THE USE OF MODERN MULTIMEDIA TOOLS IN TEACHING THE SUBJECT "INFORMATICS AND INFORMATION TECHNOLOGIES"

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Annotation: This article highlights the importance of effectively using modern multimedia tools in teaching the subject "Informatics and Information Technologies." It examines the role of multimedia technologies in the educational process, their advantages, and their impact on improving the quality of students' knowledge. In addition, the experience of applying modern pedagogical approaches, interactive methods, and multimedia-based educational resources is analyzed. The article concludes with findings and recommendations on enhancing the efficiency of using multimedia tools.

Keywords: informatics, information technologies, multimedia tools, educational process, interactive methods, digital technologies.

Annotatsiya: Mazkur maqolada "Informatika va axborot texnologiyalari" fanini o'qitishda zamonaviy multimedia vositalaridan samarali foydalanishning ahamiyati yoritilgan. Multimedia texnologiyalarining ta'lim jarayonidagi o'rni, ularning afzalliklari hamda o'quvchilarning bilim sifatini oshirishdagi o'rni keng ko'rib chiqiladi. Shuningdek, zamonaviy pedagogik yondashuvlar, interfaol metodlar va multimediaga asoslangan o'quv resurslaridan foydalanish tajribasi ham tahlil qilinadi. Maqola yakunida multimedia vositalaridan foydalanish samaradorligini oshirish bo'yicha xulosalar va tavsiyalar berilgan.

Аннотатция: В данной статье освещается значение эффективного использования современных мультимедийных средств в преподавании дисциплины «Информатика и информационные технологии». Рассматривается роль мультимедийных технологий в образовательном процессе, их преимущества, а также влияние на повышение качества знаний учащихся. Кроме того, анализируется опыт применения современных педагогических подходов, интерактивных методов и учебных ресурсов, основанных на мультимедиа. В заключение статьи даны выводы и рекомендации по повышению эффективности использования мультимедийных средств.

Introduction

In the 21st century, the education system is undergoing fundamental changes. Globalization, the rapid development of digital technologies, the widespread use of the internet, and artificial intelligence have brought the modern educational process to an entirely new stage. Today, informatics and information technologies occupy an important place not only as an independent subject but also in the development of other sciences, the economy, and social life. Therefore,

the use of modern technologies in teaching informatics is one of the urgent tasks. Multimedia tools are considered one of the main means of making informatics lessons more interesting, effective, and engaging for students. This article scientifically highlights the advantages, methods, and results of teaching informatics based on multimedia.

In the current process of globalization, the education system is a crucial factor in the development of society. Therefore, in teaching informatics and information technologies, it is necessary not only to provide theoretical knowledge but also to form practical skills through modern technical tools.

Multimedia tools are technologies that combine text, graphics, sound, animation, and video, helping to organize the learning process in a more vivid, engaging, and effective way. Today, interactive whiteboards, electronic textbooks, educational videos, virtual laboratories, and simulators are becoming an integral part of the educational process.

Main Part

1. The role and theoretical foundations of multimedia tools in the educational process

The concept of multimedia means the transmission of information through the integration of text, graphics, sound, animation, and video. In the educational process, multimedia tools serve to present topics that are difficult for students in a simple and understandable way. From a psychological and pedagogical point of view, the principle of visualization finds its most complete expression in multimedia tools. The theoretical foundation of multimedia tools is based on constructivist pedagogy. According to this approach, students do not receive knowledge in a ready-made form but construct it through their own independent activity and experience. Multimedia creates such an environment, engaging the learner in the active process of acquiring knowledge.

The functions of multimedia technologies in the educational process are as follows:

- Delivering information in a clear and vivid form – explaining complex topics visually.
- Increasing student engagement – involving them in the lesson through interactive exercises, tests, and presentations.
- Developing creativity – forming students' skills to create independent projects using multimedia programs.
- Facilitating the teacher's work – enabling quick explanations and preparation of various visual materials.

2. The role of multimedia technologies in teaching informatics

The subject of informatics combines both technical and theoretical aspects. Therefore, traditional methods of teaching often do not provide sufficient results. Multimedia technologies,

however, enliven lessons and allow practical exercises to be conducted in a more visual way. For example, explaining the topic of algorithms only theoretically may be difficult for students, but showing step-by-step animations of how an algorithm works helps them understand the topic more quickly. Likewise, teaching topics such as programming languages, computer networks, and information security becomes more effective through videos, simulators, and virtual laboratories.

3. Interactive methods and integration of multimedia

Multimedia tools, when combined with interactive teaching methods, further increase the effectiveness of education. For example, methods such as "Brainstorming," "Cluster," and "Insert," when integrated with electronic presentations and video materials, help organize lessons more effectively. In addition, interactive tests, online games, and software tools allow informatics lessons to be conducted in an innovative way.

3. Forms of using multimedia tools

In the subject "Informatics and Information Technologies," multimedia tools can be used in the following forms:

- **Presentations** – using PowerPoint, Prezi, or other software to visually present topics.
- **Electronic textbooks and manuals** – electronic resources enriched with interactive tasks and tests.
- **Videos and animations** – for explaining topics such as programming, algorithms, and network technologies.
- **Virtual laboratories** – for modeling computer networks, programming, or technical devices.
- **Interactive whiteboards and smart platforms** – to provide two-way active communication between teacher and student.

3. Advantages of multimedia technologies
The unique advantages of multimedia tools are as follows:

- the ability to explain complex topics in a simple and visual way;
- encouraging students to study independently;
- organizing lessons in an engaging way that meets modern requirements;
- improving the quality of education and allowing rapid assessment of students' knowledge;
- saving time during the lesson and ensuring efficiency.

4. Modern practical experiences (in Uzbekistan and foreign countries)

In recent years, Uzbekistan's education system has widely adopted multimedia tools under the

"Digital Education" program. Electronic textbooks, video lessons, and distance learning platforms are being introduced in schools and higher educational institutions. Abroad, online education systems such as Khan Academy, Coursera, and edX are examples of the broad use of multimedia tools. These experiences should be adapted to local conditions.

In recent years, Uzbekistan's education system has increasingly integrated electronic learning platforms, distance learning systems, and educational programs based on multimedia resources. For example, platforms such as Moodle, Google Classroom, and Edmodo use multimedia-based tasks and resources. This has proven to be much more effective than traditional methods in teaching informatics.

5. Problems and solutions

There are also certain challenges in the use of multimedia tools. For example, the lack of sufficient technical equipment in some educational institutions, low internet speed, and the insufficient skills of teachers in using multimedia technologies are common problems.

To address these issues, it is necessary to:

- equip educational institutions with modern technical tools;
- organize regular professional development courses for teachers;
- develop and improve multimedia resources in accordance with national educational standards.

Conclusion

The use of modern multimedia tools in teaching informatics and information technologies serves to organize the educational process on an innovative basis. With the help of multimedia, lessons can be made interesting, effective, and understandable for students. In addition, these tools develop students' independent thinking, creativity, and practical skills. In the future, to use multimedia technologies more effectively, it is necessary to develop state-level programs, improve teachers' qualifications, and create multimedia content in line with national educational standards.

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