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Research paper

Experience of the use of electronic training in the educational process of the Russian higher educational institution

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Abstract

To date, the problem of intensifying the learning process is one of the most pressing problems in vocational education in Russia. The article reveals the elements that influence the development of open electronic courses by universities. The advantages of e-courses are named. The opinions on the main opportunities and limitations in the conditions arising in the process of e-learning are analyzed. Ways of intensification should be allocated with the view of use in the educational process of modern digital technologies. In connection with the development of educational technologies in combination with the use of digital resources and their intensive updating, their impact on the quality of education should be constantly studied. The purpose of the article is to analyze the experience of using e-learning in the educational process of the Russian higher educational institution. In the Minin Nizhny Novgorod State Pedagogical University as well as in the Industrial University of Tyumen a survey was conducted on the satisfaction with the use of e-learning by students and teachers. 94 teachers and 214 students participated in the study. To conduct the study, a questionnaire was created consisting of three blocks of questions: "The relevance of e-learning in the learning process", "The level of use of e-learning and its elements in the learning process" and "Self-assessment of teacher's competencies in e-learning technologies". The results of the research showed high satisfaction of students and teachers with e learning.

Keywords: *Digital Educational Resources; Graduate; Vocational Training; Student; Competence; Competence Approach; Moodle.*

1. Introduction

In the whole modern world, higher education is one of the main factors in creating a competitive economy, which ensures national security, since through the system of vocational training reproduction of qualified personnel and labor resources for all sectors of the economy is ensured. The conditions of the modern domestic economy show the problem of the discrepancy between the level of qualification of young specialists and the requirements of employers [1]. To solve this problem, it is necessary to intensify the educational process by actively introducing digital educational resources [2]. To date, there is a development of open educational systems [3].

As early as 2015, the National Platform for Open Education was opened [4]. However, for a number of reasons, the Russian educational system is not quite ready to integrate such a phenomenon into the educational process. First, due to imperfections in the legislative framework. Despite the existence of articles in the Federal Law "On Education in the Russian Federation" on network education, this is not enough [5]. E-learning standards do not yet exist [6]. In addition, this form of education in Russia for a long time was not recognized. Despite this, Russian higher schools are beginning to introduce foreign experience in the field of e-learning, as the demand for it is growing [7].

The success of e-learning is also guaranteed by the fact that "the majority of students born in the 1990s have material intellectual perception and are considered a digital generation". This indicator was noted by M. Prensky at the beginning of the XXI century [8]. The modern generation is easy to navigate in the Internet space and therefore better perceives information [9 – 12].

The current stage in the development of Russian education shows stable trends towards fundamentalization, orientation toward personal learning and individualization of the educational process [13]. The new educational paradigm sets the conditions for the formation of a certain set of competences for students, based on the transfer and mastery of knowledge [14]. Competences are active knowledge that a graduate can use as an active specialist tool for solving various tasks and problems [15].

Potential employers require highly qualified, enterprising graduates who are able to apply their knowledge in practice, take responsibility for decisions made, predicting results, be distinguished by their mobility and dynamism [16]. In this regard, the views on the role of the teacher are changing. A simple knowledge translator should now act as an organizer of the learner's activity in acquiring new knowledge, skills and skills [17]. Higher school should be a factor in the formation of new attitudes and values of the student, as well as a guarantor of quality education [18].

In modern society, it is necessary to resolve the following issues: involving each student in an active cognitive process; cooperation

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in solving any problems, the manifestation of communicative abilities; organization of access to necessary information to form a student's own reasoned opinion on any issue; the constant application of their knowledge and skills, intellectual abilities to solve emerging problems of reality [19]. E-learning also helps to resolve the issue of intensifying the educational process [20-23].

2. Methodology

To reveal the attitude of teachers and students to electronic education, a study was conducted at Minin Nizhny Novgorod State Pedagogical University and in the Surgut branch Industrial University of Tyumen. The study involved 94 teachers and 214 students in various fields and courses. A questionnaire consisting of three blocks of questions was created. Evaluation of the questionnaire was determined on a scale from 0 to 6.

The first block: the relevance of e-learning in the university. Second block: The level of use of e-learning and its elements in the activities of the teacher. The third block: self-assessment of teacher's competences in the field of e-learning technologies.

To obtain the necessary information about the indicators that were used in the questionnaire of the experiment, the mathematical expectation M and the standard deviation S for each indicator were calculated

The results of the experiment, which was mentioned above, are listed in the table 1.

Table 1: The Results of an Experiment Measuring the Satisfaction of Students and Teachers with E-Learning

Block	No.	M (mathematical expectation)		S (standard deviation)	
		Students	Teachers	Students	Teachers
1	1.1	4,682	5,383	0,098	0,551
	1.2	4,819	5,237	0,170	0,624
	1.3	4,265	3,691	1,159	1,119
	1.4	4,612	4,766	0,658	1,095
	By block 1	4,439	4,769	0,521	0,847
2	2.1	3,834	4,269	1,004	1,218
	2.2	5,714	4,178	0,708	1,220
	2.3	4,962	5,298	0,730	0,627
	2.4	4,566	4,904	0,589	0,869
	By block	4,769	4,662	0,758	0,984
3	3.1	4,697	4,606	0,794	1,184
	3.2	4,794	4,085	0,585	0,977
	3.3	4,745	4,383	0,352	0,976
	3.4	4,782	5,032	0,298	0,680
	By block 3	4,743	4,527	0,507	0,954

In block 1 "The relevance of e-learning in the learning process," the results of the survey showed that teachers assess the higher relevance of the use of e-learning in the learning process than the students. For the indicator representing the opinions on the significant support of teachers from the administration of the university assessment, the group of students turned out to be higher, and the teachers expressed the opinion that such support is less noticeable. From Table 1, it can be seen that the mean square deviation for block 1 for teachers is significantly higher than for a group of students.

The lower indicators of the questionnaire for both groups were obtained from Unit 2 "Level of use of e-learning and its elements in the learning process" on the use of e-learning in the teaching process of full-time and correspondence education. Despite this, the higher the result for the indicator, assessing how much the group is recommended to use e-learning. Along with this, students and teachers showed a high result in terms of psychological readiness to use e-learning in the educational process. A significant difference in the mean square deviations in groups 1 and 2 makes it possible to conclude that students are more intimate in their statements, and in the group of teachers, opinions are not so unanimous.

Higher indicators of the questionnaire for the third block "Self-assessment of teacher's competences in the field of e-learning technologies". Figure 1 shows that students 'self-esteem is higher than their teachers' competence in the field of information and communication technologies and e-learning technologies. The exception is the last indicator (question 3.4), which assesses how much the difference between the learning process and the use of e-learning is felt without it. Teachers showed a higher result on this issue, which may indicate a lack of confidence in e-learning, or that teachers perceived a difference in the organization of the learning process using e-learning.

3. Results and discussion

Considering e-learning, it should be noted that digital educational resources are a complex of Internet services, management, editing and communication software (educational platforms and portals, search systems, educational applications and portfolios), as well as data (statistical, geographic, sociological) , information (audio, video materials), various texts (reference, literary, educational) in electronic form, useful teachers and students in the framework of educational or project activities [24].

The analysis of the methodological functions of the types of electronic training modules allows to say that the main didactic goal of using digital educational resources is the implementation of an active-activity form of education with the help of a high level of interactivity and multimedia content. This includes:

1) Provision of information;
2) Formation and consolidation of acquired knowledge;
3) Formation and improvement of skills [25];
4) Increasing the motivation of the student to learn [26];
5) Formation and development of skills of independent work of students [27];
6) Control of the assimilation of knowledge [28];
7) Conducting students' reflection [5].

These elements can be called high capabilities, which provides e learning.

Despite the insufficient development of the regulatory framework for the use of e-learning, support from senior management contributes to the achievement of positive results in its use. The problem of intensification of education in higher educational institutions is gradually resolved.

Speaking about the relevance of using e-learning in the educational process (1 block), it is worth noting that the teachers were divided into two groups. One part actively uses e-learning in its activities, therefore it considers it a promising direction, the other uses it not so often and only its individual types, and as a result believes e-learning is not so important in the formation of highly qualified graduates.

The level of use of e-learning and its elements in the learning process (block 2) is high, as both students and teachers at the psychological level are more willing to use e-learning.

The block 3 "Self-evaluation of teacher's competences in the field of e-learning technologies" also shows high results. In addition, students' self-esteem in the field of information and communication technologies and e-learning technologies is higher than that of teachers.

Our study showed positive results of using and the attitude of teachers and students to e-learning. Teachers, for the most part, are ready to use these technologies in their work.

We not only conducted our research, but also we considered a large-scale study of the attitude to the use of e-learning in higher education institutions in Europe to identify the overall situation and compare the application of e-learning in Russia and European countries.

The European University Association carried out a study aimed at reflecting the general picture of the use of innovative technologies in higher education. Open Education Europe provided the necessary data. The study involved 38 educational systems in Europe [29].

This is about a third of the total European higher educational institution. Higher schools responded to three questions: what kind of e-learning is used; how; what results do they plan to achieve. With some exceptions, almost all higher schools use e-learning technologies. 91% of respondents use the technology of mixed education, 82% of institutions offer online courses. A sufficient number of institutions offer.

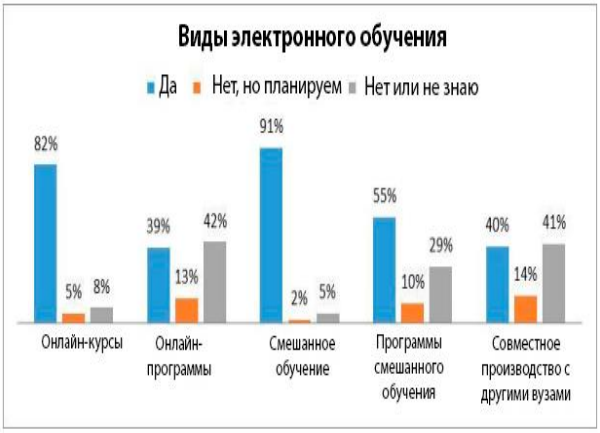


Fig. 1: Types of E-Learning, Used By European Educational Institutions.

One of the most popular areas for the application of e-learning is business and management, pedagogy, engineering and technology disciplines. Very rarely e-learning is applied in the field of art and jurisprudence [30].

Contrary to standard beliefs, technical and open higher schools are not always leading in the process of introducing information and digital technologies [31].

The higher educational establishments in which the survey was conducted did not doubt the value of electronic technology. Three quarters of respondents say that e-learning changes the approach to teaching and teaching, 87% see it as a catalyst for future changes in teaching methods.

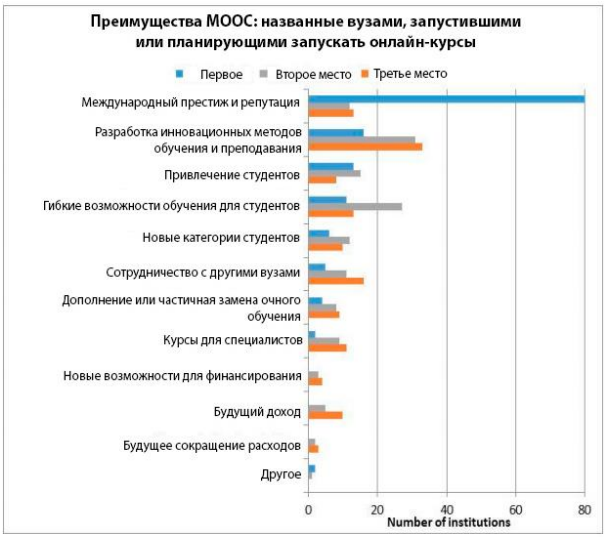


Fig. 2: Advantages of Very Open Online Courses.

Among other things, the potential of e-courses in the context of mass education was noted. Only 8% do not trust the system of electronic education. Figure 3 reflects the benefits of e-learning, which respondents identified.

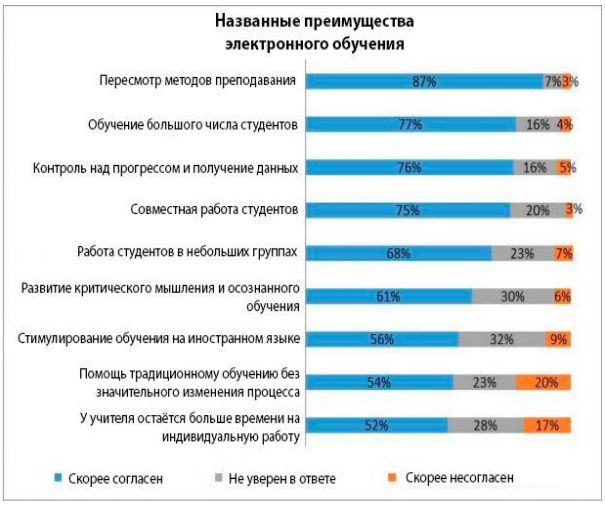


Fig. 3: Benefits of E Learning.

The most popular motives for launching their own mass online courses are representation in the international educational arena, attracting students and developing innovative teaching methods.

Half of the universities that do not run courses speak of insufficient funding, one fifth of the main reason for the lack of implementation of the courses is the lack of preparaness of the teaching staff (this item has some issues, although without a single strategy in the university it takes place).

Russia is also conducting experiments in the field of e-learning. Therefore, it is worth considering the experience of using mass open online courses in Russia.

To implement such courses, a special platform is used, which provides technical support and free access to educational materials. Among the most popular platforms are Coursera, edX and Udacity. In 2017 the leader was Coursera, which by the autumn of 2017 announced 27 million listeners.

In Russia, a study was also conducted in the framework of monitoring the economics of education. The survey was conducted in 101 higher educational institutions [32].

Positive attitude to online courses is most common among teachers of non-state Russian universities (for general subjects - 34%, for special courses - 40%), although for them these courses seem to be competing. Only 18% of the professors surveyed expressed their opinion about online training in the field of general disciplines, and only 6% in the special schools, which is not surprising: in these higher educational institutions, the role of mentors, personal participation of teachers, and practical classes is of particular importance. The expected difference in the level of support between leading and ordinary universities is but not enough: in the field of general disciplines, the opportunities of online courses are positively assessed by 28% of respondents in leading higher education institutions and 27% in ordinary ones, and for special disciplines these figures are 19 and 15% respectively. As for the specialization of higher education institutions, the highest percentage of teachers supporting online courses for general subjects in humanitarian higher education institutions is 42%, as well as in medical, pedagogical, economical and agricultural (about 30%). It is possible to use mass open online courses for special disciplines, 37% of teachers in liberal arts institutions, 26% - in economic, legal and pedagogical, and 20% in agricultural ones. The worst attitude towards such courses is in creative higher educational institutions and classical universities.

As the results show, the potential of e-learning has been seen both in European countries and in Russia. Teachers and students almost equally evaluate the risks and benefits of e-learning. Risks in this case they reduce to the lack of personal communication with the teacher.

Comparing the attitude and level of use of e-learning in Russia and in Europe, one can say that the desire for its implementation and application is very widespread.

It is necessary to formulate and strengthen the regulatory framework in the field of e-learning, and in the development of a comprehensive teacher development program in the field of e-learning technologies, consisting of modules for the formation of a system of personal and professional competences in the field of information and communication technologies and e-learning technologies, competence for the implementation of the e-learning process.

4. Conclusion

The use of Internet resources contributes to the receipt of quality learning by students, expands the flow of information, which gives the trainees the advantages in studying individual disciplines. Everyone can pick up the necessary data for a competent argumentation of his position. Students develop sustainable motivation, the implementation of an individual approach, the development of independent work. Thanks to the use of e-learning, the solution of didactic tasks is more productive. The revealed indicators prove the effectiveness of the use of digital educational resources in higher education. Using e-learning allows the student to be more mobile, independent, prepare for classes at a convenient time for him, anywhere. So information is assimilated more productively and the effect of learning increases, intensification of the learning process takes place.

The results of our study indicate a positive attitude of teachers and students to the use of e-learning in education. The majority considers its implementation necessary and actively uses in its activities. This suggests that higher education institutions in Russia are ready to develop in this direction. A study provided by the European Association showed that the education sector did not doubt the value of electronic technology. Three quarters of respondents say that e-learning changes the approach to teaching and teaching, the overwhelming majority sees it as a catalyst for future changes in teaching methods. The potential of e-learning was noticed both in European countries and in Russia. Teachers and students almost equally evaluate the risks and benefits of e-learning.

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