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ORGANIZATIONAL AND PEDAGOGICAL CONDITIONS OF DEVELOPING INDEPENDENT KNOWLEDGE USING IT IN TEACHING STUDENTS IN INFORMATION SCIENCE

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A B S T R A C T

This article describes the organizational and pedagogical conditions for the development of independent knowledge using an act in teaching informatics to students. It is also noted that there are a number of advantages of using ICT in educational activities, that the main functional characteristics of ICT provide certain opportunities in the educational process.

K E Y W O R D S

IKT, education, nonlinear technologies, informatics, cognitive independence, information, development, principle, description, student, person.

Introduction

To understand the place of ICT in education, it is necessary to define the essence of this concept. Let's look at the main definitions of ICT.

I.G.Zakharova defines ICT in education as a scientific direction in some cases, in other cases as a specific method of working with information, as a set of knowledge about methods and ways of working with information resources, collecting information to obtain new information about the studied object. defines work as methods and means of its processing and transmission.

N.I.Pak ICT is a set of methods and ways that ensure the creation, collection, storage and processing of information with the help of certain technical means to obtain a specific product or service related to any information, as well as separated from each other by space and time. perceives, communicates and transmits messages between two or more individuals.

According to YE.I. Mashbits, ICTs have a number of advantages in their use in educational activities, these are:

the provision of educational information significantly expands the possibilities. The use of all modern means of audio, video, graphics, multimedia, video technology allows to imagine the real state of the activity;

makes it possible to seriously increase the motivation of students for education due to the use of adequate rewards for solving problems correctly;

involving students in the educational process, thereby revealing their abilities, and enabling independent cognitive activity;

allows to change the quality of control over educational activities, while ensuring the flexibility of the management of the educational process, it helps the formation of reflection in learners;

the use of ICT in the educational process increases the possibilities of setting educational tasks and

managing the process of solving them;
electronic ATT allows students to visually visualize the results of their actions, identify the wrong step in solving the problem and correct it.
V.A.Krasilnikova highlights another very interesting aspect of using ICT in the organization of the educational process, which is that computerization puts forward new high-level requirements for the internal mechanisms of responsibility for the activation of independent cognitive activities by learners.
The main functional characteristics of ICT provide the educational process with the following opportunities:
unlimited possibilities of creating, collecting, storing and processing information using certain technical means;
increasing the universality of education, ensuring its continuity throughout life;
creation of an electronic ATT of education, which provides an opportunity to build an educational process without being tied to the place and time of study, and in this case, exchange educational information at a distance, control the quality of education, conduct (soprovojdeniye) system and the ability to choose an individual road map of education based on the use of ICT, which ensures the implementation of administrative management of the educational process;
improvement of e-learning content, methodological and software support of the educational process.
The main functional features of the ICT listed above will enable the development of new educational technologies in the future and help to increase the quality of education.
The definition of the main pedagogical goals of using ICT is given in the researches of I. V. Robert V. A. Trainev, O. I. Pashenko, V. A. Krasilnikova:
Implementation of the social order of the information society:
in the field of informatics and computer technology;
Training a person with information literacy with the help of ICT tools;
preparing learners for independent knowledge activities with the help of pedagogical and ICT tools.
Development of the learner's personality, preparation for independent productive activity in the information society:
development of creative thinking and communication skills based on the implementation of joint projects;
development of skills for implementation of experimental-testing-research activities;
develop the skill of modeling a problem or situation;
forming the ability to make optimal decisions or offer solutions in a complex situation;
formation of information culture, information processing skills.
Acceleration of the educational process due to the use of ICT tools:
increasing the efficiency and quality of the educational process;
increase in independent cognitive activity;
increase in the amount of necessary information and optimization of its search.
Modernization of information and methodological support of educational activities:
informational and methodological support for all subjects of the educational process;
Strengthening of communicative potential through the use of ICT tools;
the possibility of continuous training regardless of regional and time-related conditions;
creation of ATT with active use of computer networks.
Based on the pedagogical goals listed above, the directions of using ICT in education as an educational

tool improving the following processes have been identified:
while increasing its efficiency and quality in teaching (teaching);
in modeling educational situations;
in training, in monitoring the results of education;
in implementing the possibilities of software and methodological support of modern computers;
in the use of object-oriented software tools;
in the development of the learner's character;
in information and methodological provision;
in communications for the purpose of spreading advanced pedagogical technologies.

The use of ICT in education significantly changes the entire educational process in the electronic ATT of education. From the experience of introducing new educational technologies, it is known that when introducing computer education, it is necessary to organize classes based on the use of various forms of education (individually, in groups) and teachers and learners Positive results can be achieved when a person-centered approach is applied to education that changes the nature of communication between students. The basis of person-centered education is ICT of education and control, which allow to meet the personal needs of the learner and increase the universality of education.

The analysis of literary sources and the study of the experience of teaching informatics show that the traditional educational process cannot fully solve the task of forming students' independent cognitive activities, therefore, it is necessary to provide a new "quality" of education. New forms, tools and methods of education are needed.

Today, for the majority of learners, the only way to systematically and effectively form independence in knowledge is to use ICT in the educational process.

The use of ICT in the organization of independent educational activities of students provides the following opportunities:
use of modern software for obtaining, processing, storing and using the necessary information from various sources;
ensure that the student can use all the resources of the science course for independent or repeated study;
automation of the process of performing educational tasks and evaluating them as a result of using the software, using the control component;
formation of skills in the use of special programs, applications and technologies important for future professional activity;
conduct online and offline consultations of teachers to students both individually and in groups, transfer, demonstrate and discuss the results of work with a wide range of people;
storing and using the results of students' independent work in electronic form, performing statistical analysis of the results for making corrections and planning further educational activities.

Information and communication technologies serve as an actual means of involving students in independent knowledge activities.

Organizational and pedagogical conditions for the development of independent knowledge using ICT in the teaching of the computer science course. The rapid development of science, the increase in the flow of information, the activation of educational activities and the increase in the volume of educational content do not correspond to the amount of time allocated to educational activities.

When students are admitted to OTM, it is envisaged that people who are ready to gain knowledge will

enter the educational institution. However, practice shows that, on the one hand, not all students understand the importance of independent learning during education, and on the other hand, the educational material does not always correspond to the requirements of real life. Therefore, there is a need to organize the educational process in such a way that it should always provide an opportunity to carry out independent knowledge, gain knowledge and improve the quality of education.

It is possible to solve the problem of developing independent cognitive activity of students in performing independent work by using ICT tools in education.

The use of ICT can change the educational process by accelerating all activities and improving the activities of students, because the use of interactive software and methodological support is a pedagogical interaction between a teacher and a student. forms a qualitatively new level of influence. In this case, the student's information culture, his ability to search for the necessary information, and the implementation of research activities develop intensively, as a result of which the quality of education changes and its pace accelerates. These help to develop cognitive independence.

The use of ICT enhances the processes of information acquisition due to the application of the principle of multimodality, according to this principle, various channels of information perception and processing are used in the educational process - textual, audio, visual, spatial, in which ICT tools are used in various ways. combines natural information - text, sound, graphics, photo, video - into a whole. As a result of the combination of sight and sound lines, the combination of visual-imagery and verbal-logical thinking, it allows for better assimilation of information, which ensures the implementation of a person-centered approach at the expense of the psychological-physiological characteristics of information perception. .

In addition, ICT has a great impact on the development of independence, self-control, and they are necessary for the implementation of current control and self-control.

Today, it is ICT that helps to fully reveal the creative abilities of educational subjects, as it allows the creation of ATT, which greatly supports the introduction of non-linear technologies of education.

In this case, the person-centered nature of ICT-based education is primarily related to the implementation of the principle of self-education, the activation of independent cognitive activities in ATT, because it is educational, methodological information and information. makes it easier to refer to references.

The next important educational part of the use of ICT tools is the opportunity to implement innovative methods of education with a collective research character, which, as a result of independent cognitive activities, will have an active form aimed at finding and making decisions.

The use of ICT tools has a real positive effect on the acceleration of the educational process. For the student, ICT tools are an object of learning and a tool for independent cognitive activities.

The good side of ICT in the educational process, in our opinion, is that it provides conditions for the creation of ATT, ATT allows to create the following pedagogical opportunities:

implementation of rapid feedback between users and ICT tools, which determines the implementation of an interactive conversation (dialogue), in which any request of the user causes a response action of the system;

pedagogical support of the learner during the educational process;

creating conditions that provide non-coercive education and motivation to study;

development of the learner's personality and humane attitude towards the learner;

Building an individual road map in ATT, which reflects the subject's freedom to choose educational

tasks, the pace and time of their completion, and the forms of presenting educational results;
"...continuous control of the learner's activity; diagnosis; management of the system by the learner; improvement and adaptation of the system during operation".
Thus, ICT serves as a relevant means of involving students in independent learning activities.
ATT is a construct that supports the non-linear organization of the educational process using ICT, where there is a possibility of the integration of all sub-structures and the synchronization of the pace of their evolution.
That is why it is necessary to activate the research of the development of technological support of the construction of individual road maps of education.

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