THE ROLE OF INTERACTIVE MULTIMEDIA TOOLS IN MODERN CLASSROOMS

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Annotation. This article analyzes the importance, advantages, and effective approaches to integrating multimedia tools in the process of designing educational programs. Today, modernizing the education process, increasing students' interest in knowledge, and enhancing learning effectiveness depend on the proper use of multimedia tools. The article discusses methods to enrich educational content through interactive presentations, videos and animations, virtual laboratories, and audiovisual materials. It also reveals the role of multimedia technologies in developing students' thinking, improving learning outcomes, and personalizing education. When the integration of multimedia into the education process aligns with effective methodological approaches, it provides opportunities to enhance the quality of educational programs, increase interactivity, and create a flexible environment. This article is for teachers, program developers.

Keywords: multimedia tools, curriculum, interactive education, educational technologies, digital education, virtual laboratories, audio-visual materials, teaching methodology, learning achievement level, educational motivation, flexible environment, pedagogical innovation.

Аннотация. В данной статье анализируются важность, преимущества и эффективные подходы к интеграции мультимедийных средств в процесс проектирования учебных программ. В настоящее время модернизация образовательного процесса, повышение интереса учащихся к знаниям и усиление учебной эффективности зависит от правильного использования мультимедийных средств. В статье рассматриваются методы обогащения учебного содержания с помощью интерактивных презентаций, видео и анимаций, виртуальных лабораторий, аудиовизуальных материалов. Также освещается роль мультимедийных технологий в развитии мышления учащихся, повышении показателей усвоения и персонализации обучения. Интеграция мультимедийных средств в образовательный процесс, в сочетании с эффективными методологическими подходами, позволяет улучшить качество учебных программ, усилить интерактивность и создать гибкую среду. Данная статья предназначена для преподавателей, разработчиков программ.

Ключевые слова: мультимедийные средства, учебная программа, интерактивное обучение, образовательные технологии, цифровое образование, виртуальные лаборатории, аудиовизуальные материалы, методика обучения, уровень усвоения, учебная мотивация, гибкая среда, педагогические инновации.

Annotatsiya. Ushbu maqolada o‘quv dasturlarini loyihalash jarayonida multimedia vositalarini integratsiyalashning ahamiyati, afzalliklari va samarali yondashuvlari tahlil

qilinadi. Bugungi kunda ta’lim jarayonini zamonaviylashtirish, o‘quvchilarning bilimga bo‘lgan qiziqishini oshirish va o‘quv samaradorligini kuchaytirish multimedia vositalaridan to‘g‘ri foydalanishga bog‘liq. Maqolada interaktiv taqdimotlar, video va animatsiyalar, virtual laboratoriyalar, audiovizual materiallar orqali o‘quv mazmunini boyitish usullari ko‘rib chiqiladi. Shuningdek, multimedia texnologiyalarining o‘quvchilar tafakkurini rivojlantirish, o‘zlashtirish ko‘rsatkichlarini oshirish hamda ta’limni shaxsga yo‘naltirishdagi o‘rni ochib beriladi. Ta’lim jarayoniga multimedia integratsiyasi samarali metodologik yondashuvlar bilan uyg‘unlashganda, o‘quv dasturlarining sifatini oshirish, interfaollikni kuchaytirish va moslashuvchan muhit yaratish imkonini beradi. Mazkur maqola o‘qituvchilar, dastur tuzuvchilar hamda ta’lim texnologiyalari mutaxassislari uchun foydali bo‘lishi mumkin.

Kalit so‘zlar: multimedia vositalari, o‘quv dasturi, interaktiv ta’lim, ta’lim texnologiyalari, raqamli ta’lim, virtual laboratoriyalar, audio-vizual materiallar, o‘quv metodikasi, o‘zlashtirish darajasi, o‘quv motivatsiyasi, moslashuvchan muhit, pedagogik innovatsiya.

Introduction. Modern education processes require making the learning process of students interesting, interactive, and effective. In this regard, the integration of multimedia tools into education has become a pressing issue. Utilizing multimedia tools in designing educational programs activates students' learning activities and contributes to the development of their knowledge, skills, and competencies. In today's era of digital technologies entering education, the correct and purposeful integration of these tools into educational content has become an integral part of pedagogical activity.

Multimedia presentations are considered the only and most modern form of information presentation today. They can include text data, images, slide shows, voice narration, video clips, animations, and software in the form of 3D graphics. The main difference between presentations and other forms of information presentation is their richness in content and interactivity, meaning they tend to change in a designated way and respond to user activities. Furthermore, a presentation can also be the key to your website. That is, when there is access to the Internet, one can view the presentation and obtain the latest information from the company’s website with just a single click of the mouse. Multimedia technology (multi - many, media - environment) allows the use of several methods of data presentation simultaneously: text, graphics, animation, video, and sound. Unlike other forms of data presentation, a multimedia presentation can include tens of thousands of pages of text, thousands of images and visuals, audio and video recordings lasting several hours, animation, and three-dimensional graphics, while ensuring low reproduction costs and a long storage duration.[2: 25-b]

Methods. Using multimedia tools can increase student engagement. For example, presenting games, crosswords, and tests in digital form encourages students to participate more actively. Virtual laboratories allow for conducting experiments in various subjects. Multimedia resources tailored to individual learning can adapt the knowledge acquisition process to each student's needs. Modern technologies enhance educational effectiveness. For instance, online learning platforms and mobile applications provide students the opportunity to study anytime and anywhere. Platforms that include electronic textbooks and video materials offer students the ability to learn at a convenient pace. The use of multimedia tools in many schools and universities has shown positive results and helps improve educational effectiveness. The psychological and pedagogical aspects of multimedia tools are also of

significant importance. The effectiveness of multimedia tools in the educational process is not only limited to technical aspects but is also strongly connected with psychological and pedagogical foundations. These tools have a noticeable impact on students' cognitive development, interest, and motivation. For example, presenting visual and auditory information together helps the brain to receive and process information more quickly. Additionally, interactive tools are considered effective in attracting students' attention. Implementation of an individualized approach through multimedia tools. Every student needs an individual learning approach, and multimedia tools facilitate this process. Customized learning platforms and educational programs allow students to be provided with materials that match their knowledge levels and interests. Students can review lessons at their convenience.

Results. Multimedia tools are the harmonious presentation of text, graphics, audio, video, animation, and interactive elements. They allow educational materials to be presented through visual and auditory channels, creating opportunities for faster absorption of knowledge. For example, explaining a complex scientific phenomenon through text takes more time and understanding, but with the help of representations, animations, or videos of the same phenomenon, the learner can grasp it more quickly and thoroughly.

Integrating multimedia tools into educational programs provides the following benefits:

1. Visual impact: Presenting information through graphics and videos helps reinforce knowledge.

2. Increases student engagement: Interactive materials involve the learner as an active participant.

3. Personalized approach: Educational materials are created tailored to the individual abilities of each student.

4. Independence from time and space: The ability to use online and offline modes increases the flexibility of the educational process.

5. Develops thinking: It shapes high-level thinking skills such as imagination, analysis, and problem-solving. Forms of integrating multimedia tools into the curriculum.[5: 51,55-b]

Multimedia tools are incorporated into the curriculum in the following forms: Interactive textbooks: Electronic textbooks, digital books, materials enriched with tests and exercises.

Audio and video materials: Lectures, documentary films, experiment videos, class recordings.

Virtual laboratories: The ability to conduct experiments and practical activities remotely by subject.

Animations: Explanations through moving graphics, especially used in physics, chemistry, and biology.

Presentations: Visual materials prepared on platforms like PowerPoint, Canva, Prezi.

When adding multimedia tools to the educational program, the following should be considered:

Pedagogical relevance: Each multimedia tool must align with the educational goals.

Technical capabilities: The technical foundation of the school or institution using the program must be taken into account.

Teacher preparedness: Teachers should possess skills in developing multimedia tools and using them effectively.

Assessment system: It is necessary to develop mechanisms for assessing learning based on multimedia.

Today, the following approaches are playing a significant role in the successful implementation of multimedia integration:

Flipped Classroom: Students independently acquire the core theory, while working on practical assignments during class.

Blended Learning: Integrating elements of traditional and digital education.

Gamification: Enhancing student motivation by incorporating multimedia game technologies into the learning process.

MOOC (Massive Open Online Courses): Integrating courses from major open platforms into the program content.[6]

Discussions. Currently, in the era of globalization, teaching through the internet in real-time is considered one of the rapidly developing forms of education. The electronic education system creates opportunities for voluntary distance education without any barriers. Experts emphasize that the effectiveness of teaching in a real-time distance education system is higher than that of the traditional education system (Means, Toyama, Murphy, Bakia, and Jones, 2013). The use of video lectures is the most effective teaching method in a real-time distance education system. For example, Wang (2008) states that after studying for 10 years in the field of medicine in Taiwan, the use of online video lectures in medicine has improved medical services among the population. Another example is that the Chung-Ang University located in the capital city of South Korea, Seoul, offers an online electronic class (e-class) for each subject. A student who has registered to attend a subject also has the right to access the 'e-class'. In this 'e-class', there are not only presentations made with Microsoft Power Point but also video lectures and homework assignments available. A student who cannot attend the class for a specific reason or unable to grasp the lesson well can log into the 'e-class' and utilize the video lectures. I believe this will definitely enhance the effectiveness of education and serve as a basis for preparing qualified personnel.

Currently, with the rapid integration of information and communication technologies (ICT) into the education process, it remains one of the most convenient factors in improving the effectiveness of education. That is why advanced countries are effectively utilizing computer technology and modern information and communication technologies in their education systems.

Overall, currently, a transition of society from a standard industrial economy to a new economy is observed. The new economy is characterized by the economy of customers - users, which is why the main factor in the development of the global information and telecommunications industry has been the provision of a wide range of new generation services.

Developing justified mechanisms for the integration of science and production in education, implementing it in practice, individualizing learning and remote education systems, developing and mastering technology, and accelerating student learning through the use of new pedagogical and information technologies are among the urgent tasks. Organizing the educational process based on electronic education requires making certain adjustments to the principles of improving the presentation of educational materials. The introduction and use of modern information technologies in the educational process is the most effective means to achieve goals. The main tasks of implementing electronic information educational

technologies in the education system, critically assessing and improving the material and technical base of educational institutions include:

• To create a material and technical base necessary for implementing electronic technology (ET) into the educational process;

• To create and apply educational technologies intended for ET in the learning process;

• To develop students' knowledge and skills in modern ET technologies;

• To enhance the effectiveness of education and teaching processes through the implementation of ET.

Electronic information resources consist of a set of methods and means for collecting, storing, transmitting, and processing information related to education, which depends on internal and external factors that determine the creation of various educational information.

- Internal factors are the creation, types, properties of information, performing various operations with information, compiling, transmitting, storing, etc.

- External factors refer to the execution of various tasks with information through the technical equipment of the ET.

Using ET depends on the skills and competencies of users when communicating with them. Therefore, it is considered important to first understand what modern telecommunications tools are.[8: 61,65-b]

Conclusion. In conclusion, the integration of multimedia tools in curriculum design not only enhances the effectiveness of education but also increases students' interest in lessons and supports their individual development. Providing modern, interactive, and personalized learning materials for the digital generation is one of the important factors of educational quality. Therefore, the thoughtful and methodologically justified integration of multimedia tools into curricula is an integral component of reforms in the field of education.

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