

Analysis of Factors Developing Logical Thinking in Elementary School Books

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Annotation

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The article deals with the formation of logical thinking of students at the initial stage of education, especially the thinking of younger schoolchildren. The sequence of development of thinking from concrete-contemplative to abstract-logical thinking is substantiated, the need to use innovative technologies in the process of developing logical thinking skills is emphasized..

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In the modern interconnected and interdependent world, in the conditions of increasing globalization of all spheres of social reality and the problems solved in them, there is an urgent need for the formation and development of a multidimensional person with polyphonic thinking. Scientists note that the multidimensional world cannot be mastered by people with a monological type of thinking, and that an increasing number of problems due to their multimodal nature require interdisciplinary analysis and synthesis. Solving them requires a search for consensus between various alternative positions and ways of thinking.

Significant “integrative work” is carried out at the level of teaching practice. In our country, integrated textbooks on the native language have been published, the teaching of which has been carried out for a long time. Complex courses such as “Economic and Humanitarian Disciplines” have become widespread abroad; The integrative element in the field of pedagogical communication is making itself known more and more here and abroad, i.e. relationships between students and teachers are built on the basis of “collaboration” and “co-creation”. Today in the field of education, integrative forms and technologies of teaching are being intensively introduced - an integrated lesson, an integrated day, concentrated, contextual, critical learning, the processes of globalization of education and the construction of integrated educational institutions, etc. are deepening. In addition, intensive work is being carried out in the field of scientific and pedagogical integration.

According to some researchers, modern general pedagogy can be compared with the philosophy or sociology of education or the social psychology of education. Although it should be noted that the sociology of education and cognitive psychology have established themselves as independent branches

of science. Thus, the fragmentation of scientific and pedagogical knowledge has reached such a large scale that many scientists have doubts that the category “pedagogy” can today denote the entire set of pedagogical disciplines. Therefore, it is partly legitimate to propose using such categories as “andragogy” and anthropogogy as “substitutes” for the category “pedagogy.” All of the above allows us to conclude that today the problems of the relationship between pedagogical and foreign scientific knowledge remain unresolved, therefore the point of view of some scientists who claim that all these problems have practically already been resolved remains incomprehensible. We are closer to the position of scientists who claim that general formulas such as “pedagogy uses the laws of other sciences and relies on them,” “the laws of other sciences are manifested in education.” All these formulations are not in doubt, but, in our opinion, they are not distinguished by certainty and accuracy.

Analysis of philosophical and psychological-pedagogical literature allowed us to determine the main theoretical principles on which our research was based.

Firstly, we investigated and analyzed the essence of the concept of “logical thinking”, which lies in the fact that it is abstract, conceptual thinking performed according to the laws of logic. Its essential difference from other types of thinking (visual-effective, visual-figurative) is that it is carried out only verbally, only through mental actions. Being the highest form of development of thinking, verbal-logical thinking remains closely connected with visual-effective and visual-figurative. This connection is most significant at primary school age. The identification of the following factors was significant for our study:

- 1) the mutually conditioning connection of biological and social factors in the development of thinking (logical thinking is not given to a person initially, from birth, it is formed and develops to the extent that the external environment contributes to this development.);
- 2) an organic connection between knowledge and mental actions (thinking is a process based on a system of knowledge and resulting in new knowledge);
- 3) the conditions for the emergence of the thought process (a person begins to think where habit or previous knowledge is insufficient);
- 4) connections between thinking and speech (outside language, thought does not exist at all);
- 5) the connection between thinking and action (action is the primary form of existence of thinking).

Secondly, very important for us were the provisions that

- already at preschool age, the prerequisites can be created for the development of logical thinking in children;
- the spontaneous formation of logical thinking processes leads to its numerous defects;
- in conditions of organized, purposeful learning, students’ ability to think abstractly increases significantly;
- the peculiarities of the mental activity of younger schoolchildren leave their mark on the course of all mental operations.

Based on ideas about the essence of logical thinking and knowledge of the characteristics of the mental activity of primary school children, we have identified indicators by which one can judge the level of development of logical thinking in children of primary school age. These indicators were: the form of action execution (materialized, verbal, mental), independence and awareness. In accordance with them, 3 levels of development of logical thinking of students were identified: high, medium, low. The data obtained during diagnostics of the level of development of logical thinking of primary school students

allows us to characterize it as an average level, which does not always meet the requirements of the time.

The results of the experimental work confirmed the research hypothesis that the logical thinking of primary school students will develop more successfully and effectively if:

1. the teaching methodology will take into account the age-related characteristics of the thinking of younger schoolchildren and will be adequate to the selected content of education;
2. use the advantages of integrated learning, in which the activities of primary school teachers during the educational process are focused on the development of logical thinking, ensuring the motivation of students to master logical operations and is implemented on the basis of variable lesson content;
3. the implementation of pedagogical conditions for integrated learning, which contribute to the effective development of logical thinking of younger schoolchildren, is carried out without increasing the educational load on students.

Therefore, we consider it possible to recommend for implementation into the teaching and educational process of primary schools the methodological recommendations we have developed for primary school teachers on the formation of logical thinking of younger schoolchildren in the conditions of integrated teaching of their native language. In our study, we tried to highlight one of the possible ways to improve the process of developing logical thinking among primary school students. The research carried out is not exhaustive, and many issues require further development and clarification. However, in the presented form, the experience and results of this work can be used to solve practical problems facing teachers.

Thus, everything said above allows us to conclude that it is integrated teaching of the native language that gives positive results, aimed at developing students' logical thinking, which is of great importance for the development of personality in the future.

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