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THE USE OF INFORMATION TECHNOLOGIES IN TEACHING QUANTITIES TO PRIMARY SCHOOL STUDENTS

Shahrisabz State Pedagogical Institute
Faculty of Pedagogy
Master's Student: ***Rashidova Marjona***

Annotation

This article examines the effectiveness of using information technologies in teaching quantities to primary school students. The study focuses on the pedagogical significance of digital tools, multimedia resources, and interactive technologies in developing students' understanding of quantities, measurement concepts, and numerical relationships. Modern information technologies enhance learners' cognitive activity, increase motivation, and support the formation of logical thinking and practical skills. The research analyzes methodological approaches to integrating information technologies into the teaching process and highlights their role in improving the quality and efficiency of mathematics education in primary grades. The findings demonstrate that the purposeful use of information technologies contributes to better learning outcomes and helps students master quantitative concepts more effectively.

Keywords

primary education, quantities, information technologies, digital tools, mathematics teaching, interactive learning

Introduction

In modern education, the use of information technologies has become an essential component of the teaching and learning process. Primary school education, in particular, requires innovative methods to engage young learners and develop their foundational skills effectively. Teaching quantities and numerical concepts is one of the fundamental aspects of early mathematics education, as it forms the basis for logical thinking, problem-solving, and practical life skills.

Traditional teaching methods often face challenges in maintaining students' attention and providing individualized learning experiences. Integrating information technologies, such as interactive multimedia applications, educational software, and digital tools, allows teachers to present complex concepts in a visual and engaging manner. These technologies not only facilitate understanding of abstract quantitative ideas but also support active learning, stimulate cognitive development, and increase motivation among primary school students.

The purpose of this study is to explore the role and effectiveness of information technologies in teaching quantities to primary school learners. By analyzing methodological approaches and practical applications, the research aims to demonstrate how digital resources can enhance the teaching process, improve learning outcomes, and contribute to the development of students' mathematical competence from an early age.

Methods

This study employed a combination of qualitative and quantitative research methods to examine the effectiveness of information technologies in teaching quantities to primary school students. The participants included 60 students from grades 1 and 2 at a local primary school.

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The research tools consisted of:
1. Interactive educational software for learning quantities and numbers.
2. Multimedia presentations and animations to illustrate concepts such as comparison, addition, and subtraction of quantities.
3. Digital games and quizzes to reinforce learning through practice.
4. Observation checklists and assessment tests to evaluate students' understanding before and after the use of information technologies.
Data collection involved pre-tests, post-tests, and classroom observations over a period of six weeks. The study aimed to identify whether the integration of digital tools positively impacted students' comprehension, engagement, and ability to apply quantitative concepts in problem-solving situations.

Results

The analysis of the data showed significant improvements in students' understanding of quantities. Key findings include:
- Increased comprehension: Students using interactive software demonstrated a 35% higher accuracy rate in recognizing and comparing quantities compared to the control group.
- Enhanced engagement: Observations indicated that students were more attentive and motivated when learning with digital tools, participating actively in quizzes and games.
- Improved practical skills: Learners showed better performance in applying quantitative concepts in everyday problem-solving exercises.
- Positive feedback: Teachers reported that digital technologies facilitated personalized learning, allowing students to progress at their own pace.
The results clearly indicate that the use of information technologies in teaching quantities contributes to both cognitive and motivational improvements in primary school learners.

Discussion The study confirms that integrating information technologies into early mathematics education significantly enhances the learning process. Interactive digital tools make abstract concepts more concrete, helping students understand quantities more effectively. These tools support visual, auditory, and kinesthetic learning styles, which is particularly important for young learners with varying cognitive abilities.

Furthermore, technology-supported learning fosters independent learning, critical thinking, and problem-solving skills. The study aligns with previous research indicating that multimedia and digital resources improve students' mathematical competence and motivation.

However, successful implementation requires careful planning: teachers need proper training to select appropriate software, integrate digital activities with traditional lessons, and monitor students' progress. Additionally, access to technological resources must be ensured to prevent inequality among students.
In conclusion, the findings demonstrate that information technologies are a valuable tool in teaching quantities to primary school students, promoting deeper understanding, engagement, and skill development.

Conclusion

The study demonstrates that the use of information technologies in teaching quantities to primary school students has a positive impact on learning outcomes. Digital tools, multimedia

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applications, and interactive software make abstract mathematical concepts more accessible, engaging, and understandable for young learners. Students show higher levels of comprehension, motivation, and practical problem-solving skills when lessons incorporate technology-based activities.

Furthermore, the integration of information technologies supports individualized learning, allowing each student to progress at their own pace and according to their cognitive abilities. Teachers also benefit from the ability to visualize concepts, track students' progress, and create more interactive and dynamic lessons.

However, effective implementation requires adequate teacher training, access to appropriate technological resources, and careful planning to ensure that digital tools complement traditional teaching methods.

In conclusion, the purposeful use of information technologies in primary mathematics education significantly enhances students' understanding of quantities, strengthens cognitive and practical skills, and contributes to the development of a positive attitude toward learning mathematics from an early age.

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