METHODOLOGICAL AND TECHNOLOGICAL ASPECTS OF DISTANCE LEARNING

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ANNOTATION

The article discusses the features of distance learning using information technology. Distance education is a form of distance learning, in which the lack of face-to-face communication between a teacher and a student is compensated by the opportunity to do this through telecommunications. Distance learning is a complex of educational services provided with the help of a specialized information educational environment based on the means of exchanging educational information at a distance.

Key words: information; learning; distance learning; information technology; software; distance learning technology.

The great interest in distance learning, which is growing today all over the world, especially with the use of Internet technologies, has an objective basis. In connection with technical progress and the emergence of new specialties, the demand for effective education, advanced training, retraining and additional vocational education is growing. At the same time, the growing dynamism of life is causing the need for mobile learning systems. The development of the Internet opens up new prospects for distance education, in which the student is provided with opportunities inherent in full-time education, as well as a number of additional ones that have arisen in connection with the development of modern information technologies. Distance education is becoming the only real opportunity to study on an individual basis, regardless of place and time; receive education continuously and on an individual trajectory, in accordance with the high principles of open education, and is designed to realize the human rights to continuous education and information.

Distance learning using information technology can be characterized as a form of distance learning, in which the lack of face-to-face communication between a teacher and a student is compensated by the ability to do this through telecommunications. In a detailed description, distance education is a complex of educational services provided using a specialized information educational environment based on the means of exchanging educational information at a distance. This is the information and educational environment, which is a set of means for receiving and transmitting data, information resources, interaction protocols, hardware-software and organizational-methodological support, received by the user in the form of a distance course.

Training is a purposeful, systematic, organizational process of equipping with knowledge, skills and abilities, education is the result of training, upbringing and personal development.

Distance learning (DL) is a form of education, along with full-time and part-time, in which the best traditional methods, means and forms of education based on computer (multimedia) and telecommunication technologies are used in the educational process. The basis of the educational process at DL is the purposeful and controlled intensive independent work of the student, who can study in a place convenient for himself, at a convenient time for himself. Distance learning via the Internet is widely used by many foreign higher educational institutions and training centers. Some of them allow the student to complete the full cycle of study, pass exams and receive a certificate or diploma, practically without getting up from his home computer.

The analysis made it possible to establish that the technology of distance learning (TDL) is a system of methods, specific means and forms of education for the replicated implementation of a given educational content. TDL is focused on the didactic application of scientific knowledge, scientific approaches to the

analysis and organization of the educational process of DL. Methods, means and forms of DL, considering them to be important elements of an integral didactic system of DL.

At the level of academic disciplines, when studying a specific material, general didactic teaching methods in the DL system are implemented through a variety of teaching methods, each of which is a specific action aimed at achieving a particular goal and performed with the help of various didactic teaching aids. It can be assumed that in the DL system, when using IT tools, no matter what method was invented by the teacher during teaching, or by the student (during teaching), it will always turn out to be an integral part of one or several general didactic teaching methods.

Of the well-known set of teaching methods used in traditional didactics, the following can be recommended for DL: demonstration, illustration, explanation, story, conversation, exercise, problem solving, memorization of educational material, written work, repetition.

An analysis of the activities of educational institutions of DL has shown that at the present time, information-receptive and reproductive teaching methods are most widely used in DL together with problem-based ones.

Distance learning, in which the pedagogically processed content of learning is concentrated, which allows us to speak of them as a means of teaching and learning. With DL in the hands of the teacher and the student, teaching aids act as a representation of the content of training, control and management of the educational and cognitive activity of students. The same material can be presented by several teaching aids (printed publications, audio video, etc.), each of which has its own didactic capabilities. The teacher must know these possibilities, be able to distribute educational material by various means, form a set of teaching aids (case) from them, as a system of educational information carriers, designed to solve a set of didactic tasks.

Analysis of numerous sources, as well as our own research have shown that with MDL(Means of Distant Learning) teaching tools can be:

1. Educational books (hard copies on paper and electronic version of textbooks, teaching aids, reference books, etc.);
2. Network teaching aids;
3. Computer training systems in conventional and multimedia versions;
4. Audio educational and informational materials;
5. Video educational and informational materials;
6. Laboratory remote workshops;
7. Simulators with remote access;
8. Databases and knowledge with remote access;
9. Electronic libraries with remote access;

In accordance with the accepted views in the traditional educational process, teaching aids are implemented through the so-called technical teaching learning (TCL). They include tape recorders, video recorders, film projectors, slide projectors, overhead scopes, computers. In turn, TCLs are part of educational equipment, which includes laboratory equipment (instrumentation, microscopes, chemical glassware, etc.), as well as educational furniture and accessories. It should be emphasized that in the MDL, teaching aids are implemented through the means of new information technologies (MNIT).

Recently, the practice of DO training programs on CD-ROM has been actively introduced. The development of educational programs for academic disciplines in a multimedia environment (multimedia courses) is a long

and expensive process. Many problems of developing multimedia - courses are removed by the author's software system Statpro Multimedia and Prometheus-2.

The relevance of this teaching tool especially increases when training specialists for various branches of technology, since the training of such specialists is determined not only by the study of certain theoretical material, but also by the acquisition of specific practical skills in laboratory research. Analysis of possible directions for solving this problem in the MDL showed that it can be solved in two ways. The first is the development and delivery of a specially designed mobile kit to the trainee. The second way is to provide remote access to laboratory facilities.

Followers of both directions have achieved certain successes, however, in our opinion, the coordinated way to solve this problem is to implement the concept of a remote laboratory workshop (RLW), which simultaneously solves the problems of workshops for preschool education and traditional forms of education.

The essence of RLW is as follows. For a specific applied thematic area, a unified universal scientific and didactic complex (SDC) is being created, intended both for teaching students or retraining specialists, and for conducting scientific research. The collective use of this complex by many subscribers located at an arbitrarily large distance to it is carried out using telecommunications. Measuring instruments in the SDC are replaced by an automated intelligent sensor subsystem. Operational control of the experiment is carried out automatically with the help of a multichannel intelligent control subsystem according to programs received from remote computers, which are user workstations and on which a virtual display of the SDC is created, which makes it possible to reproduce the real equipment of the stand with the maximum possible approximation (multimedia). The workplace software provides comprehensive computer support for the entire laboratory workshop: training, knowledge control, obtaining an individual task, modeling the processes under study, setting the experimental conditions, initiating its implementation, obtaining and comprehensive analysis of the results. Successful tests of the SDC for the study of electrical devices and systems during the study of the corresponding course, allow hopes for the development and implementation of similar SDC in pedagogical practice in teaching practice in other disciplines.

In the case of studying natural science disciplines, the set of teaching aids includes tasks and materials for the laboratory practice, as well as "remote" sets of laboratory work. It is advisable to include in the case recommendations and workshops for studying and mastering the basics of practical skills in working with a computer and computer networks. All these elements of the case have a certain level of substantive independence, are interrelated and complement each other. The specified set of training aids can be issued to the student on bail or redeemed by them. At the request of the listener, not all of the listed elements may be included in the case.

Recently, the heads of large government and commercial structures, many of whose employees are dispersed across different regions and time zones, have shown particular interest in the implementation of the distance learning system (DLS). Taking into account the employment of employees and at the same time realizing the need to improve their qualifications, they are increasingly faced with a choice - to conduct training on the road in any training center, which is usually associated with a long and expensive business trip of employees or organize their training at work. Recently, more and more often the choice is made in favor of the second option. But even organizing full-time on-the-job training, managers still face the need to go to large material costs associated with the separation of employees from work and payment for the services of the organization conducting the training.

The principles of teaching (didactic principles) are provisions that express the relationship between the goals of training specialists with higher education and the laws that guide the practice of teaching at a university. Didactic principles serve as a guiding framework for teaching

Didactics relies mainly on the following principles of teaching: scientific nature, consistency, the connection between theory and practice, the consciousness of teaching, the unity of the concrete and the abstract, the availability, strength of knowledge, the combination of the individual and the collective. All these principles are interconnected and interdependent, complement each other. In the practice of distance learning, they find application in the form of rules, methods and forms of organizing and conducting educational work.

It is possible to distinguish groups of strategic principles of distance learning in higher education, which unite all existing principles, these are:

• correspondence of the content of higher education to modern and
predicted trends in the development of science (technology) and production (technology);

• focus of higher education on the development of the personality of the future specialist;

• rational use of modern methods and teaching aids at various stages of training;

• optimal combination of general, group and individual forms of organization of the educational process at the university;

• compliance of the results of training specialists with the requirements that are imposed by a specific area of their
professional activity, ensuring their competitiveness.

LITERATURE

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