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FORMATION OF CRITICAL THINKING COMPETENCE THROUGH PEDAGOGICAL TECHNOLOGIES

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Abstract: This article examines the role of pedagogical technologies in the formation of critical thinking competence in the educational process. The study analyzes modern teaching approaches such as problem-based learning, collaborative learning, interactive methods, and digital technologies that contribute to the development of learners' analytical and reflective thinking skills. The article highlights the importance of learner-centered education in improving students' independent reasoning, problem-solving abilities, and intellectual activity.

Keywords: critical thinking competence, pedagogical technologies, interactive learning, problem-based learning.

Introduction

In the contemporary educational environment, the rapid development of science, technology, and globalization has significantly transformed the goals and priorities of modern education. Today, educational systems are expected not only to provide learners with theoretical knowledge, but also to develop essential competencies such as independent thinking, problem-solving, creativity, collaboration, and decision-making. Among these competencies, critical thinking has become one of the most important intellectual skills required for successful participation in academic, professional, and social life. The formation of critical thinking competence enables learners to analyze information objectively, evaluate arguments logically, distinguish facts from opinions, and make reasoned conclusions based on evidence.

The growing importance of critical thinking is closely connected with the increasing flow of information in the digital age. Students are constantly exposed to various sources of information through the internet, social media, and digital technologies. In such conditions, the ability to critically evaluate information and avoid misinformation becomes an essential educational objective. Therefore, educational institutions are increasingly focusing on learner-centered approaches that encourage active participation, inquiry, reflection, and analytical thinking rather than passive memorization of facts. In this regard, pedagogical technologies play a significant role in organizing effective teaching and learning processes that foster students' intellectual and cognitive development. Pedagogical technologies refer to systematic and innovative methods, strategies, tools, and instructional approaches used to improve the quality and effectiveness of education. Modern pedagogical technologies such as problem-based learning, project-based learning, collaborative learning, interactive teaching methods, digital learning platforms, case-study methods, debates, and critical discussion activities create favorable conditions for developing critical thinking competence among learners. These technologies encourage students to actively engage in the learning process, express personal opinions, analyze different perspectives, and solve real-life problems creatively and independently. As noted by John Dewey, education should promote reflective thinking and active inquiry, which form the basis of critical thinking development.

Literature Review

The issue of developing critical thinking competence through pedagogical technologies has been widely studied in modern pedagogy and educational psychology. John Dewey emphasized that education should encourage reflective thinking and active participation of learners in the learning process[1] [1]. His ideas laid the theoretical foundation for student-centered pedagogical technologies aimed at developing analytical thinking skills.

According to Benjamin Bloom, higher-order cognitive skills such as analysis, synthesis, and evaluation are essential components of critical thinking competence[2] [2]. Bloom's taxonomy demonstrates that innovative teaching methods help students move beyond simple memorization toward independent reasoning and problem-solving.

Furthermore, Lev Vygotsky highlighted the importance of social interaction and collaborative learning in cognitive development[3] [3]. Modern pedagogical technologies, including problem-based learning, discussions, and project work, are therefore considered effective tools for enhancing students' critical and reflective thinking abilities.

Methodology

This study employed qualitative, descriptive, and analytical research methods to examine the formation of critical thinking competence through pedagogical technologies. Scientific literature, pedagogical theories, and modern educational approaches related to critical thinking development were comparatively analyzed. The research also used content analysis and theoretical interpretation to identify the effectiveness of interactive and innovative pedagogical technologies in enhancing learners' analytical and reflective thinking skills.

Results And Discussion

The formation of critical thinking competence has become one of the central objectives of modern education due to the increasing demands of the information society and the necessity of preparing intellectually independent individuals. Critical thinking competence is understood as the ability to analyze information objectively, evaluate evidence logically, solve problems creatively, and make reasoned decisions in various communicative and professional situations. Modern pedagogical technologies play a crucial role in achieving these educational goals because they create interactive and learner-centered environments that stimulate cognitive activity and reflective thinking. One of the most effective pedagogical technologies in developing critical thinking competence is problem-based learning (PBL). This approach encourages students to investigate real-life problems, formulate hypotheses, search for evidence, and independently find solutions. According to John Dewey, education should be based on inquiry and reflective thinking rather than passive memorization[4]. Dewey argued that students develop intellectual independence when they actively participate in solving practical problems. For example, in English language classes, students may analyze social issues presented in authentic articles or debates and propose possible solutions. Such activities improve learners' ability to compare opinions, identify logical inconsistencies, and defend personal viewpoints with evidence.

Another important pedagogical technology is collaborative learning, which promotes interaction and shared intellectual activity among learners. Lev Vygotsky emphasized that cognitive development occurs through social communication and cooperation within the

[1] Dewey J. How We Think. — New York: D.C. Heath and Company, 1910. — 224 p.
[2] Bloom B.S. Taxonomy of Educational Objectives: The Classification of Educational Goals. — New York: Longmans, Green and Co., 1956. — 207 p.
[3] Vygotsky L.S. Mind in Society: The Development of Higher Psychological Processes. — Cambridge: Harvard University Press, 1978. — 159 p.
[4] Dewey J. How We Think. — New York: D.C. Heath and Company, 1910. — 224 p.

learning process[5]. Group discussions, pair work, and collaborative projects create opportunities for students to exchange ideas, evaluate alternative perspectives, and develop argumentative thinking. For instance, during classroom debates on environmental or ethical problems, learners are required to present arguments, analyze opposing opinions, and provide logical justification for their positions. Such activities significantly strengthen analytical and evaluative thinking skills. Interactive teaching methods also contribute greatly to the formation of critical thinking competence. Methods such as brainstorming, case-study analysis, role-playing, concept mapping, and Socratic questioning encourage active participation and independent reasoning. Researchers note that the case-study method is particularly effective because it places students in real or simulated situations requiring critical analysis and decision-making[6]. For example, future teachers may be given a classroom management problem and asked to evaluate different pedagogical solutions. Through this process, learners develop the ability to identify causes, predict consequences, and justify educational decisions. The integration of digital pedagogical technologies has further expanded opportunities for developing critical thinking skills. Online educational platforms, multimedia resources, virtual discussions, and digital simulations allow learners to access diverse sources of information and evaluate their reliability. According to Richard Paul and Linda Elder, critical thinking involves disciplined intellectual standards such as clarity, accuracy, relevance, logic, and fairness[7]. In digital learning environments, students often compare information from different websites, identify biased content, and analyze arguments critically. For instance, while conducting research projects, students learn to distinguish scholarly sources from unreliable internet materials, which develops media literacy and evaluative competence.

Project-based learning is another innovative pedagogical technology that effectively develops critical thinking competence. In project activities, learners independently plan tasks, collect information, analyze data, and present conclusions. This process encourages autonomy, creativity, and reflective thinking. According to educational researchers, project-based learning increases students' motivation because it connects theoretical knowledge with practical application[8]. For example, students working on a project related to intercultural communication may investigate cultural stereotypes, analyze communication barriers, and propose strategies for effective interaction. Such tasks require learners to apply analytical reasoning and synthesize information from multiple sources. Modern scholars also emphasize the importance of questioning techniques in developing critical thinking competence. Benjamin Bloom classified educational objectives into hierarchical cognitive levels, including knowledge, comprehension, application, analysis, synthesis, and evaluation[9]. Teachers who formulate higher-order questions encourage students to interpret information deeply rather than reproduce facts mechanically. Questions such as "Why do you agree with this idea?", "What evidence supports this argument?", or "What alternative solution can be proposed?" stimulate reflective and analytical thinking processes.

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[5] Vygotsky L.S. Mind in Society: The Development of Higher Psychological Processes. — Cambridge, MA: Harvard University Press, 1978. — 159 p.

[6] Jonassen D.H. Learning to Solve Problems: A Handbook for Designing Problem-Solving Learning Environments. — New York: Routledge, 2011. — 304 p.

[7] Paul R., Elder L. Critical Thinking: Tools for Taking Charge of Your Learning and Your Life. — 3rd ed. — Boston: Pearson Education, 2012. — 348 p.

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[9] Bloom B.S. Taxonomy of Educational Objectives: The Classification of Educational Goals. — New York: Longmans, Green and Co., 1956. — 207 p.

Furthermore, critical thinking competence is closely related to learners' communicative competence and academic independence. Modern pedagogical technologies transform students from passive recipients of knowledge into active participants in the educational process. Researchers argue that learner-centered education increases intellectual engagement and develops the ability to solve non-standard problems creatively[10]. In language education, for example, students may critically analyze literary texts, compare cultural perspectives, or evaluate persuasive speeches, which simultaneously improves language proficiency and critical reasoning abilities. In the context of educational reforms in Uzbekistan, the implementation of innovative pedagogical technologies has become one of the priorities of competency-based education. National educational strategies emphasize the necessity of preparing competitive specialists capable of independent thinking and professional problem-solving[11]. Therefore, the effective use of interactive, digital, and problem-oriented pedagogical technologies is considered an essential condition for developing critical thinking competence among modern learners.

Conclusion

The formation of critical thinking competence through pedagogical technologies is one of the essential directions of modern education. Innovative teaching approaches such as problem-based learning, collaborative learning, interactive methods, and digital technologies create favorable conditions for developing learners' analytical, reflective, and independent thinking skills. The study demonstrates that learner-centered pedagogical technologies increase students' intellectual activity, improve problem-solving abilities, and encourage active participation in the educational process. Therefore, the effective integration of modern pedagogical technologies into teaching practice plays a significant role in preparing competent, creative, and critically thinking individuals capable of adapting to contemporary social and professional challenges.

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