E-ISSN: 2997-9439
American Journal of Education and Evaluation Studies
https://semantjournals.org/index.php/ AJEES

| Research Article

Check for updates

Methodology for Teaching Mathematics in Primary School

Karimova Sevara Shaxriddin qizi
Teacher of the Department of "Pedagogy, Psychology and Sports" at Bukhara Innovation University, sevarakarimovaa141@.gmail.com

Xojiyeva Muslima Ravshanbek qizi
Bukhara Innovation University Primary Education 1st year, muslimaxojiyevaa232@.gmail.com

Annotation: This article analyzes the importance and methodology of teaching mathematics in elementary schools. It discusses the goals, methodology, and curriculum structure of mathematics education. The article also addresses the pedagogical foundations of mathematical education, its integration, and the role of modern pedagogical technologies in the teaching process. The importance of focusing on practical experience, teaching students critical thinking skills, and applying mathematical knowledge in everyday life is emphasized to improve the effectiveness of teaching mathematics in elementary schools.

Keywords: Elementary schools, mathematics teaching methodology, mathematics education, pedagogy, modern technologies, integration, competency-based approach, practical education.

INTRODUCTION

Contemporary mathematics relies on set theory to justify the concept of natural numbers. In the first-grade math textbooks designed for primary school, we encounter tasks such as: “Color as many squares in one row as the number of trucks in the picture, and as many squares in the second row as the number of buses in the picture." These types of tasks encourage children to establish a one-to-one correspondence between the elements of the indicated sets, which plays a significant role in the formation of the concept of natural numbers.

METOD VA METHODOLOGY

The methodology of teaching mathematics in primary school is linked to the general methodology of mathematics (GMM). The principles defined by general mathematics methodology are developed considering the specific age characteristics of young students. The methodology of teaching mathematics is closely connected with pedagogy and new pedagogical technologies, relying on its laws. There is a two-way connection between GMM and pedagogy. On the one hand, mathematics methodology is based on the general theory of pedagogy, forming an integral connection between methodological and theoretical approaches in solving mathematics teaching issues. On the other hand, pedagogy relies on the information achieved by specific methodologies, ensuring its viability and accuracy.

Great scholars such as Muhammad al-Khwarizmi, Ahmad al-Fergani, Abu Rayhan al-Biruni, and Mirzo Ulugbek have contributed immensely to the creation of the foundations of mathematics. It is our duty to educate the younger generation, convey modern knowledge, and create opportunities for the youth of our country to appreciate the beauty of mathematics.

Mathematics is fundamental to understanding the world. It is crucial for uncovering the laws of events and phenomena in our environment and plays a significant role in the development of manufacturing, fantasy, and technology. It is known that mathematics sharpens the mind, develops attention, trains perseverance and will, and most importantly, encourages reasoning and expands thinking. As our esteemed President Sh. M. Mirziyoyev noted, “Mathematics is the foundation of all sciences. A child who excels in this subject grows up to be intelligent, with broad thinking, and is successful in any field.”

Mathematics was identified as one of the priority areas for the development of science in 2020, and systematic efforts are being made to bring mathematics science and education to a new level. Specifically, the "Concept for the Development of the Education System of the Republic of Uzbekistan until 2030", approved by the Decree of the President of the Republic of Uzbekistan on April 29, 2019, and a number of other decrees and resolutions aim to improve the quality of mathematics education and research.

Mathematics is essential for understanding the world, uncovering the laws of nature, and advancing manufacturing and scientific development. Without mathematical knowledge, the development of industries and science is unimaginable. Therefore, mathematical culture is an integral part of universal human culture.

The modern objectives and tasks of teaching mathematics include forming and developing a system of mathematical knowledge and skills necessary for applying them in daily activities, further learning, and continuing education; shaping a person capable of functioning successfully in a rapidly developing society, with clear, critical, and logical thinking; instilling a sense of value for national, spiritual, and cultural heritage, and promoting the rational use and conservation of natural resources. Moreover, developing mathematical culture as part of universal human culture is central to this process.

As our country integrates into the global community, and with the development of science, technology, and innovation, it is essential that the younger generation be equipped with the knowledge to be competitive in an ever-changing world. This requires the introduction of international experience and standards into the education system, including the teaching of mathematics.

Research by various international organizations on educational achievements also highlights the importance of such integration. For example, the results of the OECD’s PISA (Programme for International Student Assessment) and TIMSS (Trends in International Mathematics and Science Study) assessments show how mathematics and science education standards vary across countries and help identify differences in national education systems.

The STEAM (Science, Technology, Engineering, Art, Mathematics) approach emphasizes the importance of connecting academic subjects with real-world applications. It fosters creativity and critical thinking by engaging students in project-based learning, where they design and test models, solve problems, and create innovations.

The competency-based approach to mathematics education aims to equip students with practical, transferable skills that can be applied to various real-life scenarios. By integrating project work, practical exercises, and research tasks, this approach enhances students' engagement with mathematics and improves the effectiveness of learning.

In teaching mathematics, more focus is given to practical exercises rather than theoretical instruction. Methods such as case studies, research, and small educational discoveries are recommended to facilitate interactive learning. It is important for students to develop inquiry-based skills, including observation, measurement, analysis, and synthesis, and to apply these skills in everyday situations.

RESEARCH RESULTS

The integration of mathematics with other subjects is crucial. For example, the relationship between mathematics and subjects like language arts, foreign languages, computer science, physics, biology, chemistry, geography, and technology is vital in fostering a holistic understanding. These subjects support the development of mathematical thinking and problem-solving skills and provide students with practical applications of mathematical concepts in real-world contexts.

For instance:

- **Language and Literature**: Encourages students to express mathematical ideas clearly, develop creative thinking, and engage in meaningful discussions.
- **Computer Science**: Enhances the teaching of mathematics through the use of information and communication technologies, boosting efficiency and engagement.
- **Physics**: Teaches students to apply mathematical formulas and problem-solving techniques in understanding physical phenomena.
- **Biology**: Connects mathematical concepts with the study of living organisms and natural systems.
- **Geography**: Uses mathematical models to analyze geographic data and study natural and human-made phenomena.
- **Technology**: Integrates mathematical skills in designing, modeling, and testing technical projects.

Preparing Students for Mathematics Courses

The primary task of teaching mathematics in grades 1-4 is to prepare students for more advanced levels of mathematical education. This involves ensuring that children develop a solid foundation in mathematical concepts and skills, which will serve as the basis for future learning. Teaching strategies should focus on developing analytical, synthetic, and comparative skills, which are essential for understanding more complex mathematical concepts.

The mathematics curriculum for primary grades is designed to build on previous experiences and progressive learning methods, ensuring that students can apply their mathematical knowledge to real-life situations and further studies.

CONCLUSION

In conclusion, the methodology for teaching mathematics in primary school plays a crucial role in forming the foundation for lifelong learning and success in various fields, shaping the intellectual and practical skills necessary for students to thrive in an increasingly complex world.

REFERENCES

1. M.N. Muminova, M.A. Maksumova «Kasbiy etika va etiket», uslubiy qo'llanma, T.,2006.
2. I. A. Karimov «Istiqlol va ma'naviyat» T.,1994.
3. I. A. Karimov «O'zbekiston buyuk kelajak sari» T.,1998.
4. N. E. Muhammadiyev «Kasb etikasi va estetik madaniyati»- Toshkent,1998 y.

5. M. Abdullayev, E. Xakimov «Vvedeniye v etiku»-Namangan, 1998.
6. Abdulla SHer «Axloqshunoslik» Ma’ruzalar matni, Toshkent, 2000
7. V.G. Fedsov «Kultura servisa» Uchebno-prakticheskoye posobiye - M., «PRIOR», 2001.
8. A.A. Avloniy «Turkiy guliston yohud ahloq», T. 1992.
9. Y. Y. Petrunin, V.K. Borisov «Etika biznesa» M., «Delo»,2000.
10. S. S. Gulomov «Tad*birkorlik va kichik biznes» - T., «Shark», 2002.*