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ROLE AND SIGNIFICANCE OF MULTIMEDIA TECHNOLOGIES IN EDUCATIONAL PROCESS

D. M. Gaziyeva
The Head Teacher of Fergana State University

Abstract
This article examines the main aspects of the role and significance of multimedia technologies, as well as their impact on society and development prospects, as well as the role and application of multimedia technologies in the educational process, their advantages, features of implementation, as well as the impact on the quality of learning.

Keywords: Multimedia technologies, artificial intelligence, multimedia applications, multimedia tools.

Introduction

Multimedia technologies have become an integral part of modern life, influencing various spheres of human activity: education, art, business, science and entertainment. Multimedia technologies are understood as a set of methods and means of processing and presenting information using different types of media - text, image, sound, video and animation. Modern education is undergoing significant changes under the influence of digital technologies. Multimedia technologies, which include the use of text, images, sound, video and interactive elements, are becoming an important tool for improving the effectiveness of learning.

The emergence of multimedia technology is associated with the development of electronics and computer technology in the 20th century. Initially, multimedia was used in the form of presentations using slides and audio recordings. With the advent of personal computers and digital technology, multimedia applications became more interactive and accessible. Today, multimedia is integrated into the Internet environment, enhancing communication and information sharing.

One of the key areas of application of multimedia technologies is education. The use of multimedia enhances the quality of learning through visualisation of complex concepts, interactivity and student involvement in the learning process. Interactive textbooks, educational videos, simulations and virtual labs promote critical thinking and practical skills. Multimedia also create conditions for distance learning, which is especially relevant in today's environment. Multimedia help to increase student motivation by visualising learning material and incorporating different channels of information perception. The use of animations and videos facilitates understanding of complex concepts and processes, and interactivity activates cognitive activity. In addition, multimedia allows to adapt learning to individual needs, creating conditions for more effective content assimilation.

Various forms of multimedia technologies are used in educational practice: electronic textbooks, presentations, interactive whiteboards, educational videos, simulators and virtual laboratories. The use of distance learning platforms and online courses ensures accessibility of

education for a wide range of students, expands opportunities for independent study of material and knowledge control.

Research shows that the integration of multimedia enhances comprehension and memorisation of material. Visual and auditory stimuli activate different areas of the brain, ensuring deep immersion in the topic. In addition, interactive elements promote critical thinking and analytical skills. However, the effectiveness depends on the level of teacher training and the quality of the content.

Despite the obvious advantages, the use of multimedia in education faces a number of challenges: technical difficulties, lack of resources, the need for professional development of teachers, as well as the risk of superficial perception of information with excessive use of visual effects. It is important to combine traditional and modern teaching methods to achieve optimal results.

The development of artificial intelligence, virtual and augmented reality creates new opportunities for multimedia applications. The future of multimedia is linked to personalisation of user experience, interactivity and integration with the Internet of Things. These technologies will enhance learning, work, and entertainment, and help address social and health challenges.

Multimedia technologies are a set of methods and tools that combine different forms of information: text, sound, image, animation and video. They enable effective knowledge transfer, communication and entertainment. In recent years, the development of digital technologies and computer power has significantly expanded the capabilities of multimedia, which opens up new prospects for their application and improvement.

Further development of artificial intelligence, virtual and augmented reality technologies creates new opportunities for personalised and interactive learning. The development of adaptive educational systems will make it possible to more accurately take into account the individual characteristics of students. The introduction of multimedia technologies will contribute to the formation of new pedagogical methods that meet the requirements of the digital age.

One of the key trends is the integration of artificial intelligence (AI) into multimedia applications. AI enables the creation of intelligent systems that can adapt to user needs, personalise content and provide deeper interaction. Examples of such technologies include automatic generation of text and images, speech and facial recognition, and big data analysis to improve user experience. The development prospects are related to the creation of fully interactive and self-customising multimedia products.

Virtual Reality (VR) and Augmented Reality (AR) technologies are transforming traditional notions of multimedia. VR creates fully immersive environments, while AR overlays digital information on the real world, expanding the possibilities of interaction. These technologies are finding applications in medicine, education, industry and entertainment. The future lies in the development of mixed reality (MR), which combines the benefits of VR and AR to create more flexible and realistic multimedia environments.

Modern multimedia technologies emphasise interactivity and personalisation. Users become active participants in the process, which increases the efficiency of information transfer and perception. The development of touch interfaces, voice assistants and flexible displays is fuelling the creation of new forms of interaction.

One of the key trends is the integration of artificial intelligence (AI) into multimedia applications. AI makes it possible to create smart systems,
In the future, interactive multimedia systems will use biometric data to adapt to the emotional state and preferences of users.
As the capabilities of multimedia technologies expand, ethical issues arise: data privacy, manipulation of information, impact on the psychological state of users. It is important to develop regulations and technical standards to ensure safety and responsibility. Society should take into account possible negative consequences in order to maximise the potential of multimedia for good.
The prospects for the development of multimedia technologies are related to the integration of artificial intelligence, the development of virtual and augmented reality, increased interactivity and personalisation. These technologies are transforming education, business, medicine and culture, creating new forms of interaction and information perception. The development of ethical and safety standards remains an important area. Overall, multimedia technologies have enormous potential for innovation and improving the quality of life, making them one of the key areas of modern scientific and technological progress.

Conclusion

Multimedia technologies are important for modern society, contributing to the development of education, business, culture and science. Their use improves the quality of information transfer, enhances the possibilities of communication and creativity. Despite challenges related to ethical and technical aspects, multimedia continue to develop actively and open new horizons for innovation and progress. It is important to continue to explore and implement these technologies in a way that takes into account the needs of society and individual users.
The prospects for the development of multimedia technologies are related to the integration of artificial intelligence, the development of virtual and augmented reality, increased interactivity and personalisation. These technologies are transforming education, business, medicine and culture, creating new forms of interaction and information perception. The development of ethical and safety standards remains an important area. Overall, multimedia technologies have enormous potential for innovation and improving the quality of life, making them one of the key areas of modern scientific and technological progress.

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