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PRIORITIES AND GAPS OF USING COMPUTER TECHNOLOGIES IN THE EDUCATIONAL PROCESS

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ABSTRACT

The article reveals the prospects for the development of new educational strategies in modern conditions and analyzes the use of computer technologies for creating an effective educational environment. Their implementation in the educational process enables students to learn with interest and find necessary sources of information, fosters independence and responsibility in obtaining new knowledge and develops the discipline of intellectual activity.

Keywords: *Computer Technologies, Educational Process, Intelligent System, Networks*

1. INTRODUCTION

For today in each institution applying software and expert systems for a wide variety of control and test programs designed for automated control of knowledge. With a special control or test programs, you can spend the final and landmark control of students' knowledge. Control programs can be prepared individually or they are an integral part of e-books, educational tools [1].

Test items can be of two types: indoor test, if pre-prepared answers will be used; open test, if the student independently writes the right answer.

Colloquiums, exams, tests, automated control of knowledge and skills of students in the protection of student projects, creates conditions for improving the reliability of the control, verification of conformity of the students' knowledge to state and regional standards [2].

Providing the high educational institutions by computer and local networks, preparation of the electronic books in the educational sphere, virtual laboratory work and preparing the other computer technologies, also the indicators and common symptoms of the informatization level are the necessary conditions of the modern professionals' preparation [3].

The purpose of this paper is to consider the modern application methodology of computer technologies in education.

In this connection, the following objectives have been set:

1. to carry out a theoretical analysis of the scientific and methodical literature on the study of computer technologies, which are used in the educational process;

2. to analyze the published data on the major principles and conditions of the use of computer technologies in the educational process.

3. to identify the practical importance of the use of computer technologies in education.

The problem of informatization and implementation of computer technologies in the educational process is relevant today. The present paper highlights the benefits and conditions of the use of computer technology in the educational process. It also provides the ways to improve the learning content using computer technology, based on scientific advisory recommendations and experience of higher educational institutions of Kazakhstan.

Analysis of recent research in this sphere gives a possibility of making a result about the maximum efficiency of test and control, expert systems, implementing effective guidelines and achievements in new technologies. Firstly, in the preparation and implementation of monitoring programs, it is necessary to consider instructional techniques that encourage mental activity of students in the initiation and creation of audiovisual

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materials. Secondly, the creation of modern software used in the learning process should be based on the capabilities of multimedia technologies and intelligent systems that allow the usage of text, graphics, sound, animation and video parts.

2. METHODS

In the determination of the main objectives of education informatization, it is necessary to specify in detail the following directions: improving the efficiency and quality of the learning process; acceleration of research processes in higher educational institutions; the output of regional higher education on Kazakhstan and world information systems and their integration [4].

Russia has prepared a universal concept of information model of educational databases covering the different areas of specialty and activities, based on many years of experience (authors: V.I.Averchenkov, V.B.Ilitsky, V.V.Naduvaev, Yu.M.Kazakov E.N.Frolov). Educational base and database of educational specialization, focused on the use of different data arrays applicants, students, graduate students and undergraduates; also they are a brief statement of the principles and problems of different courses with links to tutorials, educational and scientific literature [5]. The close relationship between educational databases and database of information researched disciplines, links can be represented in the form of hypertext. Therefore, a universal system is prepared to work with hypertext, allowing simultaneous control of symbolic information on the monitor, also cover the objects represented in the form of rastr graphs (PCX) and vector (DXF) format [6].

In recent years, Kazakhstan has been fulfilling the intensive work to build a database of other specialties in different directions. The received data and knowledge base provide an automated search of information on certain subjects in design and arts and crafts, there is a summary of covering a glossary of key terms, a list of educational materials, curriculum specialty and text and graphic information of special disciplines [7].

In tough modern market conditions, the rate of preparation for the manufacturing of a product is important. If the product is faster and more efficient, there is a high probability of sale of this product [8].

In many educational institutions of the country, methods of social science disciplines focused on the use of computer technology in the educational process are widely used. A striking example is the organization of learning through the multimedia technology. This multimedia tutorial is mainly used in laboratory studies and is a complex integration of theoretical and practical materials, supplements materials of lectures. In the course of its use increases the efficiency of the learning process, increases the level of students' knowledge. The use of this type of computer technology in the learning process, encourages cognitive activity of the students, creates conditions for improving the skills of independent work in the course of employment [9].

The mainframe of the computers creates the conditions for the development of integrated programs that synthesize these types of software as a control, training, modeling, identification, digital program.

For the implementation of didactic principles of effective formation the preparation for the using of computer technology of the students in professional activities must implement a strict system of training. In the informational courses, covering work with the containing application software in Windows, in the early stages of development of basic computer literacy, basic skills development formed personal computer. The next stage should be devoted to research and widespread use of special software. This step is essentially realized on the courses by their specialty. In recent years, through the wide using of computer technology thesis project is executed. This stage of the student realizes own with some help from the manager [10].

Implementation of learning through the use of computer technology, is one of the most important ways to improve the technology training of future specialists. This process requires the formalization of the necessary knowledge and skills to arm the students. But here G.R. Gromov the Russian scientist developed a "pattern": “As long as one of the areas of professional activity of the person adapted to automation based on computer - is, figuratively speaking, the outer thin layer of formal knowledge, covering a space of information process, accumulated by mankind. The same layer up to now became as a possible area of machine-to-use methods in solving intellectual problems” [2]. Proceedings of the density of this layer will be automated, the ratio of the professional knowledge of experts and the total depth, according G.R. Gromov is an indication of the likely effectiveness of achieving the introduction of computers [11].

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3. RESULTS

The acceleration of training the future specialists for professional work is impossible without the using of computer technology. This is the result of growth of creative labor, growth of processed information. Possibility of using them agreed formality of many aspects of the creative and exploratory processes, achievements of computerization sphere in integral part of stereotyped management, research, design, engineering, operational and technological services [12]. They create the conditions for quality aspirations in the intensity of scientific and creative works of students, to be more precise: extend the capabilities for collecting and reporting the information required for the training and professional activities of students; create conditions to encourage the participation of students in the educational and research work; actively engage in the work directed to the disclosure of the various parties to the problem definition of the object of research; empower the development of data used in the professional work of students; provides propensity to management, allows a qualitative change in control of works by students; creates conditions for the formation of reflection own activity of students [13].

Also contributes to the implementation of the following actions:

1. Finding the information. In practical terms, the student after graduating from high school, is forced to search the information and rely on guides, instructions, standards, patents and other documents. Such work can be implemented in a computer memory, translated into the system and machine language. Therefore, intensive training of future professionals to the profession in the first place should be directed to the development of each student's automated, information retrieval systems.

2. As you know, one of the third part-time professionals in the field of art takes the acceleration performance of the action (in this case, it is difficult to get rid of errors in the calculation, leading to difficult consequences). Much more quickly and accurately executed on a computer such action saves time for creative and search warrants to avoid mistakes in dealing with various professional problems.

3. Automation of the preparation of documents using computers, which occupies 20% of the time many experts, is reduced by more than 10 hours [14].

For training the professionals of the twenty-first century should not be limited to the development of training manuals or selection of teaching staff, the organization of computer labs and classrooms, they are needed in a complex that is required by a particular system (Table 1). In particular, require a holistic educational information system in higher education, in which students will learn to act, with the beginning of the school year, most of the student learning and organizational problems solved with the use of this system. Creation of an integrated educational information system and its efficient operation, brings a new demand and term scientific and technological development in the conditions of information civilization and creative skills in training [15].

Table 1. Use of computer technology in the educational process

Use of computer technology in the educational process	
Priorities	**Gaps**
Consistency (validity)	Sensual monotony
Visualization	Lack of communication
Depth of knowledge (creativity)	Lack of the group result
Concrete thinking	Health risk
Effectiveness of the controls	Loss of minor conditions
System of thinking	Not individual observations
Dynamics of the main representations of thought (energy)	Detached motivation (separation)
Regulation of time	Lack of current consultations
Mastering computer technologies	No reception beliefs
Coordination of training in computer technology	

4. DISCUSSION

Generalization of the experience of using the computer technology in the educational process of higher education institutions, enables us to identify the following shortcomings and values presented in the figure [16].

1. Lack of human communication. It separates the learning process from the educational part, reduces the stimulus of human to the following process.

2. The impact of the monotony is an intellectual rigor of the educational process. The effectiveness of perception of the material requires its

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harmonious understanding and action. This is one of the practical components of the educational process.

3. Absence of the group results of the material perception. In the professional formation is great importance has social factors, the principles of the group.

4. In the learning process during the using a computer, often observed the loss of minor, but the necessary conditions. In many cases, a computer program emphasizes the underlying problem and does not directly take into account the individual parts and pieces.

5. Control of knowledge in a computer program is a rigorous process. It does not cover assessment of the characteristics of the individual and not directed self-understanding of the student.

6. Computer Technology specify feeling alienated students and affect their professional formation.

7. Computer technology limit the possibility of direct adjustments to the structure of knowledge, enriching the concept, its adaptation to the characteristics of a group of students.

8. In the computer programs is not always possible to use practical examples, discussion techniques to stimulate and beliefs.

9. Using the priorities of computer technology in the educational process, make up for these shortcomings.

Consider them carefully and consistently:

1. Computer technologies create conditions for seeing and understanding the logic of creating the concept of gradual deepening of the development of course materials. This is accomplished by creating animation in all tables and visualized materials.

2. Visualization of the material perception is an excellent property. It was revealed that tabular form and visual information to digest in the learning process easy, fast and reliable. Working with images increases the efficiency of the learning process.

3. Computer technologies train students correctly transmit their thoughts, clear allocation category, logic thinking.

4. Using a computer in the learning process can be used operating procedure. For example: primary, a landmark and final testing, the transition to a new topic after evaluating the previous topic, while working with the material of each topic on your computer and records the total time of continuous operation, the detailed allocation of the main problems and the ability to view a glossary, a range of programs for the purposes of training.

5. Promotion and development of systems thinking is the another feature of the use of computer technology in the educational process. The student is forced to constantly come up with the character of their actions within the framework of the interaction of various factors (driving force) and properties. The computer does not provide a list of principles and functional as a text tutorial, it gives the system the relationship integrity.

6. Computer improves efficiency and control reality of learning. This is facilitated by the test program is very flexible and a lot of constraints evaluation criterion (integrity, stability, consistency, practical orientation of knowledge).

7. The rate of education is an important factor (driving force) of the training. Now, this is a definite priority of computer technology. It could estimate the speed of a consultative discussion and accompanying recommendations. In the long pause training can be carried out with the students additional testing and a landmark on the results to create technology further training.

8. The computer-based training programs develop computer skills. This, in turn, creates conditions for the effectiveness of intellectual activity for the welfare of human information space.

9. As a part of the purposes of the use of computer technology in the learning process can be part of the game that encourages students to work [17].

4. CONCLUSIONS

In recent years, psychological and educational research, selection and structuring of the content of the basic sciences, given the importance of the new approaches, resulting in more efficient learning.

In improving the structure of the value of education, highlighted the benefits and conditions of use of computer technology in the educational process: creates conditions for the implementation of education, training and development; increases the information capacity of employment, by reducing the time to slow operations, resulting in the development of a large amount of educational information of students in the classroom; allows you to focus on the development of the most

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complex issues and concepts; creates conditions for the submission of a detailed statement of the student the necessary information, the transfer of material room units; allows you to improve the choice of assignments and exercises; forms and skills to develop individual learning and student independence. Implementation of the above ways to improve learning content using computer technology, based on the scientific advisory recommendations and experience of higher educational institutions of Kazakhstan, allows the teacher to accelerate the learning process, to transform it to the largest higher educational level.

Experience in using of computer technology in the higher education system of the republic, the current state of scientific and technical progress, is characterized by the introduction of information technology in all spheres of human activity, particularly in education.

The results allow to carry out learning activities at a qualitatively new level, effectively implementing the scheme: qualitative factual material - modern methods - result. It makes possible to involve the personnel and students in work with the use of modern computer technologies of storage, processing and analysis of information.

The purpose of this paper has been achieved, as far as the research contains a comprehensive analysis of the use of computer technologies in the educational process. It presents the results of pedagogical researches on actual problems of informatization of education, discusses the structure and content of the virtual learning environment and the prospects for its development. Moreover, it considers the possibilities of the use of new information resources in the learning process.

The practical significance of this work consists in the fact that the materials of this paper can be used in the development of different courses on technical sciences, humanities and other disciplines for the analysis and improvement of the use of computer technologies in the educational process.

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