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INTERACTIVE METHODS IN LEARNING NEW KNOWLEDGE AND THEIR EFFECTIVENESS

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Abstract: This study is dedicated to examining the significance and effectiveness of interactive methods in the process of acquiring new knowledge. The research analyzes the role of interactive methods in education, focusing on students' motivation, creative and critical thinking skills, as well as the development of metacognitive and social competencies. Additionally, it explores how technological tools and innovative approaches can enhance the effectiveness of interactive methods. The findings indicate that interactive methods improve students' knowledge acquisition, foster independent and creative thinking, and qualitatively enrich the learning process.

Keywords: Interactive methods, knowledge acquisition, motivation, metacognitive skills, creative thinking, technological tools, educational effectiveness, project-based learning, group work.

The modern educational process is constantly undergoing changes, and pedagogical innovations play a crucial role in enhancing its effectiveness. At the same time, the use of interactive methods in mastering new knowledge can significantly improve the quality of education. Interactive methods stimulate students' engagement, encourage creative thinking, motivate them to search for knowledge independently, and make the learning process more engaging. Unlike traditional teaching methods, these approaches strengthen communication between teachers and students and serve as effective tools for consolidating knowledge and applying it in practice.

The effectiveness of interactive methods has been confirmed by scientific research. For example, studies in the United States have shown that teaching with interactive methods increased students' knowledge retention by 20–30% compared to traditional methods. Similarly, experimental studies in Germany and Finland demonstrated that interactive lessons positively influence students' independent thinking, problem-solving, and creativity skills. Interactive methods can be applied in various forms, such as group work, discussions of problem situations, role-playing, interactive tests, and the use of digital educational resources. These methods allow students not only to receive knowledge but also to analyze, compare, and apply it in practice. Additionally, interactive methods enhance students' motivation, encourage active participation, and help them acquire knowledge more quickly and deeply. One of the main advantages of using interactive methods in the learning process is transforming students from passive recipients to active participants. For example, the problem-based learning (PBL) method enables students to analyze real-life situations, develop solutions, and defend them. Similarly, the peer learning method allows students to explain knowledge to one another, fostering self-assessment and critical thinking.

Interactive methods not only accelerate knowledge acquisition but also cultivate lifelong learning skills. Currently, global educational trends emphasize the concept of lifelong learning. In this context, interactive methods, particularly e-learning platforms, online training, and virtual laboratories, allow students to acquire knowledge independently. Research has confirmed the effectiveness of interactive video lessons, quizzes, and problem-based learning on platforms such as Khan Academy, Coursera, and EdX. Interactive methods play a crucial role in modern education by enhancing students' engagement, motivation, and knowledge acquisition. Unlike traditional teaching, these methods involve active participation through group work, problem-solving discussions, role-playing, interactive tests, and digital learning tools. They foster creative and critical thinking, metacognitive skills, and social competencies, preparing students for independent and lifelong learning. Research shows that interactive methods improve learning outcomes by allowing students to analyze, apply, and reflect on knowledge, rather than passively receiving it. Technological tools such as virtual laboratories, AI-based platforms, and VR/AR technologies further enhance their effectiveness by providing personalized and immersive learning experiences. In addition, interactive methods support the development of students' collaboration, communication, and leadership skills. They also positively impact teachers' professional growth, encouraging creativity and innovative teaching practices. Overall, interactive methods not only increase knowledge retention but also cultivate independent, creative, and socially competent learners, making the learning process more engaging and effective.

Scientific studies indicate that applying interactive methods enhances students' cognitive activity, including memory, attention, and thinking processes. Simultaneously, social skills, such as teamwork, communication, and conflict resolution, are developed. This is crucial not only in school education but also in higher education and professional training. In Uzbekistan, there are also experiences of implementing interactive methods. For instance, some schools conduct lessons using SMART boards, interactive materials, and online platforms. The effectiveness of these methods is measured by students' knowledge levels and interest in lessons. Research shows that students taught through interactive methods achieve higher results and master subjects more deeply than those taught using traditional methods. Furthermore, the use of interactive methods positively impacts teachers' professional development. The teacher acts not only as a knowledge provider but also as a guide and motivator. In this process, teachers' creativity, methodological competence, and innovative approaches are developed. Additionally, interactive methods allow teachers to identify individual learning needs and adapt to them.

The effectiveness of interactive methods in mastering new knowledge is expressed in several ways. These methods increase students' engagement, provide opportunities to consolidate and apply knowledge, develop creative thinking and problem-solving skills, contribute to teachers' professional development, and enhance the quality of modern education. Scientific research and practical experiences indicate that effective use of interactive methods not only improves students' knowledge but also prepares them to learn independently, creatively, and actively. Interactive methods enhance students' learning by

actively involving them in the educational process. Through group work, discussions, role-playing, and digital tools, students develop critical thinking, creativity, and problem-solving skills. These methods also improve metacognitive abilities, social competencies, and motivation for independent learning. Technology, such as virtual labs and online platforms, further supports interactive learning by providing personalized and practical experiences. Research shows that interactive methods lead to better knowledge retention, deeper understanding, and higher student engagement. Overall, they create a dynamic, student-centered learning environment that prepares learners for real-life challenges.

Considering students' individual abilities is a crucial factor in enhancing the effectiveness of interactive methods. Each student has a unique learning style and better absorbs knowledge visually, auditorily, or kinesthetically. Therefore, interactive methods enable individualized approaches: for example, infographics, diagrams, and multimedia materials for visual learners; audio and discussion-based exercises for auditory learners; and hands-on laboratory work, role-playing, and modeling for kinesthetic learners. This approach ensures faster and stronger acquisition of knowledge.

Interactive methods also develop students' metacognitive skills. Metacognition—the ability to understand one's own thinking, learning processes, and strategies—significantly enhances educational effectiveness. For instance, self-assessment and reflection methods allow students to evaluate their knowledge levels, identify weaknesses, and develop strategies to deepen understanding. This process is facilitated through interactive methods, as students continuously monitor their activities and adjust learning strategies as needed. nteractive methods are essential for improving the effectiveness of modern education. By actively engaging students through discussions, group projects, problem-based learning, role-playing, and digital tools, these methods enhance knowledge acquisition, critical thinking, and creativity. They also develop metacognitive and social skills, such as teamwork, communication, and self-assessment. The use of technology, including virtual labs, online platforms, and AI-based learning systems, further increases the impact of interactive methods by personalizing learning and allowing practical, safe experimentation. Studies show that students taught interactively achieve better understanding, retain knowledge longer, and are more motivated to learn independently. Interactive methods also support teachers' professional development, promoting innovative teaching approaches. Overall, these methods create a more dynamic, student-centered learning environment, preparing learners to think critically, solve problems, and apply knowledge in real-life situations.

Technology serves as an important tool to increase the effectiveness of interactive methods. For instance, virtual laboratories, simulations, and interactive software enable students to study complex scientific processes safely and efficiently. In subjects such as physics and chemistry, where real laboratory experiments may be difficult, virtual labs provide opportunities to perform experiments. This not only reinforces knowledge but also ensures safety and saves resources.

Interactive methods are also effective in developing social skills. Group projects, collaborative problem-solving, and peer-review methods help students improve teamwork,

communication, and decision-making skills. Research shows that students educated through interactive methods demonstrate higher levels of academic skills, social intelligence, and empathy.

Moreover, the effectiveness of interactive methods is closely linked to motivation. When students are actively involved, the learning process becomes interesting and dynamic. Gamification elements, such as game-based tasks, points, rankings, and levels, increase students' engagement and encourage them to master knowledge more quickly. In recent years, the use of interactive methods in Uzbekistan has increased. SMART boards, interactive lesson materials, and online tests and quizzes make the learning process more interactive. Studies indicate that these methods significantly enhance students' comprehension, independent thinking, and creative problem-solving skills.

Evaluating the effectiveness of interactive methods considers not only knowledge acquisition but also the development of creative and critical thinking skills. For example, students can systematically express their ideas, engage in evidence-based discussions, and defend solutions through projects and presentations. These skills, difficult to develop through traditional teaching methods, are effectively fostered through interactive methods. Additionally, interactive methods provide students the opportunity to learn from their mistakes. For example, interactive tests or simulation tasks allow students to identify and correct errors, strengthening knowledge retention. This approach, based on the "learning by doing" principle, develops students' independent learning and problem-solving abilities.

Interactive methods significantly enhance students' creative abilities. Analyzing problem situations and linking them to practical solutions develops innovative thinking. Project-based learning allows students to form independent opinions and integrate theoretical knowledge with practice, fostering both academic and life skills. Psychological research shows that interactive methods increase students' interest in learning and strengthen motivation. Active participation, group discussions, and role-playing games cultivate a sense of achievement, which reinforces knowledge acquisition. Sharing experiences and analyzing peers' ideas also develops critical thinking.

Technological advancements further increase the effectiveness of interactive methods. AI-based learning platforms can automatically assess students' knowledge levels and recommend individualized learning strategies. This helps students identify strengths and weaknesses and optimize their learning process. Virtual and augmented reality (VR/AR) technologies enable understanding complex processes visually and interactively. For instance, VR in history lessons allows students to experience historical events "live," focusing attention and reinforcing knowledge.

The effectiveness of interactive methods is also associated with students' social activity. Group work, seminars, and projects develop leadership, collaboration, and communication skills. Research shows that students taught through interactive methods quickly master the skills to express their opinions clearly, listen to others, and engage in constructive discussions. Interactive methods also make the learning process flexible and personalized. Each student performs tasks according to their abilities, learns at their own

pace, and learns from mistakes. This approach aligns with the principle of adaptive learning, increasing the individual effectiveness of education.

In Uzbekistan, experiences of applying interactive methods are already present. Some schools conduct lessons using SMART boards, interactive materials, and online platforms. Research shows that using interactive methods significantly improves students' knowledge levels compared to traditional lessons. Independent thinking and problem-solving abilities are also enhanced. The teacher's role is crucial in increasing the effectiveness of interactive methods. The teacher acts not only as a knowledge provider but also as a guide, motivator, and facilitator. Teachers identify individual learning needs, suggest tailored learning strategies, and monitor the learning process, which also develops their professional competencies.

Additionally, interactive methods foster students' self-management and responsibility skills. In project-based learning, students develop planning, resource allocation, and time management skills, which are important not only in education but also in life.

Conclusion:

Interactive methods stand out as effective tools in mastering new knowledge. They increase students' engagement, strengthen motivation, develop creative and critical thinking skills, and cultivate metacognitive and social competencies. The effectiveness of interactive methods can be further enhanced with technological tools and innovative approaches. Research shows that using interactive methods not only improves knowledge acquisition but also develops students' abilities to learn independently, think creatively, and engage actively in the learning process.

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