

Some aspects of activities in the e-Learning environment for academic teachers – a report from research

Wybrane sfery aktywności nauczycieli akademickich w środowisku e-learningowym – raport z badań

Key words: ICT, e-environment, international research network, educational and research activity of academic teachers.

Słowa kluczowe: ICT, środowisko elektroniczne, międzynarodowa sieć badawcza, działalność badawcza i edukacyjna nauczycieli akademickich.

Streszczenie. W artykule przedstawione zostały niektóre wyniki badań przeprowadzonych w ramach Europejskiego Projektu IRNet „Międzynarodowa sieć naukowa do badania i rozwoju nowych narzędzi i metod zaawansowanych nauk pedagogicznych w zakresie instrumentów ICT, e-learning i kompetencji międzykulturowych”. Analizowane i interpretowane dane są efektem badań przeprowadzonych w ramach trzeciego pakietu roboczego WP3 „Analiza i ocena poziomu ICT, e-learning i rozwoju kompetencji międzykulturowych w każdym kraju uczestniczącym w projekcie i ich wstępna analiza”.

Introduction. Education will contribute substantially to developing the above new skills, but its results will only be realized in the longer term. Research results and their analysis concerning LLL, formal as well as non-formal and informal education are presented in various studies. In (Gutiérrez-Esteban and Mikiewicz 2013), the authors emphasize that young Europeans are New Millennium Learners that learn everywhere, on their own and/or in a community, such as in the ‘real’, as well as the virtual world. The core question in this field is about the relationship between formal education and knowledge acquisition. This has been partly studied by (Smyrnova-Trybulska 2013) who claims that “Digital literacy and other key competences are an essential condition in the preparation of specialists in the information society, and the employability of a knowledgeable workforce and of all citizens”. In this context, not only formal education but also non-formal and informal education will be crucial for lifelong learning. E-learning is one of the main modern teaching and learning

methods. In her article, the author considers the relationship between e-learning and lifelong learning, the challenges and prospects for the future, a comparative characterization of Formal, Non-formal and Informal (Distance) Learning, new proposals for postgraduate studies and the specialization in the context of the New Digital Agenda for Europe 2013–2014, as well as research outcomes i.e. the results of a student e-learning survey.

Today more than ever, close integration of science, education and business is of paramount importance. The effective use of ICT in education provides the European institutions of higher education with the opportunity to support the development of innovative economies and improve the quality of education.

The overall structure of the informational and educational environment based on the example of schools is described in the author's article (Noskova 2011). Although the structure of the informational and educational environment of the university is similar to that of schools, it has its own specific characteristics. One other important aspect of the e-environment of the university must be mentioned – the relationship between students and teacher in the virtual learning environment are described in the papers of Noskova (2015), Smyrnova-Trybulska (2015).

Authors from Dutch universities (Zitter et al., 2011) studied how to design learning environments leading to learning-, thinking-, collaboration- and regulation skills which can be applied to transferable, knowledge oriented learning outcomes. E-Learning in a virtual university environment was analyzed by Czech authors (Janková, Dvořák 2013).

In the study (Visser-Wijnveen, van der Rijst, van Driel 2016), a questionnaire was developed on the basis of categorizations of a research-teaching nexus in literature. The aim of the Student Perception of Research Integration Questionnaire (SPRIQ) is to determine the factors capturing the way students perceive research integration in their courses.

The category of university and higher education has also been analyzed comprehensively from a different point of view. A Polish researcher (Lenartowicz 2015) in her paper presents an alternative critical view on the nature of university, derived from the theory of social system autopoiesis. It suggests that organizations, being open systems, are operationally closed, as all their activities and interactions with the environment are aspects of just one process: the recursive production of themselves, according to a pattern of their own identity. In his article (Marginson 2015), the author analyzes worldwide participation in higher education, which now includes one-third of the age cohort and is growing at an unprecedented rate. The tendency to rapid growth, leading towards high participation systems (HPS), has spread to most middle-income and some low-income countries.

Researchers in different countries are conducting studies in the area of increasing the quality of education in e-environment conditions while the world changes, new technologies are developed, conditions of work and learning evolve and new challenges surface.

One of the most effective modes of conducting research is international research networks, providing opportunities for collective research, collaborative study and

a permanent exchange of experience. One such network is the IRNet ("The 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"), with participation of ten universities from Western, Central, and Eastern Europe and from Australia (www.irnet.us.edu.pl): University of Silesia in Katowice, Poland, University of Twente, Netherlands, University of Extremadura, Spain, The Lisbon Lusíada University, Portugal, Ostrava University, Czech Republic, Constantine the Philosopher University in Nitra, Slovakia, Curtin University in Perth, Australia, Borys Grinchenko Kyiv University, Ukraine, Herzen State Pedagogical University of Russia, St. Petersburg, Russia, Dniprodzerzhinsk State Technical University, Ukraine. The aims of the project include: to evaluate teaching competences and to suggest strategies of implementing innovative tools in educational activity in the context of education globalization; to explore indicators of educational effectiveness in the EU and third world countries involved in the project; to exchange experiences, evaluate teaching competences in the use of innovative forms of education and suggest strategies of implementing innovative ICT tools.

Within the framework of Work Package 3 (one of the seven project work packages), specific aims were identified: to analyse the methodological background and main approaches of conducting international investigations on ICT, e-learning and intercultural competences in order to develop a system of measuring instruments appropriate for research at the international level, to analyse the level of ICT, e-learning and intercultural developments in participating countries using the system of approved measuring instruments, to compare the results obtained, and to draw conclusions about the barriers in ICT, e-learning and intercultural competences, taking into consideration previous WPs.

Research Methodology. The *Research methodology* of WP3 – “*Analyses and evaluation of the ICT level, e-learning and intercultural developments in every participating country*” was developed and reviewed. The main objective was to define indicators for developing e-learning and ICT competencies. Firstly, the main benefits of e-learning and ICT in education were described (the improvement of educational services; the formation and development of an information society’s competencies; increased competitiveness of institutions in science and education. Then, the manifestations of these benefits were specified as well as their determinants (electronic space and interactions, the level of participants’ competences).

The hypothesis of the WP3 research was that e-learning and ICT development contribute to the quality of educational services, the development of information society competencies and increased competitiveness of institutions of science and education. E-learning participants aim at: an increasing comfort in the scientific and educational process, lifelong learning goals; the personalization of education; the formation of new scientific and educational cooperation and intercultural competence; self-fulfillment in education and work; an increased openness of the scientific and educational environment; and finally, enhancing self-organizational effects which support the sustainable development of the university environment.

Research results of academic teachers' opinion on educational, communicative and scientific aspects in the conditions of a university electronic environment. Conventional forms of communication are changing. New media, entertainment, and “information industries” are transforming the way we interact, and even how we understand the world. Scientists, educators, and students of the University of Silesia as well as at other universities recognize that human perceptions, behaviors, and policies must be changed if proposed environmental solutions are to have significant and lasting global impacts. Media is a crucial element in that transformation.

That was confirmed by a survey of academic staff, conducted within the framework of WP3 at the University of Silesia, Poland. The respondents included 23 academic teachers.

Among the questions from the group concerning *Educational and communicational aspects* were the following: Q1 – “What communication networks do you use in the learning process?” (choose several options). The variants of answers chosen were: “messaging (e-mail, instant messaging LMS, etc.) – 96%, network discussions (blog, forum) – 57%, teleconference – 43% media channel (publication of audio and video files, comments) – 43% collective work on documents (wiki, collective smart cards) – 39% social networks – 30%, do not use 0% others (please specify) 0%.

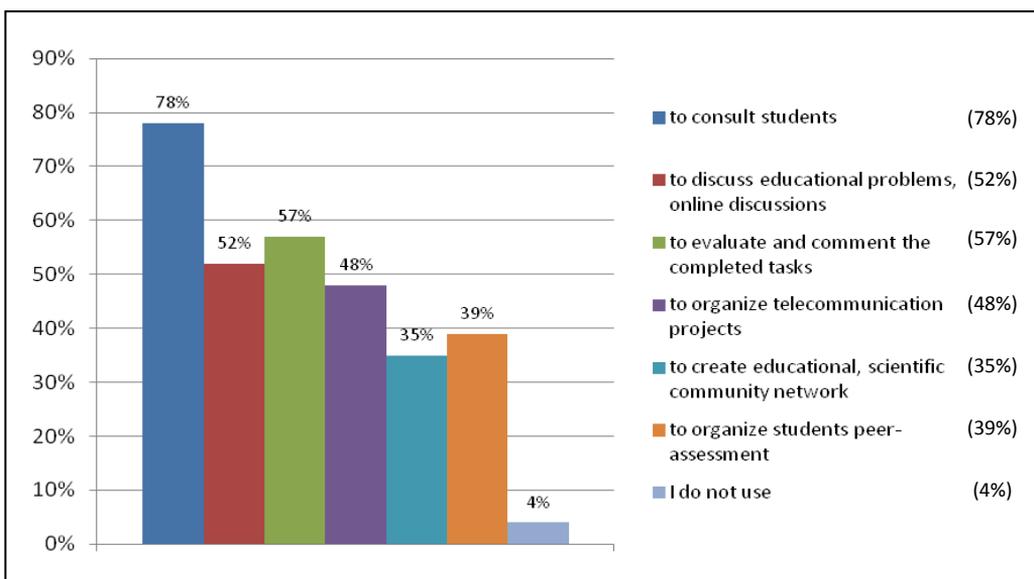


Fig. 1. Distribution of the purposes of using network communications in teaching activities

Q2. “Choose the purposes of using the network communications in your teaching activities” (choose several options). The variants of answers to the 2nd question are shown in Figure 1.

Q3. “Choose the preferred option for providing every student with electronic resources (choose several options)”. The answers to the 3rd question were: “*the same set of electronic resources for all students*” – 61%, “*electronic resources to align knowledge and skills*” – 78%, “*electronic resources for advanced students*” – 39%, “*electronic resources with regard for the styles of learning activities*” – 39%, “*electronic resources to help students in orienting and choosing resources in a wide information environment*” – 43%, *others (please specify)* – 0%.

Q4. “Choose the preferred option for network communication with a student in the learning process.” (choose several options). The answers are shown in Figure 2.

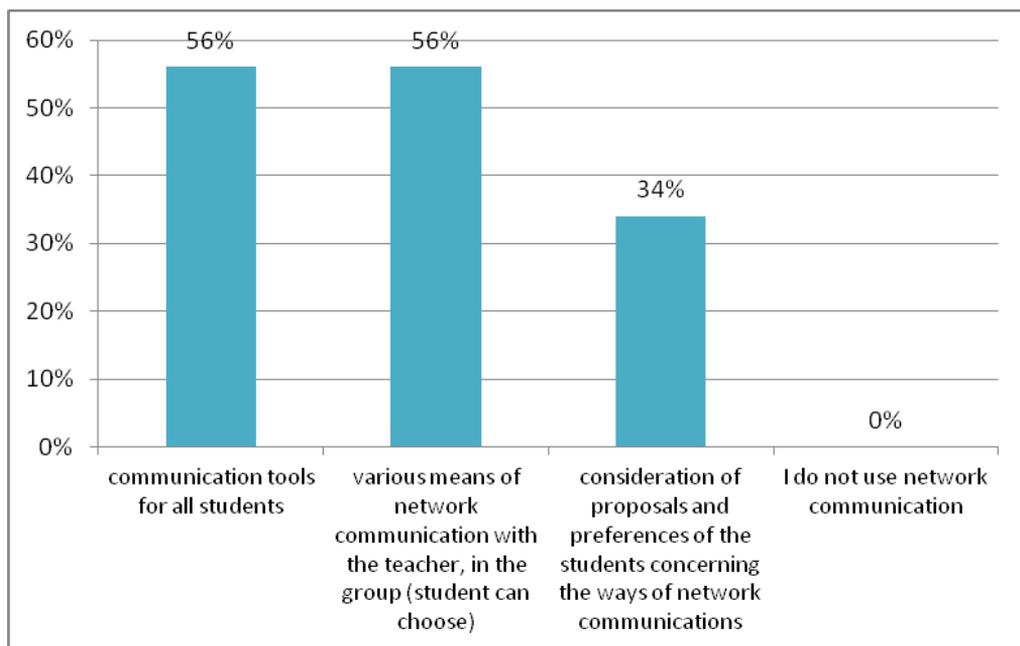


Fig. 2. Preferred options for network communication with students in the learning process

Among questions from other groups concerning the *Research and scientific aspects were*: Q5: “How do you use information technologies in your research activities (choose several options)”. The answers were: “Special informational search systems to search for scientific information” – 83%, “scientometric and abstract databases” – 52%, “to control the personal rating of publication activity using electronic citation indices” – 52%, “participation in e-conferences and webinars” – 61%, “I have open scientific e-publications in the scientific communities network” – 30%, “to support scientific e-portfolio” – 30%, “to supervise the activities of the scientific communities network” – 17%, “I am an active member, have a status in the international research networks” – 13%, “I take part in the international research projects supported by telecommunications” – 39%, “I use specialized, professional

information tools to obtain and process scientific data” – 29%, others (please specify) – 0%.

Q6: “Choose methods of teaching students based on the results of your research activities (choose several options). The answers are shown in Figure 3.

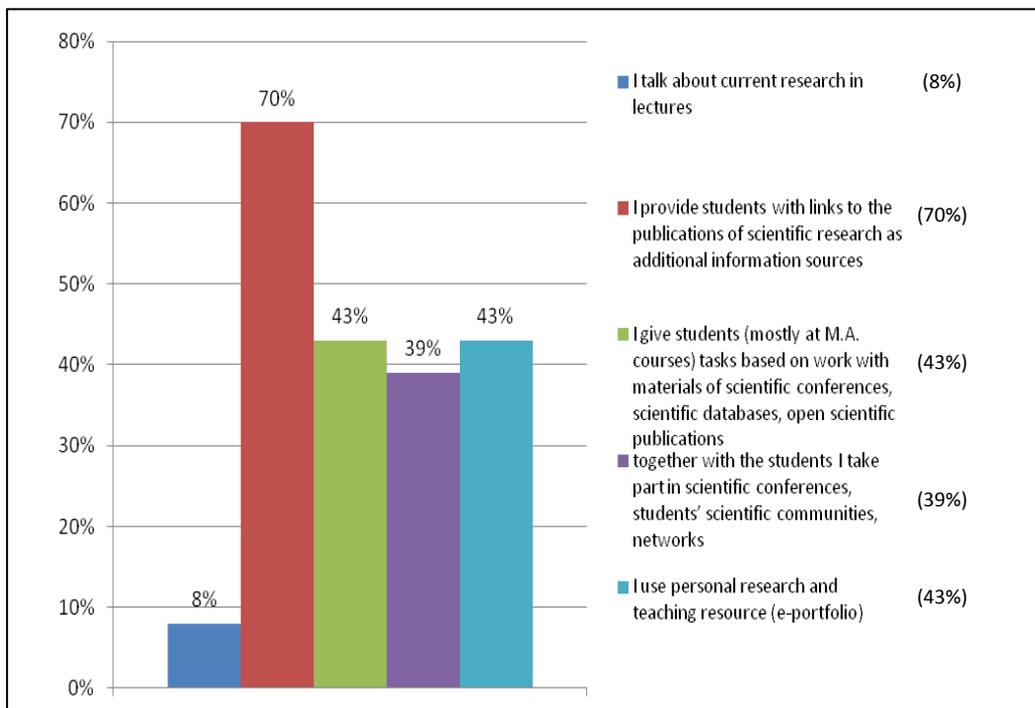


Fig. 3. Methods of teaching students, based on the results of research activities

The results in respect of this group of questions indicate that academic teachers are trying to integrate their scholarly activities with teaching and give students tasks based on materials of scientific conferences, databases and publications – 43%, provide students with links to the publication of scientific research as additional sources – 70%. However, only 8% of academic teachers talk about current research in lectures.

The group of questions concerning the effects: “*In-service training, professional development*”. The first question Q7 was: “How do you use information technologies for the purpose of your professional development and in-service training (choose several options)”. The answers included: “to search information for professional development” – 91%, “to support individual professional electronic portfolio” – 52%, “to participate actively as an observer in the professional online communities” – 43%, “to participate actively in professional networking discussions, debates” – 35%, “in-service training using e-learning” – 61%, “to participate in MOOC (massive open online courses)” – 26%, others (please specify) – 0%.

Question Q8 was: “Evaluate the impact of factors outlined below on your use of e-learning technologies (the evaluation was on a scale from 1 to 5). The variations of answers are presented in Figure 4.

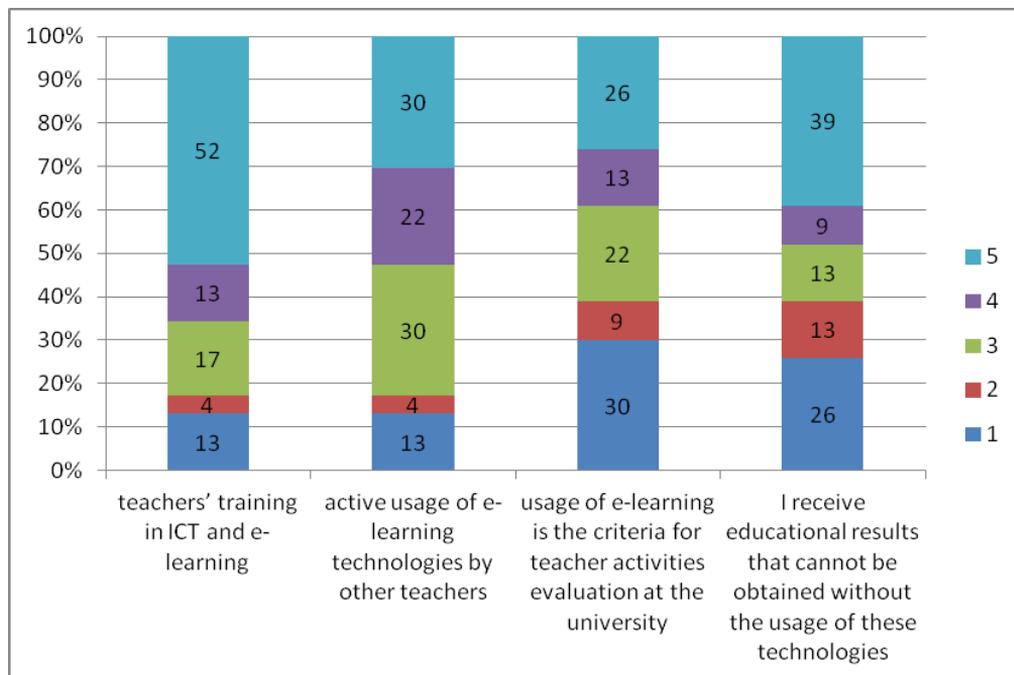


Fig. 4. Evaluation of the impact of factors on a teacher using e-learning technologies

The answers to questions of the following group: *In-service training, professional development* indicate that academic teachers understand the necessity for teachers to attend ICT and e-learning training (65% gave a score of 5 or 4) in order to produce good educational results. The option “Cannot be obtained without the usage of these technologies” was chosen by 48% of the respondents, who gave a score of 5 or 4). Besides, 91% of the respondents selected the option “*To search for information for professional development*” and 61% chose the answer “*In-service training using e-learning*”.

The group of questions concerning the effects: *Understanding the role of ICT in education, knowledge of information tools included several questions, Q9*: “Choose the best answer from your point of view regarding the advantages of electronic scientific and educational environment (choose several options)”.

Q10 read: “Specify the problems with the implementation of e-learning technologies in your teaching activities” (choose several options). The answers chosen by the students to question Q10 were as follows: “labor intensity and the complexity of the development of electronic educational resources” – 74%, “lack of training in the

field of educational technologies corresponding with the capabilities of the electronic environment” – 30%, “lack of training in information technologies” – 17%, “insufficiently developed regulations on the usage of e-learning at the university” – 22%, “insufficiently formed electronic infrastructure of the university (computer networks, Wi-Fi, a single LMS, databases, electronic library, etc.)” – 39%, “insufficiently developed system of incentives to prompt the implementation of e-learning at the university” – 30%, others (please specify) – “time-consuming development of distance courses”; “No extra motivation and formal requirement for all teachers”.

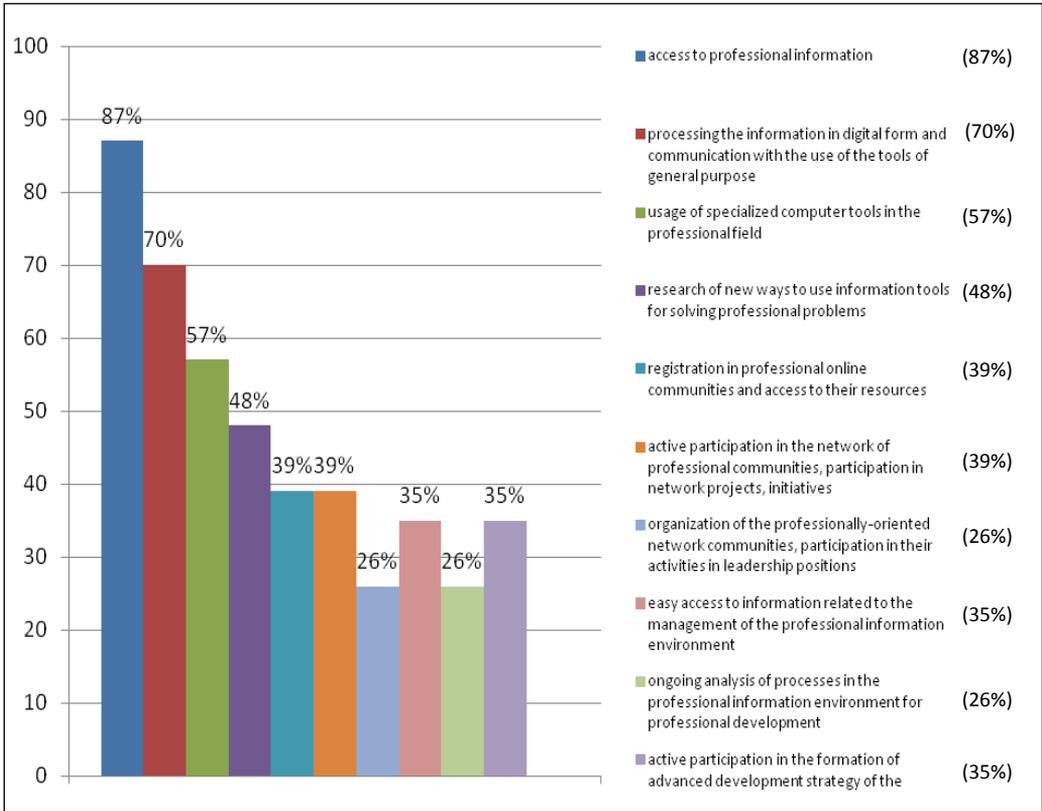


Fig. 5. Best answer from a teacher’s point of view regarding the advantages of electronic, scientific, and educational environment

Q11: “What are the goals meaningful to you in the implementation of ICT in your teaching activities (choose several options)”. The answers are presented in Figure 6.

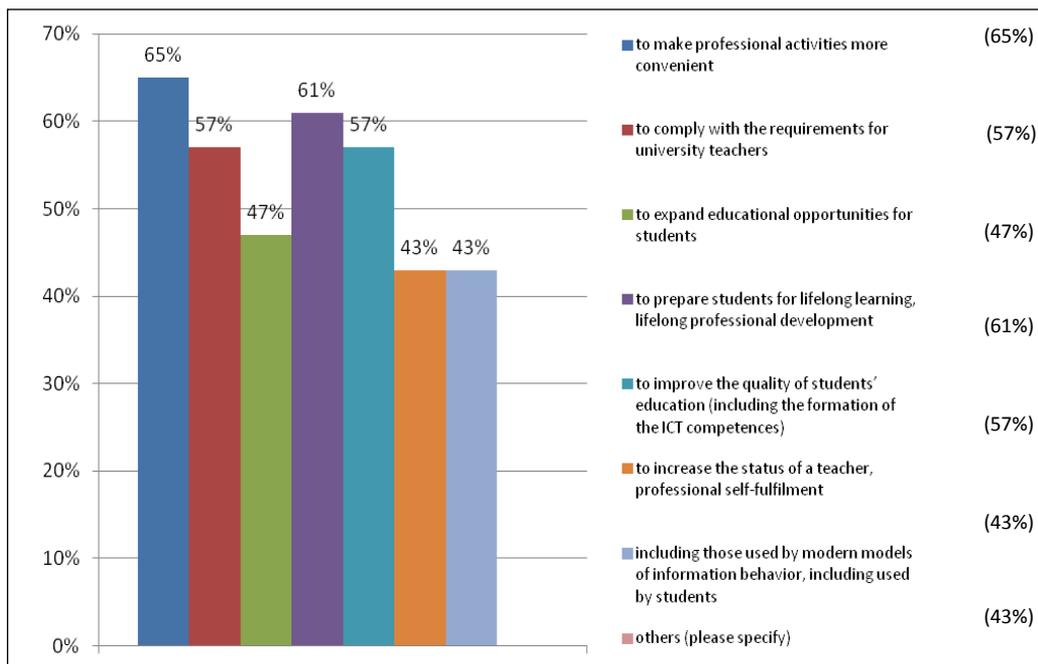


Fig. 6. Goals meaningful to the implementation of ICT in teaching activities

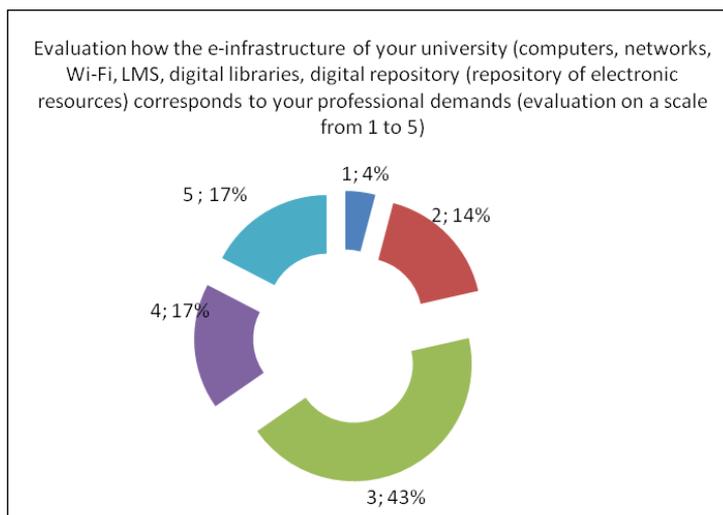


Fig. 7. Evaluation of the e-infrastructure of the university

Q12 read: “Evaluate how the e-infrastructure of your university (computers, networks, Wi-Fi, LMS, digital libraries, digital repository (repository of electronic resources)) corresponds to your professional demands (evaluation on a scale from 1 to 5, 1 – the environment is not formed, 5 – the electronic environment of the university

includes the information conditions for full implementation of e-learning and conducting scientific activities). The answers are presented below:

Generally, the infrastructure is moderately developed and needs further improvement. Also the students' responses indicate that an adequate e-infrastructure, and stable Wi-Fi access throughout the campus in particular is important.

Conclusions. Strategic objectives of the development of modern higher education and contemporary universities include: I. Diversity. II. Openness. III. Mobility. IV. Competition. V. Efficiency. VI. Accountability and transparency [Mission, vision ...]. The achievement of these goals is both a large challenge and an opportunity. Therefore, the research conducted within the framework of IRNet project (www.irnet.us.edu.pl) is especially important and expected. The Work Package 3 and the conducted study assumed that the effects (benefits) of e-learning and ICT in education are manifested in:

- Expansion of space-time coordinates (increase in the comfort of scientific and educational process, focus on lifelong learning goals);
- Personalization of educational activities, individual request in e-learning;
- Formation of new scientific and educational relations and cooperation;
- Empowerment of self-realization in educational and professional activities;
- Increase in openness of the scientific and educational environment, expanding the influence of university to the external cultural environment
- Enhancement of self-organizational effects which support sustainable development of the educational environment of university and its participants.

The manifestation of qualitative results of e-learning and ICT in education depends on a system of conditions:

- The degree of e-learning environment development (electronic space – electronic resources and information technology);
- The level of competences for e-learning environment participants (faculty members, students, staff responsible for e-learning management).

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 the REA grant agreement No: PIRSES-GA-2013-612536.

Bibliography

1. Bednarczyk D., (2012) *Podstawowe reguły dostępności serwisów internetowych dla niepełnosprawnych użytkowników*, Biuletyn EBIB – czasopismo elektroniczne, nr 132, 2012.
2. Bednarczyk H. (2012) *Edukacja ustawiczna w ciągu całego życia*. 2012 (http://www.skillsup.eu/pl/pdf/1_SkillsUp_H.Bednarczyk.pdf).
3. Bednarczyk H., Woźniak I., Kwiatkowski S.M. (red.) (2007). *Krajowe standardy kwalifikacji zawodowych. Rozwój i współpraca*, Wydawca: Ministerstwo Pracy i Polityki Społecznej. 2007.
4. Distance Learning Platform of the Faculty Ethnology and Sciences of Education (WEiNoE) <<http://el.us.edu.pl/weinoe>>.

5. Gutiérrez-Esteban, P. & P. Mikiewicz. (2013). *How do I Learn? A Case Study of Lifelong Learning of European Young*. In: *E-learning & Lifelong Learning*. Monograph edited by Eugenia Smyrnova-Trybulska, Katowice-Cieszyn: University of Silesia, Studio-Noa, pp. 69–76.
6. *Information Technology in Higher Education* (2015). Editing by Ed Aractingi at al. Leadership Board CIO's.
7. IRNet project web-site <<http://www.irnet.us.edu.pl>>
8. Janková M., & Dvořák J. (2013). *E-Learning in virtual university environment*. In: *Distance learning, simulation and communication (DLSC2013)*. Editor: Miroslav Hruby, University of Defence, Brno, Czech Republic, May 21-23, 2013, pp. 90–94.
9. Lenartowicz M. (2015) *The nature of the university*. Higher Education 69, pp. 947–961.
10. Marginson S. (2015) *The worldwide trend to high participation higher education: dynamics of social stratification in inclusive systems*. Higher Education 69: pp. 947–961.
11. Misja, wizja i cele strategiczne szkolnictwa wyższego w Polsce w perspektywie 2020 roku (2009) [Mission, vision and strategic objectives of higher education in Poland in 2020] <http://www.nauka.gov.pl/g2/oryginal/2013_05/59579f9e6efaec82014d6d5be081ca23.pdf>
12. Noskova, T. (2011). *Virtual Educational Environment: the Teacher and the Student*. 'Izvesiya' of the Herzen State Pedagogical University of Russia. Saint Petersburg: Herzen State Pedagogical University [In Russian].
13. Noskova T. (2015). *Pedagogy of the Knowledge Society*, Monograph, Saint Petersburg: Herzen State Pedagogical University, Russia.
14. Noskova T., Pavlova T., Yakovleva O., Smyrnova-Trybulska E., Švec P., Drlík M., Tomanová J., Čápay M. (2015). *Network Learning Community of Students – Knowledge-Sharing Opportunities for Professional Development*. In: *Information and Communication Technology in Education (ICTE-2015)*, 15th–17th September 2015, Conference Proceedings ed. by Katerina Kostolanyova. University of Ostrava, Roznov-pod-Radhostem, pp. 169–181.
15. Pawłowska O. (2015) *WCAG 2.0 w e-learningu – wymagania dla równości WCAG 2.0 in e-learning – the requirements for equality*, EDUKACJA ustawiczna DOROSŁYCH 1(88), pp. 93–102.
16. Program e-learning. Commission adopts the eLearning Action Plan to give new communication technologies a greater role in education <<http://europa.eu/rapid/pressReleasesAction.do?reference=IP/01/446&format=HTML&aged=0&language=EN&guiLanguage=en>>
17. Recommendation 2006/962/EC of the European Parliament and of the Council of 18 December 2006 on key competences for lifelong learning [Official Journal L 394 of 30.12.2006] <<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2006:394:0010:0018:en:PDF>>.
18. Ślusarczyk K., (2013) *O uniwersalnym projektowaniu kursów e-learningowych, Rola e-edukacji w rozwoju kształcenia akademickiego*, Fundacja Promocji i Akredytacji Kierunków Ekonomicznych, Warszawa.
19. Smyrnova-Trybulska E. (2013). *E-learning & Lifelong Learning*, In *E-learning & Lifelong Learning*, Monograph edited by Eugenia Smyrnova-Trybulska. Katowice-Cieszyn: University of Silesia, Studio-Noa, pp. 115–132.
20. Smyrnova-Trybulska E. (2015). *Information and Educational Environment of the University: a Case Study*. In: *High-Tech Educational Informational Environment*. Proceedings of the International Scientific Conference, edited by V.Laptev. 12–13 May 2015, Saint Petersburg, Russia, pp. 25–39.
21. Smyrnova-Trybulska E., Noskova T., Pavlova T., Yakovleva O., Morze N. (2016) *New Educational Strategies in Contemporary Digital Environment*, Int. J. Continuing Engineering Education and Lifelong Learning. Vol. 26 No. 1, pp. 5–24.
22. To the Society of Knowledge (UNESCO Worldwide Report)[Electronic resource]. 2005. UNESCO database<<http://unesdoc.unesco.org/images/0014/001418/141843r.pdf>>.
23. Visser-Wijnveen Gerda J., Roeland M. van der Rijst, Jan H. van Driel (2016). *A questionnaire to capture students' perceptions of research integration in their courses*, Higher Education (2016) 71: 473–488.
24. Web-site of European Commission concerning Education & training and Lifelong Learning Policy <http://ec.europa.eu/education/lifelong-learning-policy/informal_en.htm>

25. Zitter I., De Bruijn E., Robert P. Jan Simons (2011) *Adding a design perspective to study learning environments in higher professional education* Th. J. Ten Cate In: Higher Education April 2011, Volume 61, Issue 4, pp. 371–386.

dr hab. Eugenia SMYRNOVA-TRYBULSKA prof. UŚ

Uniwersytet Śląski

Wydział Etnologii i Nauk Edukacji w Cieszynie

esmyrnova@us.edu.pl