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PEDAGOGICAL ASPECTS OF DEVELOPING METACOGNITIVE COLLABORATION SKILLS IN ELEMENTARY PUPILS

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Abstract. This article examines the pedagogical aspects of developing metacognitive collaboration skills in future elementary school students. The article explores the importance of metacognitive collaboration skills in modern education, the theoretical foundations for their development, and practical methods for their implementation. Particular attention is paid to pedagogical factors such as the teacher's role in shaping metacognitive collaboration skills in elementary school students, the organization of the learning environment, the selection of educational materials, and the application of assessment methods. The article also discusses the impact of using digital technologies on the development of metacognitive collaboration skills, the effectiveness of interactive methods such as problem-based learning, project-based learning, and group learning. The article concludes with practical recommendations and prospective directions for preparing future elementary school students for metacognitive collaboration skills.

Key words: Metacognitive collaboration, elementary school, pedagogy, skills, education, teacher, collaboration, digital technologies.

Introduction. Today, the development of students' independent thinking, problem-solving and collaborative skills is of great importance in education. It has become an urgent task to educate individuals who can meet the requirements of the 21st century, independently increase their knowledge, think critically and creatively. Metacognitive collaboration plays an important role in implementing this task. Metacognitive collaboration is an educational approach aimed at understanding, analyzing and managing students' own cognitive processes (thinking, learning, problem-solving), as well as discussing these processes in collaboration with group members, exchanging ideas and jointly building knowledge. In other words, metacognitive collaboration helps students find answers to the questions "how do I study?", "what problem do I solve?", understand and improve their own learning styles. This article analyzes the pedagogical aspects of preparing future primary school teachers for metacognitive collaboration, the methods and possibilities of introducing metacognitive collaboration into the teaching process, as well as effective strategies and technologies aimed at developing metacognitive collaboration.

Main part. Many scientists around the world have conducted and substantiated numerous studies on collaboration and metacognition. American psychologist J.H. Flavell noted that metacognition refers to a person's knowledge of their own cognitive processes and products, as well as the use of this knowledge to manage cognitive tasks.

Metacognition is a student's awareness of their own cognitive processes, learning strategies, and self-management skills. The main concepts of metacognition are: declarative knowledge - the student's knowledge about himself, his abilities and strengths/weaknesses; procedural knowledge – the student's knowledge of how to learn and what strategies to use; conditional

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knowledge – the student's knowledge of what strategies to use in which situations. Metacognition helps students plan, monitor, evaluate, and improve their own learning.

Collaboration is the joint action of two or more individuals to achieve a common goal. Collaboration involves interdependence, mutual respect, and joint achievement of success.

Metacognitive collaboration is a combination of metacognition and collaboration, in which students not only think about their own learning processes, but also discuss these processes with their peers, develop strategies together, and provide mutual support. Metacognitive collaboration allows students to acquire deeper knowledge, solve problems more effectively, develop critical thinking, and improve their teamwork skills. According to Finnish professor Sanna Jarvela, metacognitive collaboration is a type of collaborative learning that occurs when students consciously discuss, evaluate, and co-regulate their own cognitive processes and strategies, as well as reflect on and influence each other's understanding.

Metacognitive collaboration skills include students' ability to understand, plan, evaluate, and regulate their own learning processes, as well as the ability to effectively collaborate with peers, exchange ideas, provide mutual assistance, and achieve a common goal. The primary school teacher plays an important role in introducing metacognitive collaboration. The teacher creates a comfortable environment for students to express their thoughts freely and not be afraid to make mistakes. Prepares tasks that encourage students to think metacognitively and require problem-solving. Forms groups of students with different abilities. Guides the process of metacognitive collaboration, that is, asks questions, guides discussions, and helps students clarify ideas. Observes students' metacognitive thinking processes, organizes peer evaluation, and analyzes the results. The teacher can use the following strategies to develop metacognitive collaboration skills: keeping a learning journal - students write about their thoughts, feelings, questions, and new knowledge during the lesson. Conducting questions and answers - asking students questions that encourage metacognitive thinking ("What did I learn?", "What didn't I understand?", "What strategies helped?"). Problem-solving – creating situations that encourage students to solve problems and find different solutions. Peer assessment – students evaluate each other's work, give feedback, and give advice. Several methods can be used to develop metacognitive collaboration. For example, group projects – in which students work together on projects, define their roles, and distribute tasks. Debates – in which students discuss different points of view, justify their opinions, and listen to the opinions of others. Brainstorming – in which students come up with many ideas for solving a problem and choose the best one. Role-playing – in which students play different roles, model situations, and develop a sense of empathy. Digital technologies have become an integral part of 21st century education, creating ample opportunities for students to develop metacognitive skills and improve their ability to work collaboratively. The use of digital technologies in the development of metacognitive collaboration helps to make the learning process more interesting, effective and interactive. Digital tools allow students to work together, regardless of their geographical location. Online collaboration platforms, virtual whiteboards, video conferencing programs and other tools allow students to edit documents together, exchange ideas, share information and work on group projects. The Internet provides students with quick and easy access to a variety of information sources. Students can expand and deepen their knowledge using electronic libraries, online encyclopedias, scientific articles, and other information sources. Digital tools allow students to

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create a variety of creative projects. Students can use graphic editors, video editing programs, music creation programs, and other tools to visually express their thoughts, create animations, compose music, and engage in other creative activities. Digital technologies make it possible to provide educational materials that meet the individual needs of students. Adaptive learning programs determine the level of knowledge of the student and provide educational materials that match him. This allows the student to learn at his own pace and pay more attention to difficult topics. Digital tools allow students to monitor, analyze, and evaluate their learning processes. Online learning journals, self-assessment tests, and other tools help students assess their knowledge, identify strengths and weaknesses, and improve their learning strategies. Technologies that are useful for metacognitive collaboration include: online collaboration platforms (Google Workspace, Microsoft Teams, Slack), virtual whiteboards (Miro, Mural), video conferencing programs (Zoom, Google Meet), questionnaire and test programs (Google Forms, Quizizz), multimedia programs (iMovie, GarageBand), gamified learning platforms (Kahoot!, Blooket), learning journals, and blogging platforms (Blogger, WordPress). When using digital technologies, it is important to ensure that the technologies serve the main purpose of the lesson, teach students how to use technology, teach students digital safety rules, and maintain balance in the use of technology. Digital technologies create broad opportunities for the development of metacognitive collaboration. Teachers can effectively use digital tools to make the learning process more interesting, effective and interactive, develop students' collaborative and metacognitive skills, and educate them as individuals who meet the requirements of the 21st century. Primary education lessons are an important process that helps students form moral values, develop social skills, and find their place in society. The metacognitive collaboration approach helps make these lessons more effective, develop students' self-awareness, critical thinking, and collaborative skills. Using metacognitive collaboration through the topic “What is Friendship?”, students are asked questions about the essence of friendship, what qualities a true friend should have, and what relationships should be between friends. Students express their thoughts, share their experiences, and justify the importance of friendship. The teacher asks students questions that encourage them to think: “What do you think is the most important friendship rule?”, “How does this rule strengthen friendship?”, “What qualities do your friends value in you?” Then the students are divided into groups and each group develops its own rules for friendship. The rules should reflect how friends should be. Students discuss the rules, develop strategies, and agree on them. Each group presents its rules and justifies their importance. Students evaluate their thinking processes: “How did we choose the rules?”, “What challenges did we face?”, “What solutions did we find?” The rules of all groups are compared. Which rules are the same in all groups? Why are these rules important? Which rules are different? Why do you think they are different? What did you learn from other groups? Students analyze the rules, draw general conclusions, evaluate the rules of other groups, and share their thoughts. Finally, each student asks himself: What kind of friend am I? How do I treat my friends? Do I follow the rules of friendship? What can I do to improve my attitude? What specific steps can I take? Students self-assess, analyze their behavior, set goals for the future, and plan specific steps. Using metacognitive collaboration in primary education classes helps students develop self-awareness, critical thinking, and collaborative skills. Students are prepared to become active members of society by freely expressing their opinions, listening to others, solving problems together, and taking responsibility for their actions. Teachers should take into account the age, interests, and abilities of students when introducing metacognitive collaboration into educational lessons. Lessons

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should be interesting, interactive, and ensure active participation of students. The use of digital technologies helps to make lessons more interesting and effective.

Conclusion. Future primary school teachers need to understand the essence of metacognitive collaboration, know how to introduce metacognitive collaboration into the lesson process, and be able to use effective strategies aimed at developing metacognitive collaboration. Effective use of the capabilities of digital technologies helps to make metacognitive collaboration more effective and interesting. Metacognitive collaboration is an important tool for educating the next generation, and by developing it, we can help students develop independent thinking, problem-solving, collaboration, creativity, and continuous learning skills that will help them become active and responsible members of our society, meeting the demands of the 21st century.

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