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APPLICATION OF ELECTRONIC EDUCATIONAL RESOURCES IN THE PREPARATION PROCESS FOR WOULD BE TEACHERS OF TECHNOLOGIES

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Abstract

The article considers the use of electronic educational resources, as well as testing the feasibility of methods of applying this technology in the training of future teachers of technology. It is emphasized that updating and improving the forms, methods and means of teaching in higher pedagogical school significantly increase the level of information technology training of future specialists in technological education. In particular, electronic educational resources are used to simulate complex real events, situations, visualization of abstract information by dynamic representation of processes, demonstration of fragments of programs, movies, virtual tours and more. IT software allows modern teachers of technology education to combine text, graphics, animation, video and audio information, which significantly increases the level of learning material.

In the conditions of integration of modern Ukraine into the European educational space, the form, methods and means of teaching in the higher pedagogical school need to be updated and unambiguously improved. The constant growth of educational information, the need for its analysis, assimilation, generalization, systematization and preservation, expanding the capabilities of the global Internet have led to the widespread introduction of information technology in the training of future professionals in higher education. After all, without

knowledge of multimedia technologies, the ability to develop elements of e-educational resources, navigate in the modern information global space, it is impossible to achieve a high level of professionalism and become a competitive specialist.

The application of technology of development and use of electronic educational resources can increase the effectiveness of active teaching methods for all forms of organization of the educational process in higher pedagogical institutions: at the stage of independent training of students, lectures, seminars, practical and laboratory classes.

Key words: electronic educational resources; means of information and communication technologies; training of future teachers of technologies.

The range of information technologies combines a variety of software and hardware to the most effectively influence the user, and the use of electronic educational products and services simultaneously graphic, audio and visual information is an important emotional and motivational element that activates the user's attention.

In the conditions of integration of modern Ukraine into the European educational space, the form, methods and means of teaching in the higher pedagogical school need to be updated and unambiguously improved. The constant growth of educational information, the need for its analysis, assimilation, generalization, systematization and preservation, expanding the capabilities of the global Internet have led to the widespread introduction of information technology (IT) in the training of future professionals.

Analysis of scientific sources suggests that the problem of using information technology has been the subject of research by many scientists. Aspects of the use of IT in the educational process of secondary and higher education institutions have been the subject of research by many modern scientists. O. Danilova, Y. Doroshenko, M. Zhaldak, N. Morse, L. Makarenko, I. Smirnova, V. Yurzhenko, S. Yashanov and others studied IT teaching aids in secondary school. V. Bykov, L. Bekirova, I. Voitovych, P. Horol, R. Gurevych, E. Polat, O. Spirin, V. Yasulaitis and others studied the peculiarities of conducting IT training sessions in the Free Economic Zone. Peculiarities of the development of electronic textbooks and manuals are covered in the publications of V. Volynsky, A. Gurzhiy, L. Kartashova, V. Lapinsky, S. Sharov, and others.

In the scientific works of domestic and foreign scientists, pay considerable attention to the application of technology development and use of ESD in the training of future teachers of technology, identifying their impact on improving teaching efficiency, intensification of the learning process and information technology professional competence. However, the

problem of applying ESD in the educational process of training future teachers of technology is mostly presented in context.

The purpose of the study is to determine the professional feasibility of using electronic educational resources in the process of training future teachers of technology.

One of the most important conditions for the modernization of modern education is the renewal of training. In this regard, not only a high level of subject knowledge of secondary school, but also the ability to use innovative tools and forms in professional activities – readiness to apply the acquired knowledge, skills and abilities in educational, socio-pedagogical, scientific -methodical and organizational and managerial activities, should characterize the future specialist. We believe that without knowledge of multimedia technologies, the ability to develop elements of e-learning resources, navigate in the modern information space is impossible without a high level of professionalism and become a competitive specialist [1].

Currently, the use of ESD is one of the highest priority areas of innovative educational processes in the educational process of higher education institutions not only in Ukraine but also abroad. In a broad sense, the “application of ESD” in the educational process will be a range of information technologies that combine various software and hardware to most effectively influence the user (in our research – the student, future teacher of technology in secondary schools). Simultaneous use of graphic, audio and visual information in electronic educational products and services significantly affects the level of assimilation of educational material by the student (future teacher of technology, in particular) [2, p. 46].

Practice has shown that improving the quality of vocational education is influenced by innovative methods and teaching aids, selected in accordance with the content and objectives of training. It should be noted that the widespread use of ESD could increase the effectiveness of active teaching methods for all forms of organization of the educational process in higher pedagogical institutions: at the stage of independent training of students, lectures, seminars, practical and laboratory classes. In addition, their use helps to increase the educational and cognitive activity of students.

According to the results of the research carried out at the stage of the statement experiment, it was found that IT software tools allow a modern teacher of technology to combine text, graphics, animation, video and audio information. Simultaneous use of several channels of perception of educational information makes it possible to increase the level of assimilation of educational material. ESAs, which are sometimes used as software, are used to simulate complex real events, situations, visualization of abstract information through the

dynamic representation of processes, demonstration of fragments of programs, movies, virtual tours and more. The practice of using ready-made IT tools is widespread, at the same time more and more modern educators resort to creating their own on the basis of GIF-animations and 3D-animations. We are convinced that in its highest manifestation, the use of ESD should grow into a system of virtual reality. These are computer systems that activate not only visual and auditory analyzers, but also sensory organs such as touch, smell, vestibular apparatus, etc. Ideally, virtual reality makes it possible to create in advance such important life situations, the reality or imagination of which a person is unable to determine.

According to the results of the research, we can state that the modern requirements for the formation of education take into account two possible areas of application of ESD in the system of professional training of future teachers of technology:

- the first is related to the fact that ESD tools are included in the educational process as a means of support within the traditional methods of the historically formed education system of Ukraine. In this case, ESDs act as a means of intensifying the learning process, individualization of training and partial automation of routine work of specialists related to accounting, measurement and evaluation of data;

- introduction of ESD within the second direction leads to improvement of the content of information-technological preparation, revision of methods and forms of the organization of educational process, construction of integral courses based on use of semantic filling of resources in separate variable modules. Knowledge, skills and abilities in this case are considered not as a goal, but as a means of developing the student's personality [3; 7].

We believe that the introduction of technology for the development and use of ESD is pedagogically appropriate, as it will increase the effectiveness of training in accordance with the specific needs of the content of information technology vocational education today. This is a situation where full training without the use of appropriate information tools is difficult or impossible. It should be noted that IT products offer ample opportunities for various aspects of learning [4, p. 79]. In modern education there are many opportunities and advantages of implementing the technology of development and use of ESD, namely:

- the simultaneous use of several channels of perception of the student, the future teacher of technology in the learning process, resulting in the integration of information obtained through different senses;

- the ability to simulate complex real experiments in the learning process using ESD;

- visualization of abstract information by dynamic representation of certain technological processes in ESD;

– opportunity to develop cognitive structures and interpretations in students by means of EOR.

Undoubtedly, all IT teaching aids used in the educational process in the training of future professionals must meet a system of psychological, didactic and methodological requirements. At the same time, it is necessary to adhere to specific didactic conditions. First, IT learning tools should be:

- adapted to the individual capabilities of the student / future teacher, etc .;
- interactive in the process of their practical training and application;
- with various possibilities of computer visualization of practically all educational information;
- designed to develop the intellectual potential of students, future teachers;
- systematically and structurally and functionally link the presentation of educational material in the educational process;
- fully (integrally) and continuously presented in the didactic cycle of teaching to teach all, without exception, subjects [5].

At the same time, along with didactic and methodological requirements, it is necessary to take into account a number of psychological factors that affect the success and quality of creation and use of multimedia teaching aids [6-10], because the presentation of educational material usually meets not only verbal but also sensory -perceptual levels of the cognitive process.

In the context of our study, attention should be paid to the technical component of the educational process aimed at training future teachers of technology in the application of ESD. The main technical means in this process is a PC equipped with the necessary software, a multimedia projector, an electronic board. Of course, the computer does not replace the teacher, but is only a means of pedagogical activity, his assistant. The practice of work in pedagogical universities makes it possible to state that due to the active development of scientific and technical means of IT, technologies for the development and use of ESD can be used in almost all types of training in the training of future teachers.

It is also obvious that in the training of future technology teachers, it is necessary to actively implement IT and all other technologies that will help make the training material more saturated, visual, bright and accessible. Significant potential for this has such disciplines as "Methods of teaching technology", "Systems of technology" and others, as well as special courses of methodological direction. Careful analysis of scientific and pedagogical literature, implementation of advanced innovative pedagogical experience and many years of teaching

experience, allowed identifying several main aspects of the use of ESD in the educational process in conducting various types of classes [1-10].

In the process of conducting lectures, the teacher, having a limited amount of time, teaches the basic theoretical concepts of the course and gives instructions and explanations to students on the content of self-studied material. In these conditions, to improve the quality and efficiency of learning increases the importance of ESD for the visualization of educational information (Fig. 1).

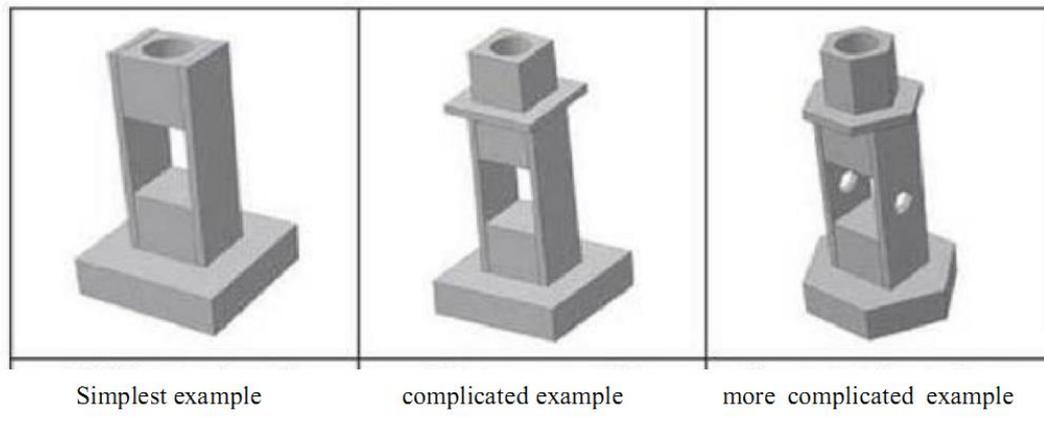


Fig. 1. Design methods: the method of focal objects

The teacher in the multimedia lecture hall uses instead of a board and chalk a powerful tool ESR to present information in various forms (text, graphics, animation, sound, digital video, etc.). (Fig. 2).

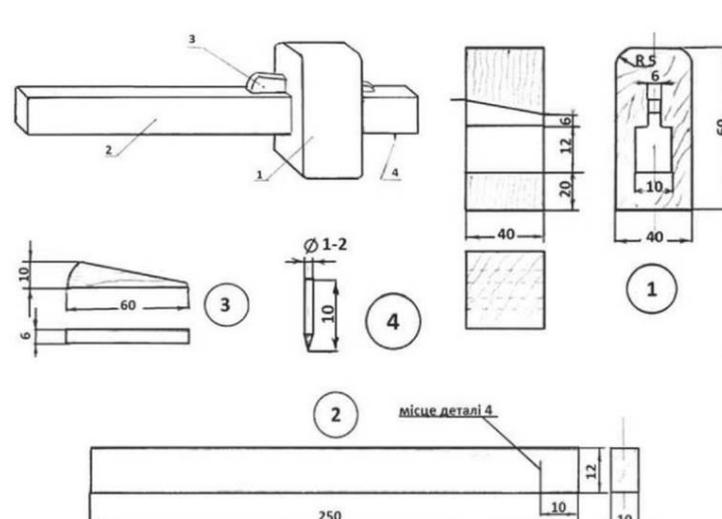


Fig. 2. Approximate objects of work. Creative tasks.

One of the promising areas of application of ESD in the system of professional training of future teachers of technology, we consider the demonstration of three-dimensional animation models of objects. Three-dimensional animation allows you to recreate the dynamic phenomena of technical and technological processes, hidden from observation in a normal learning process. The main difficulties in the implementation of this area arise due to the need to use quite complex software and, as a rule, a significant amount of time to create a single animated video. Didactic elements of demonstration of educational videos are also one of the components of the methodology of use (development) of ESD in the process of training future teachers of technology. The presence of special programs – video editors – allows you to quickly edit the film from the filmed fragments, apply sound to the video and add the necessary comments – subtitles, which will be useful in the process of work for students, future teachers. The most important thing when making a film is the presence of a quality script and, consequently, the logical sequence of presentation of the material, limited in time.

In view of the above, it can be concluded that the considered aspects of the use of ESD in the process of training specialists in technological education allows to significantly and innovatively increase the efficiency of the educational process by IT tools. It should be noted that updating and improving the forms, methods and means of training in the training of technological education specialists significantly increase the level of their information competence, and the introduction of methods for developing and applying ESD in the educational process indicates its effectiveness.

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