

**THE ROLE OF MULTIMEDIA TECHNOLOGIES IN INTERACTIVE
LEARNING OF SUBJECTS IN MULTIMEDIA**

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Annotation: *The article examines the stages of the emergence and development of multimedia education, the variability of the concept of "multimedia", tasks, classification, advantages and disadvantages of using multimedia tools. Let us consider the definition of multimedia technologies, their role in education, as well as the principles of organizing multimedia learning and the use of multimedia tools to improve the effectiveness of educational activities.*

Keywords: *educational process, multimedia, interactive software, lesson, educational process.*

Multimedia technologies in education are interactive systems and computer technologies that simultaneously encompass several information domains: text, video, graphics, audio, and animation. They are formed using information resources, specialized software, and hardware. Multimedia technologies have enormous potential in the developmental and student-centered learning system, serving as didactic pedagogical resources. In 1965, the term "multimedia" was used to describe Exploding Plastic Inevitable, a show that combined live rock music, film, experimental lighting effects, and unconventional art. Over the course of forty years, the term has acquired various meanings. In the late 1970s, this term referred to presentations composed of images from multiple projectors synchronized with a soundtrack. In the 1990s, the term acquired its modern meaning.

The use of multimedia technologies in the educational process allows:

- replace many teaching methods and techniques, such as lectures with stories and explanations, with presentations with slides and voice accompaniment;
- integrate teaching methods, ensuring the comprehensive use of verbal, visual and practical methods;
- improve the quality of the educational process by transmitting information in three dimensions (graphics, video, audio), integrating scientific, aesthetic, and practical components;
- stimulate students' cognitive engagement, increasing their interest in the academic discipline, its individual course, or the topic of study;
- ensure the clarity of high-quality educational material, non-standard presentation of text information (graphs, tables, diagrams).

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21.10.2025

Interactive learning is a modern approach to education that emphasizes active student participation in the learning process. It encourages student engagement, independence, and critical thinking, and utilizes group discussions, project work, role-playing, and multimedia technologies to enhance learning.

Interactive learning uses multimedia technologies to create interactive learning materials, such as video lessons, simulators, educational games, and quizzes. This makes the learning process more engaging, visual, and personalized, taking into account the needs of each student. The principles of organizing multimedia learning and the use of multimedia tools contribute to the achievement of educational goals and the personal development of students. Multimedia technologies are rapidly developing and being implemented in all areas of production, business, and education. This is the reason for introducing the discipline MV into the curriculum; at present, multimedia technologies are a rapidly developing area of information technology. Multimedia (English: multiple environments) is the interaction of visual and audio information under the control of interactive software using modern technical and software tools, they combine text, sound, graphics, photos, and video in a single digital representation of multimedia technologies for students of many specialties at higher education institutions.

The modernization phase has been ongoing since 1985. Thanks to the rapid advancement of science, the advent of the Internet, and the development of interregional relations, every student is now exposed to multimedia technologies: the advent of smartphones, interactive whiteboards, tablets, and personal computers facilitate and improve the educational process in schools. Multimedia plays a special role in the modern educational process. Today, it's hard to imagine a lesson without information support. The use of multimedia is in keeping with the modern digital age, expanding educational opportunities and enhancing learning effectiveness through visualization. It is necessary to consider the definition of the concept of "multimedia". The Great Encyclopedic Dictionary gives the following definition of multimedia - it is "a means, that is, an electronic carrier of information, including several of its types (text, image, animation, etc.)" [2]. I. V. Tomilina considers multimedia as a set of interactive software: "the interaction of visual and audio effects under the control of interactive software using modern technical and software tools, they combine text, sound, graphics, photos, video in one digital representation" [3]. In the context of the educational process, S. G. Grigoriev and V. V. Grinshkun offer several definitions of the term "multimedia": – a technology that describes the order of development, operation and application of information processing tools of different types;

-SAPE is a technology that describes the development, operation, and application of various types of information processing tools;

-SAPE is an information resource created using technologies for processing and presenting various types of information;

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-Computer software whose operation is associated with the processing and presentation of various types of information;

-Computer hardware that makes it possible to work with different types of information;

-A special, generalized form of information that combines both traditional static visual information (text, graphs) and dynamic information of various types (speech, music, video fragments, animation) .

Like any other component, multimedia has its own specific purposes:

- Motivational: increasing interest in learning through visual and auditory elements;

- Adaptive: creating tasks that take into account the student's age, physical, and intellectual characteristics;

- developmental: the use of materials that promote the development of cognitive, communicative, and creative abilities. The versatility of the term "multimedia" opens up a vast range of possibilities for its application in education: from simple presentations to historical reconstruction projects in history lessons. Visualizing historical events allows for a broader understanding of current events and enhances students' cognitive abilities. Certain aspects of multimedia technologies serve different educational purposes, so it's important to consider the classifications proposed by the scientific community.

Examples of the successful use of multimedia technologies in continuing professional education and corporate training:

Databank: storing teacher documentation in electronic form.

• **Student assessment:** using spreadsheets, graphs, and charts to analyze results

• **Methodological work of the teacher:** presentations at seminars, meetings, pedagogical councils and methodological councils using multimedia technologies.

• **Immersive experience:** Simulations immerse people in work situations, allowing them to learn by doing and make mistakes without risk, bringing training closer to real-world conditions to help them better prepare for their job responsibilities.

• **Interactivity:** Digital tools are customized to meet the needs of workers, allowing them to interact with objects and receive instant feedback.

• **Accessibility and flexibility:** Classes are available anytime and anywhere, making them convenient for employees working remotely or around the world.

Multimedia approaches in education offer ample opportunities for improving the quality of learning, motivating learners, especially adults in corporate training, and increasing the effectiveness of the educational process. However, it is necessary to consider the limitations and disadvantages of these technologies and develop strategies for their optimal use

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