



Innovative Processes in Teaching Mathematics

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Annotation:

The article reveals innovative processes in the teaching of mathematics. The social significance of education with the help of mathematics is to increase the level of intellectual development of a person by means of mathematics for its full functioning in society, to ensure the functional literacy of each member of society, which is a necessary condition for raising the intellectual level of society as a whole.

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INTRODUCTION

The modernization of the general education school implies the orientation of education not only towards the assimilation of a certain amount of knowledge by students, but also towards the development of their personality, their cognitive and creative abilities. "A general education school should form an integral system of universal knowledge, skills and abilities, as well as the experience of independent activity and personal responsibility of students, i.e. key competencies that determine the modern quality of education¹."

In the world educational practice, the following structure (set) of key competencies is predominantly presented:

- competence in the field of cognitive activity, based on the assimilation of methods of self-acquisition of knowledge from various sources of information, including extracurricular ones;
- competence in the sphere of public activity (performing the roles of a citizen, voter, member of a social group, collective);
- competence in the sphere of labor activity (including the ability to analyze and use the situation on the labor market, evaluate and improve one's professional capabilities, self-organization skills, etc.);
- competence in the domestic sphere (including aspects of family life, preservation and promotion of health, etc.);
- competence in the field of cultural activities (including a set of ways and means of using free time, culturally and spiritually enriching the individual). [one]

¹Akramova G.R. Effective methods for developing critical thinking in students. International scientific review of the problems of pedagogy and psychology (Boston, USA - 19 April, 2018). <https://scientific-conference.com/h/sborniki/pedagogicheskienauki2/1078-effec/>

The main goals of mathematics education are:

- intellectual development of students, the formation of the qualities of thinking that are characteristic of mathematical activity and necessary for a person to live a full life in society;
- mastery of specific mathematical knowledge, skills and abilities necessary for application in practice, for studying related disciplines, for continuing education;
- education of the individual in the process of mastering mathematics and mathematical activity;
- formation of ideas about the ideas and methods of mathematics, about mathematics as a form of description and method of cognition of reality.

MATERIALS AND METHODS

The goals of teaching mathematics are specified in four groups of competencies (competencies are given selectively from the draft general education standard)².

Mathematical (pragmatic) competence of a high school graduate suggests that it:

- is able to use mathematical knowledge, arithmetic, algebraic and geometric apparatus to describe and solve real life problems;
- is able to competently carry out algorithmic prescriptions and instructions in mathematical language;
- knows how to use mathematical formulas, independently draw up formulas of dependencies between quantities based on generalization of particular cases and experiment.

RESULTS AND DISCUSSION

Socio-personal competence:

- owns the style of thinking characteristic of mathematics, its abstractness, rigor;
- is able to conduct reasoned reasoning, draw logically sound conclusions, distinguish proven statements from unproven ones, argue judgments;
- is able to make generalizations and discover patterns based on the analysis of particular examples, experiment, put forward hypotheses and understand the need to test them.

General cultural competence:

- understands and is able to reasonably explain the importance of mathematics as an integral part of human culture, to influence other areas of culture, to improve a person as a homo sapiens;
- has an idea of the difference in the requirements for evidence in various fields of science and in practice, in mathematics, natural sciences and the humanities.

Communicative competence - the ability to communicate in social situations in the native language and in any foreign language, to adhere to the culture of communication, to develop social flexibility, the ability to work effectively in a team. Competence in working with information means the ability to search for, sort, process, store the necessary information from media sources, to use them effectively, to predict their security, to develop the ability to have a media culture.

Subject-worldview competence:

- has an idea about the axiomatic construction of a mathematical theory, about the logical status of axioms, defined and undefined concepts, definitions and theorems; about the significance of axiomatics for other areas of knowledge and practice;

² Guide to the International Student Literacy Research Program. Inspectorate for Quality Control in Education under the Cabinet of Ministers of the Republic of Uzbekistan. Tashkent, 2019.

➤ owns the techniques of building and researching mathematical models in solving applied problems and problems from related fields.

Competence for self-development - continuous physical, spiritual, mental, intellectual and creative self-development, striving for maturity, independent learning throughout life, independent cognitive skills and life experience regular increase, alternative assessment of one's own behavior and the ability to make independent decisions³.

Mathematical literacy, awareness and use of scientific and technical innovations - the ability to make personal, family, professional and economic plans based on accurate calculations, to read various diagrams, drawings and models in everyday life, to facilitate human labor, the formation of the ability to use scientific and technical innovations that increase labor productivity and lead to favorable conditions.

The subject implementation of this foundation will be functions, equations, inequalities, quantities, the most important geometric models available to schoolchildren and having great meaningful opportunities for introducing them to creative activity, elements of mathematical analysis, the use of which is associated with practical applications, elements of probability theory and statistics, axiomatic method, in particular, its heuristic function.

In the current methodological system of school mathematical education, the function of "properly mathematical education" is dominant, which leads to such a negative result as doubt about the need to study mathematics, for example, at the senior level of school. At the same time, the ideas of student-centered learning require a revision of the significance of these functions, taking into account the current social situation⁴.

The social significance of education with the help of mathematics is to increase the level of intellectual development of a person by means of mathematics for its full functioning in society, ensuring the functional literacy of each member of society, which is a necessary condition for increasing the intellectual level of society as a whole. In the context of education through mathematics, the educational field "Mathematics" acts precisely as a subject of general education, the leading goal of which is intellectual education, the development of the thinking of a growing person, which is necessary for his free and painless adaptation to the conditions of life in modern society.

CONCLUSION

In the words of one philosopher, "Mathematics is the gymnastics of the mind." From an early age, by solving a variety of mathematical problems, students are prepared to solve life's problems and make the right decisions in difficult situations in life. In this case, not all mathematical problems need to be directly related to real-life problems. Any mathematical problem makes the student think. One of the most important practices in logical thinking is the correct execution of calculations, algebraic substitutions using various abstract formulas, especially the proof of theorems, that is, the substantiation of its correctness on the basis of certain facts. Therefore, the main task of teaching mathematics in the system of general secondary education should be to develop in students the ability to think logically, to observe correctly (competencies). General scientific competencies are the theoretical knowledge and practical skills that students need to know and achieve in mathematics, the cognitive competencies in science are mastered in the above-mentioned logical thinking, learning and science generally defines the requirements for the practical application of knowledge and skills. A new generation of educational and methodical complexes in general education Educational-methodical complex - a set of textbooks, exercise books, methodical manuals for teachers,

³ International program PISA. Primary assignments on reading, mathematics and natural sciences. Kovaleva G.S., k.p.n., Krasnovskiy E.A. k.p.n., Krasnokutskaya L.P., k.f.-m.n., Krasnyanskaya K.A., k.p.n.

⁴ Peculiarities of preparation and conduct of international research. Presentation. Ismailov A., Director of the National Center, PISA 2021 Research National Project Manager.

multimedia application of textbooks. The textbook - on the basis of the curriculum in accordance with the state educational standards, meets the didactic, methodological, pedagogical-psychological, aesthetic and hygienic requirements, fully covers the topics of the subject, aimed at mastering its basics.

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5. www.ziyonet.uz

