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Analysis of the Organization and Features of the Implementation of Information Technologies in the Educational Process of Institutions of Higher Education

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ABSTRACT

The article presents the main structures of informatization of education, the effectiveness of the use of information educational technologies. It has been determined that the use of information technologies in the classroom is necessary, since they play a key role in the formation of educational skills through motivation, sustainable concentration and the development of thinking skills. Classes using information resources allow students to engage in active cognitive and practical activities without overloading, significantly increase interest in the subject and in the learning process, thereby increasing the effectiveness of classes.

Keywords: pedagogy, institutions of higher education, Information Technologies.

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INTRODUCTION

Information technologies are increasingly influencing modern society. Forming a global information space, they penetrate into all spheres of human activity. An important and necessary part of these processes is informatization in the educational process. This process is accompanied by certain changes in pedagogical theory and teaching and educational practice, as well as making adjustments. Information technology is designed to become an integral part of the educational space, significantly increasing its efficiency.

One of the main tasks of higher education is to form students' information competence. The main tool for the high-quality presentation of the material is information technology teaching. The great potential of information technologies has led to the possibility of their widespread use in education [6-8].

Modern technologies, various electronic educational media for teaching are actively being introduced into the educational process. At the same time, for all the undoubted theoretical and practical significance of all research on the use of information technologies in teaching, it should be noted that a number of problems remain insufficiently developed. Including: - theoretical foundations of the use of computer technologies to ensure the teaching activities of the teacher.

- computerization and insufficient development of methods for using interactive teaching aids.
- inadequacy of methods of complex application of network computer technologies of teaching and organizational and methodological support of independent cognitive activity.

The purpose of the article is to analyze the organization and features of the use of information technology in the educational process.

MAIN TEXT

The period of rapid development of science and high technology production is characterized by revising scientific and educational concepts based on the achievements of informatics, cybernetics, psychology, pedagogy, and a number of other sciences. The widespread use of new information technologies, the computerization of society, the development of new means of communication have led to significant changes in the field of education. In recent years, we have become increasingly convinced that almost all relationships existing in nature are of an informational nature. It is information that is the carrier of the meaning of all processes occurring in nature and society. Awareness of the dominant role of information in nature and social phenomena has become the reason for the emergence of a new fundamental method of scientific knowledge, which is called the information approach. The informational approach in teaching should be considered as a complex system of information processing processes that can be carried out both sequentially and in parallel, both with the use of information and communication technologies, and without them [1-5, 23]. Let's consider the definition of the term "informational approach" in psychology, pedagogy and educational activities. In psychology, the information approach is a methodological setting, according to which all psychological processes are considered as a complex system of information processing processes that can be carried out both sequentially and in parallel. At each stage of these processes, information undergoes certain modifications, it is encoded, features are identified, filtered, recognition, comprehension, decision-making, and response action are formed. As a result of the application of this approach,

a model of the studied mental process is built, which is composed of hypothetical blocks connected in series or in parallel and realizing certain functions [33-35].

The structure of the theory is based on:

- direct direction to informatization of modern society.
- an empirical basis (advanced experience in the transmission, processing, storage, transformation of information, its generalization and patterns).
- theoretical basis: conceptual - theoretical provisions, concepts of didactics, various theories of education, trends in psychology, cybernetics and computer science, doctrines in philosophy, etc.

According to I.O. Pashchenko, the process of the informational approach in education includes:

providing educational institutions with computers and software.

connection and work on high-speed channels with regional, national and international educational networks, use of the global Internet.

creation and placement of educational information resources on the Internet, combining various databases at the state level: educational portals, official sites in each educational institution, resources on various topics, methodological sites, electronic libraries, information retrieval and analytical systems, etc .;

development, verification, then approbation and implementation of the selected educational software, including digital educational resources.

the formation in each participant of the educational process, whether it is an employee, teacher, information culture, mandatory support, as well as maintenance of information technology tools in all educational institutions; purposeful continuous training of a teacher in information technologies according to a specific system (courses, express courses, mini-seminars, permanent seminars, conferences, competitions, solving pedagogical problems, a system of individual consultations, the work of problem and creative groups, professional communication, etc.).

The concept notes that it is possible to change the content of education only on condition of informatization and for this it is necessary to use several directions:

a) this is the development of academic disciplines that provide general educational and professional training of students in the field of informatics.

b) make in-depth use of all means of informatization, which entail changes in the content of academic disciplines at all levels of education.

c) research and construction of new learning goals in the direction of training members of the future "information society. Using the information approach in educational activities allows you to see many well-studied objects, processes, phenomena in a completely new light, saturates the conceptual apparatus with new key concepts and new meaning. new qualities that turn out to be very important for understanding the phenomena under consideration and determining possible trends in their further development [9-12].

Modern, informational, educational technologies are a powerful tool for accelerating the educational process. In modern specifics, the education system, on the one hand, is an active consumer of information resources, and on the other, a large producer of information technologies. With all this, the technologies that were born in the education system are used far beyond its borders. The effectiveness of the educational process is significantly increased due to the use of information technologies in teaching. The condition that modern society imposes on today's adolescents narrows the gap between conditions [18-23].

The effectiveness of the use of information educational technologies is seen in the following points:

information is presented in different forms.

high degree of visibility.

the ability to simulate processes.

use in the organization of design and research work by the whole team.

a differentiated approach to each work of students, regardless of the level of training, cognitive interests, etc.

conducting operational control and teacher assistance.

The use of information technology in educational institutions greatly facilitates the access of students to educational information, as well as great opportunities open up to change educational activities, individualize and differentiate them.

To organize close interaction of subjects of learning and the educational system, in which the student is an active and equal participant in the educational process.

I.V. Robert, in his works, highlighted issues related to some of the problems in connection with the use of computer technology in educational activities.

Information technologies are considered from several sides: as a tool for transforming educational activities, a teaching tool, a subject of study. An indicator of the informatization of society is the wide distribution and use of multimedia technologies, electronic information resources, network technologies. They are used as a means of communication, education, integration into the world space. Traditional and informational directions in a complex create prerequisites for the implementation of a new integrated concept of the use of information technologies in education. The modern education system introduces technologies into the educational process that are available on software resources of the widest use.

Educational computer programs

These programs enable the teacher to present material in such a way that key concepts are illustrated in high quality for a variety of subjects. The basis of each program was initially developed and was laid visibility to stimulate the cognitive activity of the student, as well as a combination of mechanisms of verbal-logical and figurative thinking. Today, the requirements for educational knowledge (remember, tell) are changing to basic, informational skills that are manifested in the search for knowledge (find and apply in solving the assigned tasks). The following software systems are widely used: operating systems Windows 7, 10 applications to the operating system, consisting of: a program for Internet Explorer and Outlook Express, etc., an Access database management system, Word test editors, Excel spreadsheets, creating presentations using Power Point slides, graphic editor for creating, converting and arranging drawings Paint, Flash. Solving problems on computers using the programming language Pascal, Delphi. To implement the implementation of information educational technologies, within the framework of the information educational environment, it is necessary to provide means that provide hardware and software support for this educational technology, and not be limited to a separate computer with a program installed on it. In fact, everything is the other way around: software of information educational technologies is embedded as a subsystem in the information educational environment - a distributed information educational

system. Modern multimedia computer programs and telecommunication technologies. Multimedia is a computer technology that combines and processes texts, graphics, audio and video information, various types of animation and computer models. In this case, hypermedia documents are used - text files that contain links with other text, graphic, video or sound files. Within each hypertext document, many text fragments are highlighted. By activating them, you can go to another part of the same file or run another file on this or another PC. It is possible to use multimedia technologies in the educational process for processing graphic, audio and video files, for creating presentations, programs with educational and developmental bias, computer encyclopedias and hypermedia - and television media books. At the same time, it should achieve the effect of virtual reality - a certain model of the real world, which will contain really non-existent objects, and with which the user will interact. Advantages of multimedia products: simultaneous use of multiple channels of perception. creation of virtual models of real situations, phenomena and experiments, visualization of abstract information due to the dynamic display of processes, the establishment of associative links between various objects. A variety of sources of information are available to students through these programs and technologies. Electronic hypertext textbooks, educational sites, distance learning systems are designed to significantly increase the effectiveness of cognitive and independent development. And also open up new opportunities for the creative growth of students. The electronic textbook contains text, digital, speech, graphic, music, video, photo information. The electronic edition is made on various electronic media - magnetic (magnetic tape, magnetic disk, etc.), optical (CD-ROM, DVD, CD-R, CD-1, CD +, etc.), can be published in an electronic computer network. Electronic textbooks may contain information on didactic, methodological and informational and reference materials on academic disciplines, as well as software that makes it possible to comprehensively use them for individual and independent acquisition and control of knowledge. The concept of e-textbooks is to make them not just a substitute for paper-based textbooks, but a learning tool with enhanced capabilities compared to traditional textbooks. The great advantage of an electronic textbook is interactivity. The ability to allow students to open and use audio files, videos, copies of various documents, cross-references from other manuals and encyclopedias. Throughout the lesson, students' electronic devices can be connected into a single network. The teacher, working with each device from his tablet or computer, can comment on the work of each student, issue and check the completed assignments. The advantage of an electronic textbook over a paper one, in the absence of publishing costs, low weight, more information.

An electronic supplement to a textbook is an educational electronic publication supplementing a textbook (printed or electronic), it is a structured set of electronic educational resources intended for use in the educational process together with a textbook. With the help of electronic textbooks and manuals, knowledge control is carried out - computer testing. Web - technologies are used to organize the educational process. Multimedia and telecommunication technologies, united into a single one through the Web, open up new methodological approaches in the education system. The types of application of multimedia and Web - technologies that are most often used by the teacher in the classroom:

organization of the educational process.

preparation of teaching aids.

learning new material (using ready-made programs or those created by the teacher) computer control of students' knowledge.

work with the website of an educational institution (electronic journal, electronic diary).

Electronic textbook

It can be an educational and software publication, an educational publication that regulates the composition, volume, procedure, terms of study of academic disciplines provided for an educational institution.

Electronic applications, together with methodological and didactic materials, form a single technological package that provides a modern level of the educational process.

Multimedia - technologies - it is a set of computer technologies that simultaneously use several information media: graphics, text, video, photography, animation, sound effects, high-quality soundtrack. The structure of multimedia technology is made up of special hardware and software. information is presented in linear and non-linear ways. And as a small example, the use of a linear and non-linear way of presenting information, the situation of a presentation is considered. A presentation that was recorded on tape and shown to the audience, then this method of conveying information is linear. Viewers of this presentation do not have any opportunity to influence the speaker. In the opposite case, non-linear - live presentation, the audience always has the opportunity to communicate with the speaker, ask questions, clarify some points. This allows the speaker to stop at any time to give an answer to the questions that have arisen, to clarify some terms or to highlight the controversial parts of the report in more detail [23-28].

Educational programs

The tutorial is a study guide designed for students to use independently. The program contributes to the maximum activation of students, is individual in its work and provides a great opportunity to manage their cognitive activity. It is just a part of the entire training system and is always associated with all training material. Carries out its functions, meeting all the requirements arising from this. The programs are called training programs, since they initially have a training goal, that is, with explanations, the presence of rules, samples of assignments.

Principles of the tutorial:

lack of monotony of tasks, change of activity at all levels: recognition, reproduction, application.

providing the implementation of successful work for students of different levels of training; control of the memory factor (operational, short-term and long-term).

Intellectual control program: Control programs (with learning elements, games, modeling with control elements, etc.) are developed taking into account the recommendations of pedagogical practice. In good quality control programs, as a rule:

in information and control frames, computer graphics are always used.

it is possible to quickly change the content of the training course using the menu.

in the course of work, the possibility of changing the difficulty of tasks.

individual pace of work for each student.

openness to systems makes them easy to upgrade. The main and most important characteristic of the program is the ability to automatically analyze student responses. The assessment for the work will be more objective, since different trainees with different levels of training perform the corresponding tasks. Characteristics of the controlling program:

the ability to analyze responses of different types (selective, permutable, classification, fully constructed by the student).

recognition of various synonyms of correct answers.

conducting syntactic and semantic analyzes of students' answers.

localization and highlighting of technical (spelling, typing errors) and significant errors; completing additional tasks to approve the assessment.

CONCLUSION

Society demands from the teacher an innovative approach to the learning process. In modern conditions of life, it is not enough to possess a set of knowledge, skills and abilities, you need to be able to apply them in real life, in a real situation. In a modern higher school, a student must not only acquire knowledge, but also be able to obtain it from various educational sources, and also successfully apply it in all kinds of situations. The use of computer technology in the learning process affects the growth of the teacher's professional competence. This contributes to a significant improvement in the quality of education, which leads to the solution of the main task of educational policy. Information resources are the basis for designing an information educational environment.

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