General Principles for the Formation of Natural-Scientific Pictures of the World in Little Schoolchildren

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ABSTRACT

In the article, the process of cognition of the world by younger schoolchildren is associated with social cognition. In addition to the general laws of cognition, it is important for younger students to take into account the specifics of perception and attention, imagination, and thinking.

Keywords: science, universe, science, concept, perception, nature, knowledge, natural, man, natural science, thinking, reader.

The natural-science thinking of younger schoolchildren should also develop as an integrative thinking based on interdisciplinary synthesis in the process of studying the surrounding world. Naturally, young students cannot suddenly understand the laws of reality and the ways they are reflected in different subjects, but if their personal experience at preschool and school age is gradually systematized and integrated, then their knowledge about the world around them and the system of methods for studying it. Accordingly, the task is to seriously assimilate the emotional experience of the child, to form it on the basis of the laws of nature. The goal is to ensure that there are no conflicts with students' subjective perceptions when learning primary scientific abstraction. Both ecological and semantic representations, the laws of nature, the basic concepts of nature should serve as a kind of integrator of knowledge about the environment and natural science. All human creative activity requires a non-standard way of thinking, an unusual view of the problem, a departure from the main way of thinking. "Creative thinking is mostly about discovering new knowledge, creating personal original ideas, rather than evaluating the opinions of strangers."

The creativity of primary school students is the creation of an original work, subject (as well as solving problems, writing an essay, etc.), in which the knowledge, skills and abilities acquired in the process of working on them are used independently, including by moving them by combining certain activities or creating a new approach to solving a problem.

The most important feature of the act of thinking is that "the novelty that opens up in the process of thinking is considered the same as in the early stages of the process." Depending on the level of novelty, the product is divided into productive and reproductive. It is well known that in Western psychology the process of reproductive thinking is opposed to productive thinking.

Naturally, in the process of learning about the world around, younger students learn the laws of science, but rely on educational material and their own experience in making subjective discoveries when creating special pedagogical conditions for the development of creative thinking. hit. In addition, the mental activity of the child is associated not only with

purposefulness, but also relies on free creative goal-setting, especially when reflecting nature through a variety of educational disciplines. In other words, the concept of creative thinking as an activity for long-term development should not always be reduced to the activity of the individual in achieving the set goals, programs and norms.

As elementary school students form a natural-science worldview, their understanding of nature acts as an integral part of its content. Concepts reflecting the natural-scientific landscape of the environment were identified in the process of social-scientific knowledge of the laws of nature and fixed by mankind as one of the forms of knowledge in individual disciplines that form the basis of the content of the natural cycle. school courses. According to the principle of action, knowledge cannot exist outside of activity, and knowledge is a part of it, which means that "the concept is both a reflection of being and a means of thinking," and mental actions are its operational components. Knowledge about the environment can be acquired only in the process of performing certain mental operations, and the formation of mental operations occurs on the basis of specific material, i.e. educational material about nature. The identification of ideas about the environment as a meaningful component of natural-science thinking and mental behavior, as well as an operational component, allows us to speak about the conceptual thinking of younger students.

Conceptual thinking is the basis of systemic thinking, which involves the acquisition of knowledge about the environment and the acquisition of ways to know it in a particular system. At the same time, it should be noted that if the general path of mastering the system of cognition of nature must go from the general to the particular, then in the process of mastering particular concepts, the ratio of the general and the particular depends on their semantic content. component should be. The rise of the child's consciousness from the abstract to the concrete must also be present when the elementary school student explores any concept that is added to his or her knowledge of the natural science landscape of the environment. The operational component in the development of thinking—psychic behavior—reflects the main ways of reflecting the existing part of the mental imagination in the child's activity. The factor shaping human thinking is the object with which it interacts. This interaction is the most important thing in thinking, in cognition. However, the subject determines thinking not directly, but through the internal laws of mental activity: analysis, synthesis, abstraction, generalization.

Thus, in the process of cognition and study of nature, younger schoolchildren can form a way of thinking based on the natural sciences, taking into account their age and individual characteristics. This type of thinking, among others, develops when studying a certain area of knowledge - nature, and is described as the unity of both theoretical and empirical thinking, as well as complex, creative, conceptual thinking. Logic and independence of thinking, understanding the basic interactions of the environment and the basic system of knowledge about nature, expressing an emotionally respectful attitude towards nature and oneself, depicting nature through various means of creative activity in primary classes are key indicators of the development of thinking skills based on the natural sciences in students . The main means of developing such thinking are "thoughtful" perception of nature, modeling and correction of the experience of the subject on the basis of scientific ideas. They can be used to maximize the sensory skills of primary school students in the world around them and to develop the ability to perform various forms of simulation. The formation of these skills is necessary for the formation of the natural-science landscape of the environment in younger students. In addition, "the degree of formation of internal ideal forms of modeling" indicates the level of development of mental abilities.

In short, the process of cognition of the surrounding world by younger schoolchildren is associated with social cognition, similar to it, but, of course, not entirely relevant. In addition to the general patterns of cognition of the surrounding world, younger students are characterized by features of its perception,

attention, imagination, thinking, based on the natural scientific landscape of the surrounding world in the process of personality-oriented learning, this should be taken into account when forming the image of the subject.

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