

LEASECON 2020**International Conference «Land Economy and Rural Studies Essentials»****INFORMATION TECHNOLOGY THE SURVIVAL OF
PROFESSIONAL EDUCATION IN ECONOMIC CRISES**

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Abstract

The article is devoted to the current direction of application of information technologies in professional education in the conditions of the modern economic situation. The global spread of the pandemic requires the search for adequate forms of professional education and professional development in conditions of self-isolation. Information technologies, which have a huge educational potential due to their network and interactive capabilities, have contributed to the introduction of alternative forms of implementation of the educational process. Positive results in the new economic conditions were achieved thanks to distance education. Its forms, such as e-learning and mobile learning, have allowed teachers and students to successfully complete the academic year, and they are optimistic about the possibility of a second wave of coronavirus. The article deals with the main problems of organizing such education. Taking into account the fact that distance education was not widely used in Russian pedagogical practice until this year, and we have not yet accumulated sufficient scientific and practical experience in this area, our research based on the materials of dissertations of American and Canadian scientists. The material presented in the article is presented in the context of comparative pedagogy. The North American experience of organizing and implementing distance education, which we have learned from original research, is supplemented by the results obtained by the authors when implementing e-learning at their University. The article offers a classification of existing problems in the implementation of distance education, reveals their essence, and provides an analysis of the results obtained.

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1. Introduction

The development of the world economy involves a constant test of humanity's strength. The modern challenge, characterized by the outbreak and global spread of another viral pandemic, requires a modern specialist to search for adequate forms of implementation of their professional activities.

This economic situation, which resulted in the need for self-isolation of the able-bodied population, also affected the system of vocational education, the transition to distance forms of educational process organization. Network and interactive capabilities of information technologies allow you to fully implement training remotely in an individual mode. This is an e-learning system.

At the same time, the demand for remote training among modern students is very high. This is due to the great popularity among young people of various gadgets that have excellent interactive properties, as well as a sufficient level of development of information networks that provide mobile access to information. This situation opens up a new segment of educational activity for universities and colleges.

2. Problem Statement

In Russia, e-learning is actively promoted both at the state level and in the scientific community. In the most advanced universities in this regard, e-learning is increasingly taking the shape of the current system in the form of a network structure of educational resources and their filling with educational content (Cherkezov, 2009).

However, despite the significant economic advantages of e-learning (Tishchenko et al., 2016), both organizational and didactic difficulties will inevitably arise when using it. To some extent, you can avoid or mitigate the problems that arise when organizing a new type of activity by analyzing the existing experience of implementing such activities.

To understand and find solutions to the possible problems of implementing e-learning, we will refer to the experience of our foreign colleagues. This is due to the fact that they went much earlier from face-to-face training, through computer and distance learning to e-education. We need to know these problems and understand their solutions in order to predict our own strategies for the development of Russian virtual education, as well as to determine the directions of scientific research.

3. Research Questions

When creating new forms of management, in order to prevent traditional problems and avoid frequent mistakes in such cases, the economy uses the method of benchmarking. The crisis situation is characterized by the need to switch to the mass application of distance education technologies in domestic professional education. And with the achievement of positive results in a short time, which is possible only on the basis of existing experience in implementing such technologies. Since e-learning in our country is mostly local in nature, and we do not have serious educational practices in this direction, the need to study the experience of our foreign colleagues is becoming more urgent.

4. Purpose of the Study

The purpose of this work is to identify and classify pedagogical problems of e-learning in higher education based on the analysis of foreign scientific research.

5. Research Methods

To identify possible problems with using e-learning, we looked at the experience of our colleagues from American and Canadian universities. Because they have long and successfully used such training and conducted scientific research in this direction.

As a research method, we used content analysis, a well-known scientific method for conducting comparative research.

We conducted an analysis of original dissertation research on problems related to e-learning, posted in free access.

Looking at the work of our North American colleagues, we classified the problems they studied into four groups. Below is a description of each of the groups of e-learning problems that we have identified. We will give a description in comparison of the domestic experience and the experience of our foreign colleagues.

The first group of problems characterizes various aspects of software and methodological support for e-learning. In turn, this group can be divided into two subgroups: organizational and didactic aspects of e-learning hardware and software, and content and methodological support for e-learning courses.

When solving organizational and didactic problems of e-learning software, most Russian universities are still at the stage of filling the software educational platform with electronic content. Our colleagues in the USA and Canada have taken a step further, realizing the need to create an open platform with the possibility of using various technologies in it, focused on meeting the educational needs of students (Alotaiby, 2005).

The functional model of this platform allows you to personalize learning using different learning concepts and apply it to different types of educational institutions. The model presented in the study can combine methods of intelligent learning systems, management systems, adaptive learning, collaborative learning, and traditional learning to provide an improved system of individual e-learning based on them.

Since students have different needs and interaction styles, this model should focus on their individual attitudes and basic level of learning.

Taking into account individual settings is necessary to provide the student with comfort and friendliness in working with the system, as a result, such a system can be used by students with different levels of knowledge, skills and individual ability to advance in their studies. The model also allows them to work together in a friendly environment, which encourages success and competition in training.

At the same time, the teacher is assigned the main role in this model, which assigns him the following tasks: developing a learning strategy for the period of the session, monitoring the activities of students and evaluating their work.

In another similar study (Wang, 2005), the emphasis in the development of the educational platform is shifted towards its flexibility and integration with its focus on intelligence and adaptability for

each student. According to the author, it is important that all training components and applications are clearly defined, effectively implemented, and freely connected.

One of the main advantages of this model is the ability for the teacher and the student to use its educational components and main services through the portal to enter the educational environment everywhere and at any time through the access Protocol used.

The results of scientific research discussed above actualize both for our foreign colleagues and for us the problem of taking into account the personal factor, namely user identification.

The solution here is as follows (Ke, 2005): access control to the e-learning portal must be implemented through two integrated approaches. Based on the identification of the user by providing him with relevant groups of services through a portal interface and policy-based control actions, identifying services and administration.

At the same time, the user can be provided or one can restrict educational services within the framework of this training system based on their identification.

These studies were part of a subgroup of e-learning problems. As for the subgroup of content and methodological support for e-learning courses, there are also a number of studies.

In some papers, the authors define the didactic requirements of teachers for tools for creating training courses.

So, in one of the works (Schluep et al., 2006), the authors refer to the Theory of Skinner's programmed learning, but at the level of modern web solutions. He considers the idea of a learning object as a small modular piece of educational content that can be flexibly and repeatedly studied and integrated into an e-learning course. Such an object must have a detailed level of detail and be self-sufficient, which requires a certain standardization of splitting the content into similar objects.

The model of educational components proposed by the author defines different levels of fragmentation, the possibility of combining fragments into larger bases, and the structured use of XML-oriented languages for positioning educational content and its visual representation. In addition, the study presents a system of Dynamic management of educational content. It allows you to create high-quality didactic units, build them in a logical sequence convenient for the student, embed small components in larger ones and create large training courses.

The advantage of this system is that it is easy and flexible to use, allowing authors to carry out corporate work on creating e-courses in any subject.

Other papers describe the results of experimental studies aimed at identifying the effectiveness and speed of e-learning courses, depending on any influencing factors.

As an example of experimental work, we can refer to the following interesting study (Daig, 2005). One of the objectives of this study was to trace the relationship between the different duration of the e-learning course, the achieved learning outcomes and the satisfaction of students who studied on these courses.

Control results are higher for 6-week students than for 12-week students, and there were no systematic changes in satisfaction with the learning process.

From another work (Yaw, 2005) we can learn the following interesting fact. The obtained and processed statistical data showed that there is no significant time difference in the development of the

same educational material. So, in the allotted period of time, the number of students who successfully mastered the tasks is almost the same. Students in the experimental group who study in an electronic learning environment (79.63%), and students in the control group who work in the traditional learning system (80.46%).

Thus, the first group of scientific research focuses on the problem of the need to Refine existing e-learning software on the market or create new, adaptive systems with a user-friendly interface. Such systems must take into account the psychophysiological characteristics of the individual, are able to integrate various educational technologies and contain easy-to-learn tools for creating electronic content.

We associate the second group of problems with the use of information technologies in e-learning with the implementation of effective monitoring of students' knowledge and skills.

From our point of view, the practical experience described in the dissertation research (Cao, 2005) on computer testing is of interest. In this work, computer testing is used as an interactive component of multimedia e-learning as a virtual teacher module for implementing one-on-one interaction.

The study describes the electronic system Training with a virtual teacher, which aims to effectively bring the virtual teacher closer to the real teacher. The core of such a system tracks the stages of learning, interaction, learner characteristics, learning activities and results.

The network version of the computer testing system is described in (Fong, 2005), which proposes to combine testing, statistical processing of results and Internet capabilities. According to the author, such a testing system should consist of three components. The first component is intelligent and is responsible for the content of test tasks. The tasks of the second component include statistical processing of control results. The third component focuses on providing interactive interaction between the student and the network testing system.

There is no doubt that the problem of organizing effective control of students' knowledge and skills is also very relevant for the Russian e-learning system. However, in practice, this is limited to solving the issues of technological implementation of remote testing and filling the testing module with educational content.

The next group of problems in the use of information technologies is the psychological issues of students' perception of both separate technical means and e-learning in general.

In our article, this group will be illustrated by the example of three dissertations.

The first, which studies educational motivation in e-learning (Kim, 2005), shows that students choose e-education for personal or professional development, and the system itself as a way of learning because of its flexibility and convenience. Based on the survey of trainees, the following factors were identified that influenced their motivation:

- promotion of the e-education system;
- satisfaction from your own e-learning experience;
- interaction with the teacher;
- age (as a negative factor);
- the purpose of training (to a greater degree continuing education for professional growth and to a lesser degree).

The following work (Park, 2005) explores the regularity between students' attitude to computer technology and the perception of the educational process. For example, students who are able to work with computer technologies perceive the convenience and simplicity of e-learning, and this has a positive effect on the perception of the learning process itself.

When students start learning with a positive attitude to computer technology, they get more satisfaction from e-learning. Their efficiency of educational work and efficiency is higher. They also have a higher degree of transferring their knowledge into professional activities.

The author proposes to provide a propaedeutic computer literacy training course for students who are not familiar with the possibilities of information technologies. This will make it easier for them to adapt to the e-learning system.

At the same time, the interface of the training system should be designed so that the user does not need to make significant changes in the methods of activity inherent in traditional training work.

As for the third dissertation study (LaBonte, 2005) from this group, its main idea is to trace the interaction of the following components: leadership, education management and advanced technologies in e-learning.

From the author's point of view, the practice of leadership in the e-learning environment shows the transformation of leadership, changing the polarity in management approaches due to the lack of leadership support resources. Leadership plays a key role in systemic change. Without a clear definition of educational management and a systematic approach to the use of information technologies, it is difficult for universities and colleges to create a quality e-learning system.

The thesis also points out that leadership in education using information technologies depends on: the prospects for personal growth in complex adaptive systems; emotional contribution to their work, which is characteristic of the practice of leadership; removal of contradictions created by the imposition of personal and corporate attitudes; the need for effective dialogue in complex adaptive systems; tracking leadership as a component of the implementation of education.

Russian scientists are also familiar with the problems of the third group. In Russian education, motivation for learning based on computer technologies has been successfully studied for a long time. A separate niche is occupied by research on the personification of the computer-giving it personal qualities and with the appropriate attitude to it as an animated object.

Another similar area of research is the education of the student's leadership qualities, such as independence and responsibility when working with a computer system.

In this article, we do not intend to find out who has priority in developing these issues. The main thing is that these categories have long been included in the sphere of scientific knowledge of Russian science. And, although these provisions have already been worked out methodologically, the current state of information technologies and the immediate prospects for development will require their clarification and refinement.

We need to consider the fourth, in our opinion, the most important problem for the teacher - staffing of the e-learning system, training of teachers to work with information technologies, e-learning and motivation of their professional activities.

Our own experience of working with such a system and studying the best practices allow us to conclude that this problem is one of the powerful constraining factors in the development of the Russian e-learning system.

Therefore, we are particularly interested in similar studies of our foreign colleagues. Familiarity with their dissertations gives us very interesting materials for analysis.

In one of the studies (Snyder, 2005) it is noted that the increase in the number of virtual universities actualizes the need for teachers who have the ability to effectively use e-learning.

In this regard, one of the main tasks of such a University is to train its teachers to work in an electronic environment. To do this, it is necessary to train new teachers with the necessary knowledge and skills to work successfully with e-courses. Since the teaching staff implementing e-learning is mainly part-time teachers, it is necessary to oblige these teachers to improve their work in the conditions of functioning of a virtual University.

The study notes that when working in the virtual education system, teachers value their social affiliation with the virtual University, realize their life position through network interaction, and the opportunity to be part of the e-education system.

Otherwise, you can look at this problem through the materials of another study (Minaya, 2005). It notes that an effective approach for e-learning is to mix curricula and different media platforms.

However, from a personal perspective, teachers fear that e-education and mixed learning will lead to the loss of jobs for them. For example, standard development programs do not help teachers understand their role in mixed curricula. Those teachers who do not switch to working with the mixed learning model do not have career prospects.

At the same time, a new indicator of the effectiveness of management for administrative employees is the priority of attention on teachers who are moving from traditional teaching to e-learning.

In this regard, teachers are wary of e-learning, knowing that it will lead to job losses, and therefore negatively perceive this prospect. They are afraid of e-learning, because they consider it not a comfortable learning technology for them. It develops limited skills that are only necessary for living on the Internet.

We understand the concerns of our foreign colleagues. It is in many ways similar to the perception of Russian teachers of calls to actively use e-learning in their practice. This is due to a number of factors: the need to learn new software tools for them, develop training materials for such training, change their usual style of teaching, etc.

This concludes the presentation of the materials of our study of typical problems inherent in the e-learning system. It remains for us to sum up the work we have done.

6. Findings

In the process of analyzing dissertation research by teachers of universities in the United States and Canada, we identified typical problems typical of the use of information technologies and e-learning in professional education.

We classified the identified problems into four groups:

1. Software and methodological support for the e-learning system, which is divided into:
 - organizational and didactic aspects of using technical and software tools in e-learning,

- content and methodological support of e-courses.
- 2. Application of information technologies for effective monitoring of students' knowledge and skills in e-learning.
- 3. Psychological aspects of students' perception of software and hardware, as well as e-learning in general.
- 4. Staffing of the e-learning system.

7. Conclusion

The results of our research of dissertations of American and Canadian scientists, as well as knowledge of the current state of e-learning development in Russia, allow us to assert a significant similarity of problems that have to be solved by both domestic and foreign teachers.

It should also be noted that the similarity of methods for solving these problems indicates the unity of methodological approaches to e-learning of scientists in our countries.

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