TEACHING ELEMENTARY MATHEMATICS IN ELEMENTARY GRADES

Allamuratova Sabrina Bakhtiar Qizi
Termez University of Economics and services Faculty of pedagogy and social humanities primary education direction 2-Stage Student

Annotation: This article analyzes technologies for teaching elementary mathematics in elementary grades. Modern pedagogical approaches, innovative methods and interactive methods used in primary education are discussed. During the study, effective technologies are analyzed aimed at developing the mathematical thinking of students, forming an independent and creative approach.

Key words: elementary education, elementary mathematics, pedagogical technologies, interactive methods, mathematical thinking

Introduction: The study of mathematics is important for the development of the thinking of elementary students and preparation for the educational process at the next stage. In the process of teaching elementary mathematics in elementary grades, it is important to apply various pedagogical technologies. The combination of traditional and modern approaches increases the effectiveness of Education.

The purpose of the article is to analyze modern technologies used in the teaching of elementary mathematics in elementary grades and assess their effectiveness.

Elementary mathematics is a set of basic mathematical concepts and actions taught in primary and secondary schools. It includes the following main lines:

1.Numbers and arithmetic:

- Natural numbers, integers, rational and irrational numbers.
- Actions of addition, subtraction, multiplication and division.
- Fractions and their actions.

2. Geometry:

- Simple geometric shapes (triangle, rectangle, circle).
- Perimeter, surface and volume calculation.
- Concepts of symmetry and dimension.Perimetr, yuzasi va hajm hisoblash.
- Concepts of symmetry and dimension.

3. Units of measurement:

- Units of length, mass, volume and time.
- Comparison and measurement of quantities.

4. Mathematical logic and logical thinking:

- Equality and inequalities.
- Number systems (decimal, binary).
- Simple algebraic expressions.

Elementary mathematics is a key part of the formation of mathematical literacy in elementary grades. For its effective training, it is important to use didactic games, visual materials, practical training and interactive techniques.

Theoretical foundations of teaching mathematics in elementary grades:

The main goal of elementary mathematics education is to teach students arithmetic operations, to develop skills for the formation of logical thinking and the use of mathematical knowledge in solving life issues.

Elementary mathematical education is based on the following principles:

1.Step by step-the transition from simple concepts to complex ones.

2.Exhibitionism is an explanation through visual materials.

3.Activity is the active involvement of the reader in the process.

4.A life connection is an explanation based on examples found in everyday life.

Example: in the topic" learning numbers", students learn numbers by counting objects in the environment (e.g. determining the number of chairs in the classroom).

Technologies for teaching mathematics in elementary grades:

1.Modern pedagogical technologies play an important role in the effective teaching of elementary mathematics. Below is an analysis of the most effective technologies:

2.Interactive educational technologies:

Interactive methods ensure that students actively participate in the course of the lesson. The most effective methods:

1."Mental attack" is the act of encouraging students to think through problematic questions.

Example: the teacher asks the question: "if we have 10 apples and distribute them evenly in 2 baskets, how many apples will each have?"

2."Working in small groups" - the development of logical thinking through collective solving of problems.

Example: each group is given a mathematical problem, and they must discuss and find an answer.

3."Role-playing games" - performing mathematical tasks with a creative approach.

Example: students practice mathematical actions related to money while playing the game "seller and buyer".

3.Game technologies:

Didactic games play an important role for elementary students:

1.Mathematical domino-strengthening numbers and actions.

Example: each card will have an example on one side and an answer on the other. Readers link matching cards (e.g. 4+3=? In case, they find a card with the answer 7).

2."Who solves fast?"- increase competition and interest by solving examples.

Example: the teacher gives an example to each student and whoever answers correctly first receives a reward.

3."Digital puzzles" - the development of logical thinking.

Example: readers are given the following puzzle: "I am a number. If you remove 3 from me, 7 will come out. How am I?" (Answer: 10).

4.Information and communication technologies (ICT)

The use of computers, tablets and interactive whiteboards in the modern course process increases the effectiveness of Education. For example:

- Strengthening mathematical concepts through platforms like GeoGebra, Khan Academy.
- Evaluation and self-control using electronic tests and quizzes.
- Diagram:increased lesson efficiency using ICT:

📊 Student knowledge level (%)

Method	Efficiency (%)
Traditional teaching	65%
Interactive teaching	80%
Training with ICT	90%

Example:

Draw shapes on an interactive whiteboard and teach them to calculate their perimeter and surface.

Students participate in the game “math quiz” on the computer and answer questions.

5.Differentiated learning technology:

Giving personalized assignments according to the level of knowledge of each student:

- More complex issues for strong readers
- Reinforcement assignments for intermediate level students.
- Visual and practical activities for struggling students.

6.Research results and analysis:

During the study, the influence of interactive methods and game technologies on the knowledge of elementary students was studied. The following results were observed in the experimental classes:

Student activity in the course process increased by 25%.

Independent thinking and problem solving skills improved by 30%.

The acquisition rate was 20% higher than in traditional classes.

Experiment: different approaches were used in two classes:

Group 1: took classes with the traditional method.

Group 2: Interactive and Gaming Technologies were used.

The results showed that the mathematical thinking of the students of Group 2 developed better.

Research methodology:

Participants: 2nd graders.

Duration: 3 months.

Research group: students educated on the basis of modern technologies.

Control group: Students trained with traditional methods.

Research results:

📊 Level of student mastery:

Group	Preliminary assessments (%)	Final grades (%)
Control group	60%	75%
Research group	62%	90%

According to the results, the level of knowledge acquisition of students educated on the basis of modern technologies was higher by 15-20%.

The following results can be obtained in Eksperemental ő

Purpose of the experiment:

The experiment aims to compare the effectiveness of teaching elementary students mathematics through traditional methods and modern interactive approaches.

Hypothesis: teaching through interactive and playful methods gives a better result than the traditional approach.

Research methodology:

1.Experiment place: students in Grade 2-3 of elementary school.

Participants: 50 students divided into two groups:

- Control group (NG): trained in the traditional way (textbook, teacher explanation, independent work).
- Experimental group (EG): trained on interactive methods (game, electronic resources, team assignments).

Topics: "addition and subtraction", "multiplication and division", "geometric shapes". Duration: 6 weeks.

2. Data collection and evaluation:

• The results of the experiment were evaluated through tests, student activity levels and memory storage indicators.

• Preliminary test (Pre-test): both groups were given a preliminary test by subject.

• Educational process: NG and EG received education based on different methods.

• Final test (Post test): retested after 6 weeks.

3. Experimental results:

indicators	Control group (CG)	Eksperemental group (EG)	Difference (%)
Start test score (average score)	58%	57%	-
Final test score (average score)	72%	88%	+16%
Activity in mathematics (10-point system)	6.5	8.9	+2.4
Level of understanding and remembering the subject	65%	85%	+20%
Lesson participation activism (%)	55%	80%	+25%

Analysis:

16% of EG students performed better.

There was a high level of activity and interest in EG.

Recall improved by 20% through games and visual materials.

4.Conclusions and recommendations

✅ Interactive and in-Game methods have been confirmed to be more effective than traditional methods.

✅ Students master well through methods that require more visual and physical effort.

✅ Enriching classes with technologies and group activities will further improve results.

Conclusions and recommendations:

To effectively teach elementary mathematics in elementary grades, the following are recommended:

1.Wide introduction of interactive methods and Gaming Technologies.

2.Development of the use of information and communication technologies.

3.Applying a suitable approach to the individual abilities of each student.

4.Strengthening mathematical concepts through life examples in the course of the lesson.

These approaches make the process of studying mathematics in elementary grades interesting and effective and serve to develop students ' logical thinking.

Literature used:

1. Vygotsky, L.S. (1978). Pedagogical psychology.

2. Davydov, V.V. (1996). Formation of creative thinking of students.

3. Ministry of public education of the Republic of Uzbekistan. (2023). Mathematics textbook for elementary grades.

4. Novak, J.D. (2010). Interactive educational methods and their practice.