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ROLE OF MULTIMEDIA MEANS IN TEACHING COMPUTER SCIENCE

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Abstract: *This paper deals with the role of multimedia means in the process of teaching informatics.*

The new information technologies steadily expanding sphere of their influence in a modern society predetermine a need for intensification of preparation both of experts in the field of computer science and users of information products. From the point of view of cybernetics, the training should be understood as process of approximation of a dynamic model of knowledge generated in consciousness of the contents, learning to model, of training, stipulated by the contents of a subject. It is well-known, that effective didactic means promote formation of dynamic model, which, on the one hand, promotes understanding and storing of concepts, laws and opportunities of the given subject, and on the other hand, addresses to concepts and subjects already acquired.

Now it is possible to assert with confidence that the first wave of general enthusiasm for creation of computer tutors in the field of exact sciences draws to a close. The interests of the experts engaged in development of electronic means of support of education are displaced in area of use of opportunities of multimedia and network technologies for distance learning. At the same time, it should be recognized that despite of numerous attempts to prepare the computer textbooks on computer science rather limited number of ready products justifying their names is created until now. The fast progress of the developers in area of development of new modern technologies causes essential break between today's products and technical opportunities of their real consumers: schools and high schools in the Azerbaijan Republic.

It is known that ability to create and freely operate spatial images during the solution of applied tasks is considered today as one of fundamental human abilities describing a level of general intellectual development of a man. In modern conditions of development of science and engineering there is a steady tendency to use the schematic performance of information and to replace the real spatial objects by their models. Therefore the skills to create a spatial design of object on the basis of its graphical presentation are necessary for the experts of any kind. The basic role here belongs to the geometry. However, a number of experts believe that the above-mentioned ability is formed unsufficiently. Now these lacks are solved with the help of multimedia.

In modern teaching process the role of former traditions which have not lost their objective value is significant. The main purpose of traditional training is teaching the students through the system of scientific knowledge, strong skills and skills by means of which they can not only acquire new knowledge, but also actively use them in personal and public practice. From generalization of experience of traditional training there occured such principles of it as scientific and systematic character, visualization, consciousness and durability. But in conditions of traditional training the centre of gravity is transferred on art and skills of the teacher himself who uses such methods of training which effectively influence the students.

From the theory of pedagogics it is known how great importance have the principles of training - basic normative rules which must be used in order to make the training effective. Principles of visualization, scientific and systematic character, consciousness and activity, strong mastering of knowledge, regular training are among them.

Speaking about videocomputer means, we shall mean the integrated technical complexes uniting a local network of personal computers, videoserver and specialized videomeans (videocamera, videorecorders, appropriate interfaces and converters). By virtue of extensiveness of the given subject, it can be related to multimedia technologies. The justification of

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application of multimedia means is determined first of all by the possibility of their use both in professional sphere, and in life.

The application of multimedia in education and training (Computer Based Traning - CBT) is supposed both for educational establishments, and for personal usage [1, 3]. In the future the importance of this area of application of multimedia will grow as the knowledge providing a high level of professional qualification is always subject to fast changes. Today's level of development, especially in technical areas, requires constant updating and technique, a basis for existence of which is the use of various means of training (personal computer and videorecorder in this case). They should be rather flexible. It is case both for general educational and for special educational institutions.

Multimedia is a roughly developing information technology. Its distinguishing features are [2]:

- Integration of various kinds of information in one software product, both traditional (text, table, illustration, etc.) and original (speech, music, fragments of videofilms, etc.). Such integration is carried out under the control of computer with the use of various devices of information playback: microphone, audio-system, optic compact disc player, TV set, videorecorder, videocamera, electronic musical tools;
- working in a real time, as unlike the text and diagrams, static on the nature, audio and video signals are considered only in a real time;
- new level of interactive "man - computer" dialogue, when during dialogue the user receives more extensive and versatile information that promotes improvement of conditions of training, work and rest.

The new opportunity of computer-based processing of sound and images in addition to already habitual processing of texts and mathematical formulas undoubtedly will affect teaching not only computer science, but other subjects, too.

Now there is a well developped methodology of creation of systems of intensification of training on the basis of copyrighted multimedia systems designed for the computer systems of high efficiency. At the same time, multimedia, as well as videomeans, are not an independent class of objects, and should be referred to the group of means of training.

Let's note the following positive aspects of application of the above-stated means.

First, the training with the help multimedia means (including videocomputer means) is more effective than training with the help of traditional TV. The interactivity of these means when observing certain conditions strengthens a learning efficiency. The contents of an educational material becomes.

Second, the dynamic visualization with elements of animated cartoon and machine diagrams increases intellectual activity of students and essentially reduces their passivity. The potential advantage of multimedia means is an opportunity to improve the process of development of didactic material used during training.

Third, multimedia means have an opportunity to strengthen understanding and attention of students.

Fourth, the speed of process of mastering study material does not entail deterioration of a level of residual knowledge. A video or audio program accelerates the rate of training, increasing thus volume of the cognitive information. Hence, it intensifies the process.

One of widely spread multimedia means is a videofilm. With development of new information technologies, this element has received a new embodiment on screens of monitors. The opportunities of fragmentary viewing, stop and repeat become a prerogative of a trained, not only of a teacher.

In comparison with traditional methods, use of videofilms (as one of multimedia means) has some important advantages. One of them is a dynamism of a represented educational material realized via through various special means of video-engineering. Videofilm allows to watch a phenomenon or a process many times, and consequently, it is a tool of realization of the basic principles of training. The visual and habitual character of information transfer promotes

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more effective perception and positively influences imagination of students. The video-frame as a basic element of videofilm should be considered as a subjective corner of installation of the camera which allows to create an impression of being viewed by eyes of a spectator. The choice of elements of videofilm for creating one's of own basic video-signals allows the students to create their own video- and audio abstracts.

The important advantage of use of educational videofilms is the opportunity of expansion of an educational audience. The large group of students can simultaneously observe, for example, very small object, the difficult experiment etc. The basis of educational videofilm is a didactic program, i.e. an educational material simulated recorded by videomeans.

The educational videofilm is a multimedia source of knowledge not only because it is applied as an information carrier, but, first of all, due to use of symbols. The accuracy and ease of perception of these means is increased by visual performance of the phenomena, through dynamic pictures in natural situations.

It is possible to classify educational videofilms, as well as multimedia programs, as follows: lectures, conversations, programs representing objects in their natural environment, anecdotal programs. As criteria for classification of various methods of performance of the audiovisual information and purposes of education are qualified.

From didactic point of view, multimedia means (and videocomputer film as one of them) are not only tools improving process of processing information, but also tools forming new opportunities for training. The camera, videorecorder and computer allow to expand borders of knowledge, provide variety of representation of information. The opportunities for the analysis and synthesis of educational videomeans and multimedia means are enlarged by various methods of visual organization and visual attention of students. These methods include [1]:

Increase or other change of watch space with the help of changeable motion-picture shots (large, average, distant, micro, macro, etc.);

Show of the phenomena in time by change of speed of shooting (accelerated, slowed down), speed of reproduction and by means of various ways of editing combinations, transitions and other methods;

Watching object and phenomenon by change of the point of view of observer and camera angle;

Orientation of watching using various elements of a spatial and representational composition of separate pictures and the whole of videofilm.

During the use miltimedia videofilms the motivation of students is formed.

The control and self-checking is an important didactic element promoting conscious and strong mastering of the contents of education. To ensure self-checking during educational process, the clear and consecutive logic of an educational subject is needed. The principle of independence in training can be rather simply carried out with the help of videofilm. Educational miltimedia videofilm will help the students to restore the missed or the forgotten. Besides, the students can work as well in off-hour time.

The principle of availability of multimedia means at classes also should have the further development. The individual features of some students cause the necessity of numerous recurrence of one or another component of the film, each of which has some meaning.

With use of these educational means it is possible to easily introduce basic facts and concepts. Each fragment of videofilm should bring effect promoting active reflection, search of rational decisions. Besides, it is established by researchers that multimedia means can carry out the instructive functions more effectively than the other means do.

Usage of computer videofilms does not reduce a role of the teacher by no means. The teacher is a scripter of a class. The efficiency of a class depends on what part of it will be set aside for multimedia means.

It is known that the usage of technical means of training should take into account age and individual features of students. That is caused by a set of various factors reflecting the process learning. The videocomputer means are not exception, but they have a number of particularities on the matter considered below.

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Multimedia means allow to take into account not only age and psycho-physiological features of everyone trained, but also such exterior factors as missed classes (whether on the occasion of illness or not), distracting moments (music, noise, people around chatting), etc.

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