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Peculiarities of the use of distance learning information technologies in higher education institutions of Ukraine

Peculiaridades del uso de tecnologías de información de educación a distancia en instituciones de educación superior de Ucrania

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Abstract

The article considers the process of informatization as one of the main directions in the development of higher education. Distance learning technologies that can be used in the traditional educational process to improve the quality of education are analyzed. The main attention is paid to the local (internal university) computer network. A description of the information resources of such a learning system is given.

Problem: based on the analysis in the science of research, own research results, the research problem was formulated, determined by the following contradictions: the growing need between high-quality training of specialists and the lack of analysis of problems and prospects for the development of distance learning in Ukraine.

Keywords: informatization, distance learning system, information technology education.

Resumen

El artículo considera el proceso de informatización como una de las direcciones principales en el desarrollo de la educación superior. Se analizan tecnologías de educación a distancia que pueden ser utilizadas en el proceso educativo tradicional para mejorar la calidad de la educación. La atención principal se presta a la red informática local (universidad interna). Se da una descripción de los recursos de información de dicho sistema de aprendizaje.

Problema: a partir del análisis en la ciencia de la investigación, resultados de investigaciones propias, se formuló el problema de investigación, determinado por las siguientes contradicciones: la creciente necesidad entre la formación de especialistas de alta calidad y la falta de análisis de problemas y perspectivas para el desarrollo de la educación a distancia en Ucrania.

Palabras clave: informatización, sistema de educación a distancia, educación en tecnologías de la información.

1. Introduction

Education is one of the most important spheres of human activity, which ensures the formation of the intellectual potential of society. The quality of education is a multidimensional concept. It is determined not only by the final result, but also by the educational process as a whole. Society and education are inseparable. This is evidenced by the fact that any global changes faced by society and civilization as a whole inevitably affect the state of education. The transformations in the economy and industry that are currently taking place in our country have determined the priority educational and educational goal of educational institutions. Now the amount of knowledge that a person needs is increasing, knowledge is being updated faster and faster, and the time for learning remains almost constant. The problem of meeting society's needs for highly qualified specialists is currently more urgent than ever (Shehab & Khalifa, 2021).

High rates of development of the world economy, rapidly changing requirements for a university graduate, a large volume of information necessary for assimilation by the end of studies force the use of various teaching methods in higher education.

Reforming education should take into account the need to create new learning conditions. Currently, non-traditional teaching methods are being introduced into the traditional learning process, one of which is distance learning. Accelerating entry into the information society through improvement of the education system is considered one of the most promising directions for the implementation of the tasks set by European countries (Gao, 2021). For this purpose, it is envisaged to provide educational institutions with the latest means of communication, to encourage the wide spread of multimedia in pedagogical practice, to form a critical mass of users and services for the production of multimedia products, to strengthen education by the means inherent in the information society.

The implementation of the idea of pedagogical partnership is of particular importance in distance learning, the expansion of which is one of the priority directions reforming higher education. Independence of the student from the teacher is considered as an important prerequisite for improving the quality of education. Instead of the traditional approach to the student as a passive object of learning, which requires the teacher to make maximum efforts to transfer knowledge and great skill in applying effective means of their transmission, today the development of the concept of distance learning as an open partnership of teachers and students who study independently and to a large extent, they themselves direct and control their educational process.

Unlike traditional education, where the central figure is the teacher, in the process of using new information technologies, the center of gravity shifts to the student, who actively builds his own educational process, forming his own trajectory in educational environment (Atieku-Boateng, 2021), (Shoufan, 2019). An important function of the teacher is to support the student, promote his successful advancement in the sea of educational information, facilitate the solution of methodological and methodical problems that arise, help in mastering various information. In connection with this, a new term has become widespread in the world educational community - facilitator (one who promotes, facilitates, helps to learn), which reflects significant changes in teaching activities, the status of the teacher and his basic functions.

The use of new information technologies allows to increase the share of independent work of each student in the total time budget. The use of computers and telecommunications, the introduction of a flexible schedule for the study of disciplines, modular construction and study of disciplines, and other didactic and organizational measures allow to receive a new form of face-to-face education, different from the traditional one (Palvia et al., 2018).

According to the concept of the development of distance education in Ukraine, distance learning technologies can be used not only in distance education, but also in other forms of education: full-time, part-time, externship; in addition - in certain disciplines and blocks of disciplines that serve to improve the educational level of qualifications of individuals and groups of listeners (Hillier, 2018).

The national doctrine of education development determines the priority of education development - the introduction of modern information and communication technologies that ensure further improvement of the educational process, accessibility and efficiency education, preparation of the young generation for life in the information society. This is achieved by ensuring the gradual informatization of the education system aimed at meeting the educational information and communication needs of participants in the educational process; introduction of distance learning with the use of information and communication technologies in the educational process and library work alongside traditional means.

The relevance of the problems and prospects for the development of distance learning in education lies in the fact that the results of social progress, previously concentrated in the field of technology, are now concentrated in the information field. The age of informatics has arrived. At the moment, the stage of its development can be characterized as telecommunications. This is the area of communication, information and knowledge. As mentioned by M. Mohammed and N. Ja'ashan (2020), based on the fact that professional knowledge ages very quickly over time, it is necessary to constantly improve it. Previously, this problem was solved by means of advanced training courses known to many, to which people were sent a few years after completing the basic training in the specialty. Today, distance learning makes it possible to implement truly massive

and, importantly, continuous self-learning without interruption from work, the general exchange of information, regardless of time and space barriers. It is this system that can most adequately and flexibly respond to the needs of society and ensure the implementation of the constitutional right to education of every citizen of the country.

2. Literature review

Despite the obvious advantages of online learning in higher education institutions, the introduction of the educational process in electronic format involves solving a number of issues for both students and for academic staff of educational institutions (Riera Guasp, Ardid, Vidaurre & Dueñas, 2018), (Rajab, 2018).

For academic staff, the real challenge of online learning was the significant increase in the time required to provide a quality learning process. In particular, the time for preparing lecture classes, checking homework, and maintaining electronic and hardcopy records of attendance and success of education applicants has doubled (Ali, Khalil & El-Sharkawy, 2020). The major reasons for the suspension of the educational process during warfare are considered to be the lack of a clear plan of action for the use of online learning for all participants in the educational process and the lack of adequate facilities of institutions of higher education that could ensure the proper quality of online education (O'Doherty, Dromey, Loughheed, Hannigan, Last & McGrath, 2018), (Nikadambaeva, 2020), (Morin, 2020). Considering the challenges of online learning organization, scientists pay attention to the issues of qualified support of the student by the educator or other authorized persons during online learning. Such qualified support should begin at the stage of searching for proposals of distance learning programs and accompany the student during the entire learning process (Langedard, Kiani, Nielsen & Svensson, 2021). However, a review of the literature on the development of online education in times of war has shown that the issue of developing special strategies for working with higher education applicants during military conflicts remains unresolved. This is due to the lack of specialized software and information developments for working with students that take into account the specifics of receiving education specifically during military conflict (during its exacerbation especially) in the territory where the educational institution or students studying at such institutions are located.

3. Aims

The Aim of the article is to determine the effectiveness of the use of distance learning technologies in the traditional learning process.

4. Materials and methods

Research methods: theoretical: study and analysis of pedagogical, psychological, philosophical, sociological literature on the problem of research, legislative and regulatory documents; systematization, classification, terminological analysis, pedagogical modeling, retrospective analysis, generalization of existing pedagogical experience; empirical: pedagogical experiment; diagnostic methods (testing, conversation, observation, questioning, self-assessment, self-analysis, mutual assessment), professional activity motivation methodology, pedagogical interpretation of the research results.

5. Results

This approach is also supported by S. Zarei and S. Mohammadi (2021), the educational process, carried out on the basis of distance learning technologies, includes both mandatory classroom classes and independent work of students. The participation of a teacher in the educational process is determined not only by conducting classroom classes, but also by the need to provide ongoing support for the educational and cognitive activities of students through the organization of current and intermediate control, networking sessions and consultations (Alqahtani & Rajkhan, 2020).

Information technologies used in distance learning can be divided into three groups:

technologies for presenting educational information;
technologies for the transfer of educational information; technologies of storage and processing of educational information.

Together, they form distance learning technologies. At the same time, when implementing educational programs, technologies for the transfer of educational information are of particular importance, which, in essence, provide the learning process and its support.

The learning process is always based on the transfer of information from the teacher to the student. In this sense, any technology used in education can be called information technology (Ratheeswari, 2018). On the other hand, the term "information technology" is often used in relation to all technologies based on the use of computer technology and telecommunications. In order to avoid misinterpretation, it is necessary to define three concepts that are of paramount importance for distance learning. It:

educational information;
educational technologies;
Information Technology.

Educational information is the knowledge that must be transferred to the student in order for him to be able to perform this or that activity.

In the disciplinary model of education inherent in the full-time education system, the teacher acts as an interpreter of knowledge. In distance learning, the interpreter is to a greater extent the student himself, and therefore, the quality of educational information and the methods of its presentation should be subject to increased requirements.

First of all, this applies to newly created electronic textbooks, as well as to information bases and knowledge banks, reference and expert systems used for educational purposes. The information presented in them, unlike printing, should have a completely different organization and structure. This is due both to the psychophysiological features of the perception of information on a computer screen, and the technology of access to it.

Educational information should not be accumulated in only one or a few places. Its distribution should have an island character, so as to provide the maximum possible access for students to it from any remote places, without a significant increase in the load of telecommunication channels.

Large libraries and scientific and educational centers created on the basis of leading universities can become such islands (centers) of information.

Educational technologies are a set of didactic methods and techniques used to transfer educational information from its source to the consumer and depend on the form of its presentation.

A feature of educational technologies is the outstripping nature of their development in relation to technical means. The fact is that the introduction of a computer in education leads to a revision of all components of the learning process. In the interactive environment "student - computer - teacher" much attention should be paid to the activation of imaginative thinking through the use of technologies that activate the right hemisphere, synthetic thinking. And this means that the presentation of educational material should reproduce the thought of the teacher in the form of images. In other words, the main point in the educational technologies of distance learning is the visualization of thoughts, information, knowledge.

The educational technologies most suitable for use in distance learning include:

- video lectures;
- multimedia lectures and laboratory workshops;
- electronic multimedia textbooks;
- computer training and testing systems;
- simulation models and computer simulators;
- consultations and tests using telecommunications;
- videoconferencing.

Information technologies are hardware and software tools based on the use of computer technology that provide the storage and processing of educational information, its delivery to the student, interactive interaction between the student and the teacher or pedagogical software, as well as testing the student's knowledge.

In the educational process, it is not information technology in itself that is important, but the extent to which its use serves to achieve the actual educational goals. The choice of means of communication should be determined by content, not technology. This means that the choice of technologies should be based on a study of the content of training courses, the degree of necessary activity of students, their involvement in the learning process, specific goals and expected learning outcomes, etc. The result of training does not depend on the type of communication and information technologies, but on the quality of development and delivery of courses.

When choosing technologies, it is necessary to take into account the greatest correspondence of some technologies to the characteristic features of the trainees, the specific features of specific subject areas, and the prevailing types of training tasks and exercises.

The main role played by telecommunication technologies in distance learning is to provide educational dialogue. Learning without feedback, without constant dialogue between the teacher and the student is impossible. Learning (as opposed to self-education) is a dialogic process by definition. In full-time education, the possibility of dialogue is determined by the very form of

organization of the educational process, the presence of a teacher and a student in one place at one time. In distance learning, the educational dialogue must be organized using telecommunication technologies.

Communication technologies can be divided into two types - on-line and off-line. The former provides real-time information exchange, that is, a message sent by the sender, upon reaching the recipient's computer, is immediately sent to the appropriate output device. When using off-line technologies, received messages are stored on the recipient's computer. The user can view them with the help of special programs at a convenient time for him. Unlike full-time education, where the dialogue is conducted only in real time (on-line), with distance learning it can also go in a delayed mode (off-line).

The main advantage of off-line technologies is that they are less demanding on computer resources and communication line bandwidth. They can be used even when connected to the Internet via dial-up lines (in the absence of a permanent connection to the Internet).

Technologies of this kind include e-mail, mailing lists, and teleconferencing. With the help of the list-server, distribution of educational information can be organized, personal communication between the teacher and the student is established with the help of e-mail, and the teleconference allows organizing a collective discussion of the most complex or difficult issues of the course. All of these technologies allow you to exchange messages between different computers connected to the Internet.

An important advantage of off-line technologies is a large selection of software for working with e-mail and teleconferencing. Modern email programs allow you to send messages in hypertext format (i.e., with hyperlinks, font and color highlighting of text fragments, inserting graphics, etc.). In addition, a file of any format can be attached to the letter, which makes it possible to send, for example, documents in MS Word format. The effectiveness of off-line technologies is manifested in the organization of current consultations, current control based on control and independent work, checked "manually" by the teacher.

6. Discussion

Of the on-line technologies, first of all, it should be noted chat, which allows real-time text messaging over the Internet. In the simplest case, a "conversation" takes place between two users.

All data of the distance education system represent a collection of information resources of the following types: e-book; test; course; curriculum. These are informative resources consist of sub-resources (for example, a test consists of sections, which in turn contain separate questions). Thus, most information resources are containers, containing other resources. The system can be developed incrementally by adding new types of information resources. As the primary method of user interaction with the distance learning system uses network access using a regular web browser.

This method is the most suitable for organizing the educational process, with using distance learning methods, because the user does not need to no special software. Using the system is no different from using the Internet (Shehab & Khalifa, 2021). The user gets access to the system after entering the name username and password. After that, he gets on-screen access to his

unified personal environment, that is, to everything that is available to him at the current educational stage process.

For a student it is:

an individual study plan containing static study materials (lectures, books) and interactive educational materials (tests, business games);
publicly available educational materials;
various forms of communication with other participants of the educational process: remote seminars, conferences, control classes, laboratory works;
the results of their work.

The teacher has the following opportunities:

access to all curricula;
access to educational materials; creation of educational materials;
working with courses conducted by them: their creation, modification, consulting according to them students;
working with groups of students: reviewing and evaluating students' works.

Thus, it is possible to determine the necessary complex of technologies that can to ensure the educational process using distance learning methods:

1. Materials for self-study (electronic versions of disciplines).
2. Independent work of students (practical classes).
3. Verification of acquired knowledge (testing).

7. Conclusions

Distance learning is one of the promising and effective forms of higher education, which ensures the spread of professional contacts, as well as more complete use of the scientific and methodological potential of higher education. Today it is impossible concentrate all information resources that have been accumulated in each educational institution humanity in the world scientific and educational space. Therefore, with the help of remote technologies, it is possible to combine and coordinate the actions of several universities. Thanks to the development of the informatization process, it has become possible to use distance learning methods in the educational process, which absorb the best features of traditional forms training and integrate well with them.

The use of a computer, compact information carriers of the Internet allows expanding the scope of educational services, intensifying the influence on those who are taught, diversifying the presentation of material, and systematizing the methodical support of the educational process. The process of computerization also allows to improve the informational and methodological base of the educational institution.

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