CHALLENGES OF INFORMATION TECHNOLOGIES INTEGRATION INTO STUDY PROCESS: TEACHERS' PERSPECTIVE

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Abstract

Modern university teachers are expected to have competences to organise e-learning activities; also, they should be ready to integrate information technologies (further – IT) into everyday teaching and learning processes. Teachers' preparation to use IT helps to improve teaching and learning quality and to expand scientific activities into other academic fields. The question of IT usage and its necessity in educational institutions has been widely discussed in recent years. Still it is important to analyse how teachers succeed while integrating IT into their study process, what challenges they usually face and how higher education institutions (further – HEI) support the need to improve teachers' IT competences. These are the main questions discussed in this article. The theoretical part of the article provides a brief presentation of a variety of concepts used while discussing the topic of IT integration in learning process and points out the main challenges that teachers might face during this process. Research results have demonstrated that there is lack of clearly defined IT competences and there is no periodical evaluation system of these competences. From the practical perspective, university teachers have noted lack of guidelines for some technological solutions.

Keywords: Information technologies, higher education institution (HEI), professional development, study process

Introduction

For more than a decade, the European Commission (further – EC) supports transformation of higher education and seeks its modernisation. Trying to achieve this goal the EC has prepared recommendations for all EU countries encouraging them to contribute to the development of the EU's

high quality academic area. As it is stated in the Communication from the EC 'Supporting growth and jobs – an agenda for the modernisation of Europe's higher education systems' (2011), one key way for the development of education curriculum is " to exploit the transformational benefits of ICTs and other new technologies to enrich teaching, improve learning, experiences, support personalised learning, facilitate access through distance learning and virtual mobility, streamline administration and create new opportunities for research" (European Commission, 2011, p. 5). Another EC document 'Opening up Education: Innovative teaching and learning for all through new Technologies and Open Education' (2013) invites to work and collaborate on the EU and national levels in order to help institutions, academic staff, teachers and learners to acquire digital skills, apply the newest teaching methods, support development of open educational resources and cooperate with various target groups (social partners, families, political groups, etc.) in order to encourage and consolidate integration of digital technologies into learning and teaching process. The implementation of these tasks is challenging for the countries' political and strategic decisions and even more challenging to the academic personnel of HEI, as nowadays teachers are required to be highly qualified in their scientific field and be able to organise and implement qualitative study process by using IT. Considering the variety of possibilities to integrate IT into the learning process, teachers must be able not only to develop the curriculum, but also to adapt it to different learning platforms. That is why it is important to ensure that HEI policy, strategy and goals foresee possibilities to acquire or improve competences that are necessary for the successful pedagogical work, e.g. online teaching (National Education Association, 2006). An organisation which is constantly developing by applying most relevant information technologies and motivating competent staff by investing into the development of their knowledge and skills can become one of the most successful and up-to-date organisations (Uziene, 2010). The development of teachers' IT competence is undoubtedly important as it allows ensuring qualitative collaboration with students as well as with colleagues or partners in various academic activities.

Considering the issues presented above, the aim of this article is to reveal the main challenges that academic staff is facing while integrating IT into study process, considering organizational and personal motivation factors. The following problem questions are formulated for this article: do HEI teachers need help while using IT in the study process, do they receive it and/or are they independent modern IT users?

Complexity of the IT concept in study process

While talking about IT use in educational process it is important to briefly discuss various concepts that are most frequently used in scientific and research literature. It is important to notice that researchers from Lithuania (Targamadze, Petrauskiene, 2008; Rutkiene, Trepule, 2009; Tereseviciene et al., 2008; Juskeviciene, 2011; Butrime, 2011; Ignatova, Kurilovas, 2012; etc.) as well as from other countries (Clark, Mayer, 2007; Collis, Moonen, 2002; Khan, 2005; Lawless, 2009; Jahnke et al., 2012, etc.) use different concepts while discussing teaching and learning process that involves ICT or websites or learning at a distance between teachers and learners: distance learning, virtual learning, e-learning, mobile learning, networking, open education. All these concepts reveal similarities such as: learning by using electronic devices, IT or ICT; the learner has a possibility to choose suitable time, subject, place and speed of the learning process; learning is oriented towards learner and so he is responsible for his own learning achievements; the teacher participates in this process as a consultant or assistant; learning is based on the collaboration among (1) learners and (2) and learners and teachers.

The authors of this study apply the concept 'information technologies' as the broadest term embracing e-learning, distance, mobile and virtual mobility and learning, as well as curriculum adjustment for different technologies, including smartphones.

Challenges that teachers face while using IT

As it is stated in most of the international and national documents that regulate development of study process by integrating more IT tools into study process, the success of IT usage depends not only on the development of IT tools – even more important are organisational or even personal factors that influence the need for technological process. The following are the main challenges usually met while developing IT usage by academic personnel.

- *Organisational system for professional development*. Professional development must be implemented and encouraged by adjusting suitable methods that respond to the personnel and managers' needs and implements policy, strategic goals and values of HEI. Bakanauskiene (2002) highlights three main strategies for professional development that are most commonly used in institutions that seek to ensure the development of highly qualified personnel and, at the same time, provide competitive activities of the institution: (1) *human resource strategy* – helps to ensure that personnel is qualified in one specific field and there is a strategic plan for continuous and consistent further professional development at the workplace; (2) *dual strategy* – distinguishes person's self-responsibility and motivation to develop professional competences. But the effectiveness of this strategy has

two sides: firstly, those who do not know how to demonstrate initiative and to find ways to show their professional competences might lose their job but, on the other side, the personnel becomes more motivated to keep their jobs as they understand that everything depends on their own decisions and motives; (3) *mobility strategy* – emphasizes that payment for work and motives for development are interrelated, and that is why it is so important for all institutions to have strategy, policy and goals oriented towards possibilities for professional development (Bakanauskiene, 2002).

According to these strategies, national and private HEI should plan and organise internal systems for academic personnel's professional development and ensure its continuity and sustainability.

- *Internal HEI's resources.* Apart from the system for professional development, there are more factors that must be considered as possible challenges for teachers using IT. Dawe (as cited in Zuzeviciute and Butrime, 2010) mentions factors such as: learning-friendly organisational culture; usage of HEI's internal resources for providing learning possibilities to teachers; identification of individual learning needs; evaluation and acknowledgement of competences inside the institution; changes in HEI responding to external changes; unity between learning processes and strategic goals.
- *Personal factors*. Another challenge for IT usage in study process could be identified as lack of personal motivation to integrate and operate with new technologies. D'Este and Perkmann (2010) have distinguished four main reasons that encourage teachers to get involved more actively in new activities: commercialisation (commercial development of technology and knowledge), learning (feedback from other parts about the process), possibility to use various funding resources and possibility to use all material, data and technologies for learning and research purposes.

Following are the main areas that, according to the National Education Association (further – NEA), professional development should be orientated in such a way that teachers could become professionals while integrating IT into study process. These areas also emphasize the importance of support systems in order to help teachers to organise and implement, for example, online courses (NEA, 2006):

- Appropriate communication;
- Appropriate and timely feedback;
- Facilitated discussions;
- Facilitation of teamwork and multimedia projects;
- Adaptation of curriculum and materials;
- Adaptation of online tools to support effective instruction (NEA, 2006, 11).

All the above mentioned challenges could influence the success of involving IT into study process. Nevertheless, Simpson (as cited in Krivaite, 2007) points out other competences that students think teachers must have when using IT: deep knowledge of the subject, ability to coordinate work and provide feedback at distance, ability to encourage learning abilities, accept and tolerate differences and, finally, provide constructive criticism. The results of this study demonstrate that teachers who wish to integrate IT into the study process must inevitably have technological competences; however, no less important are administrative, curriculum management, learning coordination and evaluation competences.

RESEARCH METHODOLOGY

The aim of the research is to reveal whether teachers in HEI have satisfactory conditions for the development of IT competences and whether there is sufficient support provided for the IT usage in study process.

Participants of the research. According to the Department of Statistics of Lithuania there were 6769 teachers working in HEI during study year 2012-2013. Considering that the margin of error is 7% and confidence level is 95%, the number of research participants is statistically representative as 196 respondents filled the questionnaire. 133 women (67.9%) and 63 (32.1%) men took part in the research. The age of respondents varied from 26 to 70, average – 43.68 (standard deviation 10.68). Average work experience in HEI was 18.34, with the minimum of 1 year and maximum of 50 year experience (standard deviation 18.34). Nearly half of respondents – 45.5% have longer than 1 year experience in applying Technology-Enhanced Learning (TEL) in study process.

Research instrument. A quantitative questionnaire was formed and uploaded online – this allowed to ensure respondents' confidence. The questionnaire was validated by experts and consisted of six evaluation criteria groups: staff development in organization; strategy and management; resources; quality assurance; support system and organizations' cooperation with universities. Overall, the questionnaire consisted of 47 questions. **The internal consistency of the questionnaire was high (Crombach α = 0.955).** All estimated values of the above mentioned criteria are higher than 0.75 and are valid for further analysis: (1) Continuous professional development – 0.871; (2) Resources – 0.879; (3) Teachers' readiness to integrate IT into study process – 0.902.

Data analysis was accomplished by using MS Excel and SPSS 16.01 version.

Results of the research

This study presents the results of three quality criteria: continuous professional development, resources, and teachers' readiness to integrate IT into study process. **The aspect of continuous professional development was analysed by considering fields of strategic goals of HEI that foresee development of IT competence, funding for professional development and internal university regulations. (Fig. 1).**

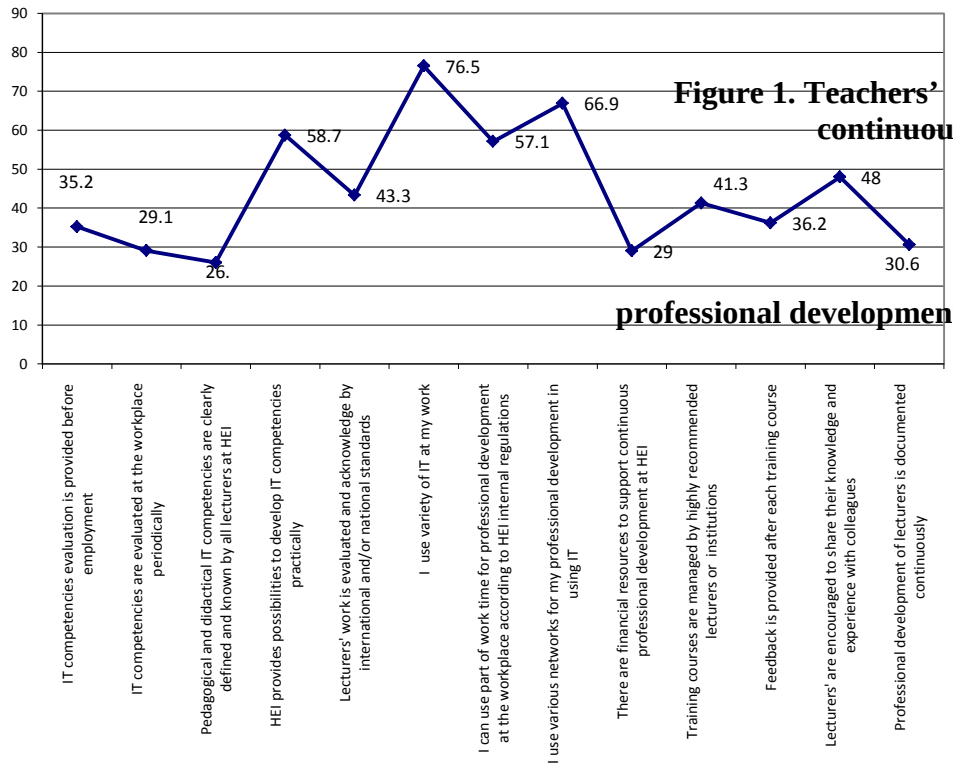


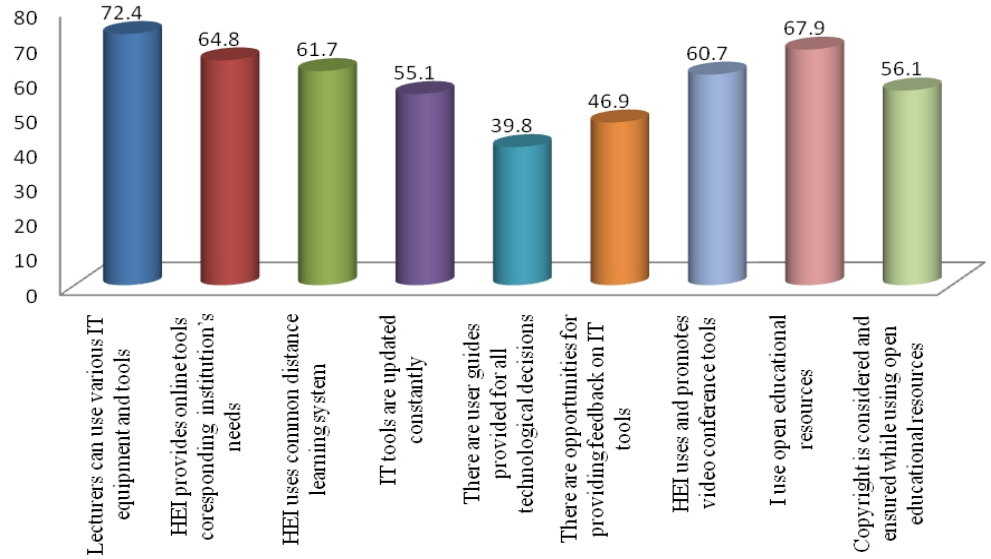
Figure 1. Teachers' continuous professional development

The data demonstrate that while evaluating professional development at their HEI, teachers think most positively of the usage of various IT and networks as a tool for professional development (76.5% and 66.9% respectively). The fact that 58.7% of the respondents state that HEI provides possibilities to develop IT competences practically and 57.1% state that they can use part of their work time for professional development at the workplace demonstrates that in the majority of HEI, professional development (including IT) is integrated as a part of the whole strategic policy. Nevertheless, 26% and 29.1% of respondents observe that IT competences are not clearly defined or regularly evaluated. Most importantly, only 29% know that professional development is funded by HEI according to their internal regulations. These data reveal an issue of internal

policy concerning teachers' professional development and raise a question of whether there is sufficient information that is easily accessible and widely promoted inside HEI concerning this specific sphere.

Another important aspect that must be taken into consideration while discussing integration of IT into study process is resources. As it was mentioned before, there is a variety of different IT that could be integrated and, at the same time, different competences should be gained or technical support should be provided to manage these technologies (Fig. 2).

Figure 2. Resources for the IT usage at HEI



Analysis of resources at HEI reveals that most of the teachers have possibility to access and use IT equipment and tools that are provided at HEI (72.4%), nevertheless they widely use open educational resources (67.9%). Also, 64.8% of the research participants assure that HEI provides online tools that are necessary for their work and agree with HEI academic personnel' and student needs. It is important to mention that the biggest issue is that only more than one third (39.8%) of the research participants know that there are guidelines provided for technological decisions that they deal with (Fig. 3). This might be related either to the support system that is not fully developed or lack of information dissemination.

	Statement	χ^2	df	p
1.	Teachers can use various IT equipment and tools	5,211	2	0,074
2.	HEI installs online tools that are adapted to institution's needs	5,884	2	0,053
3.	HEI uses common distance learning system	20,418	2	0,000
4.	IT tools are updated constantly	11,451	2	0,003
5.	There are user guides provided for all technological	14,141	2	0,001

	decisions			
6.	There are opportunities for providing feedback on IT tools	12,822	2	0,002
7.	HEI uses and promotes video conference tools	8,316	2	0,016
8.	I use open educational resources	12,111	2	0,002
9.	Copyright is considered and ensured while using open educational resources	3,584	2	0,167

Figure 3. Data analysis according to non-parametric Kruskal-Wallis test

According to Kruskal-Wallis test results, there is a significant difference found in most of the statements.

The last quality criteria presented in this article is presenting teachers' perspective towards IT usage in study process is competences that they have for integrating information technologies. Research participants were asked to evaluate eight competences according to their opinion on whether they are independent users of IT and if some of these competences are their or technicians' functions (Fig. 4).

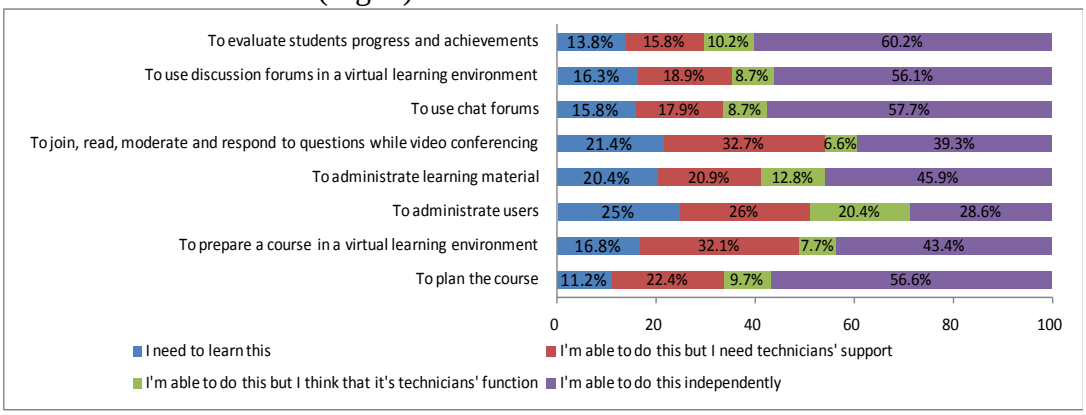


Figure 4. Teachers' competences to integrate IT into study process

The analysis of the above mentioned quality criteria demonstrates that most of the lecturers are competent to integrate IT into study process although they occasionally need support from IT specialists. The research participants think that evaluation of students' progress and achievements (60.2%), usage of chat forums (57.7%), planning of the course (56.6%) and usage of discussion forums (56.1%) are their best mastered competences. But they point out lack of knowledge in users' administration (28.6%) as well as joining, reading and responding to students' questions via video conferencing (39.3%). It is important to notice the teachers' perspective towards IT technicians' functions: the data demonstrate that users' administration is the key function that should be performed by technicians (20.4%) while all other competences might be seen as the ones to be mastered by teachers themselves.

Conclusion

In the paper, multifocal aspects of the challenges of IT usage were presented: the success of IT usage in a study process depends mostly on organisational strategy and system which involves teachers' continuous professional development and internal resources, including a support system. Apart from this, personal factors play an important role while discussing competences that lecturers must acquire or improve. Research results provide an answer to the problem raised in this article by revealing that most of the teachers feel they have enough competences to use the majority of IT tools in the study process, although some functions (e.g. user administration) should be implemented by IT specialists. Significantly, research results demonstrate HEI's readiness to provide teachers with all the necessary support while acquiring or improving IT competences by creating flexible working hours, system of continuous professional development and possibility to access IT tools. Although, at the same time, wider dissemination of guidelines for the main IT technical solutions should be organised or more detailed guidelines should be prepared in order to allow teachers to learn independently and improve their competences.

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