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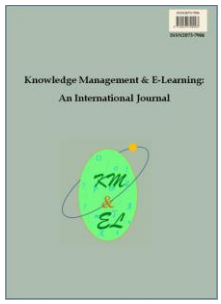

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e-Learning trends in Central Europe: The case of the Czech Republic

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e-Learning trends in Central Europe: The case of the Czech Republic

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Abstract: The paper deals with expert predictions on the development of e-learning in the Czech Republic, a country in Central Europe. The first part of the paper describes the development of e-learning with specific feature in the Czech Republic in relation to the implementation of Information and communication technologies (ICT) to schools and the business sector. The second part of the paper presents a survey with selected experts, conducted in the years 2012 and 2013 in the Czech Republic, aiming at identifying the trends of e-learning. Special attention is paid to applying e-learning in the corporate sector. Our survey provides a better understanding of the current and future trends of e-learning to a wide range of stakeholders interested in using e-learning. Understanding the existing and future state of e-learning should be a starting point for further development of any e-learning strategy, in both education and corporate sectors. Therefore, the findings of our survey have important practical implications. The survey also proves that identification of the e-learning trends at the national level is influenced by political, economic, social and technological factors.

Keywords: e-Learning development; e-Learning trends; Czech Republic; Expert survey

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employee training and development.

1. Introduction

The development of e-learning in the Czech Republic is characterized by specific features. These features are associated with the country's social and economic context, but more reflected in practical implementation of information technologies, which is different from the practice in more developed countries in Western Europe in the 1990s.

2. Development of e-learning in the Czech Republic

The Czech Republic was first connected to the Internet in 1991 but it was only until 1994 when the Internet connection was available for commercial purposes. Factors such as better equipment of households and enterprises with computers and improvement in their Internet connection significantly contributed to the development of e-learning in the Czech Republic. To further illustrate the development, some data from the Czech Statistical Office (CSO, 2013) are presented below.

Companies in the Czech Republic and the Internet: As early as in the year 2003 almost 90% of companies were connected to the Internet. The proportion of the Internet connection was lower with smaller companies (88.4%) and higher with larger companies (99.1%). Today, both are almost 100% (CSO, 2013). Furthermore, 40% of the companies in the year 2000 had their own web site; today the proportion is 80% (CSO, 2013).

Personal computers and Internet of Czech households: In the year 1989, only 1.8% of the Czech households were equipped with a personal computer, however in the year 2005 it was 30% and the number rose to 67.3% in the year 2012. The Internet connection has been monitored since the year 2001, and 5.8% of the households were connected to the Internet. It grew to 19.1% in the year 2005 and 65.4% in the year 2012 (CSO, 2013).

A government project called "Internet to schools" has significantly contributed to the development of e-leaning in the Czech Republic. By means of this project all schools in the Czech Republic were connected to the Internet and a number of schools were equipped with special computer classrooms. Additionally, a methodology system to support ICT application at schools was created. The e-learning take-up was also supported by other projects and special programs such as "Information Literacy", "IT infrastructure", "Educational Software" and "Information resources". These initiatives as well as the emphasis of the Czech Republic on the development of e-government have had positive impact on improvement in basic ICT literacy rate of the Czech population.

The year 1999 can be seen as the breaking point for the development of e-learning in the Czech Republic. That year the first twenty Czech experts were trained for online courses in the learning management system (LMS) Learning Space. This was a part of a project called Learning about Open Learning (LOLA), held under the auspices of the Herriot Watt University, Edinburgh, United Kingdom. There had already been some partial attempts to implement online forms of e-learning and computer based training (CBT) form before the year 1999, then a simple software was used as a common practice.

In the Czech Republic, the development of e-learning was also significantly facilitated by the development of e-learning didactics. The earliest publications by Eger

(2005) and Kopecký (2006) appeared in the field. Afterwards, more books (Šimonová, Poulová, & Šabatová, 2009; Zounek, 2009; Barešová, 2011; Zounek & Sudický, 2012; Egerová, 2012; Eger, 2012; Turčáni & Magdin, 2012) focused on e-learning in the context of the Czech Republic were published. The publications also reflected that the approach to e-learning has undergone major changes in the Czech Republic, similarly to other countries. In the initial phase, the major role was played by technology (the turn of the millennium); in later phases, more and more attention was paid to the pedagogical aspect of e-learning (Klement, 2012; Eger, 2012; Egerová, 2012; Šimonová, Poulová, & Janečka, 2012; Zounek & Sudický, 2012).

Initially, foreign LMSs were used for online forms of e-learning in the Czech Republic. After the year 2000 the first LMSs designed by Czech companies and universities (e.g. e-Doceo, Eden, Barborka, Unifor, MUNI portal) have begun to be used in the Czech Republic. Since the year 2002 the open source Moodle has gradually become the main LMS and is currently used by a number of universities, secondary schools and even some elementary schools. Such situation can also be observed in the field of higher education and vocational education. Although there is a plethora of various applications of LMSs, Blackboard or Learning Space, through well known in other countries, can hardly ever be seen in the Czech Republic.

In this study we define the term e-learning according to Horton (2006, p.1) as follows: "E-learning is the use of information and computer technologies to create learning experiences." In this sense e-learning has become an umbrella (Wright, 2003; Eger, 2005; Carliner & Shank, 2008) that covers a number of forms or types of e-learning such as CBT, WBT (web-based training), LMS, Wiki, Blog, Webinar, Webcast, El-bulletins and also current hot trends - mobile learning and tablets (Conklin & Robbins-McNeish, 2007).

Despite the rapid evolution of e-learning and its growing use in the organizations in the Czech Republic, there is still a lack of research surveys and systematic research findings in the area of e-learning development. The primary aim of the present study is to provide an overview of the current and future trends in the development of e-learning in the Czech Republic. It's another aim is to provide feedback to a wide range of stakeholders interested in using e-learning and therefore give a better understanding of its application in organizations. Understanding the existing and future state in the given area is a significant starting point for further progress of e-learning for training, learning and development in organizations.

3. e-Learning trends predicted in 2012-2013

To clarify the context of our study we present some notable studies that focus explicitly on the e-learning trends and are relevant to the survey task.

The prediction of the IntelSov Company (2012) emphasize that the workforce is changing and that by the year 2013 more than 40% of the workforce will be made of millennials (born between 1980-1992). In the USA these people are considered to be the so called computer generation. In this context the Brandon Hall (2012) research points out that younger workers are generally more tech-savvy and, on average, they tend to stay at jobs for only 4.1 years compared to the baby boomers who stay at jobs for twice as long. These facts imply an important question for an organization: "How can an organization efficiently train and motivate its employees with respect to the generational differences?"

According to the IntelSolv Company (2012) the most significant e-learning trends include:

- Organizations expect to change their Learning Management System;
- Job analysis and job knowledge should go hand in hand;
- Learning should be flexible and mobile;
- A monolithic "LMS" is no longer the best solution out there for agile organizations;
- Social learning is the best place to learn on the job; and
- "About 70% of learning on the job occurs informally."

Unlike the other predictions relating to e-learning trends that begin with technology changes, the Kineo Company (2012a) first focuses on searching what businesses need to do and how they may use e-learning to help them. According to Kineo Company (2012a) a business at the basic level needs to ensure compliance, improve operating margins, differentiate its offerings, grow its business, and enhance its brand. Further in the prediction, they demonstrate how the business needs may affect e-learning.

The experts of Kineo Company (2012b) also mentioned the following frequently quoted predictions: serious games, social learning, mobile learning and HTML5. At the same time they were not convinced that these predictions naturally aligned with the businesses needs as set out above. They also presented potentials as well as limitations of these trends. Games, for example, offer great potential but as a result of their high financial demands stemming from their creation and distribution their use may be limited. Regarding the social learning they stated: "Social learning has come to mean any form of collaboration and has had a lower impact inside organizations than many suspected…" Perhaps businesses should encourage people to build their own personal learning networks and highlight the best practice of their uses of social networks (Kineo Company, 2012b).

Taking the above into account, the following views about the future of e-learning can be found (Kineo Company, 2012a):

- There will be an ongoing demand for compliance training;
- It will increase the importance of manager training in areas such as managing poor performance;
- The importance of customer service in particular will increase. The clients will demand well designed e-learning which be a pleasure to use;
- There will be a growing demand for training in new products;
- Companies will need to train staff in understanding social media; and
- Courses for new systems and new technologies will be very important.

The COX eLearning Consultants (2013) predicted the following trends for 2013:

- Mobile learning, social learning and video training will become the most promising technologies;
- Learning Management Systems will rank among the top 5 learning solutions planned for acquisition;
- Demand for content delivery on mobile devices, including tablets and smart phones will increase;
- Many learning interactions will involve more than one type of learning, and users will demand trainings more relevant to their specific jobs and needs;
- The average learning technology company will grow of 10%; and

- Tin Can will not materially affect users of e-learning until 2014.

Trends such as Massive open online courses (MOOCs) or Gamification represent another hot topic for discussion in some predictions for the year 2013.

The development of the items of our questionnaire relied not only on the above mentioned trends but also on forecasting and opinions of the e-learning analysts and experts that were presented on their web sites (personal blogs). Below we present two selected expert studies as examples:

> *The blog E-Learning 24/7 presents five E-learning Forecasts for the year 2012 (Weiss, 2012). The prediction is based on the information and forecasts for the year 2011 for which the following trends were predicted: talent management, information – the input activities of sellers, a shift to mobile learning, new technologies and tools, social learning and web conferences. It was stated that LMS and its variants will continue to be used. Focus on customer service and the Software as a Service (SaaS) application are also mentioned there*.

In his prediction Bates (2012) noted that general trends such as redesign, mobile learning, more multimedia, learning analytics and shared services were not going to change much from 2011. The given prediction, focused mostly on higher education, assumes the following development of e-learning for the year 2012:

- The year of the tablet (99% probable);
- Learning analytics (90% probable);
- Growth of open education (70% probable depending on definition of open education);
- Integration of social media into formal learning;
- Disruption in the LMS market (60% probable);
- Integration of social media into formal learning (66% probable on a large);
- Digital university (10% probable);

The author presents at the same time likely limitations of the predicted items.

4. Evaluation of e-learning trends by the Czech experts

In this section, the methodology of our survey, questionnaire procedures, and the sample of the respondents or experts are introduced.

4.1. Method

There are various forecasting methods applicable for trends forecasting. The choice of the most suitable method depends on the purpose of the research, availability of data and experience and expertise (Trehan & Trehan, 2007). For the purpose of our study we use the method Expert opinion. Such approach became the only option as in this area no generally accepted surveys or systematic empirical research findings exist as yet in the Czech Republic. The Expert opinion is necessary in tasks forecasting due to the lack of appropriate information for using statistical procedures (Rowe & Wright, 2001).

4.2. Sample of experts

To obtain good results from the expert judgments, the selection of experts was considered to be crucial. We based our selection of experts on the following criteria: the individual has published scientific outputs relating to e-learning, he/she is a renowned expert in ICT based corporate education, he/she is an expert in the field of providing services and technologies for development of e-learning. The selected experts had to fulfill at least two of those criteria. Sixteen experts were selected in total. We used a heterogeneous group of experts in order to increase the reliability of the expert judgments.

4.3. Data collection

The survey was drawn up in the form of a self-administered online questionnaire (Saunders, Lewis, & Thornhill, 2009). The items (trends) of the questionnaire were deduced mostly on the base of a quantitative content analysis. Quantitative content analysis, when compared to qualitative content analysis, can produce more reliable findings (Macnamara, 2005). Quantitative factors such as a frequency of trends were primary considered. We reviewed predictions of leading global and respected companies related to the topic of the research (in the field of predictions of e-learning trends) and webs or blogs of experts that focus on e-learning and address the trends of e-learning for the years 2011, 2012 a 2013. Outputs from the broadly respected sources, such as Brandon Hall (2012), Bersin & Associates (2011), or American Society for Training & Development (ASTD, 2011, 2012) or from experts as Boon, Rusman, Van Der Klink, and Tattersall (2005), Little (2010), Khan (2007), Maurer & Khan (2010), or Hung (2012), were also considered.

The questionnaire considered two core areas. The first one related to e-learning in general, the second one focused on corporate education. The questionnaire for the year 2013 was slightly modified. In total sixteen experts in the year 2012 and fourteen experts in the year 2013 participated in the survey. All the experts who had been invited to participate in the first expert survey were also invited to participate in the second survey. Fourteen experts agreed to participate in the second one. The small size of the sample of experts is given by the purpose of the study as well as by the limited number of relevant experts in the Czech Republic. The experts were asked to indicate the level of importance to each of given trends using a scale ranging from high importance to low importance.

5. Findings

In this part the findings of the survey are reported in Tables 1 – 4. The items with a high trend and a high level of expert consensus are highlighted in the tables. In both surveys there was one expert who did not respond to the block of corporate education items.

As shown in Table 1 the experts considered the item *"education systems will integrate with enterprise resource planning systems"* to be the trend of the highest importance. The next two most highly ranked trends are *"tablets will become increasingly important and will be adapted to course design and course content"* and *"significant development in personalization of learning paths is expected." The trend "implementation of social learning into formal and informal learning in companies will increase in importance"* was ranked as the least important trend by the experts.

Table 1
Results of general e-learning trends in 2012 (n = 16)

Item / Trend	Importance (frequency)			
	High	Medium	Low	Mean score
Organizations will search user-friendly systems (LMS) for e-learning	7	7	2	2.31
Transition to cloud-based solution and online authoring tools will be significant	6	10	-	2.38
Education systems will integrate with enterprise resource planning systems	10	6	-	2,63
The use of smart phones in education (mobile learning) will increase in importance	7	5	4	2,18
Tablets will become increasingly important and will be adapted to course design and course content	10	4	2	2,5
Significant development in personalization of learning paths (entrance testing, process analytics, consulting…) is expected	8	7	1	2,44
Even faster and cheaper solutions for e-learning (rapid e-learning) will be a trend	7	7	2	2,31
Implementation of social learning into formal and informal learning in companies will increase in importance	1	13	2	1,92
Social learning using ICT will be increasingly important in the area of learning outside the organization – the development of informal learning	6	8	2	2,25

The results in Table 2 indicate that the experts consider the trend *"tablets will become increasingly important and will be adapted to course design and course content"* to be of the highest importance. The next most highly ranked trends are: *use of video-training will increase, use of smart phones in education (mobile learning) will increase in importance;* and *significant development in personalization of learning paths is expected.* The trend *"organizations will implement technology Tin Can – flexible approaches"* was ranked as the least important trend by the experts.

Table 2
Results of general e-learning trends in 2013 (n = 14)

Item / Trend	Importance (frequency)			
	High	Medium	Low	Mean score
Use of classical LMS including new communication tools will increase	5	7	2	2,21
Organizations will implement technology Tin Can – flexible approaches	3	8	3	2
Use of video-training will increase	8	6	-	2,57
Use of e-workshops will increase	5	7	2	2,21
Use of smart phones in education (mobile learning) will increase in importance	7	6	1	2,43
Tablets will become increasingly important and will be adapted to course design and course content	10	3	1	2,64
Significant development in personalization of learning paths (entrance testing, process analytics, consulting…) is expected	7	6	1	2,43
Even faster and cheaper solutions for e-learning (rapid e-learning) will be a trend	7	5	2	2,36
Implementation of social learning into formal and informal learning in companies will increase in importance	5	8	1	2,29

Table 3 indicates that the trends *"product education" and "courses for new ICT systems and technology"* were considered as the most important items, followed by the item *"e-learning as a service to customer." "Talent management"* was ranked as the least important item by the experts.

As shown in the Table 4, the trends *"product education and Courses for new ICT systems and technology"* were considered as the most important items, followed by the item *"harmonization with legislation and compliance with market requirements." "Talent management"* was ranked as the least important item by the experts.

Table 3
Results of questioning of experts, 2012 (n = 15), Trends in corporate e-learning

Item / Trend	Importance (frequency)			
	High	Medium	Low	Mean score
Harmonization with legislation and compliance with market requirements	5	10	-	2,33
Courses for managers focused on business performance	6	7	2	2,27
Product education	13	2	-	2,87
E-learning as a service to customers	7	7	1	2,4
Courses in social media	4	10	1	2,2
Courses for new ICT systems and technology	10	4	1	2,6
Talent management	2	11	2	2

Table 4
Results of questioning of experts, 2013 (n = 13), Trends in corporate e-learning

Item / Trend	Importance (frequency)			
	High	Medium	Low	Mean score
Harmonization with legislation and compliance with market requirements	7	4	2	2,38
Courses for managers focused on business performance	4	8	1	2,23
Product education	10	2	1	2,68
E-learning as a service to customers	4	7	2	2,15
Courses in social media	3	8	2	2
Courses for new ICT systems and technology	9	3	1	2,62
Talent management	3	6	4	1,92
Companies start to use e-learning courses (MOOC) from universities	2	6	5	1,77

6. Discussion

This section summarizes the expert opinions on the trends of e-learning for the year 2012 and, consequently, for the year 2013 in the context of the Czech Republic. The salient findings of the study are highlighted.

The results of both expert surveys indicate that the general e-learning trends are not going to significantly change in comparison with 2012. Among the most expected general e-learning trends the experts indicate in both surveys growing significance of tablets in education and the growing application of Personal Learning Environment.

These trends do not come as a surprise as the learning landscape is rapidly changing and the development of digital technologies advances. Furthermore, an ever-growing number of educational institutions are moving away from the traditional teaching models to a new student-centric model. In addition, there is an increasing demand from the new generation (generation Y) that prefers work flexibility, tech-savvy work environment, open social networks, more flexible forms of study and learning programmes tailored to its needs.

Tablets represent an innovative tool that is expected to increasingly support the teaching and learning process. Tablets had already been identified as a trend in some foreign studies in the year 2011. In the Czech Republic they have been identified as trends by the experts for the years 2012 and 2013. However, the uptake of the tablets in the Czech educational and corporate environments is still in its infancy. The most notable barriers to the use of tablets in education in the context of the Czech Republic seem to be the financial, technical and organizational barriers.

The experts also place heavy emphasis on the growth of video-training. Video-training is an effective tool that may be used in both educational and corporate environment. The main pedagogical impact of video-training includes interactivity with content, engagement and knowledge transfer and memory (Greenberg &Zanetis, 2012; Yueh, Lin, Huang, & Sheen, 2012). As any other technology, video-training has its limitations. Some of them are technological (technology access, fidelity of implementation, equipment failures and reliability), legislative (requirements for special-need learners, weak science and technology policies, deficits in government funding), behavioural (attitudes, expertise and pre-conceived ideas, teachers' poor proficiency with technology, extra time needed for class preparation, faculty resistance -IP and digital rights issues) or resource-based (low quality of high-educational TV programs, poor professional development/technical support (Greenberg & Zanetis, 2012). Although the organizations in the Czech Republic increasingly implement video training, many barriers for its integration still prevail. The main barrier appears to be behavioural factors and technical limitations.

As mentioned above, the experts are also optimistic about the growing trend of use of smart phones in learning. The main benefit of mobile learning (m-learning) is seen as just-in-time learning suited to the needs of the learners. Although this trend corresponds with some predictions (ASTD, 2011), the organizations in the Czech Republic implement m-learning only slowly. The reasons for such state probably lie in perceptions of the organizations towards the limitations of m-learning, availability of owned *mobile* devices by the organizations together with insufficient ICT literacy, mainly of older workers.

Scepticism prevails concerning the trend *Implementation of social learning into formal and informal learning in companies will increase in importance*. This expert view should come as no surprise, given the fact that the educational and corporate

organizations in the Czech Republic are focused mainly on formal e-learning programs (Egerová, 2012). Several barriers are slowing down the implementation of social learning in organizations. The main barriers include fear and prejudices of losing social contact, barriers towards ICT and the lack of ICT knowledge. However, as more young people get into the work process, the social learning will more and more become commonplace.

The low rating for the trend *Organizations will implement technology Tin Can – flexible approaches* can be explained by the fact that its application is still being discussed. Furthermore, substantial doubts and concerns about this technology also arise.

Regarding the trends in the corporate e-learning, in both surveys the experts indicate the growth of *Product education and Courses for new ICT systems and technology* as high trends. Not surprisingly, the same trends are identified by the experts as high trends in the area of corporate education. These trends are dating back to the past few years and correspond with the foreign trends (see e.g., the research study ASTD (2011, 2012) or the research study Bersin & Associates (2011)). However, only a few years ago hardly anybody in the Czech Republic supposed that the interest in product training or customer courses would grow.

In the contrast to the predictions mentioned above, the experts expressed reservations about the trend *Companies start to use e-learning courses (MOOC) from universities.* The primary reason for this opinion probably lies in the fact that the most universities in the Czech Republic still provide tradition classroom-based learning and do not offer enough free online courses. Additionally, MOOCs have not so far received much attention from both the academic community and business. It may be caused also due to the perceptions of academics and insufficiency of these courses in the context of higher education. On the other hand, the opportunities of MOOCs such as open and free access to courses, learning that suits the learners' needs and/or interest, flexibility, fast-track completion, single course delivery and interaction among participants combined with growing interest reinforce their importance in education. Furthermore, MOOCs, as a new model for online courses, can solve certain problems both in higher education and corporate sectors in the Czech Republic. Therefore, we expect that MOOCs are going to capture the attention of the Czech universities as well as business organizations.

In sum, the results of both expert surveys indicate that the trends in corporate e-learning are not going to significantly change from the year 2012.

7. Conclusion

It is evident that e-learning and the use of the new information and communication tools are on the rise in organizations. Another striking fact is that e-learning offers new opportunities both for education and corporate sector. In addition, e-learning has the potential to be a powerful mean able to create open online educational resources accessible to all and thereby enable people to better integrate into the knowledge society (Cheuk & Dervin, 2011).

To reach the full potential of e-learning, we need to evaluate the current and future state of e-learning. Therefore, looking at the e-learning trends provides a useful insight into what is working and what is not. This survey sets out to help e-learning professionals, practitioners, policymakers and teachers gain a better understanding of the current and future trends of the e-learning. An increased understanding of how to adapt and develop e-learning should be a starting point for further development of any e-learning strategy, both in education and corporate sectors. Therefore, the findings of our

survey have important practical implications. Besides, the survey also proves that the identification of the e-learning trends at the national level is influenced by political, economic, social and technological factors.

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