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THE USE OF MODERN PEDAGOGICAL TECHNOLOGIES IN INFORMATICS EDUCATION

Raximova Feruza Atabek qizi

Informatics Teacher at the Khorezm Academic Lyceum of the Ministry of Internal Affairs of the Republic of Uzbekistan

Abstract

The rapid development of information technologies and the growing role of digital competence in modern society have significantly transformed the requirements for informatics education. Traditional teaching methods are no longer sufficient to ensure high-quality learning outcomes, active student engagement, and the development of practical skills. This article examines the use of modern pedagogical technologies in informatics lessons and analyzes their impact on students' cognitive activity, motivation, and learning effectiveness. The study explores various pedagogical technologies, including interactive learning, project-based learning, problem-based learning, digital learning platforms, and blended learning models. The article highlights the importance of integrating modern pedagogical approaches into informatics education to improve teaching quality and prepare students for the challenges of the digital era.

Keywords

Informatics education, modern pedagogical technologies, interactive learning, project-based learning, digital education, teaching methods.

Introduction

Informatics plays a crucial role in the modern education system, as it forms the foundation of digital literacy, algorithmic thinking, and technological competence. In the context of rapid digitalization and the transition to an information society, the objectives of informatics education have expanded significantly. Today, informatics lessons are expected not only to provide theoretical knowledge but also to develop students' problem-solving abilities, creativity, and practical skills.

However, achieving these goals using traditional teacher-centered methods is increasingly difficult. Passive learning, limited interaction, and a focus on memorization reduce students' motivation and learning effectiveness. As a result, the use of modern pedagogical technologies has become a necessity rather than an option.

Modern pedagogical technologies are based on active, student-centered learning principles and emphasize collaboration, independence, and critical thinking. This article aims to analyze the role and significance of modern pedagogical technologies in informatics lessons and to demonstrate how their effective implementation can enhance educational outcomes.

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Literature Review

The concept of pedagogical technology has been widely discussed in educational research. According to UNESCO, pedagogical technology is a systematic method of designing, implementing, and evaluating the teaching-learning process based on specific educational goals. Researchers emphasize that modern pedagogical technologies are closely linked to constructivist learning theories, which view learners as active participants in the knowledge construction process.

Numerous studies highlight the effectiveness of interactive teaching methods in informatics education. Scholars argue that interactive learning increases student engagement, improves understanding of complex concepts, and enhances long-term knowledge retention. Project-based learning has also received significant attention, as it allows students to apply theoretical knowledge to real-world problems and develop practical ICT skills.

The integration of digital tools and online learning platforms has been examined extensively in recent literature. Research findings indicate that blended learning and e-learning environments contribute to flexible learning, personalized instruction, and improved academic performance. Despite these advancements, some studies point out challenges such as insufficient teacher training, limited infrastructure, and resistance to change.

Discussion

Modern Pedagogical Technologies in Informatics Lessons

Modern pedagogical technologies used in informatics education include a wide range of approaches and methods. One of the most widely applied technologies is **interactive learning**, which involves active student participation through discussions, group work, and collaborative problem-solving. In informatics lessons, interactive methods encourage students to analyze algorithms, debug programs, and exchange ideas.

Project-based learning is another effective pedagogical technology in informatics education. Through project work, students design software applications, develop websites, or solve practical computational problems. This approach enhances creativity, teamwork, and independent learning skills while strengthening the connection between theory and practice.

Problem-based learning focuses on presenting students with real-life or simulated problems that require analytical thinking and decision-making. In informatics, this method helps students develop algorithmic thinking and logical reasoning by solving programming and data-processing tasks.

Use of Digital Tools and Learning Platforms

The use of digital learning platforms, learning management systems, and online resources is an integral part of modern informatics education. These tools provide access to interactive content,

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virtual laboratories, and automated assessment systems. Blended learning models, which combine traditional classroom instruction with online learning, allow for flexible and personalized learning experiences.

Digital pedagogical technologies also support formative assessment and immediate feedback, which are essential for effective learning. Students can monitor their progress, identify knowledge gaps, and improve their performance through continuous interaction with digital tools.

Results

The analysis of modern pedagogical technologies in informatics lessons shows that their systematic implementation leads to positive educational outcomes. Students demonstrate higher levels of motivation, increased engagement, and improved academic performance. Active learning methods contribute to the development of critical thinking, creativity, and practical ICT skills.

Furthermore, modern pedagogical technologies enhance teacher effectiveness by providing innovative instructional strategies and tools for managing the learning process. The results indicate that informatics education becomes more learner-centered, dynamic, and aligned with the requirements of the digital economy.

Conclusion

The use of modern pedagogical technologies is essential for improving the quality of informatics education in contemporary educational systems. This article demonstrates that interactive learning, project-based learning, problem-based learning, and digital technologies significantly enhance the effectiveness of informatics lessons.

Successful integration of modern pedagogical technologies requires continuous professional development for teachers, adequate technological infrastructure, and institutional support. By adopting innovative teaching approaches, informatics education can better prepare students for the challenges of the digital world and contribute to the formation of highly skilled digital professionals.

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