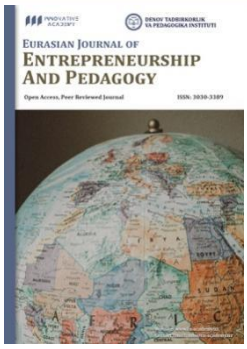

METHODOLOGY FOR DEVELOPING INFORMATION COMPETENCE IN PRIMARY GRADE MATHEMATICS

Ergasheva Husniya Mirzakhid kizi

Shahrisabz State Pedagogical Institute, 1st year master's degree student in primary education

https://doi.org/10.5281/zenodo.15321572

ARTICLE INFO

Qabul qilindi: 29-yanvar 2025 yil
Ma'qullandi: 10-fevral 2025yil
Nashr qilindi:25-fevral 2025 yil

KEYWORDS

Innovative methods , mathematical programs , logical thinking , competence, information , electronic resources , information

ABSTRACT

The *article aims to help form the competence of working with information in elementary school mathematics, develop students' mathematical thinking, and apply knowledge in solving practical problems. This methodology aims to teach students the skills of analyzing, sorting, and correctly using information in solving mathematical problems, as well as to effectively use new technologies in the educational process. This methodology uses interactive methods, games, tests, electronic resources, and other innovative methods to develop information literacy skills.*

Introduction: In accordance with the laws of the Republic of Uzbekistan "On Education" and "On the National Program for Personnel Training", in order to ensure the continuity and consistency of teaching general education subjects, create a modern methodology, improve the state educational standards of general secondary and secondary specialized, vocational education based on a competency-based approach, and organize the development and implementation of a new generation of educational and methodological complexes, the Cabinet of Ministers of the Republic of Uzbekistan adopted Resolution No. 187 on April 6, 2017 "On approval of state educational standards of general secondary and secondary specialized, vocational education". State educational standards create broad opportunities for the creation of educational and methodological complexes (program, curriculum, textbooks) in the subject of study, as well as the development of educational and methodological complexes based on the principle of interdisciplinary connections and coordination of knowledge. serves to ensure the interconnection and interdisciplinary connection of subjects. If the field of education begins with preschool education, the foundation of knowledge is laid in primary education. Nowadays, education is unimaginable without information technologies. This requires every teacher to improve their professional competence and use basic competencies in lessons. As our head of state said: "We will further improve the system of training highly educated and qualified personnel who can work with modern technologies." Improving mathematical competence in primary school students can be achieved primarily through various methods, methodologies, and didactic games in mathematics lessons and other related subjects. Developing the competence of primary school students in working with information in mathematics is expressed in deepening their mathematical knowledge. Increasing the quality and coverage of education at all levels, developing a continuous education system, ensuring the inclusiveness of the education system and its accessibility for all are among our important tasks. Currently, the education system is being updated based on modern requirements, and new pedagogical approaches based on new methodologies are being developed. This approach is strengthening the role of information technologies . Also, the competence of working with information is understood not only as providing students with knowledge, but also as developing their skills in accumulating, analyzing and applying

this knowledge in practice . Mathematics lessons, especially in primary grades, are important in developing information literacy . In mathematics lessons, students have great opportunities to process information, analyze it, and choose the necessary tools for problem solving. To effectively organize this process, it is important for teachers to make extensive use of information technologies, modern methods, and interactive methods . Information literacy teaches students to collect, analyze, interpret, synthesize, and make decisions based on information. This competency develops students' mathematical knowledge, as well as their logical thinking and creative decision-making skills during the learning process of mathematics in the primary school .

Literature review : The literature review on the methodology for developing information literacy in primary school mathematics primarily includes scientific research, methodological manuals, and pedagogical approaches aimed at the importance of information technology in educational methodology and the development of students' information literacy skills . There are many studies on the introduction of information technology into the education system and its effective use.

K. Gusev's work " Pedagogical Technologies: Theoretical Foundations and Practical Application " discusses the role of information technologies in the educational process and the benefits they provide to students, namely their role in developing the competence of working with information. In his opinion, information technologies, in particular interactive programs and online educational materials, are important tools in developing students' independent work skills. Scientific works devoted to the issue of the competency approach in mathematics education are aimed at developing students' skills not only in acquiring knowledge, but also in its practical use, logical thinking, and problem-solving.

N.A. Pirogova's work "Competency Approach and Its Role in the Education System" analyzes the competency-based educational process and the methodological foundations of the development of mathematical competencies. In her opinion, the competency approach not only strengthens students' knowledge, but also provides them with the skills necessary for successful functioning in society.

TR Vasilyeva's work on developing information literacy in primary education The work " Methodology of using information and communication technologies in primary education " provides a detailed analysis of the role of modern teaching methods in education and the contribution of interactive technologies to the educational process. The work discusses the effectiveness of interactive games, mathematical simulations, and online platforms in improving the information literacy skills of primary school students. The teacher's methodological approach and pedagogical competence are important in developing mathematical competence.

Research methodology. Competence (lat. compete - I achieve, I am worthy, I am worthy). The practical goal of teaching is to teach students to apply the knowledge they have acquired in mathematics lessons to solve problems encountered in everyday life , to use information, to form and strengthen students' skills in performing arithmetic operations, to solve specially designed practical problems. It is necessary that mathematical knowledge based on the curriculum provides students with sufficient information about mathematics, and prepares them for studying higher sections of mathematics . For this, the following basic and subject-specific competencies are formed in students:

TC - core competencies

1. TK1-communicative competence

2. TK2- information literacy competency

3. TK3-self-development competence

4. TC4-socially active citizenship competence

5. TC5-national and cross-cultural competence

6. TK6-maternal literacy, knowledge of science and technology and its use

One of the urgent tasks of forming mathematical literacy competence in primary school students is to develop mathematical literacy, the competence to be aware of and use scientific, technical, and information innovations - involves the formation of the ability to draw up personal, family, professional, and economic plans based on accurate calculations, to read various diagrams, drawings, and models of daily activities, to use scientific, technical, and information innovations that facilitate human labor, increase labor productivity, and create favorable conditions. For this, it would be appropriate to use various methods and techniques.

Pick a Friend and Solve the Problem Method: Students are divided into groups of 2-3. Each group is given a different math problem. Group members independently search for information, analyze and solve the problem. The groups then present their results to their classmates.

Mathematical Researcher Method - This method is aimed at developing students' competence in independent research, problem solving and justification of results. Students are divided into small groups. They are given a real-life mathematical problem (for example, calculating daily expenses or a simple geometry problem). Students analyze the problem, find the necessary information and develop solution options.

Analysis and results. In the competence of using information in mathematical literacy, a conscious attitude to educational work means understanding the social and personal significance of education. Competency-based education aims not only at students' acquisition of a set of knowledge, but also at improving their ability to develop, understand and create. Today, a student must not only acquire knowledge, skills and competencies, but also be able to correctly apply them in practice. Methods are used in each lesson. For example, let's consider the method of choosing a friend and solving a problem, which was applied to students in grades 1-4.

Class	Finding information (%)	Analysis (%)	Presentation (%)
1st grade	12	8	5
2nd grade	21	17	10
3rd grade	33	27	20
4th grade	35	30	25

What this method provides:

✓Develops students' ability to independently find information.

✓Math strengthens logical thinking and analytical skills.

✓Develops the ability to present their results in an understandable manner.

✓Social communication skills are developed through working in groups.

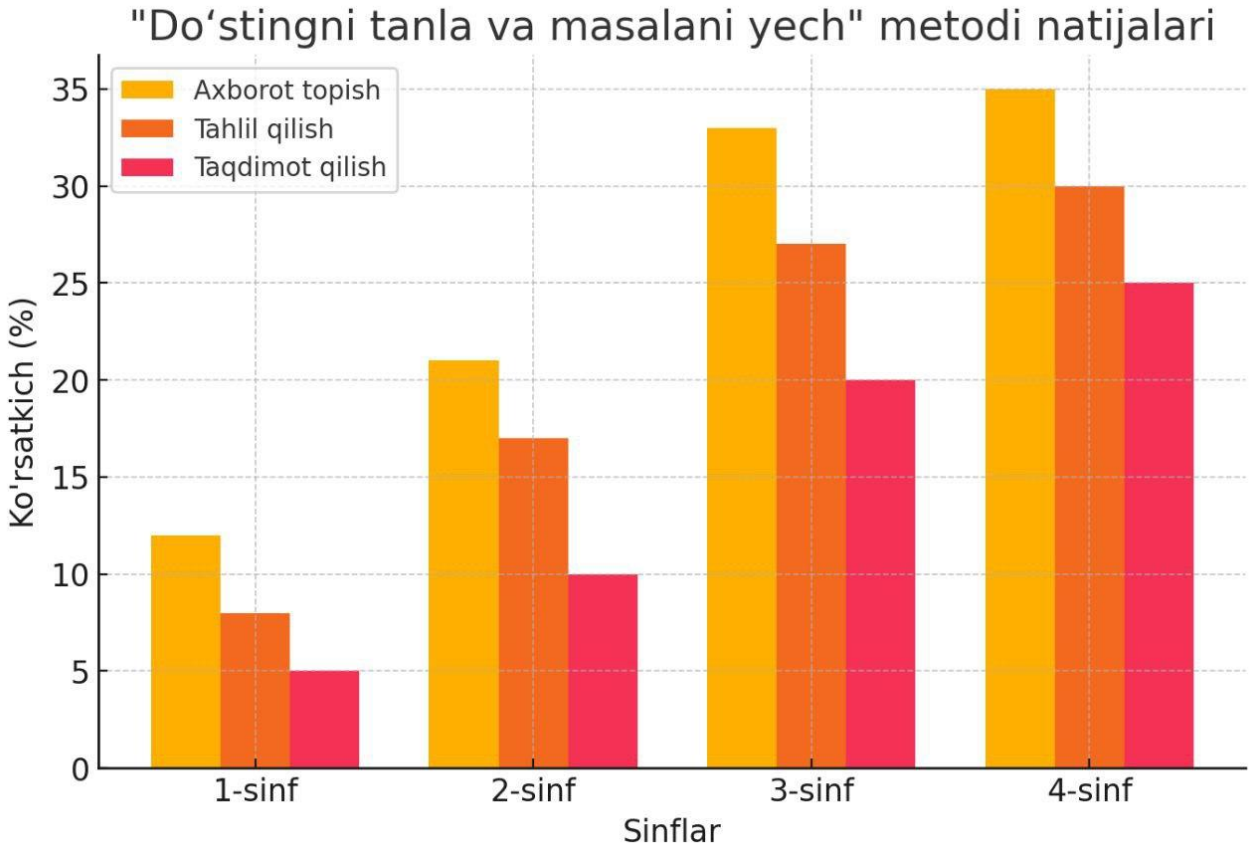

Diagram 1

The mastery indicator (grades 1, 2, 3, 4) when teaching a lesson using the Choose Your Friend and Solve method. This method was applied to the topic “Motion Problems” in a mathematics lesson for elementary school students, and the mastery of students significantly improved. Students' knowledge and skills on the topic increased by 12% in grade 1, 21% in grade 2, 33% in grade 3, and 35% in grade 4. (Diagram 1)

Conclusion and suggestions

To develop the mathematical competence of elementary school students in working with information, our pedagogical staff must have the skills to work with information . It is important to teach students to think logically, creatively, and critically. Mathematics develops a person's mind, develops his attention, encourages thrift, cultivates determination and will to achieve the intended goal, provides discipline , and most importantly, expands a person's thinking. The development of mathematical competence of future primary school teachers is required to be carried out in the higher education system . Teaching mathematics based on in-depth methodology , the knowledge read and learned, and the educational standards being developed should reflect the qualities necessary for students to study in higher educational institutions, become owners of various professions, and become active citizens in all aspects. The development of the primary school teacher's competence in working with mathematical information begins , first of all, with increasing his mathematical literacy. A teacher with deep mathematical knowledge can form mathematical competence in himself and apply it in real life situations. By giving children any mathematical knowledge during the teaching of mathematics in primary schools, we can

expand their imagination and assumptions about society and life. It is also the task of the primary school teacher to be able to apply such knowledge in various situations, and to ensure that they understand it automatically . The ability to consciously observe any situation, relying on mathematical knowledge, and to learn to act based on specific knowledge in finding solutions to various situations and problems is a source of knowledge that every primary school teacher must lay the foundation for. For this, a strong and complete competence must be formed in the teacher. Mathematical competence - includes the ability to conduct mathematical observations at various levels (logical and spatial thinking) and the mastery and application of methods of presenting information. The formation of competencies in them plays an invaluable role in transforming the student during the lesson into a person who is not just a listener or repeater of what he heard, but a person who deeply observes, expresses his independent opinion, works collaboratively with others, respects the opinions of others , can search for and use information, and is also a person who is open to the world. We offer the following as ways to develop mathematical information competence in primary school students :

- ➢ selecting a primary school teacher with mathematical knowledge ;
- ➢ work more on problems that require mathematical observation ;
- ➢ develop logical and spatial thinking;
- ➢ organizing math evenings;
- ➢ ensuring interdisciplinary connections in mathematics lessons;
- ➢ Using media in primary school mathematics lessons ;
- ➢ using information through various methods and techniques, games in mathematics lessons ;
- ➢ Ensure more student participation in the lesson than the teacher .

In conclusion, it should be said that The development of primary school students' mathematical competence in working with information depends on the development of the primary school teacher's mathematical competence, which begins, first of all, with the development of his or her mathematical literacy.

List of used literature:

[1] Valiyeva Nargiza Athamboyevna. Ways to develop mathematical competence in primary school students. – Bulletin of Kokand University, 2023. – No. 9. – P. 170-173.

[2] Khakimova Mehriniso Homitovna. Strategies for developing mathematical competence in primary school students. – Education and innovative research, 2023. – No. 11.

[3] Abduhakimova Zarnigor Abdurayim qizi. Improving students' mathematical competencies in primary school mathematics lessons. – International Conference on Learning and Teaching, 2023.

[4] Gusev K. Pedagogical technologies: Theoretical foundations and practical application. – Moscow: Pedagogika, 2016. – 256 p.

[5] Pirogova NA Competency approach and its role in the education system. – Tashkent: Akademnashr, 2019. – 198 p.

[6] Laws of the Republic of Uzbekistan "On

Education" and "On the National Personnel Training Program". – Tashkent, 2017. – 120 p.

[7] Jumaev A., Bozorov S. Modern teaching methods: Methodological approaches. – Tashkent: Ma'naviyat, 2015. – 240 p.

[8] Vasileva TR Methodology of using information and communication technologies in primary education. – Tashkent: Science and Technology Publishing House, 2023. – P. 102-128.

[9] Karimova NM The role of digital technologies in the development of mathematical competence in primary school students. - Tashkent: Science and Education, 2021. - P. 75-98.

[10] Rustamov AS Modern approaches to teaching mathematics in primary education: Methods and strategies. – International Journal of Educational Research, 2022. – No. 4. - P. 112-130 .