Evaluation of Readiness for Distance Education of Students in European Universities

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Abstract

Distance learning environment with its different approaches has become one of the most researched paradigms in the late years. Different technologies have been developed and introduced into these systems, but at the same time, a spectrum of use-cases has been offered for this model. This paper aims at addressing the most important problem facing with the distance learning eco-system, namely its evaluation. The evaluation process has been undertaken in different European countries, such as Latvia, Lithuania, Serbia, Poland, Belarus, and Romania. The obtained results show that not all of the students are at the same level of readiness when it comes to distance education, there are no criteria developed for the evaluation of the students' readiness to this education model. For the purpose of this study, authors suggest that readiness to distance education includes knowledge, skills, and abilities that are necessary for students to successfully possess while using the technologies of distance education. After the analysis of the results of this research, the authors developed a structure and described elements that define the level of students' readiness to distance education.

Keywords: distance learning, evaluation, readiness to education

1. Introduction

Nowadays, distance learning has become one of the most common words being used by students, researchers and industrial corporations alike. The year 2012 was declared "the year of Massive Open Online Courses (MOOCs)" when prestigious universities like Stanford, Harvard, École Polytechnique Fédérale de Lausanne, the Massachusetts Institute of Technology and Rice University joined their efforts with private companies to offer new free distance learning courses (Baran & Baraniuk, 2016). There has been identified a large spectrum of differences between the traditional classroom and the distance education technologies. In the distance education environment, the subject of teaching (referred to as student) receives access to electronic teaching materials and some electronic means of communication with an object of teaching (referred to as the teacher). In such a learning environment, a new teaching paradigm is advertised, namely, the teacher does not only transfer knowledge, but is that particular medium that stimulates the students to develop their own self-learning capabilities (Krouk & Zhuravleva, 2010). In the same time, trainer's attention will not be focused only on some students, as the "triangle of influence" issue has been coined, but his/her attention will be on all the participants (Bogdan, 2016).

Different tools and technologies have been developed in order to enhance the distance learning experience, being introduced in different countries (Babori & Fassi, 2016; Holotescu &Cretu, 2013). Such features are analyzed from technical, informational, organizational, administrative and pedagogical approaches. Given the fact that the people participating into such distance learning environments are acting from various countries, the distance education system represents a factor influencing the society, therefore a constant evaluation of the system is needed (Khan & Ally, 2015; Perraton, 2007). The aim of this paper is to evaluate the distance learning system in different European countries (Latvia, Lithuania, Serbia, Poland, Belarus, and Romania) especially from the point of view of the student being ready for distance education. The rest of this paper is structured as follows: section II presents literature review in terms of distance learning evaluation. Section III brings into light the methodology used; in addition, section IV presents the results of the study. In the last part of the article the conclusions are drawn.

2. Literature review

The problem of distance learning evaluation is a state-of-the-art research theme in the academic literature. Different methods have proposed with a myriad of results. As it has been argued in Khan & Ally(2015), Perraton (2007) and Dorrego (2016), the distance learning system is not only about developing new technologies and their appliance in the education process, but also about evaluating the impact of such approaches.

A very interesting research has been offered in Yubing & Jianping (2010), where data mining techniques are employed to evaluate the Chinese distance learning system. Text Mining and Usage Mining algorithms are utilized in order to establish a correlation between the used technologies and the exam results of the students. The distance learning evaluation applied into technical studies, is presented in Kroll & Schoen (2015) and Swart (2016). In these studies it is underlined that is necessary to constantly gather students' feedback regarding the usage of distance learning engineering courses, but also results on what kind of activities students are better performing when talking about distance learning technical courses.

In scientific research also great attention is paid to the readiness of students to acquire distance education, due to the change of learning environment as well as the role of the student in the educative process, the demands regarding their knowledge, skills and personal traits are higher (Berge & Muilenburg, 2002). Considering the above-mentioned concept, challenging issues appear regarding the tutoring of students' readiness to complete homework and self-educative tasks, to search, analyze and select the necessary information while using computer technologies. Therefore, there exists an objective basis for the development of students' skills in educative activities necessary for studying in distance education universities: self-control and self-assessment, commitment, the motivation for self-education, high-level of knowledge and skills in the field of information and communication technologies.

Research has shown that the responsibilities and requirements of completing distance learning are not readily apparent to those taking distance learning for the first time (Garrison & Cleveland-Innes, 2004). When these functions and/or expectations are not consistent across the educational formats, then the overall experience may be frustrating for all participants. Dissatisfaction is more likely to appear and the learning process may be hindered. Actually, the students often find the workload in online courses more difficult because they must cover course material on their own.

3. Methodology

To achieve the aim of this research, it was necessary to clarify the level of the student's eagerness for distance education, to identify the strong points and the drawbacks of this education model in Latvia, as well as to compare it with analogic models in some institutions of higher education in Lithuania, Serbia, Poland, and Belarus.

In concordance with the aim of the research, the following tasks were set: to create a new survey for polling students, to carry out the survey of the target audience, to identify the level of students' readiness to take part in distance education. The research was carried out from September 2014 to February 2016 in Latvian, Lithuanian, Serbian, Polish, Romanian, and Belarusian institutions of higher education which had occurrence in organizing distance education with the use of current information and communication technologies. The survey was carried out among and extramural (distance) study mode students. Two groups were distinguished: the first one was formed by students having experienced distance education model (64% of respondents) and the second with students following the traditional study model experience (36% of respondents). The representative quota sampling (the total number of respondents) was 946.

4. Obtained results

The basis of the distance education process is a purposeful, controlled and independent work of a student who has the opportunity to study in a comfortable place, according to an individual plan, having a set of special educative means, as well as a possibility to consult with the teacher via phone, mail or e-mail. The use of computers may help finding various alternate solutions: to examine, to discover errors, to give necessary advice, to access online libraries, and to help to find the necessary information. Therefore, the opinion of the authors is that one of the most important issues for readiness to distance education is a high level of computer proficiency.

The obtained results show that4% of students stated that they have the basic computer skills. Nevertheless, more objectivity was found from screening the question about the command of information technologies.

Afterward four levels of skills were distinguished. The first level includes basic knowledge about operating systems (Windows, Linux), use of several basic programs, such as word processors, calculator, and games. The second level includes respondents with knowledge of basic and office programs, who know how to work with word processors, create graphs, charts, diagrams, table reports, and presentations. The third level illustrate the respondents with the knowledge of not only operating systems, but also knowledge about basic and office programs, or professional programs as well (for bookkeepers – 1C, for secretaries – data bases, for web-designers – CMS, for advertising specialists – specific graphic editors such as CorelDraw). The fourth level requires specific knowledge – work with operating systems at the level of the system administrator (ECDL, 2016). As a result, it was established that the number of respondents with a low command of various programs is notably larger than the number according to the self-assessment. Around 10% of the respondents have a good command of only one program. The majority of the respondents (53%) are unspecialized users, i.e. they use only basic and office programs (Tab. 1). Students from Serbia evaluated their computer skills more critically; none of them were indicated to be "Proficient".

Table 1. Computer skills level (% from the respondent number in the group)

Country	Proficient	Advanced	Intermediate	Basic
Latvia	14	30	48	8
Lithuania	8	31	47	14
Poland	4	34	64	9
Serbia	0	25	62	13
Belarus	10	40	44	6
Romania	18	49	32	1

As it is known, besides a vast number of computer programs, distance education model provides extensive use of other didactic resources for communication such as videoconferences,

seminars, progress tutorials in the preparation process of papers, essays or degree thesis, as well as various video materials and slide lectures.

In the structure of readiness to distance education, the authors have included also the motivational aspect. It characterizes students' attitude towards the chosen education model: they have a certain set goal for education, to understand the importance of studying through distance education technologies and have willfully chosen this education model. Therefore, it is necessary to underline that each student has its own motivation. In addition to that, all criteria are united with the continuous necessity to upgrade one's professional status, to establish readiness for individual decision-making and their implementation; as well as with the focus on obtaining professional success. Table 2 illustrates the variety of motivational factors.

Table 2. Motivational factors when selecting distance education (% from the respondent number in the group)

Country	Possibility to study according to individual plan	Possibility to study independently, using electronic resources	Possibility to combine work and studies	Career development	No obligation for every day lecture attendance	Opportunity to start studies anytime	Lower education fee
Latvia	10	7	32	23	12	9	7
Lithuania	17	7	22	21	17	11	5
Poland	12	14	21	24	15	12	2
Serbia	17	5	20	14	19	15	10
Belarus	6	9	26	19	20	8	12
Romania	28	17	25	2	16	12	0

One of the most important factors in readiness to distance education in the authors' opinion is the cognitive factor. The student is able to critically evaluateor to determine the quality of distance education. Firstly, this model of education is regarded as a subject for satisfying educational needs. Distance education studies create psychological comfort and confidence. It is known that this type of studies help upgrading the social status and the qualification. The emotional activity becomes a means of creative acquisition, consumption, and use of distance education methods.

The development level of this factor is characterized as motivation for acquiring knowledge. If the student has the necessity to only pass an exam or a test, it signalizes about the ineffectiveness of studies, the student acquires only the minimum amount of knowledge, skills, and abilities that are necessary for studying in distance education faculty. This high-level of the development factor is characterized by the creative activity, system of constant interests, skills to evaluate the ongoing processes in distance education, as well as the occurrence of individually comprehended and personal values. In this group, students have all necessary knowledge, skills, and abilities necessary for distance education.

"The main aim of distance education is the arrangement of conditions for the formation of independent cognitive activity during the study in a developed academic environment, based on computer and telecommunication technologies" (Clark, 2002; Rovai, 2008). Nevertheless, the results of the survey revealed a different situation in reality. Not all the students of distance education were determined to count on themselves, for example, in electronic exams and tests. It was proven, that only around half of the students, on average, 56%, would rely on self-decisions when implementing tasks. 26% of respondents relied on the assistance of cheat notes and 18% counted on "sheer luck", using little effort for exams and tests (Table 3).

Table 3. Students' reliance of success when preparing for electronic exams and tests (*% from the respondent number in the group*)

Country	Use of your personal knowledge and skills, being prepared for the exam	Use of „crib" or other illict aid during examination process	Hope that you will fortunate and do not study for the exam
Latvia	42	39	19
Lithuania	59	25	16
Poland	55	29	16
Serbia	58	20	22
Belarus	51	22	27
Romania	81	8	11

Results of the survey show that despite the obvious advantages, distance education constantly faces theoretical and practical problems and contradictions. To this day, in distance education, the control over students' learning activities remains one of the main problems. Indeed, in distance education, there is no other way how to stipulate sufficiently the high-level of motivation to a student because teachers have almost no means of disciplinary management.

5. Conclusion

Readiness to distance education is the main effectiveness requirement of use of distance education technologies.

The problem of evaluating the students' readiness to distance education is linked to the problem of defining criteria. Key requirements of criteria may be defined as follows: they must be objective, need to include the essential moments of the researched phenomenon, include phenomenon's features (defined clearly, concisely, and precisely), and determine exactly the issues that the researcher has an interest in.

Considering the structure of students' readiness to distance education as a united set of elements, the authors suggest to evaluate the development level of students' readiness to distance education in accordance with the criteria as it follows:

– motivational readiness to distance education;
– technological readiness to distance education;
– reflexive-effective evaluation of distance education performance.

Each criterion contains corresponding indicators that characterize its development level in student's activity:

1) Motivational readiness to distance education:
– motivation;
– knowledge about distance education;
– attitude towards distance education;
– knowledge about methods of distance education.
2) Technological readiness to distance education:
– command of distance education methods;
– necessary skills to use current information technologies;
– knowledge about basic means of educative resources on the Internet;
– skills that are necessary to be able to accomplish tasks assigned by teacher with the help of educative resources on the Internet
3) Cognitive readiness to distance education:
– skills to purposefully organize the independent work;
– the presence of skills in self-management and self-assessment;
– understanding and evaluation of distance education.

The defined criteria and indicators of readiness to distance education serve as input data for determining the level of the development of this feature in students of institutions of higher education.

The results of the survey conducted by the authors of the paper indicate that the level of students' readiness to distance education programs differs and depends on the distance education's model of organization. According to the opinion of the students, the most effective isa model of combined distance lectures and face-to-face meetings with the teacher, as there may be some difficulties with the independent study process. In the opinion of the authors of the paper, in order to acquire higher results in education, depending on the type of the education program, its goal, profile and student body, it is important to find a balance between distance and traditional classroom lectures with teachers.

Riffley and Sibley (2004) examined advantages of blended learning in a more conservative version of its use — to keep the active form of class lectures and to exchange the passive listening of lectures with the online homework. The research revealed that even in this case, blended learning has more advantages in comparison with the conventional learning. Factor, which in various cases may make it impossible or unreasonable to use distance education, may be necessary for acquiring practical skills in jobs with real equipment. Network technologies and computer emulators may significantly help in the preparing stage. In any case, the use of innovative education models with distance education technologies allows a significantly lifting of the effectiveness and accessibility of education and is up-to-date to current requirements.

References

Babori, A., Fihri Fassi, H., Hariri, A., Bideq M. (2016), *An e-Learning environment for algorithmic: toward an active construction of skills*, World Journal on Educational Technology, 8(2).

Baran, T., Baraniuk R., Oppenheim A., Prandoni P., Vetterli M. (2016), *MOOC Adventures in Signal Processing*, IEEE Signal Processing Magazine, 33(4), 62 - 83.

Berge, Z.L., Muilenburg, L.Y., and Haneghan, J.V. (2002). Barriers to distance education and training: Survey results. The Quarterly Review of Distance Education, 3(4), 409-418.

Bogdan, R. (2016), *Guidelines for developing educational environments in the automotive industry,* 1st International Conference on Smart Learning Ecosystems and Regional Developments, Timisoara, Romania.

Clark, R. (2002). Six principles of effective e-Learning: What works and why. *The e-Learning Developer's Journal,* 1−10.

Dorrego, E. (2016), *Distance Education and Learning Evaluation*, Revista De Educacion a Distancia, Volume 50.

Garrison, D. R., Cleveland-Innes, M., Fung, T. (2004). "Student Role Adjustment in Online Communities of Inquiry: Model and Instrument Validation." JALN, 8(2), 61-74.

Khan, B.H., Ally, M. (2015), *International Handbook of E-learning*, Volume 1: Theoretical Perspectives and Research. London, New York: Routledge, Taylor&Francis Group.

Kroll, R., Schoen, D. (2015), A Holistic Evaluation Approach for Degree Courses in Engineering Sciences for Distance Learning Universities, 16th International Conference on Research and Education in Mechatronics (REM), 1 – 5.

Krouk, B.I., Zhuravleva, O.B., Chupakhina, N.A. (2010), *Method for quality evaluation of distance learning*, IEEE Region 8 International Conference on Computational Technologies in Electrical and Electronics Engineering (SIBIRCON), 369 – 373.

Holotescu, C., Cretu, V. (2013), *Microblogging Platforms in Education: Features, Usages and Architectures*, Microblogging in Educational Settings. How Microblogging Platforms can

be used in Formal and Informal Education, AVM Akademische Verlagsgemeinschaft München.

"Official site of ECDL", [Online]. European Computer Driving Licence Foundation (2016), Retrieved from: http://www.ecdl.org/programmes/ecdl_icdl. Date of access: 02.11.2016.

Perraton, H. (2007), *Open and distance learning in the developing world* (2nd ed.). London: Routledge.

Riffell, S. K., Sibley, D. F. (2004). Can hybrid course formats increase attendance in undergraduate environmental science courses? Journal of Natural Resources and Life Science Education, Volume 33, 1-5.

Rovai, A. (2008). *Distance Learning in Higher Education* / A. Rovai, M. Ponton, J. Baker. New York: Columbia University Press.

Swart, A. J. (2016), *Distance Learning Engineering Students Languish Under Project-Based Learning, But Thrive in Case Studies and Practical Workshops*, IEEE Transactions On Education, 59(2), 98 – 104.

Yubing, A., Jianping, Z. (2010), *The Application of Data Mining Technology in Distance Learning Evaluation*, International Forum on Information Technology and Applications (IFITA), 145 – 148.