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Scientific and Methodological Bases Forming Technical Thinking in Students at Technology Lessons

Mukhamedsaidov Bakijan Karimovich [1]

[1] *Professor of the Department of Medical Professional Education Tashkent State Pedagogical University named after Nizami*

Annotation. The article describes the psychological definition of the term thinking and the scientific and methodological foundations for the formation of technical thinking among students.

Key words: thinking, creative thinking, non-standard thinking, technical thinking.

The psychological quality of the personality “Understanding” in a person is expressed in the discovery of the causes of events and the consequences they bring.

The main criterion for understanding is the practical use of knowledge. Another criterion for understanding is to tell the oral material in your own words, to be able to highlight important points in the topic.

Generalization and abstraction occupy a special place among mental operations. In order to use the generalization operation correctly, the following rules must be observed:

- highlighting signs of an important concept, thing, event;
- highlight the signs of this concept, things, events that are not essential;
- explain the limitations of the most important element;
- abstraction, distraction from non-essential features and bringing the event to the concept of a thing and its general category.

Psychologists distinguish the following ways of developing students' thinking:

- the development of students' enthusiasm, the formation of their desire to ask independent questions and answer them;
- reading a book with the condition of careful reading;
- practice of solving a problem that requires reflection;
- the fight against the shortcomings of the mental activity of students.

In order for the thinking of students to be active, independent and creative in the classroom, it is necessary to create a problem situation that required students to know and be creative in order to solve the problem situation. Encouraging students to compare, contrast, generalize and evaluate at each lesson, the teacher not only activates the thinking of students, but also prepares the psychological basis for the successful implementation of creative work.

On the problem of activating thinking, leading psychologists in their studies gave several definitions of the category of "thinking".

P.I. Ivanov's textbook defines that "thinking is such a mental activity of a person that allows the most accurate, complete, deep and generalized reflection (cognition) of reality, and also allows a person to engage in reasonable practical activities."

M. V. Gamezo argues that "thought is a generalization of reality and is reflected in words and past experiences."

In the textbook edited by A. V. Petrovsky, thinking is defined as follows: "Thinking is a psychological process consisting in the search and discovery of an important novelty closely related to speech, in other words, thinking is a process of analyzing and synthesizing reality, indirectly and summarizing it. »

In the textbook by O. K. Tikhomirov, the following definition is given, "Thinking is a process, a cognitive activity, which consists in generalizing reality with its product, dividing it into types depending on the level of generalization that characterizes indirect reflection and the means used, as well as the novelty of these generalizations".

According to P. Ya. Galperin, thinking is an orienting research activity, orientation to the process, that is, orientation is a process, orientation is activity.

The process of thinking takes place as follows: analysis, synthesis, comparison, abstraction, classification, generalization, systematization.

Analysis is a mental operation by which we analyze the characteristics of things and events from a mental or practical point of view.

Today's youth needs to train competitive professionals who know their business, based on the requirements of the time. A modern specialist should be a person who knows his profession well, who is able to further improve it and thereby develop socio-economic development. One of the urgent tasks facing the education system is the training of mature specialists in all aspects, the formation of skills for the widespread use of modern pedagogical technologies. The quality of training of qualified specialists in educational institutions is largely determined by the effective teaching of special subjects.

The content of special subjects should correspond to the description of a particular direction or specialization, that is, it should cover the methods of activity performed by the student's profession. Formation of theoretical and practical knowledge, training and skills in a particular specialty; develop the skills of creating, summarizing and using a knowledge base in the specialty; should provide scientific knowledge, practical training and skills in performing research work in the specialty, modeling processes and a systematic approach in achieving the intended results of professional activity.

The fact that the results of scientific research in this direction are of great social importance encourages researchers to develop various methodological approaches and special methods aimed at developing creative thinking and creative abilities. Therefore, today many authors, relying on various forms of methodological work based on different conceptual foundations, recommend various methods as a means to increase the level of creativity in the intellectual sphere of a person.

As a means of developing creative abilities, a number of authors propose methods for training creative imagination based on various materials. In particular, in the exercises proposed in the practical manuals of E.P. Rogov, which are supposed to be carried out in a group format, for example, one of the training participants asked a question in a fantastic situation (for example, "If people could read each other's thoughts. What changes would occur in life on earth, if we were left?"), and the rest of the group can be given the task to formulate their answers as colorfully as possible.

Ya. A. Ponomarev, one of the leading scientists who created his own scientific school in the study of problems of creative psychology, also has his own approach in the direction of determining the methodological possibilities for the development of mental creativity. In particular, in the research of the scientist, there are known cases of using the exercise to determine moves aimed at capturing a pawn located on another square without violating the rules of the game with a knight placed in different parts of a nine-cell (3x3) chess. board for both diagnostic and developmental purposes.

For the development of students' creative thinking in the Technology lessons, it is necessary to create a problem situation, a similar approach to performing exercises and training aimed at developing various cognitive processes or communication skills. It is known that in most practical exercises of this category, tasks and tasks are in the content that activates the corresponding process.

In fact, the results of the study of the creator, showing high creative abilities, based on technical sources and on the basis of direct empirical research, repeatedly confirm that they differ not only in their intellectual qualities, but also in their unique individuality in the field of personal characteristics. The fact that this provision is reflected in the content of the development of creative thinking is also noted in the scientific views underlying the programs of a number of authors.

Therefore, for the effectiveness of work on the development of creative thinking of students in the classroom, Technology is advisable to take a place in this system of work aimed at creating changes in a certain direction in their personal sphere. In this regard, in our opinion, for external active influence, one should choose such an area and component of the personality structure, which, firstly, has a close connection with both cognitive processes and individual psychological characteristics of the personality, and secondly, its it should be noted the importance in creative activity.

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