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**FORMATION OF LOGICAL UNIVERSAL ACTIONS AMONG YOUNGER STUDENTS IN  
MATHEMATICS LESSONS*****Asadova Shahlo Saidjon kizi****Gulistan State University Faculty of Psychology and Social Sciences 3rd year student, Uzbekistan*

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**ABOUT ARTICLE**

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**Key words:** Universal educational actions, logical universal actions, logical operations, federal state educational standard, system-activity approach, step-by-step formation of mental action.

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**Abstract:** The state educational standard of primary general education is based on the concept of the formation of universal educational activities. Logical actions belong to one of the types of universal learning activities. Their formation is an important component of the work of primary school teachers, since logical operations contribute to the development of an active cognitive position in younger schoolchildren. People with logical thinking are able to solve the problems that arise in front of them. In elementary school, the subject of mathematics has the greatest opportunity for the formation of logical actions. In order for this process to be successful, teachers must comply with a number of conditions when preparing and conducting math lessons. In the lessons, it is important to organize "logical five minutes", select variable tasks and ensure a change of student activities. It is important to take into account the age characteristics of children, all tasks should be selected in accordance with the capabilities of younger students. Such work increases the effectiveness of the educational process. Students become active and interested in acquiring new knowledge that they can apply both in educational activities and in real life. This is the universality of logical actions. This article describes in detail the features of the work on the formation of logical actions in younger schoolchildren in mathematics lessons.

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## INTRODUCTION

Today, when progress does not stand still and society is rapidly moving forward, it needs people with a high level of logical thinking development. A person who is able to think logically and apply logical universal actions in practice is able to solve the tasks that he and other people set for him. That is why the formation of logical actions should begin already from primary school age, which is a sensitive period for the cognitive development of personality. In addition, at this age, play activity is replaced by educational activity, the possibilities of which are quite large in the formation of mental operations in younger schoolchildren.

The concept of the formation of universal educational actions (hereinafter referred to as UDS), including logical actions, is the fundamental idea of second-generation educational standards, therefore it is important that primary school teachers organize the educational process in such a way that the ability to learn is formed in the lessons of younger schoolchildren.

Universal learning activities have several functions. One of which is that students will acquire the knowledge, skills and abilities that

can be applied in any subject area, i.e. within the framework of studying any school discipline.

These operations are called universal for two reasons. Firstly, logical DMS are used in the framework of educational activities. Thus, when studying mathematics, the Russian language, the outside world, literary reading and technology, such tasks are used that require the activation of students' mental activity. Secondly, the acquired logical skills can be used by younger students and outside of school to solve personal problems or tasks that they themselves or their environment pose to students. Thus, the universality of logical actions lies in the fact that they cover all aspects of the life of a primary school student.

## METHODS

In primary school, different academic disciplines are studied, each of which has the ability to form logical actions, but mathematics is the fundamental subject for this, because it is within the framework of lessons on this subject that primary school students get acquainted with the general method of solving problems.

In order to effectively form logical UMS in mathematics lessons, primary school teachers must comply with a number of conditions. Firstly, it is necessary to take into account the age characteristics of

students when selecting tasks, i.e. all exercises and tasks should be feasible for students, and also not carry the information that is difficult for children aged 7-11 years or completely inappropriate. Secondly, the material that is studied by children of primary school age should be presented not only in the form of text, but also in the format of tables, diagrams, which will activate the thinking of children. Thirdly, variable logic tasks should be used in mathematics lessons so that with each lesson, students' interest in such work does not decrease, but increases. Fourth, primary school teachers should gradually introduce younger students to each logical operation, if they have not previously met with it.

It should also be remembered that students do not need to be taught to solve only complex problems, it is necessary to teach them to reason over simple tasks where, it would seem, the answer is on the surface, but in order to come to it, you need to perform a number of actions. Working on simple tasks, younger students will develop an interest in mental activity, i.e. for them, reasoning over the question posed will not be a mechanical solution to the task, but will be an interesting and useful activity. Edward de Bono also said that mental activity should not be a boring and forced process, but a voluntary activity of children.

In addition, speech development plays an important role in the formation of logical actions in primary school students. This is because when answering a question or completing proposed tasks, students should be able to explain the solution and argue their point of view. That is why primary school teachers should select tasks that require oral reasoning of students, which would significantly expand the vocabulary, and therefore contribute to the formation of logical operations.

In this regard, we have suggested that the formation of logical minds in younger schoolchildren in mathematics lessons will be more successful if variable logical tasks are used for this, "logical five minutes" are carried out, as well as different forms of student work are organized.

When considering this problem, we conducted a pedagogical experiment, which took place in three stages: ascertaining, forming and control stages. The purpose of this experiment was to reveal the truth of the proposed assumption.

"Logical five minutes" were introduced at the stage of updating knowledge, in order to repeat the material passed, consolidate the skill of oral counting, as well as to activate the cognitive activity of students. This form of work was used in every lesson. Within the framework of the "logical five minutes", variable logical tasks were used, which became more complicated and modernized from lesson to lesson. It is important to say that such an activity aroused great interest among students and a desire to work in the classroom, i.e. it served as a good motivational moment.

Formation of logical universal actions each lesson, which contributed to the preservation of students' cognitive activity and productive assimilation of the material. The independent work consisted in the fact that the students wrote logical dictation, where they themselves got acquainted with the content of the proposed tasks, independently built an algorithm for solving them and wrote it down in their notebook. Upon completion of such work, a self-check was carried out, which is an important condition for the formation of logical actions. When organizing pair work, younger students were asked to solve a logical problem together with a neighbor on the desk within three minutes. The students read the problem, offered each other several solutions, then chose the most optimal one and defended it in front of the class, i.e. argued their answer. Such work resembles the method of "brainstorming". The undoubted advantage of such pair work is that children develop speech, which is also an important aspect of the formation of logical skills.

## **RESULTS AND DISCUSSION**

Among the exercises we can mention the following: "Decipher", "Mathematical slides", logical problems, numerical patterns and much more. The exercises were implemented at different stages of the lesson: at the stage of setting a goal, at the stage of learning a new one, or when consolidating the material passed.

Another feature of the implemented lesson package is that at the end of the lesson, logical tasks were used that were not related to the topic of the lesson and were aimed at relieving intellectual tension.

The work at the formative stage of the experiment aroused great interest among the students of the experimental group, they were active in the lessons. It is important to note that such exercises aimed at forming logical actions can be selected for each topic that is studied in elementary school, which greatly simplifies the work of a teacher.

At the control stage of the experiment, repeated diagnostics was performed in the experimental and control groups, which revealed positive dynamics in both classes. So, for students of grade 3 "A", the high level began to take a value equal to 15%, the average level began to be 81%, and the low level - 4%. In the control group (3 "B"), the high level was 26%, the average was 69%, and the low was 5%.

Similar results suggest that, working only according to textbooks, primary school students are able to form logical minds. We can also note that there is more dynamics in the experimental group than in the control group. These results are due to the fact that work was carried out with students of the 3rd "A"

class according to the developed set of lessons, when students of the 3rd "B" class were engaged in the usual mode, using only the capabilities of textbooks.

## CONCLUSION

Thus, we can conclude that the formation of logical universal actions in younger schoolchildren in mathematics lessons will be more successful if "logical five minutes" are conducted within the framework of lessons, variable exercises aimed at forming logical operations are used, as well as various forms of work are applied.

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