# METHODS OF USAGE MULTIMEDIA TECHNOLOGIES IN HIGHER EDUCATIONAL INSTITUTIONS

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## ABSTRACT

Using multimedia technologies opens new opportunities in educational process as well as in development of creative abilities of students. Educators, scientists, programmers, producers of multimedia teaching aids, teachers-practitioners all together open new informational educational environment where the determinant is integration of educational and informational approaches to educational content, methods and learning technologies.

**Keywords:** Multimedia technologies, informational base of educational process, visualization of knowledge, interactive interface, demonstration of visual materials, creative thinking, multimedia equipment, electronic learning systems.

## INTRODUCTION, LITERATURE REVIEW AND DISCUSSION

One of the leading trends in the informatization of society is the development of multimedia technologies, their penetration into various spheres of social life: production, business, science, education, and mass consumer culture. Providing a wealth of content and form, a combination of various types of textual, graphic, speech, musical, video, photo information and a variety of methods for their extraction, these technologies form a multimedia perception of the world.

The use of multimedia technologies opens up new possibilities in the organization of the educational process, as well as in the development of students' creative abilities.

For the effective implementation of active learning methods, a lot of serious work is needed to equip a sufficient amount of computer equipment, as well as to prepare a methodological and information base in the organization of the educational process. This will ensure the implementation of active learning methods in improving the quality of specialist training, considering the increased requirements in the market.

At present, multimedia technologies are one of the most rapidly developing areas of new information technologies in the educational process.

The first task is to create such models of knowledge representation in which it would be possible to represent objects that are characteristic of logical thinking and image-pictures with which figurative thinking operates with monotonous means. The second task is the visualization of human knowledge for which it is not yet possible to select textual descriptions. The third is the search for ways to move from observable image patterns to formulating a hypothesis about the mechanisms and processes that are hidden behind the dynamics of the observed patterns.

Thus, the obvious advantages of using multimedia technologies (operational use of information, combining audio and visual material, etc.) in the organization of the educational process are

not in doubt. The use of such technologies significantly activates educational information, makes it more visual for perception and easier to assimilate.

The joint efforts of educators, scientists, programmers, manufacturers of multimedia teaching aids and practical teachers create a new educational information environment in which the integration of educational and informational approaches to educational content, teaching methods and technologies becomes crucial.

The modern education system is increasingly using information technology and computer telecommunications, which is facilitated by a number of factors, and, above all, equipping educational institutions with powerful computer technology and developing the Internet community.

The scope of computers in teaching and performing research is boundless. We can distinguish the following priority issues of computer technology integration in the educational process:
- psychological and pedagogical cycle,
- systematization of educational computer tools;
- consideration of the role of the global INTERNET network in training. Each teacher has his own work style. Someone is used to working at the blackboard, someone prefers to explain the material while sitting at his desk or standing at the department, it is easier and more familiar to someone to freely move around the audience.

But nevertheless, many teachers are faced with the need to demonstrate visual materials. The lecture and seminar form of training should be combined with modern innovative solutions. Studying foreign experience, one can highlight the following important aspect: the teacher does not act as a distributor of information (as is traditionally accepted), but as a consultant, adviser, sometimes even a student's colleague. This gives some positive points: students are actively involved in the learning process, they are accustomed to think independently, put forward their points of view, and simulate real situations.

The use of multimedia technologies allows the teacher to more effectively manage the demonstration of visual material, organize group work and create their own innovative developments, while not violating the usual rhythm and style of work.

In multimedia programs, a certain method of transmitting information is used:
1. Interaction of various information blocks (text, graphics, video clips) through hyperlinks. Hyperlinks are presented in the form of specially designed text, or in the form of a specific graphic image. At the same time, several hyperlinks can be located on the screen, and each of them determines its own route.
2. Interactivity, that is, the interactive mode of the user's work with the source, in which he can independently choose information of interest to him, speed and sequence of its transmission.

The multimedia computer for training includes additional equipment: a CD-ROM drive, headphones, speakers. Classroom demonstrations require a special projector and screen.

The use of multimedia programs in the classroom places high demands on the computer: memory capacity, sound reproducing equipment, high-speed drive mode for a CD-ROM or DVD-ROM.

The increased performance of computers has made possible the widespread use of multimedia technology in training.

A wide range of images, the active inclusion of imaginative thinking in the educational process help the student to holistically perceive the proposed material. The teacher has the opportunity to combine the presentation of theoretical information with the demonstration of the material.

Multimedia technologies provide such a presentation of information in which a person perceives it at once by several senses in parallel, and not sequentially, as is done with conventional training. With a combined effect on the student through vision and hearing and his involvement in active actions, the proportion of assimilation of educational material can be 75%.

Educational multimedia programs are used for frontal, group and individual instruction in the classroom, as well as for independent work at home.

They offer a lot of options for the user to customize: the student, mastering the training material, sets the speed of learning, the amount of material and the degree of difficulty.
Positive factors that speak in favor of this method of obtaining knowledge are as follows:
1. Better and deeper understanding of the material being studied.
2. Trainee motivation to contact a new field of knowledge.
3. Save time by significantly reducing training time
4. The acquired knowledge remains in memory for a longer period and is later easier to restore for practical use after a brief repetition.

The benefits of a media lesson.
One of the first names of lessons in which computer hardware and software are used, lessons with computer support (UKP). This term has developed under the influence of a term common in English-speaking countries - CBT (Computer Bases Training) - computer support for training.

The widespread use of multimedia later gave rise to a new name for such lessons - "multimedia lesson". For a more convenient pronunciation, the name has been reduced, and now the most commonly used is a media lesson. In fact, all three terms can be used in the same meaning.

In the process of a media lesson, two new components of the educational process are involved in the transfer and assimilation of educational information:
        1. Computer organically takes the place of a new universal technical means of training and development.
        2. Software tools complement the traditional technology of teaching a school subject or its individual sections and topics. They contain clearly structured educational information in text form, a lot of visual images in the form of diagrams, drawings, tables, video clips equipped with animation and sound effects.

At the same time, both the computer and programs should be organically interconnected with other components of the learning process: goals, content, forms, teaching methods, activities of the teacher and student. First of all, the didactic principles of teaching are expanded and enriched. In recent years, in the didactics there has already been a revision of the values of such principles as visibility, accessibility, systematicity, consistency, consciousness. Two new principles were identified - the individualization of learning and activity.

At present, the principle of integrability is being put forward in the leading position in the formation of components of educational activities using computers. It involves the establishment of integrative relationships by the teacher, which make it possible to more clearly present the characteristics of the subject, to show the relationship between the content of individual subject-specific educational sections and modules, between subject-based instruction and the general informational training of students.

The established relationships make it possible to organically incorporate a computer into the educational process, combine traditional and computer-based teaching methods, and create a special pedagogical information environment that contributes to the intensification of the educational process. Accounting for integrative relations leads to the correction of pedagogical goals. The priority goal of media lessons is to develop in the learning process the students' abilities for productive independent creative activity in a modern information-rich environment. Given this, when developing a media lesson, the teacher sets not only educational tasks in the subject, but in the triad of tasks (educational, educational, developmental), additionally identifies tasks for the formation of information culture components. The development of the ability to select the necessary information, familiarity with new ways of technical information processing, the formation of practical skills in computer information processing.

For example, in physics lessons, the formation of the skills of schoolchildren to conduct a computer model experiment, or when typing a dictation text on a computer, develops working skills on a keyboard simulator, develops skills to establish causal relationships using a hypertext timeline and historical events. When a teacher uses computer equipment only to demonstrate educational information, a lesson is conducted in a classroom with one set of hardware.

Students' work in the audience can be organized as follows:
- frontally - viewing video fragments, monitoring changes in objects;
- individually - the implementation of practical work, solving problems;
- in small groups - the implementation of a common educational project, the setting up of a model experiment.

The model of the educational process in which multimedia technologies are used can be divided into five successively performed stages:

1. Teacher training. At this stage, the courses "Multimedia Technologies in the Organization of the Educational Process" are organized, at which the training of subject teachers takes place.
2. Installation and configuration of multimedia equipment. Responsibility for this stage most often lies with the employees of the technical department of the educational institution, but teachers themselves who have passed the relevant training can also take part in it.
3. Preparation of multimedia materials. At this stage, each teacher selects materials on his subject and prepares various types of multimedia presentations, and can also purchase branded software products for use in the classroom.
4. The use of multimedia materials. This is a key stage in the organization of the educational process, where the prepared materials are used in lectures, practical and laboratory works. And also students can receive a part of materials in electronic form for use in homework.
5. Monitoring the performance of the educational process. At this stage, according to the indicators of the educational process, the impact of the use of multimedia technologies on the quality of the educational process and the level of knowledge in the subject is assessed. Thus, the development of information technology provides a wide opportunity for the invention of new methods in education, thereby increasing its quality and effectiveness.

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