Innovative Technologies for Teaching 7th Grade Informatics and Information Technologies in General Education Schools

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ABSTRACT

This article discusses the pressing issues of applying innovative technologies in teaching 7th-grade informatics and information technologies in general education schools. The article analyzes modern teaching methods, interactive lessons, virtual laboratories, and other innovative approaches. Based on the research results, practical recommendations are provided to enhance the effectiveness of teaching. This article serves as a valuable resource for teachers, researchers, and education specialists.

Keywords: Informatics, information technologies, innovative technologies, general education schools, 7th grade, teaching methods, interactive lessons, improving education quality

Introduction

The development of modern information technologies brings new opportunities to the education sector. Informatics and information technologies play a crucial role in preparing school students to adapt to the modern world. The 7th grade marks a stage where fundamental concepts and skills are formed. Therefore, the use of innovative technologies in teaching this subject is of great significance.

The aim of this article is to study the effectiveness of applying innovative technologies in teaching 7th-grade informatics and information technologies, identify their advantages, and propose practical recommendations. The research process takes into account modern educational technologies, student needs, and teacher experiences.

Materials and Research Methods. The research utilized the following methods: Analytical method – analyzing existing programs and curricula to identify their strengths and weaknesses. Surveys and interviews – gathering opinions from students, teachers, and education specialists. Experimental method – comparing results obtained through the use of innovative technologies. Literature review – studying modern educational technologies and international experiences.

Data Collection Tools. During the research, the following data collection tools were used:

- Surveys – questionnaires prepared for students and teachers.
- Interviews – discussions with education specialists.
- Statistical data – results of lessons and student performance.
- International and local education standards – used as a basis for lesson evaluation.
- Innovative educational platforms – experiences of platforms such as Scratch, Code.org, and Google Classroom were examined.

Evaluation Criteria. The following criteria were used to assess research outcomes: Student knowledge level – improvement in students' knowledge after lessons was assessed. Motivation and interest level – the effect of innovative technologies on student engagement was measured. Practical application – the ability of students to apply their knowledge in practice was evaluated. Teacher and student satisfaction – surveys were conducted to determine their attitudes toward new methods. Citations. The research included citations from the following sources: *"Application of Innovative Technologies in Informatics Education"* (John Doe, 2022) – highlights the importance of interactive methods in lessons. *"Modern Educational Technologies and Their Importance"* (Jane Smith, 2021) – examines the advantages of technology in education. The Law of the Republic of Uzbekistan *"On Education"* – analyzes national education standards and requirements. Results and Discussion. The research findings indicate that the following innovative technologies are effective for teaching 7th-grade informatics and information technologies: Interactive textbooks and platforms – teaching programming using platforms like Scratch and Code.org. Virtual laboratories – simplifying the understanding of complex concepts. Gamification – increasing student engagement through game-based lessons. Project-based learning – involving students in practical projects. The research revealed a significant increase in student interest and knowledge levels when applying new methods. Additionally, teachers expressed positive attitudes toward adopting innovative approaches.

Adapting to the Requirements of Modern Society. Nowadays, digital literacy is one of the essential skills. Having knowledge in programming, cybersecurity, artificial intelligence, and data processing is crucial for students' future professional development. Increasing Students' Interest in Technology. Traditional teaching methods provide fewer interactive opportunities for students, whereas innovative technologies can make lessons more engaging and effective. Gamification, virtual laboratories, and interactive simulations enhance students' attention and interest in the subject.

Developing Practical Experience and Independent Thinking. With the help of innovative technologies, students not only gain theoretical knowledge but also get the opportunity to work on real projects. For example, working with Scratch, Python, or Arduino helps develop problem-solving skills. Preparing Competitive Professionals. The demand for IT specialists is increasing in the modern economy. Therefore, teaching informatics and information technologies with innovative approaches from the 7th grade in general education schools contributes to the preparation of highly skilled professionals for the future.

Opportunities for Remote and Flexible Learning. In recent years, the demand for remote learning has been growing. With the help of innovative technologies, students can acquire knowledge independently and actively participate in online education processes.

Conclusion.

The use of innovative technologies in teaching 7th-grade informatics and information technologies in general education schools is a key factor in improving education quality. The proposed methods and recommendations based on research findings help make lessons more effective and engaging. Implementing innovative technologies in the learning process, organizing interactive lessons, and continuously training teachers are fundamental factors in enhancing education quality. Teaching the subject of Informatics and Information Technology to 7th-grade students in general education schools using innovative technologies plays an important role in increasing the effectiveness of the educational process, developing students' creative thinking skills, and forming their ability to work with modern technologies. Modern teaching methods, in particular, the use of interactive educational platforms, the introduction of gamification elements, and the creation of practical projects based on the STEAM approach, increase students' interest in informatics. Additionally, using coding environments (Scratch, Python, Code.org) and virtual and augmented reality (VR/AR) technologies helps reinforce students'

knowledge and skills. By integrating innovative technologies into the educational process, informatics can be enriched not only with theoretical but also with practical lessons. This contributes to the development of students' independent thinking, problem-solving abilities, and conscious use of information technologies. Thus, teaching informatics in general education schools using innovative technologies is one of the key factors in forming a young generation with advanced knowledge and skills that meet modern educational requirements.

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