ELECTRONIC LEARNING RESOURCES USED IN TEACHER EDUCATION PROGRAMS FOR BACHELOR'S AND MASTER'S DEGREES

Nadezhda N. Makarova[*], Nina V. Chernova, Marina N. Potemkina, Artem E. Lubetskiy, llya Koldomassov

This article provides a brief overview of practical experience in the use of electronic learning resources in Teacher Education programs for Bachelors and Masters. Under the conditions of informatization of educational space, an important role is played by electronic learning resources. The components of information and communication object environment include electronic educational publications, which are developed on the basis of web-technologies. The paper deals with the author's electronic teaching materials developed and approved by the authors of this article in the learning process in the field of "Teacher Education". These materials are used in the elective and required courses within the framework of undergraduate and graduate programs. The authors have proposed a typology of electronic learning resources, analysis of the advantages and disadvantages of their use, particularities of the dynamics of professor's and student's roles in the use of electronic learning resources. The authors conclude that the use of electronic learning resources in the educational process at the university is an important means to develop the professional competence of Bachelors and Masters. They also point out the benefits of student involvement in the preparation of electronic learning resources and their use in educational institutions.

Keywords: Educational Technology; Bachelor's and Master's Degrees Program; Teacher Education

INTRODUCTION

Introduction to the problem

Bologna Declaration signer, the Russian Federation is involved in the educational process, among the global trends of which are mobility of educational programs, student academic mobility, individualization, humanization and informatization of educational process. Under the conditions of society informatization and shifting educational paradigms, there is a need to respond adequately to the challenges of time in the context of higher education system. In this regard, challenging research issue is the use of electronic learning resources in Teacher Education Bachelor's and Master's degrees programs. The use of electronic learning resources is not only helpful in the university educational environment, but also plays an important role in formation of the readiness of future teachers for their professional activities.

Relevance of the problem

Currently, in the Russian Federation, the requirements to the implementation of the undergraduate/postgraduate program include the possibility to have a free access

[*] Department of World History, Nosov Magnitogorsk State Technical University, Magnitogorsk, Russia
Correspondence author: Nadezhda N. Makarova, *E-mail: makarovanadia@mail.ru*

to the electronic library systems and electronic informational and educational environment of the university. According to the E. D. Pavlova (2007), educational institution must prepare students for life in the information society. In this context, higher education institutions actively implement the latest achievements in the field of informational and educational space, and the professors are very interested in the problems of the use of electronic learning resources.

Extent of the problem research

The world science has accumulated extensive experience in the study of the use of e-resources and multimedia technologies in learning process. The authors have refrred to the various issues of analysis and use of electronic resources in education, focusing on the application of new technologies in foreign language teaching (Alakurt, 2016; Alakurt, 2015; Deng & Tavares, 2016; Kwon *et al.,* 2013; Lu *et al.,* 2011). Researchers pay considerable attention to the influence of the use of e-learning on the interaction of the professor and the student, identifying new social and psychological aspects of the content and nature of educational activities.

Recently, Russian researchers have also actively discussed the electronic learning (e-learning) in various areas in general (Rovai, 2003; Tolosa *et al.,* 2010), and A. A. Andreev even justifies the emergence of e-pedagogy (Andreev, 1995). The article of T. G. Vezirov and E. A. Kostina is dedicated to educational web-technologies (Vezirov & Kostina, 2016). Researchers consider the prospects of methodical support during the transition to level system of training with the use of e-resources in the educational process, specifics of the introduction of case method into e-learning, and the process of education organization using multimedia (Linnenbrink & Pintrich, 2003; Popova & Borodulina, 2014; Popova, 2015). The efficiency of the use of multimedia in teaching is revealed in the works by N. G. Popova and I. V. Robert (Popova, 2015; Robert, 1994). Some researchers advocate the mixed form of education, but the question of the proportion between the traditional educational technologies and e-learning remains debatable. In addition, the issue of contradiction between the positive and negative aspects of the use of e-learning continues to be an area of concern. The scientific literature says that on the one hand this contributes to the development of teamwork skills, reducing, on the other hand, the social interaction and communication during the learning process.

Hypothesis and objective of the study

The hypothesis of the study is: the efficiency of the Teacher Education Bachelor's and Master's degrees programs will increase significantly and will satisfy the current need for modernization of Russian education, provided that the following conditions are met: proper combination of traditional and innovative forms of education; corresponding information environment; active use by the students of e-resources

at middle and/or a high level of interaction with the purpose of formation of professional competence.

The objective of our research is: to provide a theoretical substantiation and demonstrate the practical implementation of electronic learning resources through the example of electronic publications for educational purposes used in Teacher Education Bachelor's and Master's degrees programs in conditions of information and communication object university environment.

METHODS

Theoretical and methodological basis of the study consists of the theory of information society formation, system of theory, student-centered, active and technological approaches to education; theory of developmental, problem and modular education; concepts of unity of content-related and procedural components of education; education informatization theory; theory of methodology and techniques of pedagogical research. This study is based on the concept of G. K. Nurgaliyeva who formulated the methodology of informatization of education and modular technology of compilation of electronic textbooks. To achieve the objective, the authors used theoretical research methods (analysis of literature regarding the subject of the study) and empirical methods (observation on the implementation of e-learning in the educational process (participant observation, students' academic performance analysis).

CONCEPT AND TYPOLOGY OF ELECTRONIC LEARNING RESOURCES

Let us define the conceptual framework of our study. In general, electronic learning resource is understood as educational materials, which can be displayed using electronic devices. Therefore, such resources include video records, audio records, training videos, presentations, infograms created in any available format. There are various classifications of electronic learning resources. We can talk about educational (learning and teaching complex, textbook, manual, practicum, reading book, workbook, etc.), learning and teaching (guidance paper, instructions, review works, etc.) and research (monographs, collections of works, etc.) electronic media. In terms of the outreach technology, there are local and network electronic publications; in terms of the availability of printed equivalent, there are independent publications and printed work counterparts; in terms of the nature of the main information, there are text, image, multimedia and software products; in terms of intended purpose, there are educational, reference and scientific e-publications.

Advantages and disadvantages of electronic learning resources

Just like any educational tool, electronic learning resources have advantages and disadvantages. Among the undoubted advantages of e-learning resources we have to mention the following: broad possibilities to create visual aids, interactivity,

creation by the professor of new educational paths, improvement of the individualization of education, activization of learning activity of the student, formation of readiness for self-development and continuous education, enhancement of inclusive education, possibility for students to self-develop through the simulation process, problem design and forecasting, formation of developed activity skills in students (strategic, research, design, stage), modification of traditional education systems, implementation of new forms of interaction during the learning process, modification of the content and specifics of the activities of children and teachers, increasing the amount of information in a certain period of time, consideration of the specifics of the subject under study, etc. The spectrum of these advantages makes it possible to assert that learning without the use of electronic means would be less effective in modern conditions. It is necessary to take into account the existence of certain difficulties in the implementation of electronic learning resources. In particular, we are talking about providing modern informational and educational environment (digital educational resources, set of technical means of information and communication technologies, educational technology system applied in modern information and educational environment), creation of individual computer workstations for students. E-learning has also negative consequences: weakening of social contacts between professor and students, reduction of social interaction and communication, formation of individualism, etc.

Experience in teaching with the use of electronic learning resources

In our study, we consider the "History" subject area within the Teacher Education Bachelor's and Master's degrees programs, where an important role is played by author's electronic educational publications. In particular, the electronic learning resources "History of Russian Culture of 9th-21st centuries", "Auxiliary Sciences of History" and "History of Russia of 9th-21st centuries", approved in the informational and educational environment of "G. I. Nosov Magnitogorsk State Technical University" Federal State Budgetary Educational Institution of Higher Education.

Phaleristics teaching

Experience in the use of electronic learning resources in Nosov Magnitogorsk State Technical University has shown that there is improvement in the quality of learning, the increased interest of students being "immersed" in the subjects studied due to the use of multimedia and interactive environment. For example, in the "Phaleristics" course we actively use documentaries ("Orders of bygone country", "Military awards of the Soviet Union", "Military awards of the Russian Federation" and others), presentations and slides, in which the history of the creation of awards, as well as military, cultural and historical events are told in a bright, vivid and accessible form. Such a method of presentation provides an opportunity to place

accents in teaching, shift from the simple acquisition of knowledge to developing education and expand the learning boundaries. The "Phaleristics" specific is that it is extremely difficult to verbally describe the decorations that were created and awarded abroad and in our country. For such cases, the visual learning method is the best solution. When studying certain periods, events and facts, by using e-learning resources we concentrate educational process around the core ideas, integrating the knowledge and cognition into a single system. In addition, this method of information presentation helps to harmonize motivational, intellectual, activity, sensual and volitional spheres of personality.

Created informational and educational environment contributes to the formation of professional competence in the modern educational process. Being used in such a way, the e-resources become professor's teaching tools. Their applicability depends on a number of factors (Linnenbrink & Pintrich, 2003). Firstly, the reason for use of electronic learning resources should be significant both for the professor and students. In the specific case, practice has shown that the reason for use of electronic tools in the "Phaleristics" course has been significant for both parties of the pedagogical process. When using visual imagery, students are more efficient and easier to perceive the special course teaching material, a significant part of which is presented in a form of artistic, aesthetic and emotional images. This motivates students to learn and self-develop, as it is impossible to give all the subject information in a short period of time. By using e-learning tools, the professor incites the cognitive motivation, enriching his course and practical lectures, refraining from monotonous process of training and education.

Secondly, the e-resources should be aimed at the achievement of educational goals and be functionally suitable for the main modes of activity of subjects of the educational process. The use of electronic means allows the professor to more quickly achieve the goals in educational activities: educate, cultivate and develop. The feasibility of using e-resources is determined by the fact that it is impossible to achieve the pedagogical efficiency to the same extent when using other means.

Thirdly, an electronic resource as an educational tool should be congruent with the methodical structure of the lesson. In our case, e-learning is becoming a convenient means of pedagogical work, implementing the visual expression of the educational process. At the same time, in terms of the structure of the course, these means are not dominant.

Fourthly, the use of e-resources in the educational process must be systemic. As shown by practice, the occasional use of e-learning, as a rule, does not give the desired result. Therefore, we use the electronic resources in all phases of the course of study: lectures, practical exercises, and when implementing the control of knowledge. Such a system has two aspects: organizational and pedagogical, and methodological. Organizational and pedagogical aspect makes it possible to analyze all the course subjects and distribute the electronic media as per the subjects. For

example, during the study of the subject "The first awards of the USSR", we use twenty-five-minute documentary "Order of the Red Banner" from "Orders of bygone country" series; and during control tests we are using slides with images of awards to be identified. Methodical aspect is that we have developed and created a methodical system of use of e-resources, which is based on the general principles of the application of e-learning: visual expression, compensatoriness, integrity, interactivity, mass scale, etc. (Popova, 2015).

Fifthly, the result of the assimilation of the information contained on electronic media should be included in a single system of monitoring of the quality of student education. It is obvious that the main purpose of monitoring is to obtain full and objective information about the quality of education and the timely taking of proper management decisions. In this case, the "monitoring" category is considered by us as a broader category than "control", because it includes: analysis, identification of positive and negative aspects, prognosis, and to a certain extent an adjustment of the work program. The use of e-learning tools has shown that the efficiency of learning is increased by several times. The number of students, who have passed the final test at the course in the first attempt, has increased in comparison with the period of study, when the visual learning tools have not been used in full.

When considering the use of electronic learning resources, we can identify several levels of their interaction with the students: "zero", "low", "medium", and "high". E-learning resources can be used at any level of interaction between professor and student. At the so-called "zero" level, the resource can be used by professor in his preparation for the lesson, or be a source of additional information. In this case, there is no direct interaction between the student and an electronic resource. The next level of interaction - "low" - is characterized by the fact that the professor can use the e-resource as an object of demonstration of a variety of phenomena, processes and facts. Activity of the student in this case will be passive, for example, displaying ready methods of activity, understanding the problem situation and its analysis. The next level of interaction is "medium". Students can interact with e-resources in the classroom hours, and within the framework of independent work under the supervision of the professor through his methodical recommendations and final tests. At this interaction level it is possible to increase the proportion of independent work of students with account to their personal characteristics, which creates conditions for the formation in students of abilities to independently set the goals of their activities, search for the necessary information, solve problems, perform self-control and reflect. To a large extent this is manifested at the level of use by the professor of survey and research methods. At this level, it is possible to transfer the leading role from professor to student, when the professor acts as a tutor and consultant. Finally, the "high" level of interaction is characterized by a further increase in student's learning independence.

Teaching "History of Russia from 9th to 21st centuries", "Auxiliary Sciences of History"

Let us try to illustrate these levels of interaction of students with e-learning resources using the example of their various types.

Electronic learning resources "History of Russia from 9th to 21st centuries" and "Auxiliary Sciences of History" are voluminous and have multivarious content. They are focused on the organization and holding of seminars, lectures and independent work of the first year on-campus and off-campus students studying "History" and "Auxiliary Sciences of History". The former can be used as the basic framework in the study of different periods of Russian history by the distance education students of history department, and can also be used in the preparation of high school graduates and lyceum graduates for a unified state exam in history. The latter can be used as supplementary material and teaching aid in the study of "Source Studies", "Historiography" and "Archival Science" subjects. The structure of e-learning resources "History of Russia from 9th to 21st centuries" includes a brief lecture notes, guidelines on the topics, a list of key concepts, dates and personalities of the Russian history period under study, plans of seminars and the lists of recommended and additional literature, as well as a set of practical tasks for independent work of students, compiled by the authors. The appendix contains a glossary and an expanded list of dates throughout the "History of the Fatherland" course of study. "Auxiliary Sciences of History: study guide" contains a brief lecture notes, guidelines on the topics, a list of key concepts, guidelines for writing a term paper, plans of seminars and lists of recommended books, as well as a set of practical tasks for independent work of students. The appendix contains additional lectures falling beyond the scope of subject program.

Given that both electronic learning resources are text-based, the first two levels of interaction - "zero" and "low" - are impracticable. Of course, in the stage of preparation for the lesson, the glossary or list of dates can be used, as well as passages from sources placed in practicum manual. But the extent of such use is extremely low. It is also difficult to use e-resource as an object of demonstration of a variety of phenomena or processes specific to the "low" level of students' interaction with the study guide.

The most efficient in the educational process will be the "medium" level of interaction, involving students' direct work with e-resources. It should be noted that this level requires the professor's purposeful assistance and guidance. This is primarily due to the fact that study guides are voluminous, built not by problems, but by activity types. First year students, not familiar with the peculiarities of the educational process in higher education institution, have troubles dealing with such a vast amount of educational information. During the classroom hours, it is necessary to explain to students the purpose and the features of each section of the study guide. For example, work with the lecture material can be carried out in two ways.

First, students familiarize themselves with the lecture content before it is read by the professor, identify its key concepts and topical issues. They find key terms and definitions in the glossary and learn them. In the classroom, the professor, based on material of the study guide, expands the information, coheres it and explains the problem issues of the subject. Given the character of the preparation of students for lectures, it is no longer necessary to dwell on terms and definitions, professor can freely use the necessary concepts, emphasizing them. Such work may include professor's interactive communication with the audience: in the allotted time, the lecturer can answer questions asked by students or he can pose himself questions relating to the lecture material. Secondly, the lecture materials of e-learning resources can be helpful in self-study after listening to the lecture in a classroom. Practicum manuals can be used in different ways in the educational process. On the one hand, they can be used in the organization of independent work of students. In this case, they must relate to the preparation for the seminars. The practicum manuals should help to clarify, learn and work out in detail the information when preparing for the seminar. In addition, various types of work included in practical works contribute to development of both research and teaching competences of students. On the other hand, the practicum materials can be used in the classroom: for example, students can be offered to analyze a document, answer related questions, show the process on the contour map, and solve a chronological problem. Such questioning can show not only the degree of theoretical training of students, but also their mastering of competences acquired in the course of subject learning. Tests contained in practicum manuals can serve as self-monitoring and control tools, depending on the objectives of the educational process.

Consistent work of students with presented e-learning resources and their proper motivation may increase the level of interaction. Having learned the features of each type of activity, the student can propose, for example, an additional episode to the lecture material, formulate his own question for a document or a contour map, diversify tests questions, etc.

Most comprehensive in terms of the information presentation is an electronic learning resource "History of Russian Culture from 9th to 21st centuries: study guide". It is designed for students of all mode of study and is intended for the study of such subjects as "History", "History of Russian Culture" and "History of Everyday Life". Study guide contains a brief summary of lectures on the history of Russian culture, tests to check students' knowledge and sustain their skills, a glossary, a list of sources and literature according to the course, as well as a number of presentations, including a detailed review of the development of Russian culture in all its diversity. It should be said that it is a local electronic learning resource that has no printed counterparts. The information contained herein is textual and visual.

This electronic learning resource can be used at all levels of interaction between professor and student. At the "zero" level, it may serve as an excellent tool for

preparing for the lecture or practical session on Russian history. Presentations included in the course are informative visual materials, helping to learn wide-ranging and complex topics on cultural history development in the framework of the "History of Russia" subject. Glossary will help the student to clarify the terms and definitions, thereby contributing to their better memorization and understanding of cultural processes at different stages of development of the country's history. In addition, the presentation materials can help learners to quickly recall the information and update knowledge when preparing for the exam, and tests will identify gaps in their knowledge. Similar functions can be performed by the e-learning resource "History of Russian Culture from 9th to 21st centuries: study guide" in the study of "History of Everyday Life" subject. Extending the range of use of the resource, it can be noted that within the framework of this subject at the "zero" level, the study guide can also serve as an additional source of information both visual and textual.

It should be noted that when teaching all the above subjects, professor can use components of the study guide as visual aids and audio material to illustrate the various processes and phenomena, which corresponds to the "low" level of student interaction with e-resources. If in the case of "History of Russia" and "History of Everyday Life" such interaction is episodic, relating to their respective individual sections, the "History of Russian Culture" subject implies unequivocal use of presentations and audio material at lectures. It is this level of interaction that allows students to obtain the necessary skills for a successful independent interaction with electronic learning resources.

Next - "medium" - level of student interaction with study guide requires an independent solving of tasks set by the professor using the materials of study guide. Such tasks can consist in solving tests, composing students' own textual and visual glossaries, preparing for seminars. And these tasks can be set by the professor during classroom studies, and be part of independent work of students. Solving by students of research and problem tasks using study guide helps them to not only learn the essential elements of the subject, but also to implement the necessary pedagogical competences: to see variations of information compilation, presentation making, features of glossary selection (including the identification of gaps and possible discrepancies), and so on. In addition, analysis of the e-resource structure and specifics of its content may be another research task that will propel students to the next - "high" - level of interaction.

In our view, this level requires an independent expansion, deepening, detailed elaboration of the proposed study guide by the students themselves. Taking into account their analysis of the study guide, they can be proposed to independently solve the problems identified.

CONCLUSIONS

In general, electronic learning resources are an integral part of the modern educational process and have a number of advantages. Electronic learning resources are a set of lecture notes, glossary, list of necessary dates, presentations, etc. The authors note that using these resources provides ample opportunities for interactivity: electronic lectures with the possibility of browse to different sections, go to the necessary part of the section, search by keyword; test options: intermediate (with the possibility of self-learning) and control (with the possibility of time limitation and automatic allocation of grades); easy-to-learn system, the presence of built-in help system and automatic demonstration of an "Assistant" tool; clear structuring of subjects studied by dividing them into sections, topics, etc.; electronic summary of lectures with a description of theoretical issues of the subject studied; interactive problem book representing a collection of practical tasks to be solved independently.

At the same time, the electronic learning resources have some drawbacks. The areas of concern of the local electronic learning resources include, firstly, the fact that they require additional equipment corresponding to the media. Secondly, their solid design cannot be changed, and therefore, the student may not always be able to try in practice the changes that he would like to make. Third, the professor himself cannot modify the content in accordance with possible individual characteristics of student and group needs. He can only change the methodology within the framework of existing teaching materials, finding the most appropriate way of interaction with the audience. Fourthly, the text electronic resources are difficult to be used (practice shows that students have trouble navigating these resources, especially concerning the historical subjects, which involve large amounts of text). The drawbacks of public electronic learning resources include, first of all, direct connection to the network (otherwise they are inaccessible), as well as problems with registration, linking to a particular site, protection, etc. In addition, this type of e-resource is very costly for the professor, as it requires a lot of technical manipulations and makes the study guide dependent on technical equipment. At the same time, in modern conditions it is one of the most popular types of electronic teaching aids. The advantages of open electronic study guides lie in the fact that they are like a living organism. When compiling information, professor can vary their structure and content. In addition, such resources involve students in a work on learning resource, exciting their interest in the subject and forming the necessary pedagogical competencies for their future professional activities.

The authors believe that the efficiency of the professional training system of Teacher Education programs for Bachelor's and Master's degrees increases when combining diverse technologies and forms of learning. And the process of implementation of any new educational technologies in the educational process is a challenge. E-learning tools cannot be by themselves good or bad, better or worse. Efficiency, intensity, activation, individualization, communication of the

educational process depend largely on how the e-resources are used, what problems are solved by their application. Flexible combination of well-proven and innovative learning tools is the best way to improve the quality of education. Advanced information technologies provide a fundamentally new level of generalization, transmission, transformation of stored or retrievable information created and used in the educational process.

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