

THE SIGNIFICANCE OF THE APPLICATION OF INFORMATION TECHNOLOGIES IN INCREASING THE EFFICIENCY OF CHEMICAL EDUCATION

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Abstract. *In this article, on the basis of factual material and scientific analysis, the didactic significance of the use of information technologies in improving the effectiveness of chemical education is highlighted. It is shown that the introduction of materials created with the help of information technologies, electronic resources into the educational process helps to increase the effectiveness of training.*

Keywords: *chemistry education, learning effectiveness, information technology, information technology programs.*

Introduction

Today, the formation of new social relations in our society, the integration of education into the world education system, the development of democratization and humanization processes require a new approach to modern pedagogical technologies (PT) in the educational process.

Relevance of the topic

In our republic, a large-scale work is being carried out on the use of pedagogical and information technologies in the educational process. The scientific-theoretical foundations of this problem, specific aspects of each pedagogical technology have been developed and enough experiences have been collected.

The formation and development of the system of information provision of education, its connection with the world information system, defining the tasks of the mass media in the field of education" are important criteria for the training of qualified personnel. [1-5].

Integrating information technology into the educational process has the following advantages:

- first of all, the use of computers and information and communication tools in the educational process, the ability of students to work with them, does not allow subjectivism, which is considered one of the most important shortcomings in the pedagogical process. data will be objective in nature;

- there is an opportunity to recall and repeat the information given to the child through the computer, if necessary. This ensures that some students do not exhibit a quality such as faith, which is observed when working in a group setting;

- each professor-teacher has his own explanatory style, methodical approach. The use of computer tools eliminates ineffective methods in pedagogical processes;

-new information transfer technologies express knowledge, and schemes, pictures, tables, graphs and diagrams are given a wide place in it. This can make students' visual memory much more lively and increase their ability to remember;

- information on media can be recorded on discs and used repeatedly. This saves both time and money, and is economically cheaper than books printed in hundreds of copies. Most importantly, the interested audience will be able to get the information they want in the same quality and system.

As a result of the analysis of educational and scientific literature on the introduction of information technologies into the educational process, it became clear that most of the reported works are focused on the process of teaching humanities and natural sciences. [6-8].

Using the method of information technology in chemistry there are very few teaching articles, recommendations and guidelines.

The main part

By implementing the materials studied in the course of education and training with the help of information technologies, the effectiveness of the lesson is achieved. In particular, programs such as RAIN, ROWER, ROINT, PHOTOSNOR, SOREL DRAW can be widely used during Chemistry classes. If the materials prepared with the help of these programs are shown step by step through a screen on a multi-projector, more information and imagination will be formed in the minds of students. In addition, such prepared materials can be used by teachers and students, as well as other professionals. Existing operating systems on modern computers, programs called RAIN, ROWER, ROINT, PHOTOSNOR, SOREL DRAW, which are called graphic editors, can solve the process of step-by-step creation of multimedia products by animating dynamic models of images that are being implemented in chemistry classes.

ROINT has the ability to create various geometric shapes and images through the available tools and color palette in the graphic editor. It performs practical tasks such as transforming images from simple to complex into different views and can provide students with step-by-step access to several dynamic views. Such a modern method of drawing is easily accepted by the students, and they learn the chemical processes carefully in the sequence.

Image slides are created in the ROWER ROINT program. The images in the sequence process are specially animated with the help of a computer, and a product of image views is prepared. In the current section, processes such as moving and changing the image are covered. By installing a picture of a chemical process into this program through a scanner, it becomes possible to change it, add additional fragments, and especially refer to the processes that should be performed by students.

In the FOTOSNOR program, it is possible to "images installed through the scanner, video camera, video glass devices" to various views, i.e., simple or complex processes can be performed. Through this program, the same device is shown in several views, and a sequence of ways to perform new image experiments is developed. Thus, complex practical experiments can be performed with the help of SOREL DRAW programs.

The advantage of a lesson written on a computer with the help of programs is that the structure of the described processes, the construction of equipment and their qualitative description are determined, and the student gets to know the dynamic model of chemical processes that is close to reality, and this can serve as an example for the work to be done. A student cannot get an effective result in such a short time in any other teaching method.

Computer devices that are considered information technologies, i.e. scanners, digital video cameras and cameras, multi-projects, and the data obtained from educational literature, magazines

and other sources are downloaded to the computer memory and displayed on large screens will also make the teaching process more meaningful. Because according to the folk saying "a sight is better than a hundred words", the presentation of the educational material is drastically different from the presentation of the text. Therefore, with the presentation of educational materials using modern information technologies, transition to modern methods of organizing the lesson process, and if the mastering of these materials is not sufficient, it is possible to revise and improve the level of mastering by repeating on the monitor. In addition, in addition to displaying the processes on the screen in the form of slides, it also creates a set of creative works of students and pedagogues and introduces them to the teaching process, which gives a high result.

In chemistry classes, the level of knowledge acquisition is very high. The essence of this is that students will be very interested in the processes that are shown on the screen through the video glasses connected to the computer. As a result, the process is easily mastered. At the same time, there is an opportunity to review the processes 2-3 times.

Electronic technologies SD-disks, electronic textbooks also make chemistry classes. [9-14].

Summary

The sound organization of information technologies with the help of multimedia tools helps to learn the processes that cannot be shown using theoretical traditional tools, and the learning materials are easier to be mastered by students. With the help of modern information technologies, visual and audio delivery of educational materials leads to a new form of organizing the lesson process, introduction of new pedagogical technologies.

In addition, now, with the implementation of the reforms mentioned above, great attention is being paid to the distance education system. There are opportunities for remote learning of information created on the organization of chemistry classes through the sites created in our university. Through e-learning guides, textbooks on these sites, they can get more information and understanding in a short time.

Of course, for the effective use of such opportunities by students, teachers and specialists who are improving their skills, materials created with the help of information technologies, the orientation of electronic textbooks to targeted creative research creates a basis for their professional training.

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