ar-en-wp4-01present.blogspot.pt/>

Publishing documents – Tools and techniques for Webpage – Blog – PPT

<http://ar-en-wp4-02publish.blogspot.pt/>

Online tutoring

<http://areis-en-otutoring.blogspot.pt/>

About LMS

<http://areis-en-lms.blogspot.pt/>

Remote collaborative work

<http://areis-en-rcw.blogspot.pt/>

Learn how to learn

<http://areis-en-lhl.blogspot.pt/>

Search and manage contents

https://youtu.be/_CretsExdhE

Formative assessment

<http://areis-en-fass.blogspot.pt/>

- Work-in-progress report of research is made about each activity. Information is available on Google Drive, in the articles, manuscripts, papers, and videos.

Stage 5

In order to implement appointed tasks, a seminar was scheduled to take place on 2 February 2016 during a research trip to Lisbon Lusíada University, integrating IRNet researchers and international invited experts.

More than 30 articles were prepared and submitted, as well as a document on WP4.

1. *New educational strategies in modern information space* (Scientific Papers), V. V. Laptev, T. N. Noskova & T. B. Pavlova (Eds.). St. Petersburg: HSPU, 2015. ISBN 978-5-8064-2144-0.
 - 1) Reis, A.: “Learn and teach in the school of the future. Methodological and technological aspects,” pp. 54–55.
 - 2) Alonso Díaz, L., Gutiérrez Esteban, P., Yuste Tosina, R., Arias Masa, J., Cubo Delgado, S., & Delicado del Puerto, G.: “Collaborative and networked learning based on the interactive tutoring feedback model,” pp. 56–58.
 - 3) Noskova, T., Pavlova, T., & Yakovleva, O.: “Prospects for comparative study e-learning and ICT competences in international project IRNet,” pp. 59–63.
 - 4) Pavlova, T.: “Electronic resources for organization of students’ independent work. Basic requirements,” pp. 37–43.
2. Proceedings from the International Scientific Conference *High-tech Educational Informational Environment*, V. Laptev (Ed.). St. Petersburg: OOO “Книжный Дом,” 2015. ISBN 978-5-94777-392-7.
 - 1) Smyrnova-Trybulska, E.: “Information and educational environment of the university: A case study,” pp. 25–39.
 - 2) Švec, P., Drlik, M., Cápav, M., & Tomanova, J.: “Virtual Learning Environment and e-learning courses evaluation,” pp. 121–127.
 - 3) Gutiérrez-Esteban, P., Alonso-Díaz, L., Lucero-Fustes, M., Delicado-Puerto, J., Arias-Masa, J., Cubo-Delgado, S., Yuste-Tosina, R., & Iglesias Verdegay, E.: “Pedagogical innovations in the Extremadura University ICT sector: A significant area for investment,” pp. 72–76.
3. *Innovations in higher education – Modern communications and collaboration at the university using specific IT tools* [International collective monograph], M. O. Nakaznyi (Ed.). Dniprodzerzhynsk: DSTU, 2015. ISBN 978-966-175-114-8. Retrieved from http://www.dstu.dp.ua/konf/info/2015_2/kollekt_monograf.pdf.
 - 1) Smyrnova-Trybulska, E., Gutiérrez-Esteban, P., Arias-Masa, J., Delicado-Puerto, G., Yuste-Tosina, R., Alonso-Díaz, L., & Cubo-Delgado, S.: “Students’

- beliefs and expectations about ICT-enhanced learning and perceived needs for intercultural development in the framework of the International Research Network (IRNet),” pp. 25–39.
- 2) Cápaj, M., Drlík, M., Nakaznyi, M., Romaniukha, M., Shelomovska, O., Sorokina, L., Švec, P., & Tomanová, J.: “Aspects of distance and e-learning in Ukraine and Slovak Republic,” pp. 39–55.
 - 3) Nakaznyi, M. O.: “Substantive pattern of teaching practice organization for students of the translation department in higher educational institution,” pp. 56–67.
4. Proceedings from *ICTE2015 (Information and Communication Technology in Education) Conference*, K. Kostolányová (Ed.). Roznov-pod-Radhostem: University of Ostrava, 2015. ISBN: 978-80-7464-763-5.
- 1) Noskova, T., Pavlova, T., Yakovleva, O., Smyrnova-Trybulska, E., Švec, P., Drlík, M., Tomanová, J., & Cápaj, M.: “Network learning community of students – Knowledge-sharing opportunities for professional development,” pp. 169–181.
 - 2) Korobochka, O., Sadovoy, O., Yalova, K., & Zavgorodnii, V.: “Virtual tools LabOnLine for increasing the practical skills of creating SQL queries while teaching IT-students of Ukraine,” pp. 65–72.
 - 3) Malach, J., Chmura, M., & Kostolányová, K.: “Students in electronic learning environment,” pp. 96–115.
 - 4) Morze, N., & Buinytska, O.: “Public information and educational environment as one of the ways to improve the ICT competence of future specialists,” pp. 132–142.
 - 5) Morze, N., & Zakhar, O.: “Distance learning technology as tool for monitoring and improvement of ICT competence of teachers of computer science,” pp. 143–154.
 - 6) Nakaznyi, M., Romaniukha, M., & Sorokina, L.: “Aspects of use of electronic educational resources by university professors,” pp. 162–168.
 - 7) Chmura, M., Malach, J., & Kostolányová, K.: “Social media as a means of university study support,” pp. 41–52.
 - 8) Nagyová, I.: “ICT in Northern Moravia elementary schools,” pp. 155–161.
5. 2 articles submitted to *International Journal of Continuing Engineering Education and Life-long Learning*, Vol. X, No. Y, P. Kommers, E. Smyrnova-Trybulska, M. Simmerling (Eds.), devoted to the IRNet project.
- 1) Noskova, T., Yakovleva, O., Pavlova, T., Morze, N., & Smyrnova-Trybulska, E.: “Modern education quality requirements and information technologies in academic teachers’ activities.”
 - 2) Gulesha, O., Sadovoy, O., & Voronova, Z.: “Experiment and means of information and communication technologies in teaching mathematics.”
6. 1 article submitted to *International Journal of Continuing Engineering Education and Life-long Learning*.

- 1) Smyrnova-Trybulska, E., Morze, N., Kommers, P., Pavlova, T., & Sekret, I.: "Using effective and adequate IT tools for developing teachers' skills."
7. *IT tools – Good practice of effective use in education*, E. Smyrnova-Trybulska (Ed.). Katowice/Cieszyn: Wydawnictwo Uniwersytetu Śląskiego, STUDIO NOA, 2015. ISBN 978-83-60071-82-3.
- 1) Noskova, T., Pavlova, T., Yakovleva, O., Smyrnova-Trybulska, E., Morze, N., Švec, P., Tomanová, J., Drlík, M., & Čápay, M.: "IT tools in a university – e-learning environment: Students' opinion survey," pp. 27–40.
 - 2) Morze, N., Buinytska, O., & Hrytseliak, B.: "Implementation of corporate standards of ICT competence – Guarantee qualitative open electronic environment of the university," pp. 41–62.
 - 3) Žebrok, P., & Smyrnova-Trybulska, E.: "Electronic registers in the school and determinants of their effective implementation," pp. 89–108.
 - 4) Curaoğlu, O., Yavuzalp, N., Güner, M. D., Durmuş, S., Akayoğlu, S., Bahar, M., Kiliç, F., Tekinarslan, E., & Demirel, M.: "ICT education in Turkey: National ICT curriculum to improve teaching and learning," pp. 109–118.
 - 5) Ogrodzka-Mazur, E., & Szafrńska-Gajdzica, A.: "Educational politics and intercultural education – Polish perspective," pp. 125–138.
 - 6) Malach, J., Kostolányová, K., & Chmura, M.: "Academic scholars' view on the contribution of ICT to the enhancement of distance learning elements of university studies," pp. 159–188.
 - 7) Güner, M. D., Yavuzalp, N., Curaoğlu, O., Durmuş, S., Akayoğlu, S., Bahar, M., Kiliç, F., Tekinarslan, E., & Demirel, M.: "One year experience of distance education at Abant İzzet Baysal University," pp. 211–218.
 - 8) Morze, N., Barna, O., Kuzminska, O., & Vember, V.: "Formation of ICT competences through the system of competency tasks: From idea to practical implementation," pp. 219–234.
 - 9) Sorokina, L., Karimov, I., Karimov, G., & Zayarna, I.: "Basic aspects of forming ICT-competences of sociologists," pp. 261–270.
 - 10) Kapoun, P.: "Tailored courses for professional life," pp. 313–322.
 - 11) Prextová, T.: "Adaptivity of testing in education process," pp. 361–370.
 - 12) Vоротnykova, I.: "Network communities for professional development of teachers," pp. 347–352.
8. *International Journal of Research in E-learning*, Vol. 1, Issue 1, 2015. ISSN 2451-2583.
- 1) Reis, A.: "To be a (blended) b-teacher in the 21st century – Some reflections," pp. 11–24.
 - 2) Morze, N., & Buinytska, O.: "Open e-environment – the key instrument of the education quality," pp. 27–46.
 - 3) Nakaznyi, M., Sorokina, L., & Romaniukha, M.: "ICT in higher education teaching: Advantages, problems, and motives," pp. 49–61.

- 4) Smyrnova-Trybulska, E., Ogrodzka-Mazur, E., Szafrńska-Gajdzica, A., Doluk, E., Kommers, P., Morze, N., Noskova, T., Pavlova, T., Yakovleva, O., Pinto, P., Arias Masa, J., Cubo Delgado, S., Delicado Puerto, G., Drlik, M., Malach, J., Issa, T., & Romanyukha, M.: "Report on the implementation of Work Package 2 'Analyses of legal, ethical, human, technical and social factors of ICT and e-learning development and intercultural competences state in every partner country' in the framework of the IRNet project," pp. 99–116.
- 5) Smyrnova-Trybulska, E., Ogrodzka-Mazur, E., Szafrńska-Gajdzica, A., Morze, N., Makhachashvili, R., Drlik, M., Cápav, M., Tomanová, J., Švec, P., Issa, Tomayess, Issa, Theodora, Romanyukha, M., Nakazny, M., & Sorokina, L.: "Discussion paper on more adequate and effective IT tools. Some previous results concerning more adequate and effective IT tools in the category: Tools for making presentations," pp. 77–96.
- 6) Kalamarz, R.: "Assessment in VLE supported foreign language learning," pp. 62–74.
9. *International Journal of Research in E-learning*, Vol. 1, Issue 2, 2015. ISSN 2451-2583.
 - 1) Smyrnova-Trybulska, E., Ogrodzka-Mazur, E., Szafrńska-Gajdzica, A., Reis, A., Drlik, M., Cápav, M., Tomanová, J., Švec, P., Morze, N., Makhachashvili, R., Issa, Tomayess, Issa, Theodora, Romanyukha, M., Nakazny, M., & Sorokina, L.: "Discussion paper on the topic of more adequate and effective ICT tools. Category: Tools for making didactic videos."
 - 2) Smyrnova-Trybulska, E., & Žebrok, P.: "On networking. The analysis of selected aspects."

Other Results

5 conferences have been held:

- The international scientific-practical conference *XXIII Educational Technology Conference (JUTE2015)*, held at UEx, Badajoz, Spain (11–12 June 2015) (http://eventos.unex.es/event_detail/1738/detail/jute-2015.html);
- International conference *Innovations in Higher Education – Modern Communications and Collaboration at the University Using Specific IT Tools*, held in DSTU, Dniprodzerzhynsk, Ukraine (23–24 June 2015);
- International scientific conference *Open Educational E-environment of the Modern University*, organised by BGKU, Kiiiv, Ukraine (20 August 2015) (<http://openedu.kubg.edu.ua/>, <http://openedu.kubg.edu.ua/index.php/conf/2015#.VplWHk8ufX8>);
- International conference *Information and Communication Technologies in Education (ICTE 2015)*, organised by OU, Czech Republic, in Roznov-pod-Radhostem (14–17 September 2015);

- 7th Annual International Scientific Conference *Theoretical and Practical Aspects of Distance Learning. IT Tools – Good Practice of Effective Use in Education* (DLCC2015), organised by US, Cieszyn, Poland (12–13 October 2015).

IRNet project seminar, (video) conference on WP4:

1. IRNet project seminar, (video) conference on WP4 in remote mode, 18 May 2015: “Work Package 4: Selection and testing new IT tools. Discussion about research tools, methods.” Organisers: prof. A. dos Reis (The Graal Institute, Portugal), Extramadura University, Spain;
2. IRNet project seminar (video) conference on WP4 in face-to-face and remote modes, 07 July 2015: “Work Package 4: Selection and testing new IT tools. LMS systems. Presenting first results of evaluation and comparison” (E. Smyrnova-Trybulska). Organisers: prof. A. dos Reis (The Graal Institute, Portugal), Extramadura University, Spain;
3. IRNet project seminar and (video) conference in face-to-face and remote modes, 20 July 2015: “Work Package 4: Selection and testing new IT tools. Tools for making presentation and didactic video. Presenting first results of evaluation and comparison” (E. Smyrnova-Trybulska). Organisers: prof. A. dos Reis (The Graal Institute, Portugal), Extramadura University, Spain;
4. IRNet project seminar (video) conference on WP4 in face-to-face and remote modes, 07 September 2015: “Work Package 4: Selection and testing new IT tools. Tools for making presentation and didactic video. Presenting more important activities” (E. Smyrnova-Trybulska); “Presence and online tutoring,” “IT-tools for printing and publishing didactic materials” (I. Sekret, other researchers from Abbaz University). Organisers: prof. A. dos Reis (The Graal Institute, Portugal), Extramadura University, Spain;
5. IRNet project (video) conference in face-to-face and remote modes, 28 September 2015: “Work Package 4: Selection and testing new IT tools. Tools for making presentation and didactic videos. Presenting the pedagogical and methodological aspects effectiveness use in education” (E. Smyrnova-Trybulska); “Social media for face-to-face and online tutoring” (I. Sekret, other researchers from Abbaz University). Organisers: prof. A. dos Reis (The Graal Institute, Portugal), Extramadura University, Spain, University of Silesia, Poland;
6. IRNet project (video) conference in face-to-face and remote modes, 26 October 2015: “Work Package 4: Selection and testing new IT tools. LMS systems. Presenting more important activities” (E. Smyrnova-Trybulska); “Formative continuous assessment (face-to-face and online)” (T. Pavlova, J. Malach). Organisers: prof. A. dos Reis (The Graal Institute, Portugal), Extramadura University, Spain, University of Silesia, Poland;

7. IRNet project seminar and (video) conference in face-to-face and remote modes, 09 November 2015: “Work Package 4: Selection and testing new IT tool. LMS systems. Presenting the pedagogical and methodological aspects of effective use in education” (E. Smyrnova-Trybulska). Organisers: prof. A. dos Reis (The Graal Institute, Portugal), Extramadura University, Spain;
8. IRNet project (video) conference in face-to-face and remote modes, 23 November 2015: “Work Package 4: Selection and testing new IT tools. Presenting the concept of distance learning course and focus group for conducting the next stage of research,” “Remote collaborative work and virtual meetings” (N. Morze, R. Makhachashvili, BGKU). Organisers: prof. A. dos Reis (The Graal Institute, Portugal), Extramadura University, Spain;
9. IRNet project seminar and (video) conference in face-to-face and remote modes, Cieszyn 30 November 2015: “Work Package 4: Selection and testing new IT tools. Discussion about research tools, methods.” Organisers: prof. A. dos Reis (The Graal Institute, Portugal), Extramadura University, Spain, University of Silesia, Poland;
10. IRNet project seminar and (video) conference in face-to-face and remote modes, 14 December 2015: “Work Package 4: Selection and testing new IT tools. Discussion about research tools, methods.” Organisers: prof. A. dos Reis (The Graal Institute, Portugal), Extramadura University, Spain;
11. IRNet project (video) conference in face-to-face and remote modes, 21 December 2015: “Work Package 4: Selection and testing of new IT tools. Presenting and analyzing videotutorials. Final conclusions.” Organisers: prof. A. dos Reis (The Graal Institute, Portugal), Extramadura University, Spain, University of Silesia, Poland.

Workshops

1. Research trip of US, UKF, LU academic staff to BGKU (August–September 2015):
 - Project seminar and workshop conducted by prof. N. Morze (BGKU) and prof. E. Smyrnova-Trybulska (US): presentation and detailed analysis of the objectives, tasks, deliverables of the WP4 in the context of the research trip to BGKU (21 August 2015);
 - Seminar “Analyzing of conception and road map,” elaborated by prof. A. dos Reis about selecting and testing new IT tools (26 August 2015);
 - Workshop “E-environment of the Novopecherska school for increase of quality of education and protection of information” conducted by A. Kacharian – IT Director of the Novopecherska School (4 September 2015);
 - Workshop on robotics design and use IT-tools for programming of different kind of robotics, conducted by S. Dziuba, IT teacher (Secondary School No. 141 – ORT Lyceum with a profile of technology and foreign language) (04 September 2015);

- Workshop “The main category of IT tools for education. LMS systems, description and items of facilities” conducted by prof. E. Smyrnova-Trybulska (US) (8 September 2015);
 - Workshop on 3D technology, conducted by Dr. M. Cápav (UKF) (9 September 2015).
2. Research trip of DSTU, BGKU, HSPU academic staff to OU (September–October 2015):
- Workshop moderated by prof. J. Malach (OU), setting up the objectives and nearest deadlines of WP4 (22 September 2015);
 - Project meeting and workshop moderated by prof. Y. Kapounova (OU). Discussion on project deliverables in the OU collective monograph (24 September 2015);
 - Seminar and workshop on formative assessment tools and activities (25 September 2015) moderated by prof. J. Malach;
 - Workshop of Formative Assessment tools moderated by prof. J. Malach. A comprehensive list of FA quality indicators according to the educational goals and short-term/long-term objectives was suggested. The integrated system of Formative Assessment tools expertise criteria was elaborated (30 September 2015);
 - Workshop with prof. J. Malach at the Dean’s office, moderated by prof. J. Malach and prof. K. Kostolányová. Presentation of WP4 results and potential deliverables over the span of stay at Ostrava University (05 October 2015);
 - Online seminar and workshop moderated by prof. A. dos Reis and prof. E. Smyrnova-Trybulska. Round table debate presentation test and preliminary discussion (07 October 2015);
 - Shadowing during the course of Information Literacy moderated by prof. K. Kostolányová. The IRNet project as part of the international research initiative was outlined for the students (08 October 2015).
3. Research trip of of UEx, UT academic staff to CU (October–December 2015):
- Prof. Sampson’s workshop: attending the workshop by D. Sampson about context-aware adaptive and personalised mobile learning system (12 November 2015);
 - Meeting, workshop, and team work with the Head of Curtin School of Information Systems (SIS) prof. P. Dell (13 November 2015);
 - Workshop and round table “The use of ICT in higher education teaching” (face to face and b-learning) by Dr. Theodora Issa and Dr. Tomayess Issa. (14 November 2015);
 - Workshop in the Library of Curtin University aimed to introduce the document management system developed by the library staff. Dr. K. Delaney described the different document managers and data bases frequently used, together with the services offered to research and teaching staff of CU. As a result of

that meeting, a training session about EndNote software was appointed on 23 November (16 November 2015);

- Seminar and workshop “Presentation of the Spanish educational system”: the speakers presented theoretical backgrounds for the Spanish school system throughout each level of the Spanish education system, from primary school, secondary education, higher education, to university entrance examination. On the other hand, a methodological approaching in primary education was analysed (17 November 2015);
- E-workshop “IT Tools for developing teachers’ skills. Ideas and questions for emerging trends in education” focused on the so-called “Learning Emerging Technologies,” mainly on those catalogued in the NMC Horizon Project Listing (19 November 2015); URL video: <http://unex.adobeconnect.com/p81o6nba2of/>;
- Training course: “Endnote for research” about the use of Endnote as a resource for research in social sciences with the participation of K. Delaney (Faculty Librarian of Curtin Business School) (23 November 2015);
- E-Workshop “Qualitative research in ICT and education: paradigms analysis and real practice” (23 November 2015);
- Meeting with Dr. T. Dobinson and J. Chen from the School of Education (24 November 2015);
- Meeting and workshop dedicated to analyses of the software New v5.4 Echo360 PCAP: CU presented the software New v5.4 Echo 360 PCAP. The speaker showed how lecturers can capture, videotape their own lesson so that students receive immediate access to it (24 November 2015);
- Workshop and meeting with Z. Nau and T. Issa. The objective was to share information regarding different Synchronous Virtual Classroom systems which promote the cooperative and self-learning (27 November 2015).

Moreover, during the 7th Annual International Scientific Conference DLCC 2015 *Theoretical and Practical Aspects of Distance Learning. IT Tools – Good Practice of Effective Use in Education*, held in US, Cieszyn, Poland (12–13 October 2015), two workshops were organised:

- “E-learning methodology in practice,” conducted by prof. A. dos Reis (Portugal); and
 - “Digital inclusion in education – a text alternative and e-learning platforms,” conducted by Dr. I. Mrochen (Poland).
- Additional achievements are as follows:
- a new project has been started: a scientific journal – *International Journal of Research in E-learning* (IJREL) (<http://weinoe.us.edu.pl/nauka/serie-wydawnicze/international-journal-research-e-learning>);
 - developing video didactic materials for MOOC on IT tools for effective use in education;
 - creating new innovative educational programmes (specialisations) on the basis of the European and national standards and qualification frameworks; and

- conducting research among specialists from education and business, and developing an innovative educational programme for postgraduate studies on e-learning.

Conclusions

In this paper, the authors presented most important results of Work Package 4 “Selection and Testing New ICT tools”: Objectives, Tasks, Deliverables, and implementation of research trips, as well as Objectives, Tasks, and Deliverables within the framework of the international research project 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 international team of researchers from the University of Silesia in Katowice (Poland), and partner universities from European and non-European countries from the IRNet consortium will be continuing the study and research according to the Project Documentation and the project scheduler; in the near future, they will publish subsequent papers and manuscripts in the conference proceedings as well as in the scientific journal and monograph.

Acknowledgments

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

References

- Alonso, L., Arias, J., Cubo, S., Reis, A., Gutiérrez, P., & Yuste, R. (2011). Criterios pedagógicos y metodológicos para el uso docente de las aulas virtuales sincronas. In J. De Pablos (Ed.), *XIX Jornadas Universitarias de Tecnología Educativa*. Sevilla: RUTE.

- Alonso, L., Gutiérrez, P., Yuste, R., Arias, J., Cubo, S., & Reis, A. (2014). Usos de aulas virtuales síncronas en educación. *Pixel-Bits, Revista de Medios y Educación*, 45, 203–215.
- Arias, J., Alonso, L., Cubo, S., Gutiérrez, P., & Yuste, R. (2014). Assessment of the use of Synchronous Virtual Classrooms in higher education. *The new educational review*, 38(4), 223–237.
- Borrero, R., & Yuste, R. (2011). Dificultad.com. Interculturalidad y TIC unidas en el desarrollo del enfoque competencial del currículo. In R. Borrero & J. Leiva (Coords.), *Interculturalidad y escuela. Perspectivas pedagógicas en la construcción comunitaria de una escuela intercultural* (pp. 106–121). Barcelona: Octaedro.
- Brown, C. (2004). Design, development, and evaluation of electronic portfolios for advanced degree programs in technology and school. Washington, DC: Association for Educational Communications and Technology. ERIC Document Reproduction Service Nº ED485119.
- Cápay, M., Drlík, M., Nakaznyi, M., Romaniukha, M., Shelomovska, O., Sorokina, L., Švec, P., & Tomanová, J. (2015). Aspects of distance and e-learning in Ukraine and Slovak Republic. In M. O. Nakaznyi (Ed.), *Innovations in higher education – Modern communications and collaboration at the university using specific IT tools* (pp. 39–55). Dniprodzerzhynsk: DSTU.
- Cápay M., Drlík, M., Švec, P. Tomanová, J., Romaniukha, M., & Sorokina, L. (2016). Attitudes and expectations on virtual environments of the universities. In M. Turčáni, Z. Balogh, M. Munk, L. Benko (Eds.), *Proceedings from DIVAI 2016 – Distance Learning in Applied Informatics. 11th International Scientific Conference on Distance Learning in Applied Informatics* (pp. 273–285). Nitra: Wolters Kluwer.
- Cubo, S., Gutiérrez, P., Alonso, L., & Arias, J., (2011). Modeling technological-pedagogical-didactic of Virtual Classroom in higher education. A study of implementation at the University of Extremadura. Paper presented at *The European Conference on Educational Research (ECER 2011)*, Berlin.
- Drucker, P. F. (1985). *Innovation and entrepreneurship*. New York: HarperCollins Publishers.
- García Lopez, R. (2003). Formación del profesorado en pedagogía intercultural: contenidos actitudinales. *Estudios sobre Educación*, 4, 47–66.
- Gutiérrez Esteban, P., & Becerra Traver, M^a. T. (2014). Los Entornos Personales de Aprendizaje (PLE). Una experiencia de aprendizaje informal en la formación inicial del profesorado. *Revista Latinoamericana de Tecnología Educativa*, 13(2), 49–60.
- Gutiérrez-Esteban, P., Alonso-Díaz, L., Smyrnova-Trybulska, E., Cápay, M., Ogrodzka-Mazur, E., Gonçalves Pinto, P. J., Noskova, T., Gajdzica, A., Pavlova, T., & Yakovleva, O. (2015). Intercultural and digital competence in teacher training from an international perspective: Poland, Portugal, Slovakia, Spain and Russia. *Relatec, Revista Latinoamericana de Tecnología Educativa*, 14(1), 145–157.
- Imbernón, F. (2008). *10 ideas clave. La formación permanente del profesorado*. Barcelona: Graó.
- McKenna, G. F., Baxter, G. J., & Hainey, T. (2016). Applying E-Portfolio evaluation criteria to the Blackboard LMS E-Portfolio. In K. Terry & A. Cheney (Eds.), *Utilizing virtual and personal learning environments for optimal learning* (pp. 157–185). Hershey: Information Science Reference (IGI Global). Accessed 23 December 2016. Retrieved from <http://eric.ed.gov/?id=ED563993>.
- Mikropoulos, T. A., & Natsis, A. (2011). Educational virtual environments: A ten-year review of empirical research (1999–2009). *Computers & Education*, 56(3), 769–780.
- Morze, N., Spivak, S., & Smyrnova-Trybulska, E. (2014). Personalized educational environment – As one of the trends of modern education. In K. Kostolányová & J. Kapounova (Eds.), *Proceeding from Information and Communication Technology in Education (ICTE-2014)* (pp.158–166). Rožnov-pod-Radnoštěm: University of Ostrava.
- Morze, N., Makhachashvili, R., & Smyrnova-Trybulska, E. (2016). Communication in education: ICT tools assessment. In M. Turčáni, Z. Balogh, M. Munk & L. Benko (Eds.), *Proceedings from*

- DIVAI 2016 – Distance Learning in Applied Informatics. 11th International Scientific Conference on Distance Learning in Applied Informatics* (pp. 351–354). Nitra: Wolters Kluwer.
- Noskova, T., Pavlova, T., & Yakovleva, O. (2013). High school teachers' information competencies in the virtual learning environment. In E. Smyrnova-Trybulska (Ed.), *E-learning & lifelong learning* (pp. 215–221). Katowice/Cieszyn: Wydawnictwo Uniwersytetu Śląskiego.
- Noskova, T., Pavlova, T., Yakovleva, O., & Sharova, N. (2014a). Communicative competence development for future teachers. *The New Educational Review*, 38(14), 189–199.
- Noskova, T., Yakovleva, O., Pavlova, T., Morze, N., & Drlík, M. (2014b). Information environment of blended learning: aspects of teaching and quality. In E. Smyrnova-Trybulska (Ed.), *E-learning & lifelong learning* (pp. 45–55). Katowice/Cieszyn: Wydawnictwo Uniwersytetu Śląskiego.
- Priegue Caamano, D. (2011). La tecnología al servicio de la Equidad Educativa: un análisis desde y para una pedagogía intercultural. *Revista de curriculum y formación del profesorado*, 15(3), 363–378.
- Reis, A. (2008). *New technologies and didactics in new methodologies environment*. Innsbruck: Innsbruck University press.
- Reis, A. (2009). III Jornadas sobre realidad virtual y entornos virtuales (JOREVIR'2009). Barcelona: Universidad Pompeu Febrá. Accessed 23 December 2016. Retrieved from <http://thegraal.ccems.pt/file.php/51/jorevir09/jorevir09.html>.
- Reis, A. (2010a). Debate online sobre competencias de los profesores. Accessed 23 December 2016. Retrieved from <http://uex.emea.acrobat.com/p40883160/>.
- Reis, A., & Basogain, X. (2010b). Trabajo en laboratorio virtual Universidad de País Vasco, con alumna sorda y un intérprete de lengua gestural. Accessed 23 December 2016. Retrieved from <http://uex.emea.acrobat.com/p17334634/>.
- Reis, A. (2010c). Virtual world best practices in education conference. Accessed 23 December 2016. Retrieved from http://olcw.thegraal.net/SL/SL_asVLE/Seminario_uh090205f2/Seminario_uh090205f2.html.
- Reis, A. (2011a). Presentación conclusiones de la investigación y ciclo de debates realizados sobre “Teacher’s skills for the school of the future.” Conferencia internacional de la Universidad de Izhevsk, Rusia. Accessed 23 December 2016. Retrieved from http://olcw.thegraal.net/TSSF/Presenting_at_izhevsk.htm.
- Reis, A. (2011b). Presentación conclusiones de la investigación y ciclo de debates realizados sobre “Teacher’s skills for the school of the future,” Conferencia internacional de la Universidad de Katowice en Polonia. Accessed 23 December 2016. Retrieved from http://olcw.thegraal.net/TSSF/final_conclusions_uk.htm.
- Reis, A. (2011c). From “Connectivism” to “Ethicism.” In G. J. Morais da Costa (Ed.), *Ethical issues and social dilemmas in knowledge management: Organizational innovation* (pp. 113–130). Hershey: IGI Global. DOI: 10.4018/978-1-61520-873-9.ch008.
- Reis, A., Smyrnova, E., Cubo, S., Gutiérrez, P., Alonso, L., Delicado, G., Yuste, R., & Arias, J. (2015). IRNET Project and the school of the future. Paper presented at *XXIII Jornadas Universitarias de Tecnología Educativa*, Badajoz.
- Smyrnova-Trybulska, E., Noskova, T., Pavlova, T., Yakovleva, O., & Morze, N. (2016). New educational strategies in contemporary digital environment. *International Journal of Continuing Engineering Education and Life-long Learning*, 26(1), 5–24.
- Smyrnova-Trybulska, E., Ogrodzka-Mazur, E., Gajdzica, A., Noskova, T., Pavlova, T., Yakovleva, O., Morze, N., Kommers, P., & Sekret, I. (2014). Research instrument to study students' beliefs about e-learning, ICT, and intercultural development in their educational environment in the framework of the IRNet project. In K. Kostolányová & J. Kapounova (Eds.), *Proceedings from Information and Communication Technology in Education (ICTE-2014)* (pp. 254–263).

- Roznov-pod-Radhostem: University of Ostrava. Accessed 26 May 2016. Retrieved from <https://konference.osu.cz/icte/dokumenty/2014/proceedings ICTE2014.pdf>.
- Smyrnova-Trybulska, E., Ogrodzka-Mazur, E., Szafrńska-Gajdzica, A., Drlík, M., Cápav, M., Tomanová, J., ... Issa, Theodora. (2016). Recommended applications for making presentations and didactic videos. Some research results. In M. Turčáni, Z. Balogh, M. Munk, L. Benko (Eds.), *Proceedings from DIVAI 2016 – Distance Learning in Applied Informatics. 11th International Scientific Conference on Distance Learning in Applied Informatics* (pp. 235–246). Nitra: Wolters Kluwer.
- Smyrnova-Trybulska, E., Ogrodzka-Mazur, E., Szafrńska-Gajdzica, A., Morze, N., Makhachashvili, R., Drlík, M., ... Sorokina, L. (2015). Discussion paper on more adequate and effective IT tools. Some previous results concerning more adequate and effective IT tools in the category: Tools for making presentations. *International Journal of Research in E-learning*, 1(1), 75–96.
- Tejada, J. (2009). Competencias docentes. *Profesorado. Revista de curriculum y formación del profesorado*, 13(2), 1–15.
- The ELMO Company website. Accessed 26 December 2016. Retrieved from <http://www.elmoglobal.com/en/html/ict/01.aspx>.

António dos Reis, Sixto Cubo Delgado, Prudencia Gutiérrez-Esteban, Laura Alonso-Díaz, Eugenia Smyrnova-Trybulska, Tatiana Noskova, Nataliia Morze, Kateřina Kostolányová, Martin Drlík, Tomayess Issa

Raport z wdrożenia Pakietu Roboczego 4 „Selekcja i testy nowych narzędzi teleinformatycznych” w ramach projektu IRNet

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

Niniejszy artykuł, opracowany przez międzynarodowy zespół autorów – badaczy z różnych dziedzin naukowych związanych z teleinformatyką, e-learningiem, pedagogiką i innymi powiązanymi dziedzinami – koncentruje się na celach i niektórych wynikach międzynarodowego projektu IRNet. W szczególności artykuł ten opisuje narzędzia badawcze, metody i pewne procedury Pakietu Roboczego 4 (dalej: WP4) „Selekcja i testy nowych narzędzi teleinformatycznych”: cele, zadania, rezultaty, realizację podróży badawczych. Badacze z partnerskich uniwersytetów przeprowadzili analizę wyników WP4 w kontekście kolejnych etapów i pakietów roboczych IRNet – międzynarodowego projektu badawczego.

S ł o w a k l u c z o w e: narzędzia teleinformatyczne, mapa, umiejętności, model oceny satysfakcji użytkownika.

António dos Reis, Sixto Cubo Delgado, Prudencia Gutiérrez-Esteban, Laura Alonso-Díaz, Eugenia Smyrnova-Trybulska, Tatiana Noskova, Nataliia Morze, Kateřina Kostolányová, Martin Drlik, Tomayess Issa

Отчет о ходе выполнения рабочего пакета 4 «Отбор и тестирование новых ИКТ-инструментов» в рамках проекта IRNet

Аннотация

В данной статье, подготовленной международной группой авторов, исследователей из разных научных областей, связанных с ИКТ, электронным обучением, педагогикой и другими смежными областями, основное внимание уделяется целям и некоторым результатам международного проекта IRNet. В частности, в этой статье описываются инструменты исследования, методы и некоторые процедуры исследования в рамках рабочего пакета 4 (далее: WP4) «Выбор и тестирование новых ИКТ-инструментов»: цели, задачи, ожидаемые результаты, выполнение научно-исследовательских поездок. Исследователи из университетов-партнеров, проанализировали результаты WP4 в контексте следующих этапов и пакетов работы проекта IRNet – Международной научно-исследовательской сети.

Ключевые слова: Информационные и коммуникационные технологии (ИКТ-инструменты), дорожная карта, навыки, модель оценки удовлетворенности клиентов (CSEM)

António dos Reis, Sixto Cubo Delgado, Prudencia Gutiérrez-Esteban, Laura Alonso-Díaz, Eugenia Smyrnova-Trybulska, Tatiana Noskova, Nataliia Morze, Kateřina Kostolányová, Martin Drlik, Tomayess Issa

Informe sobre la Implementación del Work Package 4 “Selección y Test de nuevas herramientas TIC” en el marco del Proyecto IRNet

Resumen

Este artículo, elaborado por un equipo internacional de investigadores de diferentes áreas científicas, vinculados con TIC, e-learning, pedagogía y otras disciplinas afines, se centra en los objetivos y resultados obtenidos en el proyecto internacional IRNet. En particular, este artículo describe las herramientas de investigación, los métodos y algunos procedimientos del Work Package 4 (en adelante: WP4) “Selección y Test de Nuevas Herramientas TIC”: Objetivos, Tareas, Productos e implementación de viajes de investigación. Investigadores de las universidades participantes analizaron los resultados de WP4 en el contexto de las próximas fases y Work Packages del proyecto IRNet.

Palabras clave: Herramientas de tecnología de la información y la comunicación (TIC), hoja de ruta, habilidades, modelo de evaluación de la satisfacción del cliente (CSEM)