



## PEDAGOGICAL CONTENT AND MAIN DIRECTIONS OF DEVELOPMENT OF ANALYTICAL THINKING IN FUTURE EDUCATORS

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**Annotation:** In this article, the theoretical-methodological foundations of the development of analytical thinking in future pedagogues through the hypothetical-deductive method, and the effectiveness of the dialectical method in the development of analytical thinking are considered high. In the pedagogical process, it is important to teach the common use of thinking styles.

**Key words and phrases:** hypothetical-deductive, new development, thinking skills, innovative ideas, logical thinking, individual qualities, perfect person, educational standards, type of mental activity, scientific-methodical.

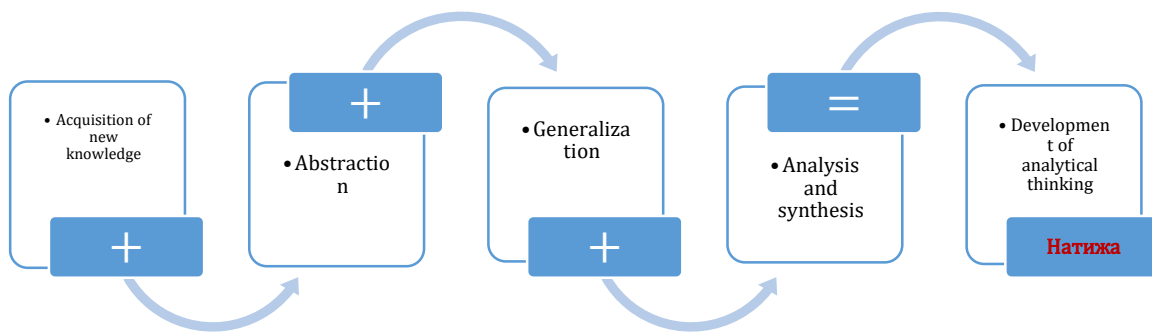
**Introduction** In addition to ensuring the training of the new generation of pedagogic personnel, improving the quality of higher pedagogical education and ensuring its provision, it is also important to increase the analytical thinking of part pedagogy. In order to develop the analytical thinking of future pedagogues and to be able to work in the process of the development of the era, an effective educational process of innovative and practical methods has a special place.

Today, the main goal of developing the mindset of future pedagogues is to educate the young generation to be mature in all respects, well-rounded people necessary for the development of our society. A perfect person embodies spiritual and physical maturity.

**Methods** Analytical thinking differs from other mental processes in that it emphasizes the existence of a problem situation, which, by solving it, distinguishes a person from emotional experience and decides to draw certain practical or theoretical conclusions and expand the boundaries of knowledge. Thinking is often considered as a product of historical development of social practice, a separate theoretical form of human activity. Thinking reflects reality not only as simple images, but also as various connections and laws obtained theoretically. In this regard, A. V. Brushlinsky wrote: "the true nature of thinking is that it always discovers something new independently, always openly. [1]"

Analytical thinking is characterized by an organic connection with things and information, perceived and received through human perception; directly related to manipulated objects; in fact, it consists of solving the tasks set forward without practical actions that are impossible. This form of thinking is primarily focused on performing practical tasks. Actions performed gradually according to its complexity are manifested in external demonstration conditions. In this, the creation of the internal environment of the movement takes place, the relations between the elements take on a schematic appearance.

In order to develop analytical thinking, it is often necessary to create appropriate conditions that help the future pedagogue learn, abstract, compare, summarize, analyze and synthesize scientific methods to acquire new knowledge (Figure 2.1).



**Figure 2.1. Analytical thinking development system**

Students of higher education institutions are characterized by a high level of intellectual activity, they know how to think and research. It should be emphasized that future pedagogues strive to generalize their thinking in a wide range. The teacher who helps the independence of students to perform the tasks independently is required to offer them general methods of intellectual activity. In this, as L.G. Vyatkin noted, actions formed on the basis of such orientation are performed quickly and without errors, and with great stability and wide scope.

Let's look at several definitions of analytical thinking available in scientific literature. From the point of view of philosophy, thinking is a higher form of active reflection of the objective existence, which consists of the purposeful means and generalization of the subject of existing connections and relations of objects and events in the creative creation of new ideas, the prediction of events and actions." [2].

In his research, J. Piaget defined analytical thinking as the result of the grouping of implemented processes or their results and secondary processes. [3] L.S. Vygotsky thought about analytical thinking as follows: "The main logical forms of thought are analytical and observational activities of perception, that is, it first divides the perceived world into separate elements, and then builds new derivatives from these elements that help to understand the surrounding world."

In psychology, it is defined as follows: "Thought is a concept based on words and logic, it is one of the types of thinking that uses logical constructions. It operates on the basis of language tools and shows the latest stage of historical and ontogenetic development of thinking. Types of generalizations are formed and applied in the structure of verbal-logical thinking". [4]

Researcher-scientist N.A. Podgoreskaya points to the skill of building one's actions in accordance with the laws of logic: "The skill of analytical thinking: the skill of orientation to the signs of existing objects and events, the skill of obeying logical laws, building one's behavior in accordance with them, carrying out logical operations and defining them with understanding, the skill of building hypotheses on this basis and drawing conclusions about their consequences, etc. The skill of logical thinking includes a number of components: the skill of orientation to the signs of existing objects and events". [5]

**Results** Also, the following specific features of logical (verbal-logical) thinking are defined: "the initial criterion that distinguishes this type of thinking is the development of private logical thinking, which means becoming increasingly free from a large number of specific constituent elements in the real object world". [6]

In this regard, scientists N.N. Pospelov and I.N. Pospelov thought as follows: "the development of logical thinking is the imparting of knowledge according to logical requirements and the development of skills using these requirements in educational and practical activities."

Some researchers approach the definition of analytical thinking not only from the functional-operational point of view, but also in a broader sense. They considered analytical thinking to be a kind of "productive process that incorporates heuristic, intuitive logical concepts".[7]

The pedagogical aspect of developing the analytical thinking of future pedagogues is to develop and test the necessary didactic conditions for the organization of the educational process. This, - writes A.D. Getmanova, - the science of pedagogy studies analytical thinking by implementing cognitive processes in the process of education and upbringing of the growing generation.

The researches of many pedagogues and Methodist-scientists have emphasized the need to teach students analytical thinking methods. Some pedagogues understand the development of analytical thinking as the acquisition of knowledge by students and the formation of skills and abilities in them, as well as their use in educational and practical activities.[8]

In many studies, such a phenomenon is found in the study of all disciplines, as an analytical culture that contributes directly to the characteristics of each of them. Analytical culture is defined as "a system of thinking skills that allows you to express existing thoughts in a clear and understandable form and to acquire new thoughts only in such a form."

Analytical thinking in pedagogy often includes the following types of thinking: mathematical, physical, historical and other types of thinking. It can be explained as follows: only such theoretical thinking, which participates as analytical thinking, can represent its real subject, because only thinking in a logical form can move in the content of things, in their existing relationships. Psychologists of other directions paid great attention to education and made a great contribution to the mental development of students and their education by developing a psychological-pedagogical theory.

Based on the analysis of the results of psychological-pedagogical research on the development of analytical thinking in future pedagogues, the following conclusions can be drawn: the successful development of analytical thinking of students is directly related to the educational process; the successful development of analytical thinking in students, the formation of initial logical skills can take place under certain conditions; the process of formation of general analytical skills as a component of intellectual culture must be goal-oriented, continuous and continuously related to the process of teaching specialized subjects at all levels.

The following can be cited as criteria for determining the types of development of analytical thinking:

- in connection with the type of activity and the field of mental development;
- according to the level of development of analytical thinking;
- according to the form of manifestation of the development of analytical thinking;
- according to the scope of manifestation of various types of activity;
- according to age characteristics.



1. According to the type of activity, five types of development of analytical thinking can be distinguished: practical, theoretical (related to cognitive activity), artistic-aesthetic, communicative and spiritual-ethical. Also, according to the field of mental development, analytical thinking can be classified into intellectual, emotional and motivational-volitional types. The intellectual sphere is manifested at sensory-motor, spatial-visual, conceptual-logical levels. The development of analytical thinking in connection with the emotional sphere is reflected in the levels of emotional impact and emotional experience. The development of analytical thinking within the motivation-volitional field expresses the levels of desire, goal orientation and imagination.

**Discussion** The educational methods of a student with developed analytical thinking allow to ensure its quality and efficiency. For this reason, three main levels of activity efficiency are distinguished:

- finding and using new methods of activity when making decisions about a situation;
- achieving a new peak of activity based on deep mastering of the field of science;
- quickly mastering the activity and successfully performing it.

2. According to the criterion of the level of development of analytical thinking, it can be classified into the development of actual and potential analytical thinking.

Development of actual analytical thinking is a description of the mental characteristics of a student's personality, which is manifested in a high level of mastery of an activity and field of science compared to age and social norms. In this case, we are talking about not only the educational field, but also a wide field of various types of activity.

Development of potential analytical thinking is a description of mental characteristics that determine only certain mental capabilities for the student's achievements in a certain field of activity, characterized by the fact that he cannot always demonstrate his capabilities. The development of this potential depends on the presence or absence of favorable conditions (difficulty in the family, lack of motivation).

3. According to the criterion of the form of manifestation of the development of analytical thinking, it is possible to distinguish open and closed types.

The development of open analytical thinking is clearly manifested in the student's work even in unfavorable conditions. The student's success undoubtedly raises no doubts about the development of his analytical thinking. That is why experts in the field of development of analytical thinking of students come to the conclusion about the existence of development of analytical thinking or high potential possibilities of the student with a high degree of probability. Accordingly, they adequately evaluate the "close zone of development" and clearly determine the future work with the student. It should also be noted that the development of analytical thinking is not always obvious.

The development of hidden analytical thinking is not clearly manifested in the student's work. As a result of this, there is a risk of making a wrong conclusion about the development of the student's analytical thinking. As a result, a student with the development of such hidden analytical thinking can be judged as "no future" and deprived of the necessary help and support to develop his abilities. Of course, the main reasons why the development of analytical thinking is manifested in a hidden form are the existence of psychological barriers. They arise in the process of the development and integration of abilities and lead to a violation of the form of manifestation of the development of analytical thinking.

4. Development of analytical thinking is divided into general and special types according to the scope of manifestation of various types of activity.

The development of general analytical thinking is manifested in relation to various types of activity and emerges as the basis of its effectiveness. The psychological core of the development of general analytical thinking is reflected in mental abilities built on the basis of emotional, motivational and volitional qualities of a person.

Development of general analytical thinking determines understanding of reality, deep emotional and motivational involvement in the field of activity.[8]

The development of special analytical thinking is expressed in a specific field of activity and serves to determine relations only in a specific field of activity (music, visual arts, sports, etc.).

5. It is possible to distinguish early and late manifestations of the development of analytical thinking according to the criterion of the uniqueness of the development of age periods.

In this case, it is necessary to emphasize the rate of mental development of the student as a decisive indicator of early or late manifestation of analytical thinking. Therefore, the absence of a clear manifestation of the development of analytical thinking during this period does not require its denial.

The above-mentioned criteria for the development of analytical thinking indicate that the problem of assessing the development of analytical thinking of students is complex and multifactorial, and the diagnosis of the development of analytical thinking should have a comprehensive, comprehensive description and should be carried out at different levels and in several stages.

In addition, the following levels were taken as a basis for clarifying the manifestation of the development of creative-analytical thinking in the requirements: stable - a clear need for creativity is formed; situational - the need for creativity has a changeable description depending on the situation; within the possibility - low level of development of creativity.

Also, it was found out within the framework of the research that the development of analytical thinking reflects the dynamic description of personality development, and the development of analytical thinking manifested in a future teacher may not be clearly manifested when reaching a higher level. In the same way, the lack of manifestation of the development of analytical thinking in a student during the educational process of a certain period of time does not deny the possibility of its occurrence. In addition, the fact that parents or pedagogues do not notice the student's ability early, even some pedagogues who speak less, demand silent listening, and do not support non-standard thinking, also has a negative effect on this process.

### **Conclusion**

In conclusion, in order to pedagogically support the process of intellectual development of future pedagogues, it is necessary to carefully study, correct, restore and develop their relationships. The main goal of supporting students in the educational process is to ensure their intellectual, physical, spiritual, cultural and social development at the same time. and for this, it is appropriate to organize didactic activities that regularly develop in order to improve the activity of students in the learning process.

### **References:**

1. Вяткин Л.Г. Развитие творческих способностей учащихся. // Актуальные проблемы развития личности учащегося. - Саратов: Изд-во СГУ, 1995. - С. 32-
2. Сухин И.Г. 800 новых логических и математических головоломок. -СПб.: Союз, 2001. - 208 с.
3. Колмакова Н.А. Формирование готовности студентов педвуза к развитию логического мышления младших школьников (на примере математических дисциплин): Автореферат дис. ... канд. пед. наук. - Шадринск: Изд-во ЩГПИ, 2000. - 22с.
4. Овчинникова Т.Н. Личность и мышление ребенка: диагностика и коррекция / Овчинникова Т.Н. Научно-внедренческая лаборатория психопедагогике образования. - М.: Акад. проект, 2002. - 188 с.
5. Выготский Л.С. Педагогическая психология. - М.: Педагогика, 1996. - 394 с.
6. Божович Л.И. Отношение школьников к учебе как психологическая проблема // Божович Л. И. Проблемы формирования личности. -М: "Институт практической психологии", Воронеж: НПО "МОДЭК", 1995. - С. 55-107.
7. Inomjon, A. (2019). The Issues of Alienation in the Philosophy of Erich Fromm. Canadian Social Science, 15(6), 31-34.
8. Коляда Е.П. Развитие логического мышления учащихся-подростков на основе межпредметных задач: Автореф. дис. ... канд. пед. наук: (Математика, информатика). Саратов: из-во Сарат. гос. ун-т им. Н. Г. Чернышевского, 1996. - 15 с.
9. Гетманова А.Д. Логика: учебник для педагогических учебных заведений. - М.: Новая школа, 1995. - С. 7.