



METHODS OF FORMING EPISTEMOLOGICAL ACTIVITY THROUGH INTERACTIVE TECHNOLOGIES IN TECHNOLOGICAL EDUCATION METHODOLOGY

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Abstract: *This article highlights the role of the subject “Methodology of Technological Education” in the modern educational process and examines the issues of developing students’ epistemological activity through interactive technologies.*

Epistemological activity is considered an important factor in directing students not merely to receive knowledge in a ready-made form, but to independently search for, analyze, and apply it. The article analyzes the types of interactive technologies, their effectiveness in the educational process, and their impact on students’ critical thinking, research abilities, and self-development skills. In addition, effective methods and practical recommendations for enhancing epistemological activity are presented.

Keywords: *Epistemological activity, interactive technologies, critical thinking, problem-based learning, research, digital education, educational innovations, student engagement, instructional methods.*

Introduction

Today’s educational process requires epistemological activity, which implies that students actively acquire knowledge, analyze it, and strive to discover new information. This process has become increasingly significant. In this context, interactive technologies activate learners, deepen their attitude toward knowledge, and foster research and critical

thinking skills. Therefore, identifying and improving methods for developing epistemological activity through interactive technologies in technological education methodology is a pressing task.

The modern educational paradigm requires students to be actively involved in the process of independently searching for, understanding, and processing knowledge rather than receiving it in a ready-made form. From this perspective, the concept of epistemological activity occupies a special place within the education system. Epistemological activity refers to a student's internal need for knowledge, their tendency to ask questions, seek clarification, justify ideas, compare information, and acquire new knowledge through logical reasoning.

The role of epistemological activity in education is reflected in the following aspects: it increases students' intrinsic motivation for learning, promotes meaningful and profound understanding of knowledge, develops independent thinking, analytical abilities, and conclusion-drawing skills, and facilitates metacognitive control over learning processes (that is, awareness and management of one's own knowledge). Therefore, fostering epistemological activity is considered an important strategic direction for improving educational effectiveness.

Epistemological activity is not merely the acquisition of knowledge; it represents a conscious, active, critical, and inquiry-based attitude toward learning. It is characterized by the following key features:

Activity – the student participates in the learning process as an active contributor rather than a passive listener.

Readiness for inquiry – curiosity to discover new knowledge, formulate questions based on existing knowledge, and seek answers.

Critical thinking – the ability to justify one's own ideas and evaluate and analyze the opinions of others.

Reflective approach to knowledge – striving for deeper understanding through comprehension and constructive questioning rather than simple acceptance of information.

Metacognitive activity – monitoring, evaluating, and regulating one's own learning process.

These characteristics are important not only for mastering academic knowledge but also for solving real-life problems. Through this approach, students become not merely possessors of knowledge but independent thinkers with their own viewpoints. Since knowledge is acquired consciously rather than passively, students become capable of applying it in real-life situations. Searching for and critically evaluating knowledge requires creativity. At the same time, learners develop into autonomous subjects capable of managing their own learning processes. From a pedagogical perspective, developing epistemological activity elevates education from the level of “transmitting information” to the level of “guiding learners toward knowledge.”

Interactive technologies play an essential role in improving educational quality, particularly in promoting students' epistemological activity. Through these technologies, the learning process becomes more dynamic, students gain opportunities to independently construct and evaluate their knowledge, and learning takes place through interaction, experience sharing, and visualization. Interactive technologies transform education from a one-sided lecture format into a multidimensional environment of knowledge exchange. This characteristic makes them a highly relevant tool for developing epistemological activity.

Interactive technologies are a set of pedagogical methods that engage students in active learning, encourage discussion and exchange of ideas, and promote critical and creative thinking. These technologies establish two-way and multi-way communication between teachers and students, as well as among students themselves.

Main Types of Interactive Technologies

Modeling: Simulating real-life processes through computer programs or technological devices.

Virtual Laboratories: Conducting practical experiments remotely using specialized software. This creates a safe and resource-efficient environment, especially in subjects such as chemistry, physics, and technology.

Online Learning Platforms: Platforms such as Moodle, Google Classroom, and Khan Academy provide interactive tests, digital learning materials, and project-based assignments. Students' knowledge levels can be assessed automatically, and feedback is readily available.

Project-Based Learning: Students develop and present projects based on real-world problems. This method enhances teamwork, critical thinking, and creativity.

Forums and Webinars: These facilitate remote communication, discussion, and question-and-answer sessions.

Gamification: Integrating game elements into the learning process to increase motivation through points, rankings, and progressive task completion.

From a pedagogical perspective, the development of epistemological activity is important because it contributes to students' personal growth. Through this approach, learners become independent thinkers with their

own positions rather than merely recipients of knowledge. Knowledge acquired consciously is more sustainable and applicable in practice. The process also promotes creativity and innovative thinking, as searching for and critically evaluating knowledge requires creative approaches. Furthermore, it develops self-management competencies, enabling students to become autonomous participants in their own learning.

In recent years, interactive technologies have been widely implemented in schools and higher education institutions to improve the quality and effectiveness of education. In technological education, this process is directly linked to increasing student engagement, broadening their thinking, and encouraging independent learning.

Effective methodological approaches play a crucial role in educational processes aimed at developing epistemological activity. Through these approaches, students are presented with specific real-world technological problems. While solving these problems, they engage in analysis, information searching, discussion, and conclusion drawing. Practice-oriented individual and group projects are highly effective in enhancing epistemological activity. Through such activities, students conduct in-depth research, create designs, and seek engineering solutions. Regular assessment through tests, interactive quizzes, and reflective tasks allows students to monitor and evaluate their own knowledge levels. This requires a transition from traditional teaching methods to interactive, research-based instructional approaches.

Conclusion

In conclusion, the development of epistemological activity in technological education serves as a foundation not only for improving educational quality but also for students' professional and personal

development. Interactive technologies, appropriate methodological approaches, and competent teachers are integral components of this process. Their effective integration can significantly enhance educational outcomes.

Interactive technologies are an important tool for fostering students' epistemological activity within the methodology of technological education. They activate the learning process and strengthen students' abilities in critical thinking, research, and independent knowledge development. Therefore, identifying and implementing effective methods for integrating interactive technologies into pedagogical practice remains a highly relevant task.

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Online Resources

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2. <https://www.eric.ed.gov/>
3. <https://pedagoglar.uz/>
4. <https://ziyonet.uz/>
5. <https://www.uzedu.uz/>