

PEDAGOGICAL CONDITIONS FOR DEVELOPING METACOGNITIVE SKILLS IN GRADES 10-11 THROUGH INTERACTIVE TASKS

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Abstract: This thesis analyzes the pedagogical conditions for developing metacognitive skills in 10th-11th grade students of general secondary schools through interactive tasks from a scientific-theoretical and practical perspective. The study highlights the essence of metacognitive competence and its role in students' independent thinking, self-control, and the implementation of reflective activity. Additionally, mechanisms for activating students' cognitive and metacognitive activities through the use of interactive teaching methods - problem situations, project-based learning, reflexive tasks, and digital interactive platforms - have been substantiated.

Keywords: metacognitive skills, interactive tasks, reflection, self-control, cognitive activity, facilitation, differentiated approach, strategic thinking.

Introduction.

In today's educational process, it is considered one of the important pedagogical tasks for a student not only to acquire ready-made knowledge but also to be able to understand, plan, control, and evaluate their cognitive activity. Especially since the 10th-11th grade is a period of preparation for independent life, higher education, and professional activity, the development of metacognitive skills at this stage is of particular importance. Because a high school student must now be able to consciously answer not only the question "What do I know?," but also questions such as "How do I learn?," "Which method is effective for me?," "How do I identify my mistakes?," and "How do I improve my results?."

Metocognitive skills ensure the student's ability to observe their own thinking, manage the cognitive process, and consciously organize learning activities. A student who has developed these skills does not remain a passive listener during the lesson, but becomes an active researcher, analyzer, comparator, and conclusion-making subject. He understands his strengths and weaknesses, sets a goal before completing the task, monitors his performance during the execution process, and evaluates the result in the end. In this regard, metacognitive skills directly influence a student's culture of independent learning, critical thinking, a creative approach to problem situations, and academic success.

In the modern pedagogical process, interactive tasks are emerging as an effective tool for developing metacognitive skills. Interactive tasks encourage the student not to accept a ready-made answer, but to research, ask questions, justify their opinion, work in collaboration with colleagues, and reflect on their own activities. Such tasks change the traditional one-sided relationship between the student and the teacher in the educational process, bringing the student to the level of an active participant. As a result, the lesson process becomes not only a field of knowledge but also an environment for managing thinking, self-awareness, and reflective analysis.

Developing metacognitive skills through interactive tasks in grades 10-11 requires specific pedagogical conditions. First of all, it is necessary to create an opportunity in the educational environment to freely express one's opinion, ask questions, not be afraid to make mistakes, and defend one's opinion based on evidence. This is because metacognitive

development occurs not in an environment based on forced memorization or control, but in conditions where the student's personal activity, independent decision-making, and reflexive attitude are supported. The facilitator role of the teacher is also of great importance. The teacher must act as a pedagogical partner who guides the student's thinking process, encourages research through questions, and assists in self-assessment, rather than providing the student with a ready-made solution.

The significance of interactive tasks lies in the fact that they allow students not only to reinforce knowledge but also to choose their own thinking strategies, compare problem-solving methods, verify the correctness of their answers, and critically approach the final conclusion. For example, problem-based questions, group discussions, case studies, project work, reflexive diaries, and analytical tasks based on questions such as "what did I learn?," "how did I learn?," and "where did I struggle?" enhance the metacognitive activity of the student. In this process, the student learns to evaluate their knowledge not through external assessment, but through internal control and conscious analysis. The topic "Pedagogical conditions for the development of metacognitive skills in grades 10-11 through interactive tasks" is of scientific and practical importance due to its focus on forming students as independent, responsible, reflective, and strategically thinking individuals during the educational process. Through the study of this issue, opportunities are identified for developing important competencies in high school students, such as self-management, setting learning goals, analyzing one's own results, and planning future activities. Consequently, the pedagogical process organized on the basis of interactive tasks serves to increase not only the student's level of knowledge but also their attitude toward their own knowledge, culture of thinking, and potential for independent learning.

Materials and methods.

In this thesis, the process of developing metacognitive skills in 10th-11th grade students through interactive tasks was identified as the primary object of research. The research material consists of the lesson process organized in the upper grades of general secondary schools, students' independent and group activities, a system of interactive tasks, reflexive questions, problem situations, case studies, project work, and didactic tools aimed at self-assessment. These materials serve to determine not only the students' level of knowledge acquisition but also their ability to understand, control, and evaluate their own cognitive process.

As the theoretical material of the study, scientific views on metacognition, reflexive learning, interactive learning, learning motivation, independent learning, and student-centered pedagogical approaches were analyzed. Metocognitive skills were interpreted as the student's ability to manage their own thinking process. In this regard, the main criteria were the student's ability to set an educational goal, choose a task execution strategy, exercise self-control during activities, identify errors, and evaluate the final result. Therefore, the research material is not limited to assessing simple knowledge and skills, but also includes pedagogical tasks that reveal the student's internal cognitive activity.

Interactive tasks were chosen as the main practical material in the study. This is because interactive tasks allow for the formation of the student not as a subject receiving ready-made information, but as a person who actively thinks, searches, makes decisions, and takes a critical approach to their activities. For example, tasks such as "finding an answer to a problematic

question," "defending one's opinion with evidence," "discussing in a group," "finding and correcting a mistake," "assessing one's own result," and "reflective diary keeping" enhance metacognitive activity in students. Through such tasks, the student reflects on such questions as "what did I do?," "why did I choose this method?," "how correct is my result?," "how can I improve next time?."

The materials used in the study were divided into three groups. The first group included tasks that activate the process of students' cognition and understanding of knowledge. This type of task requires students to formulate questions on the topic, identify key concepts, compare data, and identify cause-and-effect relationships. The second group included tasks that develop students' skills in planning and monitoring their own activities. In this process, the student sets a goal before completing the task, determines the sequence of execution, monitors their actions, and changes their strategy if necessary. The third group included tasks of a reflexive and evaluative nature. Such tasks ensure that the student reacts to the results of their activities, analyzes their mistakes, and draws conclusions for future educational activities.

Research methods: analysis of scientific and pedagogical literature, observation, interviews, questionnaires, elements of pedagogical experience, comparison, generalization, and reflective analysis. The analysis of scientific literature helped determine the theoretical foundations of metacognitive skills and interactive learning. Through the observation method, the activity of 10th-11th grade students in the lesson process, their culture of asking questions, their level of independent decision-making, their participation in group work, and their attitude toward self-assessment were studied. Interviews and surveys allowed students to identify their learning styles, difficulties, self-control habits, and the level of reflective thinking.

During the pedagogical observation process, special attention was paid to the students' behavior when performing interactive tasks. Specifically, aspects such as whether the student tries to understand the task before completing it, sets a goal for themselves, compares alternative solutions, listens to the opinions of their classmates, and seeks to correct mistakes were analyzed. These indicators play an important role in assessing metacognitive skills. Because metacognition is more related to an internal thinking process than an external result, it is important to determine how the student thinks and makes decisions during the activity.

The interview method also played an important role in the study. During the interviews with students, their attitude toward the learning process was clarified, which tasks seemed difficult to them, how they approached complex tasks, and what methods they used to verify their answers. The results of the interview show that while some high school students are aware of their learning strategy, some students still rely on ready-made instructions and external supervision. This situation indicates the need for the purposeful development of metacognitive skills.

The questionnaire material served to determine the students' attitude toward self-assessment, planning their activities, active participation in the lesson, and the analysis of their own mistakes. The main questions in the questionnaire were: "Do you make a plan before completing the task?," "Are you accustomed to checking your answer?," "Do you identify the cause of an error when you make it?," "Do you know which reading method is effective for you?," "Do you draw conclusions for yourself at the end of the lesson?" Through these questions, a preliminary understanding of the students' level of metacognitive monitoring, reflection, and self-regulation was formed.

Among the interactive methods used in the study, methods such as "Brainstorming," "Cluster," "Case Study," "Insert," "Debate," "Sinkway," "B-B-B," "Mind Map," "Reflexive Questions," and "Self-Assessment Sheet" occupy an important place. These methods allow for the activation of students' mental activity, encourage them to conduct independent research, and direct them toward analyzing their own cognitive process. For example, using the "B-B-B" method, a student determines what they know at the beginning of the lesson, what they want to know during the lesson, and what they have learned at the end of the lesson. This naturally forms metacognitive reflection.

The "case study" method was of particular importance among the research materials. This is because case study tasks place the student in a real or conditional problem situation and require them to make an independent decision. In this process, the student not only applies their knowledge but also manages their own way of thinking. It analyzes the problem, identifies the causes, compares solution options, chooses the most optimal path, and justifies its choice. It is this process that is one of the important signs of the development of metacognitive skills.

Reflective tasks were considered one of the most important components of the research material. This is because reflection is the central mechanism of metacognitive development. At the end of the lesson, students are asked questions such as "What did I learn today?," "Which task was difficult for me?," "How did I overcome this difficulty?," "What should I pay attention to in the next lesson?" This gradually forms a culture of self-observation and self-development in the student.

In this study, pedagogical conditions were also analyzed as separate material. To develop metacognitive skills through interactive tasks, it is first necessary to create a psychologically comfortable environment for the student. The student actively thinks in an environment where they can freely express their opinion, where they are not criticized when they make mistakes, but are directed to draw conclusions from mistakes. The second important condition is the facilitator activity of the teacher. The teacher should not give the student a ready-made answer, but rather lead them to an independent conclusion through questions, directions, and discussions. The third condition is the reflexive and developmental nature of the assessment system. That is, assessment should cover not only the final result but also the student's thinking process, action strategy, and self-improvement.

The use of digital interactive tools was also considered as an important practical material in the study. Since today's high school students are in direct contact with the digital environment, the use of online tests, interactive platforms, electronic portfolios, virtual discussion platforms, and digital reflection sheets enhances their metacognitive activity. For example, a student can immediately see their result on the electronic platform, analyze their mistakes, try again, and track the dynamics of development. This serves to strengthen self-control and self-assessment skills. The research materials and methods were aimed at revealing the potential of interactive educational tasks in developing metacognitive skills in 10th-11th grade students. The selected materials serve to determine the student's knowledge acquisition process, independent thinking, reflexive attitude, and the level of self-management. The methods used allow for the theoretical and practical analysis of this process, the identification of pedagogical conditions, and the substantiation of the effectiveness of interactive tasks. Therefore, the development of metacognitive skills through interactive tasks serves as an

important pedagogical factor that enriches the content of the educational process, transforms the student into an active subject, and strengthens their capacity for independent learning.

Conclusion

Developing metacognitive skills in 10th-11th grade students is considered one of the key factors in increasing the effectiveness of the educational process. In particular, lessons organized on the basis of interactive tasks serve to develop not only students' level of knowledge but also their ability to understand, manage, and evaluate their own thinking process. When a student becomes an active subject of the educational process, they consciously choose their own learning strategy, analyze their mistakes, and strive to work on themselves.

During the study, it was established that interactive tasks - problem-based tasks, case studies, group discussions, reflexive questions, and self-assessment elements - serve as effective tools in developing students' skills in metacognitive monitoring, planning, and reflection. Such tasks develop the student not as a passive recipient, but as an actively searching, analyzing, and independent decision-maker. As a result, students develop qualities such as responsibility for their knowledge, a critical approach, and strategic thinking. The necessity of certain pedagogical conditions for the effective development of metacognitive skills was also substantiated. In particular, the psychological comfort of the educational environment, the facilitating role of the teacher, a differentiated and individual approach, a reflexive assessment system, and the ability of students to express their opinions were manifested as important factors. Only in the presence of these conditions can interactive tasks demonstrate their full pedagogical effectiveness.

In conclusion, the development of metacognitive skills through interactive tasks ensures students' independent thinking, self-control, and reflexive activity. This expands their opportunities not only for academic success but also for achieving success in future professional and social activities. Therefore, the systematic application of the metacognitive approach based on interactive methods in the educational process should be considered one of the priority areas of modern pedagogy.

Adabiyotlar, References, Литературы:

1. Flavell J. H. Metacognition and cognitive monitoring: A new area of cognitive-developmental inquiry // American Psychologist. – 1979. – Vol. 34, № 10. – P. 906–911.
2. Zimmerman B. J. Becoming a self-regulated learner: An overview // Theory Into Practice. – 2002. – Vol. 41, № 2. – P. 64–70.
3. Schraw G., Moshman D. Metacognitive theories // Educational Psychology Review. – 1995. – Vol. 7, № 4. – P. 351–371.
4. Hattie J. Visible Learning: A Synthesis of Over 800 Meta-Analyses Relating to Achievement. – London: Routledge, 2009. – 392 p.
5. Bransford J. D., Brown A. L., Cocking R. R. How People Learn: Brain, Mind, Experience, and School. – Washington: National Academy Press, 2000. – 374 p.
6. Vygotskiy L. S. Myshlenie i rech. – Moskva: Pedagogika, 1982. – 288 s.
7. Zimnyaya I. A. Pedagogicheskaya psixologiya. – Moskva: Logos, 2004. – 384 s