

The Role Of Mathematical Issues In Improving The Methodological Training Of Future Mathematics Teachers

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Abstract – Methodological and mathematical training of a future mathematics teacher is a perspective on the students teaching development to solve independent problems and the skills formation in this area to the modern education needs.

Keywords – Problem Listening Training, Professional Training, Problem Condition, Problem Question, Problem Types, Problem Solution.

In his address to Oliy Majlis in January of this year, the head of state outlined several priorities for science each year. This year, mathematics has been identified as one of them. This has made both our people and the scientific community very happy. Because mathematics has a deep historical basis in our country and is very relevant for development today. On May 7, 2020 it was adopted the resolution "On measures to improve the quality of education in mathematics and the development of scientific research". In this regard, we have listed below measures to improve students' interest in mathematics and to improve students' logical thinking in overcoming problematic situations in the study of textual problems.

The analysis results of the difficulties encountered by mathematics teachers in teaching problem-solving in mathematics show that their pedagogical consciousness is not ready to accept the developmental teaching ideas in a specific subject, including mathematics, and to think independently. Methodological and mathematical training plays an important role in the professional training of mathematics teachers. According to tradition, the main purpose of the future primary school teacher's mathematical training is to provide students with mathematical knowledge, to form in them the basic mathematical knowledge and skills. The methodological and mathematical training of a future mathematics teacher does not meet the needs of modern mathematics in developing the ability to teach students to solve skills independent problems and the formation in this area.

Mathematics students' inability to solve problems independently, such as mathematics, geometry, physics, chemistry, and astronomy, make it difficult for them to make independent decisions in difficult situations throughout their lives. This is because in teaching students to solve problems, it is important for students to be able to find the best solution to a problem, to make an independent decision, and to defend that decision. This plays an important role in helping students find their place in society, choose a career, and lead a prosperous life.

A student who does not understand mathematical problems and does not fully understand the problem content will not be able to solve problems in geometry, physics, astronomy, chemistry, biology, and economics.

A mathematical problem is a concise story in which the some quantities values are included, and the other quantities values related to them and related to the quantities in the problem context are sought. But teachers know another definition: « A problem is a question expressed in words, the answer to which can be obtained using arithmetic operations». Note that this definition only applies to arithmetic problems.

Looking at the matter concept in a narrow sense, it is possible to distinguish the following components:

- a) the problem condition is a verbal description of the plot, in which the functional relationship between the quantities whose numerical values are part of the problem is expressed explicitly (using numbers) or in an implicit form (using words);
- b) The question is to know the unknown values of one or more quantities.

Thus, in any arithmetic problem, there must be elements consisting of an unknown number (or multiple searched numbers) and a given number (they should not be less than two). Working on an issue begins with mastering its content. Condition and question are the main elements of the issue. Numerical (or literal) information is given in the context of the issue; the quantity sought is always included in the question. However, in some cases the issue may be expressed in such a way that the question takes part of the condition or the whole issue is stated in the form of a question.

The main feature of textual problems is that they do not specify what action (or operations) must be performed on the given numbers to find the number sought. Therefore, there must be some indirect indication in the problem text that shows the relationship between the given numbers and the number being searched, and this connection must select the arithmetic operations required and determine their order. In the knowledge examination, the problem allows to know the student's thinking development, to choose the right actions, to think about the calculation skills.

Students learn math from the first days of school. At this stage, students are able to solve problems in everyday life orally, even if they do not fully know how to read and write. The math teaching purpose in preparation is to give children the opportunity to translate everyday situations into the mathematical symbols language. In this case, it is important to create issues based on the picture. Mathematical thinking and speech are formed when students are taught simple, one-act problems and are able to write the characters in a notebook. As a problem example of finding the sum and the difference, the teacher himself creates a simple problem.

Students should be able to incorporate these skills into problem-solving.

1. Learn to listen to the problem and read it independently. Working on an issue begins with mastering its content. Students should be taught to listen to the problem text being read by the teacher and to distinguish the important elements of the condition aloud in their early development stages. Then, in order to better understand the problem context, each student should not only listen to the problem text, but also read the problem independently;

The problem text is read once or twice by the teacher or students, but it is necessary to gradually teach children to understand the problem content as soon as they read it.

2. Initial problem analysis (the ability to distinguish between the known and the unknown). One of the most important skills is to be able to distinguish the known from the unknown, the important from the insignificant, and the connection between what is given and what is sought. Without such skills, it is impossible to learn to solve problems independently.

3. Ability to write a short story. After working on the problem text orally, it is necessary to translate its content into the language of mathematical terms and determine the mathematical structure in the form of short notes (pictures, diagrams, charts, tables).

It should be borne in mind that in all cases, the case condition analysis is carried out simultaneously with the short entry execution. In fact, this is a short note function. Indeed, a brief description of the problem condition is based on the students' memory and allows them to understand and distinguish numerical information, at the same time their rational writing makes it possible to explain what is given in the matter and what to look for.

4. Ability to justify practical choices in solving simple problems and to perform complex problem analysis, and then to develop a solution plan. Let us first consider the choice of action in solving a simple problem. This skill begins to take shape from the first grade onwards, and is further developed in the second and third years of study, that is, the basis for making practical choices in relation to certain familiar issues is changed.

5. Ability to execute a solution, formalize it in accordance with the requirements of the teacher and answer the question. Let's start with simple issues. A simple problem can be solved both arithmetically and algebraically. Here we are talking only about the solution of problems by arithmetic, the solution of the problem by algebraic methods will be considered later.

6. Ability to verify problem solving. Problem-solving testing is used in the following ways:

- a) to establish a correspondence between the answer received and the condition of the problem;
- b) create and solve inverse problems;
- c) solve the problem in other ways;
- d) determine the boundaries of the answer (estimate the answer).

7. Ability to define and implement a particular system when working on issues.

Work plan:

1. Read the issue and imagine for yourself what the issue is about.
2. Find out what is known and what to find. If the text of the problem is difficult to understand, write it down briefly (or make a sketch of the problem).
3. In a short note, explain what each number represents and repeat the question.
4. Think about it, is it possible to answer the question at once, and if not, why? What to know first, then what?
5. Make a plan to solve the problem.
6. Complete the solution and write the answer.
7. Check that your solution is correct.
8. Ask interesting questions about the problem and answer them.

The work of advanced teachers identifies several stages in teaching students to solve independent problems:

Step 1. The problem is solved according to the teacher's reference questions, and this solution is done simultaneously on the board and in the notebooks.

Step 2. The problem situation is analyzed under the guidance of the teacher and a solution plan is developed. The solution itself is not written on the board or spoken, and students do it independently.

Step 3. Under the guidance of the teacher, the problem is analyzed only. The problem-solving plan and its solution are done independently by the students.

Step 4. Solve the problem independently without the help of a teacher.

Creative exercises are also important in building problem-solving skills in students. These include:

1. Solve problems in different ways.
2. Create an inverse problem to a given problem.
3. Tasks for creating problems and replacing them.
4. Create a problem based on a numerical expression.
5. Problems of equation construction.
6. Create a problem based on a given equation.
7. Creating quantitative issues.
8. Creating construction issues.
9. Problems of finding the whole and the shares of the whole by division.
10. Creating problems of geometric content.

11. Solve problems of a problematic nature.
12. Solve logical problems.

In view of the above, we emphasize that in the working process on a mathematical problem, it is necessary to make sure that each problem is a real source of knowledge for children. For this, the student's attention should be focused on obtaining more information from the problem to the extent that it develops thinking and cognitive skills.

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