The Adoption of E-Learning Technology at the Faculty of Distance Learning of Plekhanov Russian University of Economics

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Abstract

The authors review application of information technologies and systems at the Faculty of Distance Learning of Plekhanov Russian University of Economics. General aspects of organizing training in e-learning environment, highlighting the advantages and disadvantages of such approach are also examined. The authors study and analyze a number of surveys of students about the effectiveness of the distance learning. They were conducted in the format of Questionnaire seeking feedback on the effectiveness of various approaches in distance learning. This article helps better understand the value of e-learning and other innovative forms of delivering educational materials to students in the context of higher education and confirms the overall positive attitude of students and faculty members towards the use of online and e-learning modules/methods. The research clearly shows the trend and ongoing transition from traditional forms of learning to learning based on information technologies and systems.

Keywords: digital curriculum, educational technology, distance learning, E-learning, traditional training.

Introduction

Russia, with its ongoing active transformation of economic relations and continuing reforms in many fields, is fast evolving as an information society where information is becoming an important driver in economic, social, political, and cultural development. Modern information and communication technologies vastly contribute to this trend.

This trend leads to the need for individuals of any age in increased mobility, level of education and adaptability to ever-changing circumstances (Mauch & Tarman, 2016). Success is achieved mostly due to the personal competitive advantage.

One who is capable of locating, obtaining, and integrating the necessary information within the shortest time, as well as of using the knowledge efficiently, is becoming the most successful and competitive individual. The idea of "education through life" leads to a necessity of finding the modern, mobile methods of knowledge transfer and learning technologies. And this, in turn, provides access to a large volume of educational information, shapes the visual presentation of the material being studied and

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the support to active teaching methods, and introduces modular design that allows for replicating of individual components of information technology tools. The Internet and information and communication technologies have transformed traditional teaching and learning techniques into new methods known as electronic learning, or e-learning (Huynh and Le Thi, 2014). The focus of this paper is to provide a current overview of Distance Learning in Plekhanov Russian University of Economics in Russia.

The possibility to exchange the necessary amount of information among users located at considerable distance from each other, communicate with each other in an online mode, post information on various sites of the global network, making it available for everyone, - all of this became possible with the development of information technology.

Organizations are turning to e-learning to save training time and travel costs associated with traditional face-to-face training. However, the savings do not justify themselves when e-learning is not effective in delivering knowledge and developing skills needed to the desired results. Can e-learning help achieve adequate level of knowledge required for a knowledge-based economy of this century? Part of the answer will depend on the quality of instructions embedded in the e-learning product that you design or select today.

Literature Review

Implementation of digital curriculum in higher education focuses on improving the quality and expansion and modernization of teaching methods (Al-Awidi & Aldhafeeri, 2017, Tarman, 2016; 2017; Tarman & Chigisheva, 2017). Currently, there is an ongoing transition from traditional forms of learning to learning based on information technologies and systems. Organization of the learning process in e-learning environment is an important and evolving component of academic work at the Faculty of Distance Learning. According to D.R. Garrison (2011), e-learning refers to the electronically mediated asynchronous and synchronous communication for purpose of constructing and confirming knowledge.

Intensive e-learning is used widely to support a variety of learning goals: for professional or specialized (sectorial) training - 74% for continuing training (Compliance Training) - 68% and training on General software (Desktop Application – desktop application system) - 66% (Industry Report, 2014). Some of the training areas, to a lesser extent relying on online learning, include sales, customer service, and development of managerial and leadership skills. Development of interpersonal, "soft" skills is as a common element of such training areas, and is perceived to benefit most from a full-time classroom environment.

High and steadily growing annual investments in training over the last four years amounted to USD 50-60 billion spent on training the employees in corporate and government organizations in the United States (Industry Report, 2014), and these figures do not include the most costly elements of training: salaries, time and the cost of lost opportunities of the students. Researchers report that the use of e-learning as a supplement to traditional fully face-to-face (f2f) classroom-based learning has increased dramatically in recent years (Costley et al., 2017, Lee and Lee, 2015, Bonk et al., 2002, Graham et al., 2013).

Distance learning offered a different approach to improve and raise the level of education, devoid of the above disadvantages and with a number of additional features. Distance learning is based on purposeful and controlled by the teacher intensive independent work of the student, who can be trained at a comfortable place, under the individual schedule, having a set of specialized learning tools and opportunity to contact and communicate with the teacher during the learning process (Morgan, 2002, Traphagan, 2005, Gladilina et al., 2016, Bruskin, 2016).

The main advantages of distance learning approach for students are:
- flexibility of a learning schedule (at any time and at any available study place);
- possibility to learn individually per their own abilities;
- objective and independent method of assessment of knowledge;
- the possibility to consult with the instructor during the training (online consultation);
- relatively low incurred costs.

For teachers and practitioners, this form of education provides additional opportunities for the delivery of material to students, in fact, is becomes possible to provide training to the greater amount of students with the same work load for the trainer. Distance learning, with its obvious advantages, quickly gained huge popularity in the field of education. This form of learning enables large companies to quickly improve the level of training for their staff, at a relatively low cost, with high efficiency, and with minimal interruption of the business process. The number of students practicing distance learning has been steadily increasing over the years (Allen & Seaman, 2013, Kim & Santiago, 2005, Lim, 2014, Nikolaeva & Pak, 2017).

The degree of involvement in the Internet-based education, the number of courses in the online mode, their themes, different ways of implementation and the overall focus in general, has led to the emergence of the more capacious concept of "e-Learning". Remote knowledge sharing and collaboration, the use of new multimedia technologies and the Internet to enhance and

improve the quality of education by increasing access to resources and services, - all of this is e-Learning. Stimulating and informative training process, which uses interactive electronic means of information delivery, such as CDs, the corporate networks, and the Internet, - all of this is e-Learning.

In addition to its original tasks, distance learning through the e-learning can assist in increasing the quality, level, and effectiveness of traditional method and way of learning, as well as be a great addition to the face to face training.

The main advantages of E-learning (Kovaltchuk et al., 2016; Eady & Lockyer, 2013) are:

- Virtually unlimited freedom of access through the Internet; a student has the opportunity to access electronic resources of the course from any location where there is an access to the global information network.

- Competent, high-quality education - with the participation of a entire team of competent, highly qualified professionals creating the courses, e-learning becomes modern and high quality training.

- Low pricing – without requiring extra cost to a student for the purchase of educational materials, the learning process involves only exchange of information over the Internet.

- Possibility of modular division of the content of the electronic course - small blocks of information make learning more flexible and make it easier to find the necessary materials.

- Flexible training schedule - completely adapting the entire learning process to fit his or her capabilities and needs, the learner chooses the sequence and duration of the learning time.

- Facilitation of on the job training - the learner can easier receive necessary training without separation from work process. Training materials are also available for learners at home and even while they are commuting.

- Both students and instructors have an instant access to the latest updates in curriculum, which supports constant development of their skills and knowledge in accordance with the newest modern informational technologies and educational standards.

- Ability to define assessment criteria - knowledge acquired in the learning process is evaluated against clear and tested criteria.

The students themselves appreciate and highly value the above listed benefits. Company SkillSoft has surveyed students from several major foreign universities that use e-learning as a supplement to traditional education. Flexibility, time savings, simplicity and easy access of past educational material were marked by students as the clear advantages of e-learning (Pappas, 2015). Russian researchers also evaluated these advantages of e-learning (Nedelkin et al., 2016). Digital technology allows students and teachers to interact with the curriculum through the use of a wide range of digital tools (Purcell et al., 2013). H.M. Al-Awidi and F.M. Aldhafeeri (2017) noted that "These tools provide students and instructors with access to primary source learning materials, utilizing new methods to collect and record data, communicate, and share learning experiences with teachers; moreover, students can publish and present their knowledge" (Al-Awidi & Aldhafeeri, 2017, p. 107). Other electronic resources can support the digital curriculum, such as Twitter, Blogs, Wikis, and YouTube, and other applications can be used to engage, instruct, and assess students' learning results. Students and educators are expected to be connected to these resources all the time during the learning process and to personalize their learning experience through the use of technology (Moeller & Reitzes, 2011).

However, with the clear and obvious advantages of e-learning, we should consider a number of remaining issues and possible drawbacks:

- The necessity to maintain high quality of electronic courses: who and how is assessing it?
- Need for self-discipline and additional motivation.
- The legal issues associated with intellectual property protection.
- Information security, technology issues.
- Financial implications: cost of development and updating of electronic courses (Chih-Min Ma & Cheng, 2013; Wu et al., 2010; Yang & Liu, 2007).
- No face-to-face interaction with the trainer (live connection with a more experienced practitioner) and peers, lack of networking, lack of peer contact and social interaction (Tran, 2016). Some students may feel isolated (Žuvi-Butorac et al., 2011).
- Possible lack of control: there is always the risk that learners will go through the material without paying enough attention.
- HR-related issues of providing and organizing training of trainers and curriculum designers who are willing and able to continually update and develop courses (Konak et al., 2017).

Therefore, although e-learning increases flexibility of access, eliminates geographical barriers, and improves convenience and effectiveness for individualized and collaborative learning, certain shortcomings exist.

Methodological Framework

The objective of the research is to improve understanding of e-learning implementation for the Russian higher education institutions.

The aims of the research are:

- to examine the general aspects of organizing training in e-learning environment;
- to consider the advantages and disadvantages of such approach;
- to study and analyze a number of surveys of students and teachers about the effectiveness of the distance learning;
- to give diagrams showing different aspects of the perception of e – learning by students and by teachers;
- to find out the innovations of organizing training in e-learning environment that make them attractive for the Russian higher education institutions.

The research was conducted at the Faculty of Distance Learning of Plekhanov Russian University of Economics (FDL). FDL constantly monitors performance indicators of the application and effectiveness of e-learning. For this purpose, in particular, was conducted the survey of students and instructors on the effectiveness of e-learning. This study examines factors that determine the attitude of learners toward an e-learning approach, using data collected by questionnaire from a sample of 400 students and 540 professors and faculty members involved in an e-learning environment at the FDL. A theoretical model is derived from previous studies and is analyzed and developed using structural equation modeling techniques. Based on the theoretical findings, a hierarchy of practical objectives and associated actions are suggested for improving the learner's satisfaction with the e-learning technics. These practical suggestions are expected to be of interest to education professionals and e-learning developers. The suggested actions relate directly or indirectly to:

(a) increasing the amount of interactions among students and faculty;

(b) increasing the individual's perception of the e-learning and an easy to use tool;

(c) improving the learner's skills;

(d) ensuring that the e-learning provides flexible access to instructional/assessment media; and

(e) ensuring the relevance of the information and its presentation in the e-learning.

In order to improve understanding of e-learning implementation at FDL, this study investigates the primary factors influencing students' and teachers' attitude toward e-learning using a revised version of Technology Acceptance Model (TAM).

The Technology Acceptance Model (TAM), proposed by F.D. Davis (1985), is one of the most influential models of user acceptance of information systems. The Davis technology adoption model operates on two main concepts: perceived usefulness and perceived ease of use (Davis et al., 1989). K.N.N. Tran also used TAM in his research and wrote in 2016 "Because the aim of this research is to examine the learner's attitude in the context of e-learning, three variables in the TAM were selected for the theoretical model: perceived Usefulness; Perceived Ease of Use; and Attitude" (Tran, 2016, p. 254). Because our research goal is to study how students and teachers perceive the application of e-learning, we use The Technology Acceptance Model by F.D. Davis (1985) too. Perceived Usefulness is an indicator reflecting the degree of confidence of the users that the technology will increase their productivity. Perceived Ease of Use is an indicator showing the degree of confidence of the users that the use of this technology will be associated with the application of the least possible effort. Attitude indicates positive or negative aspects of the users' perception.

TAM postulates that the attitude toward using a system is determined by Perceived Usefulness and Perceived Ease of Use, while Perceived Usefulness and Perceived Ease of Use are influenced by external variables. Based on TAM, several previous studies in e-learning adoption and acceptance found that Perceived Usefulness and Perceived Ease of Use have a significant direct effect on attitude towards using an e-learning system (Cheng, 2011, Hsieh et al., 2014, Park, 2009, Saadé et al., 2007, Sánchez & Hueros, 2010, Tselios et al., 2011). In e-learning context, N.K. Tselios, S. Daskalakis and M. Papandopoulou (2011) and L.-Y. Hsieh, Y.-J. Lu and Y.-H. Lee (2014) showed that Perceived Usefulness and Perceived Ease of Use play important roles in affecting student attitude. These researchers also found support for the effect of Perceived Ease of Use on the Perceived Usefulness of an e-learning system. J.-H. Wu, T.-L. Hsia, Y.-W. Liao and R. Tennyson (2008) and Q.L. Huynh and T.L. Le Thi (2014) showed that Perceived Value and Perceived Ease of Use had positive effects on a student's Attitude toward e-learning where Perceived Value had a similar meaning to Perceived Usefulness. The findings indicated that students' perceived usefulness and ease of use positively affected their acceptance

of e-learning for study. The link between students' perceived ease of use and acceptance of e-learning was also mediated by their perception on the usefulness.

Profile of the Respondents-students

According to the answers to the questions of the first section of the questionnaire, we discovered that: 53% of the respondents were females; 6% of the respondents earlier have had experience with e-learning. The average age of respondents was 23 years. Half of respondents belong to the 18-22 years old age group and 41 percent belong to 23-27 years old age group.

Profile of the Respondents-instructors

From the answers to the questions in the first section of the questionnaire, we found that: 72 % of the respondents were females; 69 % earlier have had e-learning experience. Half of respondents belong to 30-45 years old age group, and 41% – to 45-55 years old age group. The average age of respondents was 45 years. All respondents held a bachelor degree, and some of them held a master degree. After all we considered that the under test persons included individuals who were mature, well educated, and had real experience to be able to provide valid and reliable responses to the questionnaire.

Some question samples from the second questionnaire section

How do you like working with a computer tutorial?

- really like it
- rather like than not like
- like average
- rather not like
- utterly not likes
- I don't know, I can't say

Does using a computer tutorial reduce the time you spend studying a subject?

- quite true;
- true;
- rather Yes than No
- difficult to answer;
- rather No than Yes;
- wrong
- utterly wrong

How do you assess the role of the computer tutorial at the classes?

- helps to better understand the learning material
- helps to remember the learning material better
- increases interest in the subject under study
- not plays no role
- serves as a means of entertainment
- distracts attention
- prevents to perceive educational material, does not allow to concentrate

Would you like to see classes using a computer tutorial more often?

- quite true;
- true;
- rather Yes than No
- difficult to answer;
- rather No than Yes;
- wrong
- utterly wrong

What attracts you more in a computer tutorial?

- consistent and logical presentation of the material
- exciting presentation of the material
- colorful design of educational material
- the ability of self-control
- various forms of information presentation
- nothing attracts

Results and Discussion

The authors processed the results of the survey of students and found that 92% of students believing that the use of e-learning reduces their time spent on the study of the subject. Vast majority (97%) of students support and welcome the e-learning approach (Fig. 1) and more than 40 % "really like it".
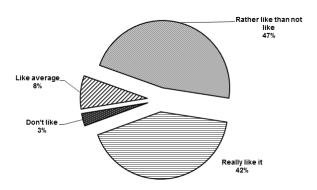
Figure 1. The results of questioning of students on the effectiveness of e-learning

Source: the authors

94% of interviewed students believe that e-learning is appropriate and helps to better learn the material (Fig. 2). Only 6% of interviewed students (3 % of respondents indicated that they were "unaffected" and 3 % considered that they were" obstructing") were dissatisfied with the use of e-learning.
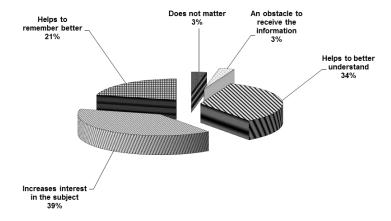

Figure 2. The results of questioning students on the role of e-learning

Source: the authors

When answering the question of what attracts students in e-learning, we obtained the following answers (Fig. 3). So, the ability of self-control is named by students as the most significant advantage of e-learning.
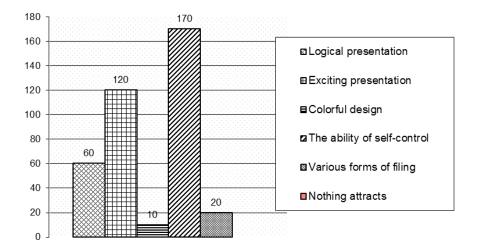
Figure 3. What attracts students in e-learning?

Source: the authors

Will the desired educational and economic impact be achieved with improved teacher's ability to use information and telecommunication technologies of electronic education for providing training to a larger number of students, geographically dispersed? In traditional learning environment, the instructor can instantly receive necessary feedback from the learners and immediately respond to it as necessary, adjusting the training material as he/ she sees necessary for the facilitation of its absorption. To address the lack of immediate feedback in e-learning and prepare high-quality electronic courses, the content designer should rely on the specific experience of expert f2f trainers, but such trainers do not always have the necessary time, capacity, or required computer skills. Surveys conducted at the Faculty of Distance learning showed that 99,9% of teachers consider that the use of e-learning influenced teaching methodology and saved their time (Fig. 4).
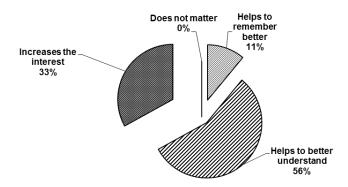
Figure 4. A survey of teachers. The distribution of answers to the question on the role of e-learning

Source: the authors

56% of teachers agree with the statement that the systematic use of e-learning in the educational process helps to better understanding, and the 33% agree with the statement that exercising the e-learning approach can increase the interest. The following diagram shows what attracts teachers to e-learning (Fig. 5).
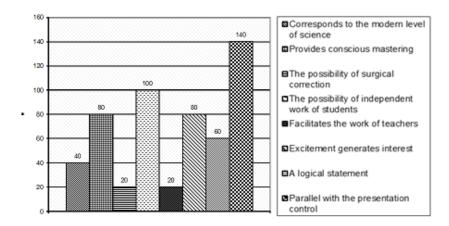

Figure 5. What attracts teachers in e-learning?

Source: the authors

So, parallel with presentation control and the possibility of independent work of students are named by teachers as the most significant advantage of e-learning.

Conclusion

The e-learning is playing an increasingly important role in modern academic education and corporate training, and this it is not a temporary trend. To make it the most effective and

engaging, it is crucial to maintain and monitor the quality of the online training programs, for example, through establishing inter-University Centre for quality assessment of e-learning courses and resources. It is also necessary to take into account the complexity of e-learning-related issues, from improving IT literacy of trainers and designers to creating complex digital curriculum of universities. The ambitious goal of reaching full implementation of digital curriculum will not become a reality without collaboration between different players such as academia, instructional designers and learning practitioners, as well as IT- and platform providers.

Trainers and course designers must possess not only the technical and pedagogical skills to use technology but also the willingness to integrate technology in their teaching practices (Gura & Percy, 2005). Their full support, commitment, time, and experience are critical components for success. Trainers' professional development programs should be designed to equip them with technical skills and pedagogical knowledge to successfully present and implement the digital curriculum.

The authors recommend conducting further research on the topic, possibly focusing on comparison between e-learning and blended learning approaches. For example, it is recommended to conduct separate surveys of students and professors on effectiveness of e-learning vs blended learning approach, overall satisfaction on each method, applicability of the knowledge received, extent to which knowledge "sticks" to the learner when delivered through the e-learning channel, as well as to study the specific "ideal" characteristics for the IT platforms and hardware on which e-learning is best perceived. The current research demonstrates that e-learning is most effective in developing technical skills and delivering the learning curriculum, while the "soft" skills development is still considered to be best achieved in the f2f environment. It is recommended to deepen the research and conduct more surveys to find out more on how the innovative approaches could enhance the development of interpersonal and managerial – "soft" skills

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