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Informatization of education as a means of increasing the effectiveness of the educational process

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Abstract

The modern period of the development of society is characterized by a strong influence on it of information technologies that penetrate into all spheres of human activity and form a global information space. An inseparable and important part of these processes is informatization of education.

Information technologies and education in the aggregate become those spheres of human interests and activities that mark the epoch of the XXI century and should become the basis for solving the problems facing humanity.

In the information society, when information becomes the highest value, and the information culture of a person is the determining factor of professional activity, the requirements to the education system also change, and the status of education is significantly increased.

Key words: information technologies, information society, computerization, education, training of specialists.

ІНФОРМАТИЗАЦІЯ ОСВІТИ ЯК ЗАСІБ ПІДВИЩЕННЯ ЕФЕКТИВНОСТІ ОСВІТНЬОГО ПРОЦЕСУ

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Реферат

Сучасний період розвитку суспільства характеризується сильним впливом на нього інформаційних технологій, які проникають в усі сфери людської діяльності і утворюють глобальний інформаційний простір. Невід'ємною і важливою частиною цих процесів є інформатизація освіти.

Інформаційні технології та освіту в сукупності стають тими сферами людських інтересів і діяльності, які знаменують епоху XXI століття і повинні стати основою для вирішення поставлених перед людством проблем.

В інформаційному суспільстві, коли інформація стає вищою цінністю, а інформаційна культура людини - визначальним фактором професійної діяльності, змінюються і вимоги до системи освіти, відбувається істотне підвищення статусу освіти.

Ключові слова: інформаційні технології, інформаційне суспільство, комп'ютеризація, освіту, підготовка фахівців.

ИНФОРМАТИЗАЦИЯ ОБРАЗОВАНИЯ КАК СРЕДСТВО ПОВЫШЕНИЯ ЭФФЕКТИВНОСТИ ОБРАЗОВАТЕЛЬНОГО ПРОЦЕССА

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Реферат

Современный период развития общества характеризуется сильным влиянием на него информационных технологий, которые проникают во все сферы человеческой деятельности и образуют глобальное информационное пространство. Неотъемлемой и важной частью этих процессов является информатизация образования.

Информационные технологии и образование в совокупности становятся теми сферами человеческих интересов и деятельности, которые знаменуют эпоху XXI века и должны стать основой для решения стоящих перед человечеством проблем.

В информационном обществе, когда информация становится высшей ценностью, а информационная культура человека — определяющим фактором профессиональной деятельности, изменяются и требования к системе образования, происходит существенное повышение статуса образования.

Ключевые слова: информационные технологии, информационное общество, компьютеризация, образование, подготовка специалистов.

Statement of the problem At the present time in Ukraine is the formation of a new education system, which is focused on entering the global information and educational space. This process is accompanied by certain changes in the pedagogical theory and practice of the educational process. Information technologies are not meant to be an additional tool in teaching, but an integral part of a holistic educational process that significantly enhances its effectiveness. The main hopes are laid on the creation and maintenance of information and educational environments for open and distance learning, on the development of new object technologies for the creation of training materials, along with the development of traditional technologies for the development of digital educational resources.

Analysis of recent research and publications. The problem of the wide use of information technologies in the field of education in the last decade is of great interest in the national pedagogical science.

Classics of scientific informatics, originating from cybernetics and mathematics, were scientists A.I Berg, A.P Ershov, A.N Kolmogorov, P. Landa, S.A Lebedev, N. Viner, D. Neiman, S. Peiper, K. Shannon and others.

A great contribution to the study of the processes of informatization of education and the solution of the problem of computer technology training was made by scientists: Y.A. Vagramenko, V.I Gritsenko, B.S Gershunsky, D.V Zaretsky, V.M Monakhov, O.A. Krivosheev, S.Paipert, G.Kleiman, B.Sendov, B.Hanter and others.

Setting objectives. The purpose of the article is to show the impact of computer technology on improving the quality of education using the latest information technologies in vocational training.

Basic material. So, information technologies and education in the aggregate become those spheres of human interests and activities that mark the epoch of the XXI century and should become the basis for solving the problems facing humanity.

Speaking about the possibilities of IT for the educational process, many researchers cite the following aspects:

- unlimited possibilities of collecting, storing, transferring, transforming, analyzing and applying a variety of information by nature;
- increasing the accessibility of education, with the expansion of the forms of education;
- ensuring continuity of education and professional development throughout the active period of life;
- development of personally oriented education, additional and advanced education;
- significant expansion and improvement of the organizational support of the educational process (virtual schools, laboratories, universities, etc.);
- increasing the activity of subjects in the organization of the educational process;
- creation of a single information and educational environment for training not only one region, but also the country and the world community as a whole;
- independence of the educational process from the place and time of training;
- significant improvement of the methodological and software of the educational process;
- providing the possibility of choosing an individual trajectory of training;

- development of an independent, creatively developed personality;
- development of the independent search activity of the student;
- increase the motivational aspect of training, etc.

Undoubtedly, IT capabilities in the reorganization of the educational process are impressive and provide a huge field of activity for the educator. But the main thing is that the solution of these difficult tasks largely depends on the teacher's preparedness to work in the conditions of an avalanche-like increase in the flow of information. Preparedness of the future and the practicing teacher to work in the new information space, the progressive nature of his views is a prerequisite for the development and implementation of new forms and technologies of instruction based on active use of IT.

It is indisputable that the subject teachers, as a key figure in the formation of information designed to eliminate many of the problems of development of education system must not only understand the capabilities of IT, but also to develop the need for continuous professional development, the desire for continuous learning.

At the same time, with all the undoubted theoretical and practical significance of all the studies on the problem of using IT in education, it should be noted that a number of problems remain insufficiently developed. Including:

- insufficiently worked out the theoretical basis of computer technologies for teaching activities;
- there is a lack of theoretical justification for the development of software and methodological support for training in modern information environments;
- insufficient theoretically grounded methodologies for the integrated application of network computer learning technologies and organizational and methodological support for independent cognitive activity, etc.

Informatization of education is one of the most important conditions for the successful development of the processes of informatization of society. After all, it is in the sphere of education that those people are trained and educated who not only form a new information environment for society, but who will themselves live and work in this new environment. The first steps in the field of computerization of education were made in our country in 1985, when an extremely important government decision was made to send several thousand first Soviet personal computers into the educational sphere and to introduce in secondary schools of the general course of the basics of computer science and computer science.

Informatization of society - a set of interrelated political, socio-economic and scientific factors, which provide easy access to every member of society to all sources of information other than legislation secret.

The analysis of the process of introduction and use of computer facilities and computer technologies in the educational process made it possible to distinguish three stages in the informatization of education (conditionally called electronization, computerization and informatization of the educational process) [1].

The first stage of the informatization of education (electronization) was characterized by the widespread introduction of electronic means and computer technology in the process of preparing students first technical (late 50's - early 60's), and then humanitarian specialties (late 60's - early 70's .) and suggested learning the basics of algorithmization and programming, elements of algebra of logic, mathematical modeling on a computer. The relatively low productivity of computers of that time, the lack of user-friendly, intuitive for the average user (not the programmer) and the user-friendly software tools did not contribute to the widespread use of computer technology in the field of humanities education.

The second stage of informatization of education (computerization) (mid-70's - 90's) is associated with the emergence of more powerful computers, software that has a friendly interface, and is characterized primarily by the use of interactive human-computer interaction. Computer educational technologies allowed to study various (chemical, physical, social, pedagogical, etc.) processes and phenomena on the basis of modeling. Computer technology began to act as a powerful training tool in the composition of automated systems of varying degrees of intelligence. In the field of education more and more automated systems of teaching, knowledge control and management of the educational process began to be used [2].

The third, modern stage of computerization of education is characterized by the use of powerful personal computers, high-capacity high-capacity storage devices, new information and telecommunication technologies, multimedia technologies and virtual reality, as well as philosophical understanding of the ongoing informatization process and its social consequences.

Informatization of education - is the process of providing education theory and practice of development and use of new information technologies aimed at achieving the goals of education and upbringing [3].

In turn, it is customary to single out the following main *directions of introducing information technologies in education*:

- 1) the use of computer technology as a means of teaching, improving the teaching process, increasing its quality and effectiveness;
- 2) the use of computer technologies as tools for teaching, knowing oneself and reality;
- 3) consideration of the computer and other modern means of information technology as objects of study;
- 4) use of new information technologies as a means of creative development of the trainee;
- 5) the use of computer technology as a means of automating the processes of control, correction, testing, and psychodiagnostics;
- 6) the organization of communications on the basis of the use of information technology tools with a view to the transfer and acquisition of pedagogical experience, methodological and educational literature;
- 7) use of modern information technologies for organizing intellectual leisure;
- 8) intensification and improvement of the management of the educational institution and the educational process on the basis of the use of the system of modern information technologies [4].

The most important *tasks of informatization of education* are:

- improving the quality of training specialists based on the use in the educational process of modern information technology;
- the use of active teaching methods, increasing the creative and intellectual components of learning activities;
- integration of various types of educational activities (educational, research, etc.);
- the adaptation of information technology training to the individual needs of the learner- Development of new information technologies for teaching that contribute to the activation of the cognitive activity of the trainee and increase the motivation to develop the means and methods of computer science for effective application in professional activities;
- ensuring continuity and continuity in training;
- development of information technologies for distance learning;
- improvement of program and methodological support of the educational process;
- introduction of information technologies of training in the process of special professional training of specialists of various profiles[1].

One of the most important tasks of informatization of education is the formation of *an information culture* of a specialist whose level of formation is determined, first, by knowledge of information, information processes, models and technologies; secondly, the skills and skills

of using tools and methods of processing and analyzing information in various activities; thirdly, the ability to use modern IT in professional activities; fourthly, the world outlook vision of the surrounding world as an open information system.

Another of the tasks of informatization of education is the construction of a single information educational space (state, region).

The process of informatization of education includes the following system of activities:

1) equipping educational institutions and educational management bodies with hardware and software of information technologies;

2) connection via high-speed channels to regional, national and international computer educational networks, to the global Internet;

3) creation and placement of information resources for educational purposes in the Internet, integration of various databases at the regional and state level: educational portals, official websites of educational institutions and government bodies, thematic resources, methodical sites, digital libraries, information retrieval and analytical systems and other;

4) development, examination, approbation and implementation of educational software, including digital educational resources;

5) formation of information culture among all participants of the educational process: employees, teachers, students, their parents (in terms of information interaction with the school);

6) creation of a system of support and maintenance of information technology tools in educational institutions and management bodies;

7) creation of a continuous training system teacher Information Technology (courses, crash courses, mini-seminars, regular seminars, conferences, contests the decision of pedagogical problems, individual consultations system, work the problem and creative groups, self-education, professional communication, and others.)

In the concept of computerization of education [5], several stages of this process have been characterized.

The first stage is characterized by the following features:

- started the mass introduction of new means of information technology, and especially computers;

- research work is carried out on the pedagogical development of computer technology and there is a search for ways to use it to intensify the learning process;

- society follows the path of awareness of the essence and necessity of the processes of informatization;

- basic training in the field of informatics takes place at all levels of continuing education.

The second stage is characterized by the following features:

- active development and fragmentation of SIT in traditional educational disciplines;
- mastering by teachers of new methods and organizational forms of work using computer technology;

- active development and the beginning of mastering by the teachers of educational and methodological support;

- setting the problem of reviewing the content, traditional forms and methods of teaching and educational work.

The third stage is characterized by the following features:

- the widespread use of modern IT in training;
- reorganization of the content of all levels of continuous education on the basis of its informatization;

- a change in the methodological basis of instruction and the adoption by each teacher of a wide range of methods and organizational forms of instruction supported by appropriate means of modern information technology.

Conclusions. Practical implementation of computer technology and the transition to subsequent stages of informatization are related to the selection of the content of individual subjects for the purpose of creating computer programs. The software should reflect the current curriculum and be time-related with the school curriculum. Thus, one of the leading scientific and methodological problems in this case is the creation of a methodology for designing modern information technologies in relation to school education.

As you can see, each period of informatization of education has two parallel development branches: technological base and innovative processes in the education system.

Taking into account the enormous influence of modern information technologies on the education process, many educators are increasingly willing to include them in their methodological system. However, the process of informatization of school education can not happen instantly, according to any reform, it is gradual and continuous.

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