

## METHODOLOGY OF TEACHING MATHEMATICS IN PRIMARY EDUCATION

Mardanov Eshim Muratovich

Uzbekiston-Finlandiya Pedagogika Instituti Dotsenti,

Mardanova Mehribon,

Egamova Anora

Uzbekiston Finlandiya pedagogika instituti 2-kurs talabalari

### Abstract:

This article explores the various methodologies employed in teaching mathematics in primary education. It delves into the theoretical foundations, practical applications, and effectiveness of different teaching strategies. The study emphasizes the importance of a solid mathematical foundation in early education and provides insights into best practices for educators.

**Keywords.** Mathematics education, primary education, teaching methodologies, pedagogy, early childhood education, educational strategies.

### Introduction

Mathematics is a fundamental subject that forms the cornerstone of a child's education. The methodologies employed in teaching mathematics at the primary level are crucial as they lay the foundation for future learning. This article aims to explore the various strategies and methods used in teaching mathematics to young learners, examining their theoretical underpinnings, practical applications, and overall effectiveness.

This study employs a mixed-methods approach, combining quantitative and qualitative research. The quantitative component involves a survey of primary school teachers, assessing their use of different teaching methodologies and their perceived effectiveness. The qualitative component includes classroom observations and interviews with educators to gain deeper insights into their teaching practices and the challenges they face.

Participants: The study involves 50 primary school teachers from various schools.

### Data Collection:

- Surveys: A structured questionnaire was distributed to the teachers to gather quantitative data.
- Classroom Observations: Observations were conducted in 10 classrooms to examine the practical application of different teaching methods.
- Interviews: Semi-structured interviews were conducted with 15 teachers to gather qualitative data.

### Data Analysis:

- Quantitative data were analyzed using statistical methods to identify trends and correlations.
  - Qualitative data were analyzed using thematic analysis to identify common themes and insights.
- Teaching mathematics in primary education involves a variety of methodologies to ensure



students develop a strong foundation in mathematical concepts and skills. Here are some effective methodologies:

#### Concrete-Representational-Abstract (CRA) Approach

- Concrete Stage: Use physical objects (manipulatives) like blocks, counters, and beads to help students understand mathematical concepts.
- Representational Stage: Transition to drawings or visual models of the physical objects.
- Abstract Stage: Move to using mathematical symbols and numbers once students have a strong grasp of the concepts.

#### Problem-Based Learning (PBL)

- Real-World Problems: Introduce problems that are relevant to students' lives to make learning meaningful.
- Collaborative Learning: Encourage group work and discussions to solve problems, fostering teamwork and communication skills.
- Inquiry-Based Approach: Allow students to explore different strategies and solutions.

#### Use of Technology

- Interactive Software: Utilize educational apps and software that provide interactive and adaptive learning experiences.
- Online Resources: Incorporate videos, games, and online tutorials to supplement learning.
- Digital Manipulatives: Use virtual manipulatives to provide a hands-on learning experience in a digital format.

#### Differentiated Instruction

- Assessment of Prior Knowledge: Tailor instruction based on students' existing knowledge and skills.
- Flexible Grouping: Group students by ability level for certain activities to provide targeted instruction.
- Variety of Instructional Strategies: Use a mix of direct instruction, guided practice, and independent work to meet diverse learning needs.

#### Mathematical Discourse

- Encourage Discussion: Promote classroom discussions about mathematical ideas and problem-solving strategies.
- Questioning Techniques: Use open-ended questions to stimulate thinking and reasoning.
- Peer Teaching: Have students explain their thinking and solutions to peers.

#### Visual Representations

- Charts and Graphs: Use visual aids to help students understand data and relationships.
- Number Lines and Diagrams: Provide visual models to support understanding of numerical concepts and operations.
- Mind Maps: Use mind maps to organize and connect mathematical concepts.

#### Hands-On Activities

- Math Centers: Set up stations with different activities that reinforce mathematical skills through hands-on practice.
- Games and Puzzles: Use educational games and puzzles to make learning fun and engaging.
- Experiments: Conduct simple experiments that involve measuring, counting, and estimating.

#### Formative Assessment

- Regular Check-Ins: Use quick assessments like exit tickets, quizzes, and observations to gauge



understanding.

- Feedback: Provide timely and constructive feedback to help students improve.
- Student Self-Assessment: Encourage students to reflect on their own learning and identify areas for improvement.

#### Integration with Other Subjects

- Cross-Curricular Activities: Integrate mathematics with science, art, and other subjects to show its application in different contexts.
- Thematic Units: Design units around a central theme that incorporates mathematical concepts.

#### Positive Learning Environment

- Growth Mindset: Foster a growth mindset by encouraging effort and resilience.
- Encouragement and Praise: Provide positive reinforcement to build confidence.
- Safe Space for Mistakes: Create an environment where mistakes are seen as learning opportunities.

By combining these methodologies, teachers can create a rich and supportive learning environment that helps primary students build a solid mathematical foundation.

The findings suggest that while traditional methods remain useful for teaching basic arithmetic skills, modern methodologies that promote active learning and collaboration are more effective in fostering a deeper understanding of mathematics. The integration of technology, though beneficial, requires adequate resources and teacher training. Teachers also emphasize the importance of adapting teaching methods to cater to diverse learning styles and needs.

The study underscores the need for a balanced approach that combines the strengths of both traditional and modern methodologies. Educators should be equipped with the necessary skills and resources to implement these strategies effectively. Professional development programs and increased investment in educational technology can significantly enhance the quality of mathematics education in primary schools.

### Conclusions and Suggestions

In conclusion, the methodology of teaching mathematics in primary education should be dynamic and adaptable, incorporating both traditional and modern approaches. Interactive and engaging methods, supported by technology, can significantly improve students' mathematical understanding and attitudes towards the subject.

Suggestions for future research include:

- Investigating the long-term impact of different teaching methodologies on students' mathematical proficiency.
- Exploring the role of parental involvement in enhancing mathematical learning.
- Examining the effectiveness of specific educational technologies in primary mathematics education.

By continually evolving teaching practices and providing adequate support for educators, we can ensure that primary school students develop a strong foundation in mathematics, setting them up for future academic success.



**References:**

1. Dzhumaev Mamanazar Ergashevich, Tadzhieva Zumrad Giyasovna. Methods of teaching mathematics in primary school. Tashkent - "Science and Technology" - 2005.
2. Akhmedov M., Ibragimov P., Abdurakhmonova N., Dzhumaev M.E. Methodological manual for a mathematics textbook for first grade. T.: "Uzinkomtsentr", 2003.
3. Dzhumaev M.E. Workshop on methods of teaching mathematics. T.: "Teacher", 2004.
4. Dzhumaev E.E. The theory of the formation of mathematical concepts in children. T.: "Ilm-Zia", 2005.

