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RESEARCH ARTICLE

Technology for Developing Literacy Skills in Primary School Students

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Abstract

This article discusses the importance of mathematical literacy skills in helping people understand the place of mathematics in life and in making the judgments and decisions necessary for creative, curious, and self-reflective 21st century people. It highlights the need for a theoretical foundation for mathematical literacy skills in applying mathematics to real-life situations.

KEYWORDS

PISA, TIMSS, mathematical literacy, "21st century skills", analysis, synthesis, induction, deduction.

INTRODUCTION

Of the President of the Republic of Uzbekistan "On approval of the Concept for the development of the public education system of the Republic of Uzbekistan until 2030" Decree No. UP-5712 dated April 29, 2019, defines the tasks of creating a national system for assessing the quality of education aimed at assessing the level of students' literacy in reading, mathematics, and natural sciences, based on organizing international research in the field of assessing the quality of education in the public education system and achieving the Republic of Uzbekistan's entry into the top 30 leading countries of the world in the PISA international assessment program ranking by 2030. [1].

The era of rapid development in the context of globalization presents the state and society with modern requirements, the relevance and scope of which are increasing day by day. High-potential, knowledgeable, experienced, and modern-thinking personnel and specialists play an invaluable role in achieving global strategic goals, reaching new milestones, and joining the ranks of developed countries.

Satisfying the need for such competitive personnel is based on such noble tasks as human capital—in other words, the discovery of human potential and its mobilization to achieve great goals.

The Organization for Economic Cooperation and Development (OECD), which began its work in 1961, has been conducting research to find solutions to various problems that have arisen in the financial sector over the past period.

Especially on the threshold of the new century, PISA (The Programme for International Student Assessment) - an international program for assessing student literacy - was developed on the basis of this organization to develop general secondary education, which is the main link in world education [2].

One of the main directions of PISA research is mathematical literacy, which occupies a central place in modern education, and its essence has been continuously refined over time. In contemporary scientific interpretations, mathematical literacy is understood as an individual's ability to analyze real-life situations and problems through mathematical reasoning. This involves the capacity to translate a given problem into a mathematical form, meaning that an individual can construct

appropriate mathematical models to represent real-world contexts. Furthermore, mathematical literacy includes the ability to effectively apply mathematical knowledge and methods in the problem-solving process. This not only requires the use of formulas and algorithms, but also the skill to select and apply them appropriately in different situations. An equally important component is the ability to interpret the obtained results, evaluate their validity, and relate them back to the original real-life context. In addition, mathematical literacy encompasses the use of concepts, facts, algorithms, and tools to describe, explain, and predict real-world phenomena. Therefore, it should be considered not merely as a body of theoretical knowledge, but as a comprehensive competence oriented toward practical application. In modern educational practice, the development of mathematical literacy plays a crucial role in fostering independent thinking, problem-solving abilities, and informed decision-making skills among learners.

Mathematical literacy skills help people understand the role of mathematics in the world and make informed judgments and decisions necessary for creative, curious, and self-analyzing people of the 21st century.

The concept of "XXI Century Skills" encompasses the assessment of a set of key competencies that are closely interconnected with the notion of mathematical literacy and play a crucial role in an individual's ability to function effectively in modern society. In contemporary scientific discourse, these skills are typically grouped into eight main areas, each contributing to the development and application of mathematical literacy in real-life contexts. First, critical thinking is essential for analyzing problems, evaluating information, and making reasoned judgments, particularly when dealing with complex mathematical situations. Closely related to this is creativity, which enables individuals to approach problems from multiple perspectives and generate innovative solutions. Research and analytical skills further support this process by allowing individuals to gather, interpret, and synthesize data in a meaningful way. In addition, independence, initiative, and determination are important personal attributes that empower learners to engage actively in problem-solving processes and persist in overcoming challenges. The effective use of data is another key component, as it involves the ability to collect, process, and interpret quantitative information, which is fundamental to mathematical reasoning.

Systematic thinking also plays a vital role, as it allows individuals to understand relationships, patterns, and structures within mathematical and real-world systems. Communication skills are equally important, enabling individuals to clearly express mathematical ideas, arguments, and conclusions in both written and oral forms. Finally, reasoning serves as the core of mathematical literacy, as it involves logical thinking, justification of solutions, and the ability to draw valid conclusions. Taken together, these eight areas form an integrated framework that supports the development of mathematical literacy as a comprehensive and practice-oriented competence. Their incorporation into educational processes ensures that learners are not only equipped with mathematical knowledge but are also capable of applying it effectively in diverse and dynamic real-world situations.

Based on this, as the main directions of PISA research and the essence of the concept of mathematical literacy evolve from year to year, it is necessary to focus on the theoretical foundations for developing mathematical literacy skills and applying them in mathematics.

- using studied mathematical concepts, facts, ideas, laws, algorithmic rhythms, and methods to solve applied mathematical problems;

- analyzing, selecting, and justifying alternative methods for solving the problem;

- acquiring and mastering new mathematical knowledge during the process of solving a problem;

- expressing and researching mathematical assumptions, providing mathematical justification, comparison, and evaluation;

- using logical, creative thinking, mathematical reasoning, and scientific research methods in problem-solving: observation, measurement, experimentation, analysis and synthesis, induction and deduction, comparison, and analogy;

- recognizing and utilizing connections between mathematical concepts;

- applying mathematics in educational and life situations encountered in daily life and related to other subjects;

- To explain and model phenomena and processes in nature and society, we primarily rely on the theoretical foundations of mathematical literacy skills to apply various methods of mathematical interpretation in practice.

The importance of theoretical knowledge also serves as a basis for solving practical problems, develops students' critical thinking and analytical abilities, shapes scientific thinking, and creates a foundation for interdisciplinary integration.

CONCLUSION

Thus, the timely and high-quality fulfillment of tasks presented in the article, such as expressing a problem in a given life situation in mathematical language (mathematical modeling) based on mathematical reasoning, applying mathematics, interpreting and evaluating the found mathematical solution in relation to the given problem, will ensure the integration of our country's education system into the international educational process, serve to identify gaps in the field, change education to a certain extent, and define new tasks.

At the same time, we will create a solid foundation for the future by teaching students of the newly formed primary school to think independently and express their ideas freely.

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