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Research Article

METHODOLOGY AND SUBJECT OF TEACHING MATHEMATICS

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Malika M. Tokhirova
Teacher, Presidential school in Tashkent, Tashkent, Uzbekistan

ABSTRACT

This article discusses methodology and subject of teaching mathematics. The task of a mathematics teacher is to develop students' independent logical thinking skills and to educate them to be interested in learning the laws of mathematics. Formation of students' mathematical thinking and mathematical culture. During the students' gradual study of these laws, their logical thinking develops, and the culture of making mathematical conclusions is formed. Mathematical culture is formed in students by teaching them to correctly express the ideas of a mathematical law in a symbolic language and, on the contrary, to be able to express a mathematical law expressed in a symbolic language in their native language.

KEYWORDS

Methodology, subject, teaching mathematics, independent logical thinking skills, mathematical culture, mathematical culture, mathematical conclusions.

INTRODUCTION

The word mathematics is derived from the ancient Greek word mathema, which means "knowledge of science". The subject (object) of mathematics is the spatial forms of the existing things in matter and the critical relations between them. In the present period,

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the science of mathematics is conventionally divided into two.

1) Elementary mathematics,
2) Higher mathematics.

Elementary mathematics is also a science with an independent content, and it is built on the basis of elementary knowledge obtained from various branches of higher mathematics, that is, theoretical arithmetic, number theory, higher algebra, mathematical analysis, and the logical course of geometry.

The science of higher mathematics is used to find mathematical laws that fully reflect the spatial forms of the real world and the quantitative relationship between them.

THE MAIN FINDINGS AND RESULTS

Elementary mathematics forms the basis of the school mathematics course. The purpose of the school mathematics course is to convey the system of ipathermic knowledge to the students in a certain way (methodology), taking into account the psychological characteristics of the students. (The word methodology is a Greek word that means "way"). Mathematical methodology is one of the main branches of pedagogy and didactics, and it is an independent science that studies the laws of teaching and learning mathematics that are compatible with the educational goals of our society. Mathematical methodology answers the following three questions related to the educational process:

1. Why should you study mathematics?

2. What should be learned from mathematics?

3. How to learn mathematics?

The concept of the methodology of mathematics was first described in the work written by the Swiss pedagogue-mathematician Giestalotsi in 1803. Later, N.A.Izvolsky, V.M.Bradis, S.E.Lyapin, I.K.Andronov, N.A.Glagoleva, I.Ya.Dempman, A.N.Barsukov, S.Kh Novoselov, A.Ya.Khinchin, N.F.Chetverukhin, A.N.Kolmogorov, A.I. Markushevich, A.I. Fetisov and others were involved.

Starting from 1970, the content of the school mathematics curriculum was changed based on the new program, as a result, the methodology of its teaching was also developed. Professors V. M. Kolyagin, J. Ikromov, R. S. Cherkasov, P. M. Erdniev, N. Gaybullaev, T. To'laganov, A. Abdukadirov and other method scientists are engaged in the methodology of school mathematics taught on the basis of the current program. Mathematics teaching methodology is taught in the III-IV courses of pedagogical institutes. It is conditionally divided into three according to the nature of its structure:

1. General methodology of teaching mathematics. In this section, the purpose, content, form, methods and methodical system of the mathematical science, pedagogy, psychological laws and didactic principles are explained.
2. Special methodology of teaching mathematics. This section shows how to apply the laws and rules of the general methodology of teaching mathematics to specific subject materials.
3. Specific methodology of teaching mathematics.

This section consists of two parts:

1. Special issues of general methodology;

2. Special issues of special methodology.

For example, if it is said whether to plan mathematics lessons in the VI grade and the method of conducting it, this is considered a special issue of the general methodology.

The purpose of teaching mathematics in secondary schools is determined by the following three factors:

1. Universal educational goal of teaching mathematics.

2. Mathematics is the educational goal of teaching.

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3. The practical purpose of teaching mathematics.

The general educational goal of teaching mathematics sets the following tasks:

a) Providing students with mathematical knowledge based on a specific program. This system of knowledge should provide sufficient information about mathematics and prepare for studying higher branches of mathematics. In addition, on the basis of the program1, students should learn to check the reliability of the work they have acquired during their studies, that is, they should master the main methods of proof and control.
b) Developing oral and written mathematical knowledge of students.
Studying mathematics should help students master the skills of speaking correctly in their mother tongue, expressing their thoughts clearly, clearly and succinctly. This word means to make students able to speak each mathematical rule correctly in their native language and to thoroughly form their ability to correctly write the mathematical expression of this rule using formulas;
c) To teach students to know the real truth based on mathematical principles. Here, it is intended to provide students with knowledge that will allow them to understand the spatial forms of all of them, from the simplest to the most complex phenomena that occur in the real world, and the quantitative relationship between them.

By imparting such knowledge, students' spatial imagination is formed and their logical thinking develops further.

The educational goal of teaching mathematics includes the following:

a) Formation of students' scientific outlook. This idea is based on the theory of knowledge.
b) Education of students' interests in the study of mathematics.

We know that in mathematics classes, students learn to draw conclusions independently from the first days of study. They draw conclusions first from observations, and then from logical thinking. These conclusions are confirmed by mathematical laws.

The task of a mathematics teacher is to develop students' independent logical thinking skills and to educate them to be interested in learning the laws of mathematics. Formation of students' mathematical thinking and mathematical culture. Every mathematical conclusion studied in mathematics classes requires rhyme, which in turn is represented by many mathematical concepts and laws. During the students' gradual study of these laws, their logical thinking develops, and the culture of making mathematical conclusions is formed. Mathematical culture is formed in students by teaching them to correctly express the ideas of a mathematical law in a symbolic language and, on the contrary, to be able to express a mathematical law expressed in a symbolic language in their native language.

The practical purpose of teaching mathematics has the following tasks:

a) Teaching to be able to apply the theoretical knowledge obtained in the mathematics course to solving elementary problems encountered in everyday life. In this, students are taught to solve specially designed practical problems to develop the ability to connect theoretical knowledge to practice, to form their skills in performing operations on various numbers and mathematical expressions, and to strengthen them.
b) Formation of skills in the use of technical tools and demonstration weapons in the teaching of mathematics. In this, the students; mathematics lessons include the ability to use technical tools, mathematical instruments, tables and calculation tools.
c) Teaching students to acquire mathematical knowledge independently. It mainly consists in forming the skills of independent reading of

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students from textbooks and scientific and popular mathematical books.

In other words, the problems of teaching mathematics at school are solved in an integral connection with the sciences of logic, psychology, pedagogy, mathematics and philosophy. The methodological basis of mathematics teaching methodology is based on the theory of knowledge.

The science of mathematics methodology studies the purpose, content, form, style and methods of mathematical education and the laws of its application to the teaching process. Mathematics is physics. it has a close relationship with the sciences of drawing, chemistry and astronomy. The integral connection of mathematics with other subjects is carried out in the following two ways:

1) Adaptation of programs of reading subjects without violating the integrity of the mathematics system.
2) Use of materials related to the study of mathematical laws, formulas and theorems in other subjects in the mathematics course.

Currently, the issue of matching the mathematics program with other subjects has been solved quite successfully. For example, students begin to learn some information about functions and their graphic representation used in physics starting from the 7th grade. A lot of knowledge about geometric constructions given in the VIII grade is a rich material for the science of drawing, the task of drawing is to refine this knowledge by performing various drawing works.

The issue of using other subjects in mathematics lessons is difficult to clearly indicate in the program, it is done by the teacher himself\herself, that is, he/she should take into account when planning the educational material and preparing for the lesson. During the study of problems and equations, it is possible to solve the equations that reflect the connections between physical quantities, that is, the heat balance equation, the linear expansion equation from heat, and similar equations. When studying percentages, proportions and other chapters of the program, it is good to use problems of chemistry and physics (mixtures, castings and the like), for example: 1) how much of a soluble substance should be added to 240 g of water to make a 20% solution 2) 400 g of 5% solution was boiled and brought to 200 g. Now what is the sharpness of the solution? The use of materials related to neighboring subjects in mathematics lessons further strengthens the interdisciplinary connection.

After the independence of the Republic of Uzbekistan, a lot of attention was paid to school education. In particular, on August 29, 1997, at the IX session of the Supreme Assembly of Uzbekistan, the national program of personnel training based on the law on education was adopted. According to this adopted law, the activity of the continuing education system includes the following types of education based on state educational standards.

The academic institute provides secondary special education in accordance with the state educational standards. Taking into account the abilities and interests of students, their rapid intellectual development ensures deep, specialized, career-oriented education.

Vocational college provides secondary special, vocational education at the level of relevant state educational standards, in which students' aptitude for the profession, deep development of knowledge and skills, one or more of the chosen profession allows you to acquire several specialties.

CONCLUSION

Mathematical methodology is related to pedagogy, psychology and youth psychology. Primary mathematics methodology is related to other science methodologies of education (methodology of teaching mother tongue, science, art, work and other subjects).

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