



Approaches to the Development of Logical Thinking of Younger School children

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ABSTRACT

This article discusses the methods of organizing special developmental work on the formation of logical thinking of younger schoolchildren, contributing to the fullest manifestation of their abilities, the development of initiative, independence, creativity, and the effectiveness of the process of developing logical thinking of younger schoolchildren

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The formation of logical thinking of younger schoolchildren is an important part of the pedagogical process. Helping students to fully express their abilities, develop initiative, independence, and creativity is one of the main tasks of a modern school. Already in elementary school, students should master the basic elements of logical operations, which will allow them to further provide evidence, build conclusions, statements logically related to each other, draw conclusions, substantiating their judgments, and, ultimately, independently acquire knowledge. Mathematics is exactly the subject where it is possible to implement it to a greater extent. Many researchers note that purposeful work on the development of logical thinking of younger schoolchildren should be systematic (E.V. Veselovskaya, E.E. Ostanina, A.A. Stolyar, L.M. Friedman, etc.). At the same time, research by psychologists (P.Ya. Galperin, V.V. Davydov, L.V.Zankov, A.A. Lyublinskaya, D.B. Elkonin et al.) allow us to conclude that the effectiveness of the process of developing logical thinking of younger schoolchildren depends on the way of organizing special developmental work. In the works of these authors, it is proved that as a result of properly organized training, younger schoolchildren quickly acquire logical thinking skills. At the same time, there is no single approach to solving this issue, how to organize such training, at the moment.

Let's take a closer look at the ideas of developmental learning by L.V.Zankov and D.B. Elkonin – V.V. Davydov, since these systems are aimed directly at developing the thinking of primary school-age children.

Consider the system of L.V.Zankov. The task of psychological development is understood as the development of the mind, will, feelings of children and is considered as a reliable basis for the assimilation of knowledge, skills. She is promoted to the first place. During the study of the problem of learning and development, L.V.Zankov formulated the didactic principles of the system:

- the leading role of theoretical knowledge in the content of training;
- students' awareness of all parts of the learning process;
- the need to work on the development of all students, including the weakest;
- high-level training difficulties with compliance with labor measures- news;
- study of program material at a fast pace.

The main feature in L.V. Zankov's methodology is the property of variability, which implies a change in the teacher's work style depending on the specific conditions (capabilities) of the class: this may concern the logic of the presentation of the material, and manifest itself in relation to the students. Tasks and questions of the teacher are formed in such a way that they contribute to the formulation of different points of view, different assessments, attitudes to the studied material, and do not require an unambiguous answer and action.

L.V.Zankov believes that the lesson should be built differently from the traditional view, when most of the time was filled with teacher's speech. Of course, this requires a lot of skill from the teacher: having retained his leading role, it is necessary to ensure the freedom of self-realization of the student, to create such conditions that from the first steps of being in the classroom, the child is not afraid to express his thoughts, his observations. To do this, it is important to learn how to ask children questions that require variant, rather than unambiguous answers.

Thus, speaking about the development of logical thinking of children according to L.V.Zankov, we will highlight the following:

- in the course of studying the material, there should be a clash of knowledge and their contradictions, and in most cases students resolve the existing conflict themselves;
- the use of variability in teaching, where the child is not afraid to say the wrong answer, because there are several points of view on the problem from different sides.

Developmental education aimed at the mental development of the child creates conditions for personal development and growth.

In general, developing learning, as a system, provides education with the means to achieve those goals that were previously only mentioned in the works of various authors, but not all teachers could embody them in the classroom.

Considering the system of D.B. Elkonin – V.V. Davydov, we can conclude: for the development of logical thinking of children, the teacher should give such tasks where students independently draw conclusions, formulate rules, and draw conclusions. And the most important thing is that there is an individual approach in this system, so the results cannot and should not be the same for different students.

The child's personality develops, changes qualitatively in the process of school education. The intellectual sphere begins to be rebuilt primarily in the field of thinking. This is due to the fact that during the child's schooling, he first encounters a new type of knowledge for him - a concept.

If a preschool child relies on so-called everyday concepts, that is, concepts that he has learned in communication with adults, then the student most often uses scientific concepts. Therefore, the main direction of the development of thinking at school age is the transition from concrete-figurative thinking to abstract-logical. Two fundamentally different types of knowledge can be hidden behind the same term that children learn: either a formal abstract idea of a certain class of objects with a set of common features, or a scientific concept reflecting a system of essential properties of an object in their interrelation and interdependence.

In addition to the use of developmental learning in the educational process, there is a method of problem-based learning, which also contributes to the development of logical thinking.

Problem-based learning is understood as such training, in which there is a removal (resolution) of problem situations consistently created for educational purposes. L.S. Vygotsky argued: "If you want to firmly educate something in a child, take care of obstacles."

Let's figure out what the problematic situation is.

A problematic situation is a situation in which a certain conscious difficulty is created, generating inconsistency, inconsistency between the available knowledge and those that are necessary to solve the problem that has arisen or proposed. The task that creates a problem situation is called a problem problem or

just a problem.

What is the problem problem for students, and what are the signs of the problem?

The signs of the problem are:

1. Creating a problem in the learning process;
2. A certain willingness and interest of the decider to find a solution;
3. The possibility of an ambiguous solution path, which causes the presence of various search

directions.

Problem-based learning primarily forms and develops the ability to creative activity, reveals the need for self-expression. Problem-based learning is more intensive than non-problem-based learning and thus it has a more active impact on the development of logical thinking.

Psychological and pedagogical research helps to identify another condition that contributes to the development of logical thinking of younger schoolchildren - individualization of learning.

The features of students, which should first be taken into account when individualizing learning, include:

1. Learning ability, that is, general mental abilities, as well as special features.
2. Training, consisting of both programmatic and non-programmatic knowledge, skills, and skills.
3. Cognitive interests.

We believe that individualization of learning is a necessary condition for the development of students' thinking.

The everyday life of any person, including a child, presents more and more new combinations, unforeseen cases of behavior. If an adult has experience, knowledge, skills, then a child does not have such baggage, so he has to deal with complex and confusing circumstances himself. Therefore, it is pedagogically more correct to teach the child to think logically and find the right answer himself, and not just give the child ready-made knowledge.

Thus, it should be concluded that for the full development of students' thinking, it is necessary to create such conditions under which interest in learning will awaken. It will be interesting for children to learn something new, understand various tasks, independently find solutions and formulate conclusions, and this can be facilitated by such learning systems, which are based on the concepts of independence, variability, contributing to the self-realization of students, the development of their personality.

So, we found out that thinking is an indirect and generalized process of cognition of the surrounding world. Thinking reflects the general and essential properties of objects and phenomena, as well as essential relationships and natural connections between objects and phenomena.

Thinking is divided into three types and is represented by: visual-effective thinking, visual-imaginative thinking and verbal-logical thinking.

The development of the mental activity of a child of primary school age has its own characteristics and is determined by a regular change of stages, in which each previous one prepares the next ones. With the emergence of new forms of thinking, old forms do not disappear, they persist and develop.

School education is built in such a way that verbal and logical thinking gets preferential development. If at first much attention is paid to working with visual samples, then starting from the third grade, the volume of this kind of activity is sharply reduced. The figurative principle loses its necessity in educational activity. Children master the techniques of mental activity, acquire the ability to act in the mind and analyze the process of their own reasoning.

Numerous studies have shown that it is in elementary school that the foundations of evidence-based thinking are laid. Here, the main goal of the work on the development of logical, abstract thinking is for children to master the techniques of logical thinking, learn to draw conclusions from those judgments that are offered to them as initial ones, so that they can limit themselves to the content of these judgments without involving other knowledge.

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