

MODERN TECHNICAL TEACHING AIDS, THEIR CHARACTERISTICS AND FEATURES

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As a result of the rapid development of society, its informatization and the level of use of information training tools increases every year. The traditional system of education in higher education institutions should change on the basis of advances in science and technology, which is associated with the improvement of methods of organizing and conducting the educational process. An important area of intensification of the educational and cognitive process is the use of technical teaching aids, including computer technology.

Using technical teaching tools gives educational and methodical work with students more saturated, dynamic, creative and intensive character. Modern education is based mainly on the verbal method of knowledge transfer, where the perception of oral information predominates.

The expediency of the using technical teaching aids due to the objective laws of the physiology of higher nervous activity and the psychology of personal perception based on them. Data from physiology and psychology show that the senses predominate in the process of learning. A particularly important role in the formation and development of thinking belongs to the visual and auditory analyzer.

In the conditions of rapid growth of information flows and increase of deficit of educational time audiovisual means allow to present and master much bigger volume of educational knowledge for the same term of time. At the same time, the quality of information assimilated by students increases due to its clarity, selection in graphs, charts, diagrams, slides, videos, the main structural elements of processes and phenomena.

Recently, such a type of technical means as educational television has become widespread, which with the help of modern television equipment and television internal networks and the necessary methodological support has become widely used in higher education [1].

Realization of possibilities of new information technologies is multifaceted: This immediate feedback; computer visualization of educational information; archival storage of large amounts of information and easy access to it; automation of computing and information retrieval activities; interactive dialogue; control of models of various objects, processes, phenomena displayed on the screen; automated control; trainings, etc.

Depending on the functions performed, the following features of the classification of equipment can be distinguished:

– a measure of universality, shows the possibility of combining several functions;

– the ability to prepare or present information;

– the ability to work with audio or video materials;

– the ability to work with static or dynamic video documents;

– the ability to work with macro- or micro-objects [2, p. 101].

A computer allows doing the widest range of work. Apart from the traditional computer functions, such as the preparation of the text or graphic information; work with databases or subscribers of computer networks and others, preparation and demonstration of video films on various carriers become more and more important; creation, processing and listening to musical works; appeal to the world's sources of text, video or audio information, working with television signals in digital format.

The use of modern educational multimedia technologies requires the using of technical teaching aids in educational institutions, which allow increasing the technological tools of teachers; automating administration processes. The using of technical teaching aids helps to improve the methodological skills of teachers; emergence of new electronic pedagogical tools; using of e-learning programs, tests, exercises, etc. [2, p.101].

Technical teaching aids perform the functions of a source of educational information, a detector of the organization of attention and observation. The use of information technical means forms a certain emotional attitude of students (cadets) to the material of study, stimulates their interest in a particular subject. Some technical tools allow assessing the intensification of training, control and self-control of knowledge.

The educational process becomes more exploratory, problem-hypothetical, model with increasing importance of independent work of students. Use of modern technical means of training gives the chance to develop and activate mental activity of students, to instill in them skills of analytical action and scientific search.

Modern technology opens up great opportunities for the teaching staff of higher education institutions to continuously improve the efficiency of the educational process. Despite the perfection of technology, the key role in organizing the learning process is played by a teacher. Using technical means of information or automated educational systems, the teacher remains the main organizer of the educational process, organizes didactic materials, is the author of the curriculum, textbook.

Modern requirements for the restructuring of education require the search for new approaches, methods and organizational forms of improving the educational process.

Thus, in the learning the technical teaching aids are considered in two aspects:

- as technical devices (their structure and principle of operation, basic methods of working with them, rules of maintenance, sanitary and hygienic standards of application in the educational process);
- as a means of learning (their didactic and methodological functions, principles of construction and features of the organization of pedagogical activities with using of technical teaching aids) [3, p. 121].

Technical teaching aids are a tool for creating a learning environment. Because of this, their comprehensive selection and staffing, taking into account the content of the educational process, determine the effectiveness of their use. However, they always remain only a tool for the implementation of the educational program developed by the teacher, and in themselves cannot have any special didactic value, which is especially important for the development of technical teaching aids in pedagogy. In order to use technical teaching aids correctly, it is important to establish their relationship with other teaching aids used in the classroom. The effectiveness of the educational process largely depends on how successful the interaction of all teaching aids will be.

The use of technical teaching aids in the educational process allows using large amounts of information and thus increasing the productivity of the teacher, depicting the processes in space and dynamics, to reproduce certain events and their soundtrack by the teacher or student. In order for more listeners to have access to information, it is possible to speed up or suspend a certain process.

Technical teaching aids can be classified on various criteria, in particular: by purpose – wide (used regardless of age, in different fields of knowledge, in all types of classes, not only to provide certain information, but also to control their assimilation) and special (devices that provide information about the dynamic nature of processes, structure mechanisms and interaction of their elements); functions performed (data presentation tools and knowledge control tools); way of influence (visual – influence only on the organs of vision, auditory – influence only on the auditory organs and audiovisual – simultaneous influence on the organs of vision and hearing) [4, p. 117].

The introduction of technical means of learning in the educational process on the basis of information technology opens up significant opportunities for the implementation of an individual approach. This allows students to influence their individual mental characteristics (memory, imagination, observation), to develop critical thinking. Of particular importance in the individualization of education is the quality control of knowledge,

skills and abilities of students. Control should be systematic, constant, and personal. Such control is usually not easy. The use of technical means of control, computer control programs greatly facilitates the work of the teacher [4, p. 118].

In particular, the development of a unified approach to the introduction of computer technology in the educational process, development of methods of use in practice, training of pedagogical staff for their development and implementation in the educational process, preparation of students for the using of technology to acquire knowledge, search, development, creation of appropriate methodological support and logistics of the educational institution.

The transition to computer learning technologies, creating conditions for their development, testing and implementation, finding a combination of new and traditional requires solving a number of problems.

The use of technical teaching aids in the educational process significantly increases its efficiency, improves the level of assimilation of new material. Therefore, the development of areas of application of technical means in education should be an important element of work in educational institutions.

Consequently, technical means of training are the equipment (specific carriers of educational materials) and the equipment applied in the educational process for the purpose of increase of its efficiency.

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