



IMPROVING MENTAL SKILLS OF STUDENTS BY ANALYZING AND SOLVING PROBLEMS

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ABSTRACT

A teacher makes a logical observation of the problem based on his/her knowledge and experiences. Through reflecting the way of solving the problem, he/she makes a plan how to deal with the problem based on the feedback from the students and the results of the specific actions performed in the activities. Such research activities of students can give the expected results if they become a need to stimulate their cognitive activity. Therefore, solving different types of problems, changing the form of problems on the conditions and applying thinking operations serve as a means of shaping the interest of students in learning. The article describes the essence of the interest in learning, the specifics of the main stages of its development, shows that the teaching of mathematics is related to the learning objectives, describes ways and means of developing an interest in learning.

KEYWORDS

Textual problem, logical observation, interest in learning, motivation for learning activities, ways to develop interest in learning

INTRODUCTION



The researches by international research centers aimed at improving school education, increasing the effectiveness of education, increasing the cognitive activity of students on the basis of international standards are being developed in developed countries. In particular, the basic competencies for continuing education in the documents on the structure of European standards such as the International Student Assessment Program, the International Association for Educational Outcomes Assessment International Mathematics and International Standards for Teaching Mathematics in the Center for Trends in Science and Science are being developed. This research examines the need for further development of mathematics education and science, increasing the importance of mathematical thinking in the formation of students' cognitive activity, broad outlook and deep thinking. Therefore, in the teaching of primary school students, work is underway to introduce models that test the skills of cognitive activity, identifying the most optimal solutions to diagnose and address systemic gaps.

Some aspects of the development of cognitive activity of primary school students on the basis of mathematics education were studied by scientists from the CIS countries such as V.E. Gaibova, V.A. Dalinger, L.Ya. Zorina, O.E. Lebedev, I.Ya. Lerner, V.I. Manokhov, V. Myasnikov, L. G. Peterson, A. A. Stolyar, A. B. Khutorsky. Scientists of Western countries such as T.Kellaygen, Yu.Tatur, D.Nyushe, J.Delor, T.Reydingen, J.Raven, P.Santiago, S.Shoyana, B.Oskarsson, D.Haymes have been explored. The development of mathematics education through cognitive activity of students has been identified as one of the priorities in the development of science in 2020, and a number of systemic reforms have been implemented to bring mathematics education to a new level in Uzbekistan as well.

Literature review

The process of primary education is an important stage in the development of students' cognitive activity, perception of the environment, the acquisition of knowledge, skills and abilities, the formation of scientific imagination in our country. "The process of learning in a primary school student is the result of creative activity. There is a need for purposeful, planned, standardized, self-aware activities for the student to be explored and creatively engaged in the task at hand. This includes the student's acquisition of knowledge about the objects of the environment and their surroundings; creating educational effectiveness requires relying on previous activities" [Boltayeva, 2017: p.49].

- understand the content of the problem;
- development of a plan for solving the problem;
- implementation of the developed plan;
- look back (check the generated solution).

In the process of implementing this plan in mathematics education, teachers will find answers to the following questions:

- What is unknown in the problem?
- What is known about the problem?
- What are the conditions of the problem?
- Have similar issues been resolved before?
- If similar problems are solved, can it solve the problem being used? [2:26].

Increasing math-based cognitive activity of primary school students is an important part of the educational process. The age and psychological characteristics of active and knowledge-hungry students in primary education require an interest in knowing, acquiring and understanding knowledge. In order to increase such cognitive activity, it is



necessary to improve mathematics education, to develop students' skills in mathematical quantitative relations, quick thinking, and analytical thinking. Textual issues play an important role in this process [Kasimov & Kasimova, 2009: p.29].

RESEARCH METHODOLOGY

Tasks, in particular, text tasks, perform a wide variety of functions in teaching, summarizing which, it is possible to single out teaching, developing, educating and controlling. For a deeper analysis, the study of the functions of tasks reflecting each of these sides, it is advisable to carry out separately, although in the real learning process they are closely connected. Indeed, a word problem will not have any effect on the assimilation of students, for example, the distributive law of multiplication with respect to addition (the rule for multiplying a sum by a number), if the student cannot find two different ways to solve this problem, leading to the compilation of expressions, the equality of which reflects the corresponding law. The influence of the problem on the assimilation of this law will be zero even in the case when the student cannot find a solution in the form of an expression, the application to which the law in question simplifies the finding of its meaning. Therefore, to use problems as a learning tool, students need to be able to solve them. At the same time, learning to solve problems is impossible without students having certain mathematical knowledge. Since, first of all, we are interested in the issues of learning how to solve word problems, we will also concretize the learning functions for this side of using problems in teaching mathematics in elementary school. Special teaching function of word problems, reflecting the role of tasks as a learning goal, there is a formation function for students' ability to solve word problems. You can talk about q in $y \times x$ types of problem-solving skills: about the ability to

solve problems of a certain type and about the general ability to solve problems, which consists in mastering by students some general techniques. We will be more interested in the latter, since mastering the general ability to solve problems includes the ability to solve problems of certain types, although it is not limited to them. To determine the same specific functions of word problems in teaching children the ability to solve problems (in the aspect of interest to us), it is necessary to single out in this context such components, the mastering of which can already become the direct educational goal of the student's work on the task, that is, to determine the content and scope of this concept [Tsareva, 1998: p.49]. The system of educational goals should include all the goals that students need to achieve in order to master the ability to solve problems at a certain level. Consequently, it should be built through identifying the structural components of a broad educational goal: learning to solve problems (mastering the ability to solve problems). The structure and content of the latter is determined by the structure and content of the concept of "the ability to solve problems."

The structure of the general ability to solve problems can be represented by a diagram (Table 1), reflecting the main components of this skill [Gafurova, 2020: p.41].

ANALYSIS AND RESULTS

The ability to solve problems consists of 2 components:

1. Knowledge
2. Skills

Create a problem based on short note and solve it.

TV-13



Computer-?, 7 less

In which answer is the inverse of the given question given?

- Thirteen TVs and seven fewer computers were brought to the store for sale. How many computers are in the store?
- 6 computers and 7 less TVs were brought to the store for sale. How many computers are in the store?
- 6 computers and 7 more TVs were brought to the store for sale. How many TVs are there in the store?

Zumrad read 120 pages of the 220-page book in the first week and the rest in the second week. How many more pages did she read in the first week than in the second?

Find the correct line for each of the above problems?

- Zumrad read 120 pages of the 220-page book in the first week and the rest in the second week.
- Zumrad read 120 pages of the 200-page book in the first week and the rest in the second week.
- Zumrad read 100 pages of a 220-page book in the first week and the rest in the second week.

Task on p.184, Grade 2

The height of the maple tree is 14 m. 7 m less than the height of the willow. Find the height of the willow?

Change the question below so that it can be reduced several times.

- The height of a willow tree is greater than the height of a maple tree?
- How much higher is the height of a maple tree than the height of a willow tree?

- How much is the height of the willow more than the height of the maple?

Task on p. 86 Grade 2

There are 38 bricklayers in the house. Eight people painted. How many people worked on the construction?

Create the following problem?

- 8 bricklayers and 38 painters were involved in the construction of the house. How many people worked in the construction?
- A total of 68 people worked in construction. If 38 of them are bricklayers, how many are painters?
- 38 painters, 8 of them were involved in the construction of the house. How many people worked in the construction?

CONCLUSIONS AND RECOMMENDATIONS

Completion of such tasks in the primary grades strengthens the knowledge and skills of students on the subject and creates a process of creative activity, as well as develops in students intelligence, quick and accurate memory, thinking, ingenuity, development of fantasies, such as independence, form qualities that cultivate the ability to know. [Gofurova, 2020: 678].

The activity of learning elementary math lessons using these methods consists of the following internal components:

- Readiness to complete study assignments;
- Striving for critical and analytical, analytical activities;
- Conscious performance of tasks;
- Formation of mathematical analysis;



- Trying to increase one's personal potential, etc. [Adkhamjanovna, 2020: p.810].

In order to develop students' cognitive activity in primary education, it is necessary to take a targeted approach to lessons, take into account the abilities and interests of students, organize the knowledge system, skills and abilities on the basis of different forms and methods of activity.

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