

AN EXPLORATORY RESEARCH ON THE PERCEPTIONS OF THE ROMANIAN STUDENTS REGARDING E-LEARNING

Vasiliu Cristinel¹, Felea Mihai², Albăstroiu Irina³ and Dumitru Ionel⁴
^{1) 2) 3) 4)} The Bucharest University of Economic Studies, Bucharest, Romania
E-mail: cristinel.vasiliu@com.ase.ro; mihai.felea@com.ase.ro;
irina.albastroiu@com.ase.ro; ionel.dumitru@mk.ase.ro

Abstract

The use of Electronic Learning (e-Learning) in higher education has increased significantly during the past decade. E-Learning involves two-way communication between universities teachers and students. Information and communication technologies based on Internet such as chat, quiz, web pages, assignments and many others provide an environment for more effective learning.

This paper explores The Bucharest University of Economic Studies students' views regarding the advantages and limitations of e-Learning in a new pedagogical approach. An exploratory study based on questionnaire was conducted among the Romanian students from the Faculty of Business and Tourism. The study contributes to a better understanding of e-Learning courses characteristics and offers insights to teachers on improving learning materials and enhancing teaching quality. Results also revealed students' perception on attributes and the effectiveness of an e-Learning platforms. The paper concludes with several future research directions and recommendations for higher education institutions in order to take advantage of the e-Learning system.

Keywords:

e-Learning, information and communication technologies, computer-based training, higher education, students, Romania

JEL Classification:

I23, O33.

Introduction

The information and communication technologies (ICTs) have become an essential part of learning experience for higher education students. The rapid development and commercialization of ICTs for the education industry has prompt a new method of teaching which is known as e-Learning (Zakariah et. al, 2011). In Romania, e-Learning has gradually increased over the last few years as the system offers many advantages to the involved parties especially universities and students. Institutions of higher education are trying to adopting e-Learning due to space limitation and equitable access to learning for all students. This paper investigates Romanian students' perception towards the attributes of e-Learning courses and of e-Learning platforms in order to improve the effectiveness of e-Learning in higher education. After a review of relevant literature about evolution and adoption of e-Learning, this paper presents the methodology and the results of an exploratory research

among The Bucharest University of Economic Studies students. The study concludes with some suggestions for future research directions and recommendations for universities and teachers that are engaged in the e-Learning process.

Literature Review

The development of ICTs creates a need for training for teachers and other persons of education institutions and open new possibilities that allow to increase the effectiveness of the educational process (Dočekal and Tulinská, 2015). The first form of electronic education -Computer-Based Training (CBT)- was born in the last decade of the 20th century (Hubackova, 2015). The term e-Learning came into use in the mid-1990s and was often used interchangeably with other terms such as “distance learning” and “online learning”. Garrison, (2011, p.2) defines e-Learning as „electronically mediated asynchronous and synchronous communication for the purpose of constructing and confirming knowledge”. According to (Pieri and Diamantini, 2014) conventional e-Learning systems were based on instructional packets, which were delivered to students using assignments evaluated by the teacher. The new e-Learning approach called e-Learning 2.0 increased emphasis on social learning and use of social software. Internet and social networking tools can provide opportunities for students to find information, collect their own materials, communicate, create meaning, and evaluate the final outcome (Daud, Jalil and M.Gunawan, 2015).

E-Learning includes all forms of electronically supported learning and teaching including Web-based learning, computer-based learning, virtual classroom opportunities and digital collaboration (Yacob et al., 2012). An e-Learning success model comprise of the three stages of e-Learning systems development: instructional design, course delivery, and learning outcome analysis (Holsapple and Lee-Post, 2011). The instructional design stage contains three dimensions: system quality (easy-to-use, user friendly, stable, secure, fast, and responsive), information quality (well organized, effectively presented, of the right length, clearly written useful, up-to-date), and service quality (prompt, responsive, fair, knowledgeable, and available). The course delivery stage contains two dimensions: use (text, audio, video, discussion board, case studies, tutorials, assignments) and user satisfaction (overall satisfaction, enjoyable experience, overall success, recommend to others). The last stage, the learning outcome, is evaluated along the net benefits dimension encompassed positive aspects (enhanced learning, empowered, time savings, academic success) and negative aspects (lack of contact, isolation, quality concerns, technology dependence).

E-Learning has a significant role in instruction of students in higher education and universities are investing considerable resources in this technology. There are several studies that have been done to explore students' perceptions and expectations regarding e-Learning as well as lecturers' experiences and opinions on this type of education in Eastern Europe (Šolc et al., 2012; Ion, Vespan and Uță, 2013; Klement and Dostál, 2015). The results of this studies show that the majority of students and teachers sustain the traditional instruction, but consider that e-Learning is an effective system for complement the current traditional learning.

E-Learning can be used to replace completely traditional education, but the combination of face-to-face teaching with modern information and communication technologies is often used in higher education (Maiorescu et al., 2016). According to Popovici and Mironov (2015), e-Learning implementation covers several aspects like ITCs infrastructure, online management systems, academic management systems, digital library and staff development.

Research methodology

An exploratory research was conducted among the undergraduate and graduate students of the Faculty of Business and Tourism from The Bucharest University of Economic Studies with the purpose of identifying the respondents' opinion regarding e-Learning system.

The objectives of this research were as follows:

- Determining the correlations between the variables aimed to assess the importance of the attributes of an e-Learning course;
- Identifying the relations between the variables aimed to assess the importance of the attributes of an e-Learning platform;
- Establishing the correlation between variables related to efficiency reasons of e-Learning system.

Associated with these objectives, our research has 3 hypotheses:

- H1: there is a strong correlation between the appreciation of the importance given by respondents to electronic/online learning materials and support materials, as attributes of an e-Learning course;
- H2: there is a strong correlation between the appreciation of the importance of the possibility to support online tests and exams and the possibilities of uploading homework, as attributes of an e-Learning platform;
- H3: there is an important correlation between encouraging access to electronic materials and helping students to better prepare for courses, as a reason to consider e-Learning effective.

The questionnaire was posted on website iSondaje.ro and was distributed as a link by e-mail to the students. The survey ran between 15 December 2017 and 15 January 2018. The data was entered and analysed using SPSS Statistics software package.

The sample consisted of 449 students who agreed to respond to the survey. 75.5% of the participants was bachelor students, and the rest was master students.

Results and discussions

The questionnaire contains 4 matrix questions (Q8-Q11). For these questions, the statistical reliability of scaling accuracy was achieved by using the Cronbach's Alpha coefficient and Variance Analysis – ANOVA. Data from the Tables no. 1 summarize the situation of the matrix questions. The value of the Cronbach's Alpha coefficient (over 0.7 for all four questions) reveals the correctness of scaling. For all four questions were used Likert-type scales, from 1 - not important to 5 - extremely important for the first two questions, while for the last 2 questions, the scale ranged from 1 - total disagreement to 5 - total agreement.

Table no. 1. Reliability Statistics

Question	Cronbach's Alpha	N of Items
8	.767	8
9	.859	9
10	.753	6
11	.802	6

The Variance Analysis (ANOVA) for matrix questions (Table no. 2) indicates that there are no significant differences between respondents in the sample, but only between the answers given to the items within each question. In the latter case, the F test values are significant (Sig value .000) for all questions. Thus, the first question contains 8 items and its overall average of 3.83 indicates a great importance given by the respondents to the 8 attributes of the courses in the e-learning system, namely: online syllabus, teaching materials (lecture

notes and presentations), supporting materials (e.g., demonstrations, videos and simulations, links to relevant websites), tutorial supporting, regularity of contact with the teacher, access to library resources, cost of enrolling on the course and reputation of the university offering the course.

Table no. 2. Variance Analysis (ANOVA) for matrix questions

ANOVA Q8						
		Sum of Squares	df	Mean Square	F	Sig
Between People		1061.272	448	2.369		
Within People	Between Items	274.288	7	39.184	71.103	.000
	Residual	1728.212	3136	.551		
	Total	2002.500	3143	.637		
Total		3063.772	3591	.853		
Grand Mean = 3.83						
ANOVA Q9						
		Sum of Squares	df	Mean Square	F	Sig
Between People		1375.009	448	3.069		
Within People	Between Items	231.153	8	28.894	66.803	.000
	Residual	1550.181	3584	.433		
	Total	1781.333	3592	.496		
Total		3156.342	4040	.781		
Grand Mean = 3.92						
ANOVA Q10						
		Sum of Squares	df	Mean Square	F	Sig
Between People		709.761	448	1.584		
Within People	Between Items	74.918	5	14.984	38.238	.000
	Residual	877.749	2240	.392		
	Total	952.667	2245	.424		
Total		1662.428	2693	.617		
Grand Mean = 3.91						
ANOVA Q11						
		Sum of Squares	df	Mean Square	F	Sig
Between People		1388.475	448	3.099		
Within People	Between Items	88.951	5	17.790	28.991	.000
	Residual	1374.549	2240	.614		
	Total	1463.500	2245	.652		
Total		2851.975	2693	1.059		
Grand Mean = 3.21						

The second question contains 9 items, respectively: good-looking graphical user interface, ease of navigation, user interaction features (e.g. chat, forums, etc.), features allowing students to upload their homework, features allowing students perform tests and exams, adequate help and documentation about the system, personalised entry ages with relevant information for the student, Internet-wide access (i.e. not limited to a local network) and

mobile-optimised access. The overall average of this question (3.92) indicates the great importance given by the persons in the sample to the attributes of an e-Learning platform.

The third question contains 6 items, and its overall average was 3.91. It can be argued that interviewees agree that e-Learning is an effective way of learning for the following reasons: increases opportunities for collaboration and interactivity, provides flexibility to learners in terms of their study needs, helps students to prepare well for class sessions, encourages access to more related electronic course material, increases the study workload for students and attracts people that do not participate in conventional learning.

The fourth question contains 6 items and obtained the average of 3.21, which is the smallest value in the matrix group. However, the value indicates a relative agreement of the interviewed subjects about the reasons that make the e-Learning platform ineffective, respectively: cost of computer equipment and internet connection, lack of real time feedback to questions and assignments, classroom environments helps students to learn more, needs perfect computer and Internet skills, more expensive than traditional education and lack of knowledge about e-Learning etc.

To better highlight the relationships between the matrix questions, we used the calculation of the bivariate correlations, aspects revealed by the correlation tables.

Among all the elements related to the attributes of an e-Learning course there are direct correlations to the significance threshold of 1%. (Table no. 3). Most of them are of medium intensity, but there are some more powerful. For example, the correlation between appreciating the importance of learning materials and support materials ($r = 0.461$, at a 1% significance threshold) can be highlighted. Thus, it can be argued that respondents who consider that learning materials are important have the same appreciation for e-Learning support materials, thus *confirming the first hypothesis (H1)*. Also, a stronger correlation occurs between support tutorials and support materials ($r = 0.517$, at a significance threshold of 1%).

Table no. 3. Correlations between the attributes of an e-Learning course

Items Q8	Values for the correlation coefficient								
Online syllabus	1								
Teaching materials (lecture notes and presentations)	.342**	1							
Supporting materials (e.g., demonstrations, videos and simulations, links to relevant websites)	.258**	.461**	1						
Tutorial supporting	.289**	.346**	.517**	1					
Regularity of contact with the teacher	.182**	.316**	.230**	.341**	1				
Access to library resources	.242**	.277**	.302**	.322**	.407**	1			
Cost of enrolling on the course	.205**	.221**	.243**	.294**	.183**	.330**	1		
Reputation of the University offering the course	.272**	.165**	.202**	.280**	.283**	.352**	.370**	1	

** . Correlation is significant at the 0.01 level (2-tailed).

Among the items relating to the attributes of an e-Learning platform (Table no. 4) there are direct correlations, rather strong at a significance threshold of 1%. The high correlation exists between the characteristics that allow students to carry out tests and exams and those that allow them to load their homework ($r = 0.610$, at a 1% significance threshold) thus

confirming the second hypothesis (H2). This link illustrates the desire of the students to not be constrained by a deadline or a fixed date for making and presenting themes or for taking exams. In this way, it is possible to organize the activities at their own pace. Another strong correlation occurs between access to e-Learning platform optimized for mobile devices and access to the Internet ($r = 0.571$ at a 1% significance threshold). Responses reflect the willingness of respondents to have easy access to the e-Learning platform, regardless of location and device.

Table no. 4. Correlations between the attributes of an e-Learning platform

Items Q9	Values for the correlation coefficient									
Good-looking graphical user interface	1									
Ease of navigation	.542*	1								
User interaction features (e.g. chat, forums, etc.)	.395*	.407*	1							
Features allowing students to upload their homework	.426*	.424*	.512*	1						
Features allowing students perform tests and exam	.357*	.372*	.447*	.610*	1					
Adequate help and documentation about the system	.339*	.367*	.425*	.468*	.486*	1				
Personalised entry pages with relevant information for the student	.293*	.334*	.388*	.428*	.384*	.541*	1			
Internet-wide access (i.e. not limited to a local network)	.314*	.426*	.318*	.393*	.366*	.439*	.420*	1		
Mobile-optimised access	.319*	.338*	.297*	.341*	.367*	.361*	.354*	.571*	1	

** . Correlation is significant at the 0.01 level (2-tailed).

Among the reasons leading to the effectiveness of e-Learning there are direct correlations, of relatively medium intensity, at a significance threshold of 1% (Table no. 5). The strongest link is between encouraging access to more course-related electronic materials and helping students to better train course sessions ($r = 0.496$, at a 1% significance threshold), thus *confirming the third hypothesis (H3)*. In this way, students' preference for the electronic materials needed for preparation is revealed, these materials being easier and faster to access. A rather strong link is also manifested between increasing students' learning volumes and increasing opportunities for collaboration and interactivity ($r = 0.445$, at a significance threshold of 1%). In this regard, students are willing to take some of the time needed for learning in detrimental of participation in teaching hours classic performed (with campus presence), maintaining collaboration and interactivity with teachers and colleagues in the virtual environment.

Table no. 5. Correlations between the reasons for the efficiency of e-Learning

Items Q10	Values for the correlation coefficient					
Increases opportunities for collaboration and interactivity	1					
Provides flexibility to learners in terms of their study needs	.313**	1				
Helps students to prepare well for class sessions	.387**	.357*	1			
Encourages access to more related electronic course material	.320**	.420*	.496*	1		
Increases the study workload for students	.445**	.289*	.418*	.406*	1	
Attracts people that do not participate in conventional learning	.173**	.319*	.265*	.319*	.272**	1

** . Correlation is significant at the 0.01 level (2-tailed).

The reasons for ineffectiveness of e-Learning are directly correlated, with an average intensity, to a 1% significance threshold (Table no. 6). There are also items between which appear strong correlations. The strongest link is between the lack of knowledge about e-Learning and the higher cost of this system than the traditional one ($r = 0.580$, at a significance threshold of 1%). In fact, there is no data to support the fact that the e-Learning system is more expensive than the traditional one, but the situation is inverse. A strong link is between the higher cost of e-Learning than the traditional one and the need for high computer and Internet skills ($r = 0.578$, at a 1% significance threshold). Nor that assessment is not supported by reality, since most e-Learning platforms are user-friendly, requiring no advanced knowledge of computer skills or Internet.

Table no. 6. Correlations between the reasons for the ineffectiveness of e-Learning

Items Q11	Values for the correlation coefficient					
Cost of computer equipment and internet connection	1					
Lack of real time feedback to questions and assignments	.35 2**	1				
Classroom environments helps students to learn more	.24 7**	.35 0**	1			
Needs perfect computer and Internet skills	.52 0**	.28 4**	.32 4**	1		
More expensive that traditional education	.53 9**	.29 2**	.34 0**	.57 8**	1	
Lack of knowledge about e-learning, course choice etc.	.44 5**	.36 3**	.27 4**	.51 7**	.58 0**	1

** . Correlation is significant at the 0.01 level (2-tailed).

Conclusions

The findings of our research indicate that e-Learning is considered effective in higher education. Also, the results confirm that undergraduate and graduate students of Business Administration programs have a good knowledge about the elements that define this way of learning and give a great importance to attributes of courses and e-Learning platforms.

The most important limitation of this research is that the sample included only students and master students from the Faculty of Business and Tourism - Bucharest University of Economic Studies. Thus, the sample could be extended to include students and graduates from other faculties and other universities in our country in order to provide a better understanding of their perceptions regarding e-Learning.

References/Bibliography

- Daud, R., Jalil, Z. and Gunawan, M., 2015. Community College Students' Perception Towards Digital Learning in Malaysia. *Procedia - Social and Behavioral Sciences*, 195, pp.1798-1802.
- Dočekal, V. and Tulinská, H., 2015. The Impact of Technology on Education Theory. *Procedia - Social and Behavioral Sciences*, 174, pp.3765-3771.
- Garrison, D., 2011. *E-learning in the 21st century*. New York, NY: Routledge.
- Holsapple, C. and Lee-Post, A., 2011. How to Design, Develop, and Deliver Successful E-Learning Initiatives. In: S. Eom and A. J.B., ed. 2011, *Student satisfaction and learning outcomes in e-learning*. Hershey PA: Information Science Reference, pp.195-229.
- Hubackova, S., 2015. History and Perspectives of Elearning. *Procedia - Social and Behavioral Sciences*, 191, pp.1187-1190.
- Ion, A., Vespan, D. and Uță, I., 2013. Using Various Types of Learning in Higher Education. *Procedia - Social and Behavioral Sciences*, 93, pp.1446-1450.
- Klement, M. and Dostál, J., 2014. Students and e-learning: A Longitudinal Research Study into University Students' Opinions on e-learning. *Procedia - Social and Behavioral Sciences*, 128, pp.175-180.

- Maiorescu, I., Negrea, M.T., Popescu, D.V. and Sabou, G.C., 2016. Best Practices Regarding the Use of Electronic Environment for Romanian Tourism Development. *Amfiteatru Economic*, 18(42), pp. 474-486
- Pieri, M. and Diamantini, D., 2014. An E-learning Web 2.0 Experience. *Procedia - Social and Behavioral Sciences*, 116, pp.1217–1221.
- Popovici, A. and Mironov, C., 2015. Students' Perception on Using eLearning Technologies. *Procedia - Social and Behavioral Sciences*, 180, pp.1514-1519.
- Šolc, M., Legemza, J., Sütóová, A. and Girmanová, L., 2012. Experiences with Utilizing e-learning in Education Process in University Environment. *Procedia - Social and Behavioral Sciences*, 46, pp.5201-5205.
- Yacob, A., Kadir, A., Zainudin, O. and Zurairah, A., 2012. Student Awareness Towards E-Learning in Education. *Procedia - Social and Behavioral Sciences*, 67, pp.93-101.
- Zakariah, Z., Alias, N., Aziz, M. and Ismail, N., 2012. E-Learning Awareness in a Higher Learning Institution in Malaysia. *Procedia - Social and Behavioral Sciences*, 67, pp.621-625.