IMPROVING PEDAGOGICAL TECHNOLOGIES FOR TEACHING LOGICAL THINKING TO YOUNGER STUDENTS

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ABSTRACT

The article analyzes the main didactic foundations of innovative technologies in the development of logical thinking skills in younger students. The main pedagogical conditions for the development of students' logical thinking are singled out. Various pedagogical researches are considered and ways of purposeful formation of pupils' skills are determined.

KEYWORDS: *Technologies, Structural Approach, Logical Thinking, Innovations.*

INTRODUCTION

In the practice of pedagogical science, different approaches are used. Among them are the traditional approach, the systematic approach, the technological approach. The main feature of the traditional approach is that the teacher transmits information, and the student remembers this knowledge. The concept of "knowledge" is considered information stored in memory. The knowledge of the student is determined by the memorized answer to the question about information. Knowledge is basically the result of memorization. Such knowledge is stored in memory for a short time. At present, a lot of experience has been accumulated in the field of traditional education, and research is being carried out to improve traditional teaching methods, but its objective possibilities are limited. Ongoing reforms in the field of education, rapidly changing scientific and technical requirements have created a gap between the teaching method and the society's need for the training of highly qualified personnel in order to form a harmoniously developed generation. It needs to be solved by applying other new approaches in education.

When designing educational processes, attention is paid to the correct definition of the content of training, learning objectives, expected results, the correct choice of methods, forms and tools of training, the development of clear criteria for assessing the knowledge, skills and abilities of students, their implementation and harmonization. Focus is recommended. Modern learning technologies are the basis for consistent goal setting and a quick source of feedback on the subject. In this case, the learning objectives are determined as much as possible. Taking into account modern requirements, it is desirable to organize classes with the help of technical means.

The main tools that help a teacher in learning are a textbook, a manual written for him, a set of questions and tasks, as well as a set of exercises, didactic materials and well-placed technical

tools. That is, film cameras, video, overhead projectors, and so on. Such devices, which help the eye to see and the ear to hear, increase the effectiveness of student learning.

In addition, the following methods give effective results in teaching students logical thinking.

Linking the topic to professions that interest students will increase the child's interest in this profession. At the same time, the student listens attentively to the lesson. He himself will try to tell you something about the profession of interest to him at the next lesson. He tries to connect the practical work he sees in life and technology with his profession. As a result, the student has a more interesting job in science and profession.

Methods for demonstrating knowledge are read and studied.

Demonstration means: "I will show, I will prove." In this method, the teacher shows the students the order of the task. Students should then be given the opportunity to complete the task on their own.

Statement:

□ When specifying the order in which the task is to be completed;

□ In problem solving and teaching analytical skills;

□ Safety training;

□ In training to work with technical means and tools.

Advantages:

□ the student can see with his own eyes;

□ can help to understand and remember;

□ increase interesting work;

□ - a very active form of learning.

Role play tricks. In this way, students recreate "real life" situations. This allows them to try out and try out new activities that can be applied in practical activities.

Statement:

□ shows an opportunity to try a new activity;

□ teaching students how to apply in theoretical practice;

□ In increasing the activity of students.

Advantages:

□ Restoration of "real life";

□ deeper involvement of students in the topic;

□ Let the students look at the problem differently.

In order to improve the quality and efficiency of science teaching, pedagogical technologies can be integrated into three types of education based on modern information technologies, taking into

account the specifics of lectures, practical and laboratory classes. From this point of view, teaching includes all the laws governing general education.

- orientation of education towards solving problems related to the comprehensive, harmonious development of the individual;

- reveal the abilities and creative qualities of students in the learning process and rely on their positive qualities and qualities;

- take into account the age and individual characteristics of students in the learning process;

- providing joy and success in acquiring knowledge;

- the needs of students;

- the unity of the area of interest with educational activities;

- show respect and demand for students and strengthen their personal pride in the learning process;

- increasing the role of the team in improving the quality of training;

- functional nature of training.

The nature and means of enforcing these laws are revealed as the essence of education is explored. It should be noted that the skillful implementation of these laws creates important conditions for increasing the didactic effectiveness of the educational process. For example, if a teacher does not form and develop the sphere of interests and interests of students, then he is unlikely to ensure their learning activities. If the teacher does not encourage students to be active, that is, does not treat them with respect, kindness and courtesy, he will not be able to please the students with his knowledge. It is a law that applies to both teaching and learning.

In psychology and pedagogy, direct and indirect ways of purposeful formation of skills to carry out certain logical operations are distinguished. The direct way is an explanation of the essence of the technique being performed, acquaintance with its algorithm, functions.

The indirect path is, first of all, the activity of mastering specific subject knowledge and skills according to a certain rule. At the same time, the latter is nothing more than a method of logical thinking adapted to a specific educational situation, a logical operation. For most researchers, the indirect route is preferable. The implementation of logical techniques requires two stages: the selection of a meaningful component and logical relationships. Therefore, the formation of specific techniques and knowledge in unity with the use of logical techniques, realized by students, makes it easier to abstract from specific content in the future and master the logical methods of thinking.

Pedagogical psychology offers the following conditions for the effective solution of this problem:

1. Ways to transfer the knowledge (concepts, rules, signs, theories) learned by students to new learning situations to solve new problems should be gradually worked out and gradually generalized.

2. When performing actions to transfer basic knowledge (concepts, rules, signs, theories, etc.) to new learning situations, students must comprehend the structure of actions and operations to transfer basic knowledge to a new specific learning situation.

3. After students comprehend the structure of actions and operations, it is important to give them the task to draw up a rule-plan for the implementation of educational and cognitive actions [5].

Important for substantiating the pedagogical conditions for the development of logical thinking of younger schoolchildren is the integrative technology of activity and personality-oriented approaches to their education, developed by L.G. Peterson. In L.G. Peterson's studies, it is noted that at the modern stage of development of the primary education system, there was a need for each student to build an individual educational trajectory. In the educational process, the invariance of the activity structure determined by the learning technology should be ensured. Such a technology should include the stages of self-determination for learning activities, updating knowledge, posing a problem, "discovering" new knowledge, verbal consolidation of new knowledge, independent work with self-examination in the classroom, repetition with the inclusion of new knowledge in the knowledge system, reflection of activity. Then it will become possible for each individual to build his own continuous educational trajectory, which allows him to form a readiness for an independent purposeful development of logical thinking.

Thus, generalizing the pedagogical conditions for the development of students' logical thinking proposed by various researchers, they can be grouped according to the following main provisions:

1. Each lesson should begin with solving tasks aimed at activating attention, memory, imagination (in the traditional paradigm, this is the actualization of knowledge, skills or abilities).

2. The actualization of a specific mental device must be associated with an educational object (task, number series, diagram-graph, etc.).

3. Abstraction from the specific content of the educational task should be preceded by the solution of a number of tasks based on visual-effective and visual-figurative thinking.

4. The development of mental techniques should be carried out in a complex.

5. The development of reflection is one of the determining factors for the successful adaptation of younger students to the learning environment.

6. A special system of educational tasks is one of the conditions for the process of teaching schoolchildren the methods of logical thinking.

7. Along with ensuring the unity of the motivational, content and operational components of education, attention should be paid to the development of interest in the subject as the most important motive in the motivational sphere of the student.

The second most important condition is to ensure the motivation of students to master the logical operations in learning. On the part of the teacher, it is important not only to convince students of the need for the ability to implement certain

other logical operations, but in every way to stimulate their attempts to generalize, analyze, synthesize, etc. It is our deep conviction that an attempt by a primary school student, albeit an

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unsuccessful one, to carry out a logical operation should be valued higher than the specific result of acquiring knowledge.

The compilation of a system of variable tasks that is adequate to the age and individual characteristics of the student's personality, the level of development of his logical thinking, is also a pedagogical condition for the development of logical thinking of younger students. This condition involves a change in the content, structure of classes, the use of a variety of teaching methods, a phased, systematic and mandatory introduction of logical tasks in all school subjects of the school course. The use of a complex of logical tasks in the learning process will increase the productivity and speed of development of logical thinking of younger students.

Thus, we put forward a proposal that the creation and implementation of these pedagogical conditions in the education of younger students will contribute to the development of their logical thinking.

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