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Features Of Training Methodology Using Modern Pedagogical Technologies

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Annotation. The article deals with the problem of using modern information technologies in the educational process in the form of interactive training programs and computer tests.Their advantages, restrictions and place in the educational process as well as their influence on quality of education are considered.

Key words: information technology, biophysics, chemistry, geophysics, "bridge" formulas, gas mixture, volume fraction, mass fraction, interactive modules.

Search for optimal methods of use, the most complete realizing the potential of modern information technologies in educational process are an urgent problem of modern education. According to the definition adopted by UNESCO, IT is a complex interrelated scientific, technological, engineering disciplines, studying methods of effective organization of labor of people employed processing and storage of information, as well as computer technology and methods for organizing interaction with people and production equipment, their practical applications [1].

Lately under information technology most often means computer technologies. Specifically, IT deals with the use of computers and software for creating, storing, processing and transmitting information.

If we consider the application and use of modern information technologies in the field of education, then this direction has very favorable preconditions. Thanks to the fundamental the relationship between the processes occurring in computer systems and educational processes (both are information processes), computer information technologies very organically merge into the sphere of education in its various aspects, forming informationeducational environment [2].

Let's consider one of the most important aspects of informatization education – the use of IT directly in the educational process. Modern information technologies have a number of properties, that contribute to the effective performance of basic functions training. These properties can be briefly formulated in the following list:

1) the ability to store large volumes of educational information and issuing it in accordance with complex training algorithms, including including branched ones, capable of taking into account individual characteristics the trainee, for example, the pace of his work, the level of his preparedness and his opportunities for dialogue;

2) the ability to study complex processes in a visual form in as a result of laboratory work and setting up various experiments not on expensive equipment, but on mathematical models of phenomena and processes with visualization of results on screens computers in a human-readable form;

3) possibility of automated or fully automatic control of students' knowledge using computer technology testing and the currently developed theory of computer
testing;

4) the opportunity to influence the student and transmit to him information simultaneously through several channels of perception: visual, auditory, tactile (multimedia learning environment);

5) network computer technologies that make it possible to implement distance learning, broadcast of lectures highly qualified teachers to a wide network audience,
which have already become popular on the Internet - webinars, remote control
knowledge, and even interactive on-line interaction with the teacher on long distances, very effective, for example, when studying foreign languages with native-speaking teachers via skipetechnologies;

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6) the phenomenon of the global computer network Internet, which is a convenient source of unprecedented volume various information, qualitatively changing the entire system of accumulation, storage, distribution and use of collective human experience.

Sometimes society with its introduction into the educational process information technology is associated with an indispensable improvement in quality

education. But, despite all the advantages listed above, it is impossible talk about information technology as a panacea that can radically change the educational process, raise it efficiency to a level that was fundamentally unattainable and, most importantly, the main thing is to significantly improve the quality of knowledge received by graduates.

As practice shows, the introduction of information technologies into education, unfortunately, does not lead to the above desired effects, including the most important – cardinal improving the quality of acquired knowledge. This indicates no paramount, but only about the auxiliary role of information technologies in the educational process.

What are the reasons for this discrepancy between expectations and reality?

Despite the fundamental similarity of information processes knowledge and computer information technology, yet they have significant differences. If the way to organize information processes, mechanisms of remembering and processing information in humans and modern computer systems were the same or at least similar, then such computer technologies would be basic and irreplaceable educational technology.

Education would be reduced to pumping information (knowledge, skills and abilities) from the universal human information base directly into the brain of the educational subject process. But since the nature of these processes is different, the role information technology in education in its current form is located on the second, auxiliary plane.

Based on these considerations, we can say that information technology is just a convenient tool that can make work easier teacher, automate many educational functions process, provide the learner with the maximum necessary information in in the most convenient form for perception. How to use it optimally this instrument is a matter of teaching methodology, the teacher and his ability to use this quite powerful tool.

Methodology for conducting a typical practical lesson with using interactive training programs and computer testing is structured as follows. In the thematic plan of the discipline and sequence chart. The course is planned to take mostly four hours practical exercises. At the beginning of the lesson, after announcing the topic, goals and the order of the lesson, the basic knowledge is updated students based on the material covered in the form of computer testing (input knowledge test) lasting 15–20 minutes. Then students work independently with the interactive training program with intermediate testing on a given topic. At this stage there is a more in-depth and detailed study of the theoretical material given in the lecture, or studying additional theoretical block not provided for in the lecture.

Algorithm interactive training program provides, as stated above, intermediate control of the degree of mastery of educational material. If gaps were found during the interim control test or insufficient level of assimilation of the material; transition to the beginning occurs module of educational material, which identified unsatisfactory knowledge, and the learner repeats this theoretical block. This procedure is repeated until there is an acceptable level of learning material has been achieved. Threshold transition to the next section of the training program is set when

developing intermediate tests by adjusting test parameters. On Working with the training program takes about 60 minutes.

After finishing working with the training program, the teacher has the opportunity to see the student's success in passing all intermediate tests, after which he issues a practical task (most often in the form of an instructional card) for developing and consolidating practical skills and abilities on the topic of the lesson. This stage of the lesson also includes about an hour of class time.

Next, about 25–30 minutes are allocated for the final knowledge control throughout the lesson in the form of a computer test. The final assignments include test usually includes tasks from all intermediate tests of the training program, and may also include questions covered while completing

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practical task. The final grade for the lesson is made up of grades received by the trainee for each stage of the training session.

From the description of a typical lesson, it can be understood that the feature training using interactive training programs and computer testing is to increase the level independent work of students with a computer. When studying disciplines information profile, this has a double effect: a new material and at the same time strengthen computer skills.

Also, the features of this technique are significant automation of the teacher's work, which frees him from routine repetitive pedagogical procedures and concentrate its attention to explaining the most difficult moments of educational material, help for those lagging behind, etc.

The application of this method of conducting classes revealed the following positive points.

First, interactive training programs provide the opportunity to study new educational material for each student in at your own pace, which, as you know, is different for everyone. This creates psychological prerequisites for better assimilation material.

Secondly, each student is forced to self-test during training and knows his gaps and weak points that should be addressed pay special attention.

Thirdly, regular testing during the training process and the requirement mandatory passing of all intermediate tests of the training programs, again, are forced to increase the activity of the individual in learning, responsibility and concentration when learning new things material.

Fourthly, the teacher using the interactive training programs, very easy to control the process mastering educational material and, accordingly, managing the process training. To do this, it is enough to track the results of passing sections for each of the students.

Fifthly, with this learning technology it is relatively easy carry out final control of knowledge. To do this, it is enough to combine test tasks into one final test on a given topic, a set of topics, semester, course or discipline. At the same time, students almost never there is no doubt about the objectivity of the final assessment, regardless of its magnitude or claims of the form - "we didn't go through this." Every

The student receives an assessment at each practical lesson, which leads to to a responsible attitude towards the subject.

Automation of knowledge control using computer Assistent testing system also revealed a number of advantages:

1)   the possibility of automation is quite labor-intensive and responsible activities related to determining the level of preparedness subject or the degree of assimilation of new educational material in the case of intermediate testing;

2) reducing time costs while increasing quality knowledge control. For example, when organizing incoming knowledge control You can use a small test for 10–15 minutes. At the same time, everyone the student will be offered his own set of tasks from a large common database assignments on a specific topic. If testing is carried out in computer class, then the time allocated for entrance control is significantly reduced, since all students are tested simultaneously;

3) development and inclusion of such new features in testing Assistent system, such as automatic adjustment of individual scores tasks based on the analysis of accumulated statistical information, mechanism for refining the assessment using classical mathematical statistics, made it possible to increase the accuracy of pedagogical measurements and objectivity of the assessment;

4) as the trainees themselves note, more comfortable psychological conditions for monitoring knowledge, there is no psychological pressure from the teacher and no controversial issues arise.

Thus, practice shows that computer information technology greatly facilitates the work of teachers, by automating routine and repetitive processes, they increase efficiency of organizing the educational process, create more comfortable working conditions for teachers and students, as well as conditions for improving quality of learning outcomes.

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