E-learning as a socio-cultural system (elements to be influenced and influencing elements)

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ABSTRACT

This paper is based on theoretical and empirical research that was aimed at presenting e-learning as a socio-cultural system phenomenon in university studies with the emphasis on elements to be influenced and, also, on influencing elements. Methods of critical literature analysis and empirical qualitative and quantitative studies were employed for this extensive study (covering 2006-2013), however, in this paper just few aspects are analyzed, and just two of the methods applied (and data they resulted in) are presented. The core objective is to help participants to become active members in the process, to overcome fears and evolve: from a recipient, user, into an active agent of the process. Both teachers and students should be encouraged and supported in order to become active, creative and creating participants of contemporary e-learning. Study revealed, that just a small fraction of opportunities available today is being used by university community members (teachers, and, surprisingly, students).

Keywords: e-learning, socio-cultural system, elements educational perspective.

1. INTRODUCTION

Rapid and continuous development of ICT results in changes in social and modern learning process. Knowledge also develops and turns to be more and more meaningful in a modern developing society. “In such a social world, the top-range good is the latest information, knowledge and skills” (Long-life learning memorandum, 2001, 6p.). Consequently, nowadays a human is a significant person, and his/her ability is not only to generate new knowledge, but to apply already acquired knowledge in a new context innovatively and effectively. The application of ICT in modern study process is valuable in terms of the following approach.

“Information technologies have made a radical impact on the nature of economics – there has arisen a global ‘knowledge-based economies’, focusing on ideas and not on the physical power, as well as on modern technologies and not on the exploitation of cheap workforce. Lithuania is also gradually migrating towards knowledge-based economy. In order to have competitive knowledge-based economics, long-life learning turns to be a necessity” (Security strategy for long-life learning, 2004, 4 p.).

In the world aiming to become a knowledge society the latest information is the most valued commodity, knowledge and skills. Different scientists analyze the application of ICT in the study process in terms of various aspects, and, also, they emphasize ICT meaning and topicality (Kemmis, Atkin, Wright, 1977; Gage, Berliner, 1998; Chye, Tan, Goh, 2004; Baltrusaitis, 2007; Jasutiene, Dagiene, 2007; Aceto, Dondi, 2008; Mickus, Vidzianas, 2009; Rutkauskienė, Gadoniene, 2010; Davidson, Waddington, 2010). Different authors make similar conclusions, that ICT is capable of forming that latest cultural and technological environment, where learning turns to be different; respectively, lecturers’ and students’ behavior norms change as well. Nowadays, ICT can be considered as ‘an engine’ of lecturers’ didactical source of working ideas as well as ‘an engine’ for the implementation of such ideas.

Rapid development of modern ICT creates presumptions for lecturers and students to change roles in particular situations. Students are sometimes better at the application of ICT. Consequently, they can aid lecturers in the development of corresponding skills.

In modern university, there co-exists both traditional and qualitatively new e-learning culture that is enriched with versatile ICT. This paper is analyzing e-learning as a study process, where ICT is applied for efficient development and quality. The very concept of e-learning is multidimensional due to a continuous change of its contents and development, and due to emerging new generation ICT. E-learning concept is a rather general one, including all learning forms and methods, taken that the study process is based on ICT and encompasses also blended learning.

Grounding of the research problem. Business world is rapidly implementing and applying constantly developing ICT; however, according to A.L.Davidson and D.Waddington (2010), universities are technology „resistant institutions” that are forced to accept new paradigms by the society. Innovation acceptance policy of universities plays a significant role, i.e. it may slow down or speed-up the process. One of the key obstacles related to successful implementation of ICT in many European universities is the fact that the administration does not support or set relevant priorities to ICT. It may be assumed, that such a situation is due to the fact that, historically, sometimes university administration did not take care of ICT and e-learning issues, as this was not considered to be an important field of activities (Rutkauskienė et al, 2006).

Analyzing the failure of the first e-learning institutions, that operated in the EU and USA since the tenth decade of the last century, J.Bang (2006), makes a conclusion that many of these initiatives could not survive without governmental support. The author states, that the future belongs to blended learning, as during the study process student and lecturer need to communicate and share the responsibility. J.Bang (2006) foresees the following perspectives that could secure the success of blend learning as a form of e-learning:

1. Learning activities have to be integrated with learning sources as well as with lecturers’ consultations, and there has to be a possibility to adapt the also activities for cultural needs. The success of the Open University
in the UK is related to the implementation of a social-constructive approach towards learning. This

2. Lecturers get back to a position of being responsible for the organization of learning process. They should select relevant learning sources and organize educational activities that are necessary for the achievement of the defined study aims.

3. Technologies, used for turning learning into e-learning, should supplement the learning process with the following issues – interaction, communication, cooperation and creation. Only in such case they will be successful and comply with the expectations of the knowledge society.

One of the drawbacks of e-learning is the fact that there is no social interaction (Heinze, Procter, 2004). Humans value direct immediate (traditional) communication more in almost all life situations and, certainly, in the learning process. According to J.R.Edwards (1992), the individuals provide each other with emotional, systematic and informative support during immediate traditional communication. Essentially, virtual communication is different and, as a result, it may satisfy individuals’ needs only partially (Martins et al., 2004; Barker et al., 2006; Duoba, 2009). Consequently, traditional and real communication remains very significant for the participants of a study process.

Therefore, the object of this study is e-learning as a socio-cultural system phenomenon in university studies with the emphasis on elements to be influenced and, also, on influencing elements.

The aim of the study presented is to reveal e-learning as a phenomenon of a socio-cultural (emphasis on elements to be influenced and influencing elements) system in university studies.

Methods of critical literature analysis and empirical qualitative and quantitative studies were employed for this extensive study (covering 2006-2013), however, in this paper just few aspects are analyzed, and just two of the methods applied (and data they resulted in) are presented. Contents analysis was employed in order to analyze quantitative data, and suitable procedures of statistical analysis were applied for the analysis of qualitative data.

2. E-LEARNING AS A SOCIO-CULTURAL SYSTEM (ELEMENTS TO BE INFLUENCED AND INFLUENCING ELEMENTS)

The analysis of contemporary context in which universities operate revealed, that, today, the society status changes. The so-called “knowledge society” is only a symbol, which denotes the fact, that the structure of the society that we used to know is changing under our very eye. Society becomes a multi-social society, in which different society models are functional at the same time, starting from the agrarian, industrial, informational, and, going to knowledge society and other models. The traditional education system (primary, secondary, higher education, vocational training and informal education) remains essentially unchanged in its structure, management and the concept despite the changing conditions of life and is basically not adjusted to new social needs (Augustinaitis, 2004). The change of ICT philosophy towards collective intelligence, crowdsource philosophy, typical to the second Internet generation is emphasized. The breakthrough of this collective-intelligence related philosophy brings confusion to the already well-established life of university (and other organizations), to its activities, communication, information processing.

University transformed the learning concept from obtaining knowledge to the creation of knowledge.

This paper approaches the problem based on three main theoretical approaches: connectivism, theory of systems, and approaches to culture. It is our belief that a phenomenon as complex as learning, especially, involving ICT, should be analysed in the intersection of these three major theoretical perspectives, though we will readily agree that also other perspectives may prove to be very useful in highlighting the issue.

Further on, the above mentioned three theoretical perspectives are shortly described together with arguments why these perspectives are useful for better understanding of e-learning process. Here it is important to note, that in this paper e-learning is conceptualized as the most general concept. This concept, as we present it, covers all forms of teaching and learning (together), provided that learning is based on ICT at least to some extent.

Connectivism. Analysis of the modern study paradigms (teaching and learning at universities, including research) and the paradigm-based teaching and learning theories led to the conclusion that the context of learning is based on modern collective intelligence philosophy is best described by the socio-cultural cognitivism, and the process itself is described by connectivism (Vygotsky, 1978; Hung, Der-Thang, 2001; Siemens 2004).

As many authors note (Wentling et al. 2000; Downes, 2007; De Pratere, 2008; Targamadze, Petrauskienë, 2008; American Society for Training & Development, 2010), the study process, when ICT is applied to increase efficiency and quality, can be named as e-learning. The term e-learning is multidimensional, because its content is constantly changing with the improvement and development of the next generation of ICT.

Theory of systems says, that system can be comprised of at least two (or many more) elements, provided there is an interconnection between them, and the changes of one of the elements inevitably changes other elements, and, therefore, the system itself. Moreover, a system may be open and act as an agent in the environment, having an impact there and an enduring impact from the environment (Seedorovskij, 1995; Kvedaravicius, 2006).

Approaches to culture. Analysis of e-learning as a socio-cultural system is based on an approach to culture which highlights the meaning of the created artifact or the activity of its creation to any person (Kavolis, 1995). Nowadays, for the first time in history, information and scientific knowledge is becoming the main product of economic activity, i.e. the artefact (Ausra, 2005). Culture is such a complex phenomenon, that each model must be regarded only as a starting point, a guideline helping to understanding how people act. The cultural model, suggested by Schein (1992), where the role of ICT as a technology component, is clearly visible in the structure of culture as a system; and Parsons’ (1998) dynamic function of culture that explains change were chosen as a starting point for the analysis.

According to various authors (Mamardashvili, 1958; Scedrovitskij, 1995; Castells, 2005; Kvedaravicius, 2006), it may be stated that the socio-cultural system of e-learning is a system in which ICT is created artificially by humans, and the influencing on the development and structure of the system is used to increase the efficiency of e-learning. According to L. Vygotsky (1978), a human and the environment cannot interact directly. People interact with the environment by means of intermediary artifacts - meanings, tools, or symbols formed by
culture. When analyzing the interaction of teachers and students with information and knowledge societies, ICT applications act as intermediary artifacts.

Based on the above analysis, we hereby conclude that e-learning as a sociocultural system is comprised of a set of elements. These elements, however, according to the theory of systems, belong to different levels in terms of their influence from an educational point of view. Some of these elements are influenced to a great extent by technological changes, however, some of them can be influenced only if certain educational measures are applied.

The core thesis of this paper is the following: e-learning as a sociocultural system can be developed in a balanced way, provided that all the elements are developed in a balanced way. Extreme development of one of the elements (in our case ICT), may rather harm and not benefit the whole system. Overemphasis on technologies may disregard other elements: students, and, especially, university teachers are lagging behind and not using the e-learning system to its potential, or using just a very small fraction (Zuzeviciute, Butrime, 2010; Butrime, 2011).

The table below presents the arguments on the elements that can be influenced, if educational measures are applied for the benefit of a balanced and sustainable development of the whole system.

Table 1

Elements of e-learning as a socio-cultural system to be influenced and influencing elements from the educational perspective

<table>
<thead>
<tr>
<th>Elements</th>
<th>Influence from the educational perspective</th>
<th>Relative strength of the influence from educational perspective</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technologies (ICT)</td>
<td>Only relatively weak influence can be applied to this element from educational perspective. ICT (infrastructure, software, hardware) is being developed and produced by the whole research-economic sector and global alliances</td>
<td></td>
</tr>
<tr>
<td>Processes, interactions</td>
<td>Moderate influence can be applied to this element from educational perspective. Interaction in any case summons feedback, but if a specific message is being sent to a number of recipients, there is no guarantee that all recipients will actually receive it. There is always a certain degree of risk that interaction will not happen.</td>
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</tr>
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</table>

According to the theoretical analysis, relative strength can be rated as follows (Table 1): first (strongest) - participants (from educational point of view, influence is possible because participants – teacher and students – are the members of university community. It is possible to install ICT infrastructure that meets the needs of a certain community. But, however, the core objective is to help participants to become active members in the process, to overcome fears and evolve: from a recipient, user, into an active agent of the process. Both teachers and students should be encouraged and supported in order to become active, creative and creating participants of contemporary e-learning. Study revealed that just a small fraction of opportunities available today is being used by university community members (teachers, and, surprisingly, students)). Second element that can be influenced from an educational perspective: interaction processes (processing, optimizing, dosage of information delivery, and its duplication if needed). From educational point of view, it is important to facilitate collaboration between teachers and students and ICT professionals in order to develop meaningful learning environments and curriculum). Third element - contents (information) (influence from the educational point of view is possible: teachers, students, researchers, can upload their ideas, discoveries, critical remarks, formulate questions, ask for help, offer their own materials that may serve as open educational recourse). Fourth identified element - technologies (ICT) (cooperation with educators in order to develop learning-friendly environments).

As it was analyzed earlier, the change of one of the elements of the system or special investment in one of the elements may have an impact on the whole system (in our case, on e-learning as a sociocultural system). Though the study analyses attitudes
on e-learning held by both teachers and students, this paper concentrates on presenting the teacher perspective. Special educational measures, enabling teachers to use ICT applications more effectively in higher education studies is of crucial importance, because with huge investments for other elements of the system (e.g., ICT applications), the system is at risk of imbalance. Too many opportunities may prevent some university teachers of using them, because in many cases support and facilitation is needed to generate meaning for applying technologies in teaching and learning processes.

3. PROCEDURE AND PROFILE OF RESPONDENTS

Both quantitative and qualitative studies were organized to reveal the role of a university teacher in implementing ICT in the process of university education, as we have a belief, based on arguments above, that university teacher is a key element in ensuring balanced and sustainable development of e-learning system as a socio-cultural system in higher education. Questionnaire. In 2010, 157 university teachers were asked to share their ideas on various e-learning aspects. They represented different fields, except information sciences (purposefully so). Interviews. University teachers from different fields (but purposefully so, not from computer sciences) were asked to share their ideas in interviews in 2009-2010. Interviews were recorded after informants’ consent, and, later, the texts were transcribed and content analysis was applied in order to identify categories and sub-categories of ideas.

Table 2
Profile of teachers involved in interviews with a purpose to identify what educational measures are needed in order to participate in e-learning to a greater extent

<table>
<thead>
<tr>
<th>Code</th>
<th>Gender</th>
<th>Scientific Degree</th>
<th>Pedagogical status</th>
<th>Age</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>D1</td>
<td>W</td>
<td>Dr. Assoc prof.</td>
<td>49</td>
<td>Social sciences, applies collective intelligence technologies</td>
<td></td>
</tr>
<tr>
<td>D2</td>
<td>M</td>
<td>Habil.dr. Prof.</td>
<td>53</td>
<td>Biomedical sciences, applies some elements of ICT for 23 years</td>
<td></td>
</tr>
<tr>
<td>D3</td>
<td>M</td>
<td>Dr. Assoc prof.</td>
<td>41</td>
<td>Biomedical sciences, applies collective intelligence</td>
<td></td>
</tr>
<tr>
<td>D4</td>
<td>M</td>
<td>Habil.dr. Prof.</td>
<td>48</td>
<td>Biomedical sciences</td>
<td></td>
</tr>
<tr>
<td>D5</td>
<td>M</td>
<td>Habil.dr. Prof.</td>
<td>46</td>
<td>Biomedical sciences</td>
<td></td>
</tr>
<tr>
<td>D6</td>
<td>M</td>
<td>Habil.dr. Prof.</td>
<td>65</td>
<td>Biomedical sciences, applies some elements of ICT for 12 years</td>
<td></td>
</tr>
<tr>
<td>D7</td>
<td>M</td>
<td>Habil.dr. Prof.</td>
<td>47</td>
<td>Biomedical sciences.</td>
<td></td>
</tr>
<tr>
<td>D8</td>
<td>M</td>
<td>Dr. Assoc prof.</td>
<td>55</td>
<td>Biomedical sciences</td>
<td></td>
</tr>
</tbody>
</table>

Question “What would help you to use ITC in your work more frequently and more efficiently? (in cases) Possible answers were "1—would help most", 2—would help a lot", 3—would help ". Answers in the Figure 1 are sorted starting with the answer "1—would help most" in decreasing order. According to results, it is evident, that university teachers need educational support in mastering contemporary ICT applications, and, also, they need support of the university administration. Teachers state that the means which would help most to use ITC in their work more frequently and more efficiently are the following: teacher training courses in the field of e-teaching development (46 respondents), new modern computer technology (38 respondents), open source software (36 respondents), bigger administrative support (27 respondents) and wider variety of specialized literature on the topic of ICT (27 respondents). Even if rather many answers, showing the need for PDA with appropriate software, were given (38 respondents), however, the graph clearly illustrates that university teachers in most cases are in need of educational, administrative and peer support, rather than in need for more sophisticated tools, applicable for e-learning.
Majority of the university teachers are aware of collective intelligence ICT tools, but these tools are regularly used by much smaller numbers. Kruskal-Wallis criterion was calculated in the analysis of the use of the ICT tools based on collective intelligence by different age groups of the teachers. The difference in the use of ICT tools based on collective intelligence in various age groups of teachers was statistically significant (p <0.05) for the following tools: e-mail (p = 0.001), Flickr (P = 0.001), YahooGroups (p = 0.002), Tags (P = 0.002), blogs (p = 0.006), Wikis (P = 0.006), Gmail (p = 0.028), Googlegroups (p = 0.028), RSS (P = 0.034), Netlog (p = 0.035). For such tools as Hotmail, Windows Life and SlideShare p = .000. This means that the use of these tools in different teacher age groups differs substantially.

These results were strengthened also by data from interviews. Results from interviews. Interviews revealed that university teachers tend to learn and search for information independently, although they state that professional development courses in the field of e-learning development would help them use ICT at work more often and effectively. There is a small number of teachers who seek to implement ICT based on innovative ideas in the process of studies, i.e. enthusiasts. Regarding the development aspects of subculture based on the collective intelligence ICT technologies in e-learning as a socio-cultural system, the following activities of teachers were identified:

1. Initiative, according to university teachers, mostly comes from teachers themselves (enthusiasts).
2. Positive motivation from more experienced colleagues was mentioned as a crucial factor.
3. Reciprocal e-communication „students – teachers” was identified as a crucial factor.

Positive and negative aspects of activities related to the application of ICT in the study process by teachers were identified. Traditional auditorium (face-to-face) learning is very important for teachers and it is not possible to replace it with completely virtual learning (social relationship with a student and possibility to respond to students’ needs in a fast way and change methods during the process are particularly meaningful).

All the teachers, who participated in the research, were in favour of blended learning.

**4. CONCLUSIONS**

ICT achievements enable to introduce e-learning as an integral part of university studies. The main topic (e-learning as a socio-cultural system) in this paper is analysed based on three main theoretical approaches: connectivism, theory of systems, and cultural system comprised of a lot of objects such as, the key elements of which we define it, covers all forms of teaching and learning (together), provided that learning incorporates ICT to some extent.

Traditional forms of studies (lecture preparation and delivery, students’ participation, discussion, feedback and evaluation) and methods may be easily be transformed into an e-learning socio-cultural system enriched with ICT. In other words, there is a possibility to conceptualize and analyze e-learning as a socio-cultural system comprised of a lot of objects, the key elements being:

- Participants (students and teachers);
- Technologies (ICT);
- Processes, interactions;
- Contents (information).

The knowledge society is the overarching system.

Quantitative study (answers to a questionnaire) revealed that university teachers in most cases are in need of educational, administrative and peer support, rather than merely in need of more sophisticated tools, applicable for e-learning.

Qualitative study allowed to identify the factors that the university teachers consider to be of most importance in developing e-learning system in a balanced way:

- Initiative, according to university teachers, mostly comes from teachers themselves (enthusiasts),
- Positive motivation from more experienced colleagues was mentioned as a crucial factor,
- Reciprocal e-communication “students – teachers” was identified as a crucial factor.

The study seems to indicate that elements of e-learning as a sociocultural system are influenced by different agents. Some of the (ICT provisions) are developed by global research and development and economy alliances, and however, other elements: in our case, university teachers, need additional educational and administrative support in order to participate in the developments on equal terms. If university teachers are not supported in the process, the whole system of e-learning might be distorted: with ample ICT provisions on the one hand, and with unqualified and discouraged teachers (some) on the other, e-learning may not be serving for the best benefit of university community members, contribute to quality of studies, and, as a consequence, foster sustainable advancement of knowledge society, because, as Várnagy, 2011, emphasises, in the end we want sustainable, democratic society that is worth living for and is rewarding to live in. University teacher is an element of e-learning system that needs educational, administrative, institutional support in the process.

**5. REFERENCES**


