

THE MAIN ACTIVITIES OF SCHOOLCHILDREN IN TEACHING MATHEMATICS

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Abstract. *One of the typical devil of the modern stage of the development of the formation is that in practical person of the education, including initial, all активнее are introduced ideas developping education. The Particularities typical of zero level: stand out the casual signs analysed situation, the past of the knowledge, not refusing decision of the problem, and etc.*

Keywords: *formation, logical analysis, developments of the thinking, problem, decisions, education.*

The main types of mathematical activity of pupils are reflected in the methodology of teaching mathematics as cognitive processes subject to control by the teacher [2,5,6, etc.]. Their selection is based on the content of mathematical education, represented by a system of concepts and their features, formalized in definitions (descriptions) and judgments (axioms and theorems), theoretical knowledge is acquired in the process of solving tasks of various meanings and functions. Therefore, in the study of mathematics at school, there are such types of activities of pupils as: the introduction of a concept; the study of statements (discovery, formulation of an axiom or theorem, proof of theorems); task solving process.

The selected types of mathematical activity of pupils seem to be traditional. However, it is not. Otherwise, why would it be necessary to state the modern task of the school - the formation of the mathematical competence of pupils. To solve a new urgent task in didactics, modern approaches to learning are indicated: personality-oriented, activity-based, etc. [9]. The activity approach in teaching orients the teacher to revealing to children the personal meaning of learning, to developing an adequate attitude of schoolchildren to learning. Therefore, the motivation of pupils in a mathematics lesson, goal-setting at the beginning of the lesson and at its individual stages, realizing one or another type of activity, is the main indicator of the activity learning technology.

One of the characteristic features of the current stage of development of education is that the ideas of developmental education are increasingly being introduced into the practice of education, including primary education. Features characteristic of the zero level: random signs of analyzed situations are highlighted, past knowledge is reproduced that does not refute the solution to the problem, etc. Mental activity is distinguished by its instability, ease of transition from one action to another without sufficient grounds (sometimes randomly found objectively correct actions change to erroneous ones, etc.).

At the second level of development of the productive thinking of schoolchildren, there is a convergence between the intuitive-practical and verbal-logical components of thinking. The degree of significance of the features reflected in the word increases, the level of their generalization increases, the awareness of mental activity becomes higher. At first, it becomes possible to recognize only one of the essential features, on the basis of which the problem is actually solved, but a one-sided orientation to it leads to errors. Further, other signs are distinguished, however, the simultaneous orientation to them turns out to be inaccessible to

students, which indicates the still remaining instability of mental activity, the difficulty of keeping in mind the totality of distinguished signs. Gradually, thinking becomes more stable, due to which it becomes possible to focus when solving tasks not on one, but on all the selected signs, however, these signs themselves turn out to be somehow isolated from each other without full awareness of the really existing relationship between them. If at the initial stage of the development of productive thinking, the mindset of the decision process slowed down the decision itself, logic somehow suppressed, interfered with intuition, then at the second level, logic comes to the fore, the decision process becomes more detailed, justified. The latter does not have the character of targeted analytical and synthetic actions aimed at obtaining information that helps the decision. It is rather an emotional reaction ("Guessed it! Didn't guess it!"), causing further the same random tests. The rapid change of both the samples themselves and the signs identified as significant indicates the instability of the activity, its rapid variability under the influence of random effects. Such thinking is unproductive, since it does not lead to the allocation of signs and relations between them that are somehow significant for solving the problem, neither in verbal-logical, nor in intuitive-practical terms. The development of productive thinking begins with its intuitive-practical component. At the first level, students can abstract and generalize the essential features of perceived situations without adequate reflection of these processes in the word, which makes it possible to solve problems in practice. First, this solution is carried out on the basis of sensitive intuition, direct vision in a visual situation of the relationship between the data required to solve the problem. Later, as experience is gained, intuition is included in the decisions, which involves the implementation of a number of more complex mental operations without direct reliance on visualization and practical actions. This ensures a higher productivity of task solving, which indicates an increase in the depth, flexibility, and stability of intuitive and practical thinking. At this level, only the final result - the answer to a specific question of the task is expressed, and the process of solution itself is carried out subconsciously, remains without its correct reflection. Moreover, the orientation towards the awareness of this process has an inhibitory effect on the intuitive-practical component of thinking, reducing its productivity. In the verbal-logical plan, undoubtedly productive thinking is preserved, which implies going beyond the limits of already existing knowledge. However, in order to discover new ones, to reject what is already known, it is necessary to own this known, to have a fairly wide amount of knowledge, sufficient to move forward and in a state of readiness for actualization in accordance with the goal set for a person.

In accordance with this, among the principles of developmental education the special organization of anemic activity, which ensures the awareness and strength of the acquired knowledge, deserves attention. The formation of solid knowledge, ready for use in various situations, when solving new problems, is facilitated by both a direct attitude to memorizing knowledge and special training, which form the basis of a school subject, and special training in rational methods of anemic activity. These are the basic principles of training aimed at developing productive thinking. There are some age-specific features of the development of productive thinking in schoolchildren. Therefore, the development of productive thinking can be divided into main levels, stages. Zero level is characterized by unproductiveness. Being faced with the need to independently acquire knowledge, solve a new problem for themselves, pupils at this level mechanically reproduce individual specific situations on the basis of which the problem should be solved, or form positions that are well known to them, associated with these situations. They even show some mental activity, carrying out separate attempts at solving problems. However, these

are random, mechanical trials-manipulations, which differ not so much in their initial link - action, such techniques, firstly, because they contribute to the improvement of reproductive thinking as an important component of creative activity. Secondly, these techniques are the fund of knowledge from which the solver can draw "building material" to create ways to solve new problems for him. The insufficiency of such techniques lies in the fact that, not corresponding to the specifics of productive thinking, they do not stimulate the intensive development of this particular aspect of mental activity. These techniques correspond to the very nature, the specifics of creative thinking. In psychological works directly related to the problems of productive creative thinking, a lot of attention is paid to the description of the negative role of past experience, which can impede, slow down the movement in a fundamentally new direction, the need to overcome the "barrier of past experience" is emphasized.

In the earlier practice of teaching, the consolidation of knowledge was mainly associated with training, with the number of repetitions, on which, as it was believed, the strength of knowledge primarily depends. Modern research has shown that there is no direct connection between the number of repetitions and the strength of knowledge, that the consolidation of knowledge is a very complex anemic activity in which memory and thinking are inextricably linked. Its result depends mainly on the degree of activity of consciousness during assimilation, on the nature of the mental activity carried out and the material to be assimilated. To implement the possibilities of productive thinking, it is necessary not only to have knowledge in operational memory, which provides the solution of these specific tasks, but also to transfer them to permanent memory for long-term storage, for further use in appropriate situations. conceptual), and the predominance of one of them is determined by the personal characteristics of the psyche of pupils. In accordance with this, the principle of harmonious (optimal for the individual, stimulating his abilities) development of various components of thinking should be realized in training. Under the influence of modern psychological research in the last decade, as one of the ways to increase the developmental effect of training, the principle of special formation of mental activity techniques was formulated. First of all, attention was paid to teaching schoolchildren the correct methods of logical thinking (in accordance with the laws of formal logic), and later - to arming them with algorithms for solving various types of tasks. The specificity of creative tasks involves the use of auxiliary methods of analysis - "heuristic". These techniques include the technique of concretization, when the decisive one gives abstract data a more concrete form. The most common technique is variation, which facilitates the identification of functional relationships between data. This technique consists in the fact that the solver arbitrarily discards or changes the value of one of the data (and sometimes several) and, on the basis of logical reasoning, finds out what consequences follow from such a transformation, how the change in one of the data affected the rest. The opposite of the method of graphical analysis is the technique of abstraction, when the decisive person discards specific details, "exposing" the data and the relationship between them. It is widely used in problem solving techniques of analogy, posing similar questions.

The formation of methods of mental activity of an algorithmic type, focused on a formally logical analysis of problems, naturally leading to the choice of an appropriate specific method of solution, is a necessary but insufficient condition for the development of thinking. Intelligence is necessary, each stage is characterized depending on the leading type of mental activity.

At the first stage, the leading is visual-effective, practical thinking, which is carried out in a specific situation in the process of practical actions with real objects..

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