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EDUCATIONAL OPPORTUNITIES OF DIGITAL TECHNOLOGIES IN THE LEARNING PROCESS

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Abstract: This paper examines the educational potential of digital communication technologies in enhancing the educational system. This topic remains highly relevant. Among various teaching methods, computer technology holds significant potential for improving the learning process. Knowledge is transformed into new concepts, while modern advancements serve as tools for optimizing various aspects of education. The practical significance of this study lies in the fact that digital and communication technologies play a crucial role in the field of education. Information technology is directly linked to preparing the younger generation for integration into society and achieving professional success.
Keywords:information, innovation, science, economics, technology, development, process.

Introduction. The evolution of technology in the educational process has facilitated free access to modern digital communication tools and interactive teaching methods. In the current context, pedagogical approaches employed in educational institutions should be integrated with digital technologies to align with contemporary strategies for organizing educational activities aimed at achieving effective learning outcomes.

Research Objectives:

Analyze technological changes in the educational process in gymnasiums within the context of a new stage in the development of educational theory and methodology.

Examine the transformation of the educational environment from the perspective of the educational potential of modern pedagogical methods and information technologies.

Investigate empirical data from surveys of high school students to determine whether digital technologies have become a tool for acquiring knowledge.

The purpose of this study is to demonstrate the didactic potential of digital communication technologies in the development of the educational environment.

To examine and describe the pedagogical potential of information technologies in education, the study employed an analysis of scientific sources, a systematic approach, generalization, the author's didactic and methodological developments, as well as materials from experimental research.

Presentation of the Main Material of the Article

The term educational technology, despite its widespread use, remains somewhat ambiguous. The techniques applied in the educational process are more accurately referred to not as educational or instructional technologies, but as didactic technologies. Digital communication technologies align with the demands of modern society and offer unique opportunities for the education system.

Traditional teaching methods focus on the accumulation and memorization of information within specific fields of knowledge; however, in contemporary educational settings, this approach is no longer sufficient.

Use of Information Technologies in the Educational Process

Digital technologies are implemented to achieve the following pedagogical goals:

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1. Implementation of the public demand formed by the process of informatization of modern society:

- IT training;
- teaching students the skills of independent work with didactic and digital technologies.

2. Improving the effectiveness of the educational process:

- improving the quality and productivity of training through the introduction of digital technologies;
- strengthening cross-subject communication through the use of modern tools for working with information in the study of various disciplines.

Some researchers in the field of information technology emphasize the importance of computer competencies among teachers and students, defining them as the ability to work with a wide range of software tools designed for various tasks. However, a significant number of educators exhibit a cautious or even negative attitude toward the integration of digital technologies into the educational process, primarily due to a lack of necessary knowledge and skills. The development of professional competencies plays a crucial role in the successful implementation of computer technology in the educational environment.

The use of digital devices in educational institutions is rapidly expanding, with students increasingly relying on tablets and laptops to develop reading, writing, and math skills. It is widely believed that the modern generation of students, often referred to as "digital natives," adapts easily to technology and utilizes it effectively. Moreover, digital tools are frequently regarded as a means of enhancing student engagement with the learning material.

However, an increasing body of scientific research suggests that, despite young people's familiarity with technology and its appeal, digital devices do not always deliver the expected educational outcomes. Evidence indicates that the integration of technology in mathematics instruction can enhance academic performance. However, studies also highlight significant differences between digital and traditional reading and writing methods, with analog learning approaches sometimes offering advantages that digital solutions lack.

Research suggests that some readers may have lower content comprehension when studying digitally compared to traditional paper-based reading. While experienced readers perform equally well in both formats, significant differences exist in text comprehension when using digital media at all stages of processing printed information.

Reading print editions and digital sources engages different cognitive processes. Comprehending information in a digital format, especially when working with online resources, is more challenging as it requires additional navigational actions, such as clicking on hyperlinks and scrolling through text. Scientific evidence confirms that, despite experienced readers' ability to adapt to various formats, the effectiveness of digital reading remains lower than traditional reading at all levels of information processing.

The increasing influence of technology on children and their engagement with digital reading can lead to more superficial cognitive processing of information. This, in turn, may reduce the depth of text comprehension and impair concentration. Therefore, educators must monitor students' interaction with digital content to ensure they fully grasp and retain the material.

Furthermore, comparing printed and digital texts is challenging because electronic materials often include additional elements such as hyperlinks and animations. The impact of these factors on learning outcomes may stem not only from the content of the text but also from the characteristics of the digital environment in which it is presented.

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Let us examine some common applications of technology in mathematics instruction and the research findings on their effectiveness. An analysis of the use of supplementary digital resources in mathematics education reveals that their impact on learning outcomes is ambiguous. This is largely because not all software tools are designed specifically for educational purposes, and some lack the necessary quality or fail to align with the established curriculum and instructional objectives.

Digital tools that foster active, meaningful, and socially interactive learning can be considered effective educational resources if they align with specific learning objectives. When selecting such applications, it is essential to ensure they are based on scientifically grounded pedagogical methods and effectively support knowledge acquisition. Additionally, it is crucial to verify that the chosen digital resources correspond to actual educational needs, the curriculum, and the expected learning outcomes.

Conclusions

The integration of digital technologies into school education continues to grow. Students increasingly use tablets and laptops to develop reading, writing, and mathematical skills. It is widely assumed that the modern generation, often referred to as digital natives, easily adapts to new technologies and utilizes them effectively. Moreover, digital tools are frequently regarded as a means of enhancing students' engagement in the learning process.

However, research suggests that engaging with digital texts requires significant cognitive effort, which can hinder comprehension and retention. This is because online reading involves not only processing textual content but also making navigational decisions within the document. Additionally, studies indicate that digital texts are often read more quickly, which may further reduce comprehension and memory retention.

When selecting educational technologies, it is essential to carefully assess their alignment with the intended learning objectives. The effectiveness of specific digital tools in different educational contexts should be supported by empirical evidence. While technology has demonstrated a positive impact on mathematics instruction in certain cases, it is crucial to recognize that digital and traditional reading and writing methods are not direct equivalents and cannot fully replace one another without affecting the quality of learning.

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