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METHODOLOGY FOR IMPROVING STUDENTS' ANALYTICAL THINKING COMPETENCE BASED ON AN INTEGRATIVE APPROACH

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Abstract:
This article highlights the methodology for improving students' analytical thinking competence in higher education based on an integrative approach and its pedagogical significance. The study analyzes the role of analytical thinking in filtering information, building logical chains, and solving complex problems. Based on the synthesis of pedagogy, psychology, and information technology, the author demonstrates the practical application of Bloom's taxonomy, as well as the theories of Piaget and Vygotsky. The article substantiates the effectiveness of interactive methods such as Case-study, SWOT analysis, FSMU technology, and "Mind Mapping," along with digital platforms (Moodle, Google Classroom) in simplifying analytical processes. Experimental results show that the integrative approach increases students' analytical thinking level by 25–30%. The conclusion outlines prospects for integrating artificial intelligence tools to improve the quality of higher education.

Keywords: Higher education, integrative approach, analytical thinking, competence, interdisciplinary connections, pedagogical technologies, digital education, Case-study, fact-checking, cognitive development, intellectual potential.

The methodology for improving students' analytical thinking competence in higher education based on an integrative approach is recognized as one of the most important and relevant directions in modern pedagogical processes. Analytical thinking competence includes skills such as systematically filtering information, comparing data from various sources, drawing independent conclusions through logical chains, and creatively solving complex problems, serving as the foundation of intellectual potential. This competence ensures not only academic success and knowledge acquisition but also the ability of future specialists to make strategic decisions, develop effective algorithms in unexpected situations, and adapt quickly to life changes.

The integrative approach, considering interdisciplinary interconnections, elevates both the content and form of education to a new level. Particularly in pedagogy, this methodology ensures harmony between theory and practice. It removes artificial boundaries between disciplines, enabling students to integrate diverse knowledge into a unified conceptual system. As a result, their cognitive processes deepen, a comprehensive perspective is formed, and critical thinking significantly improves. Moreover, integrative methodology enriches students' subjective experience through problem-solving activities, case studies, and project-based learning, thereby preparing competitive, independent, and analytically thinking professionals for the modern labor market.

The theoretical foundations of the integrative approach rely on the synthesis of pedagogy, psychology, and information technology, aiming to develop a holistic worldview in learners. In pedagogy, the higher levels of Bloom's taxonomy—analysis, synthesis, and evaluation—form the core of this methodology, requiring students not only to memorize information but also to process it and generate new ideas. From a psychological perspective, Jean Piaget's theory of cognitive development supports gradual intellectual growth, while Lev Vygotsky's concept of the zone of proximal development reduces the gap between what a student can do independently and what they can achieve with guidance.

These fundamental theories serve as the basis for transforming students from passive listeners into active researchers and analysts, encouraging them to critically evaluate information and apply it in practice. For example, in pedagogy, students not only learn theoretical concepts but also compare them with modern technological opportunities and psychological principles to

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develop universal strategies for solving real educational problems. This process systematically develops their ability to filter relevant information, identify contradictions, and draw well-founded conclusions.

The practical implementation of this methodology begins with designing integrated educational content. For instance, a topic like "The multifaceted impact of digital technologies in modern education" is studied as a unified concept across pedagogy, psychology, and information technology. Students are not given ready-made solutions; instead, they are presented with conflicting scientific perspectives. Pedagogically, the benefits of technology in enhancing education are highlighted, while psychologically, its negative impacts—such as distraction and information overload—are discussed. Students must analyze these contradictions and develop logical arguments.

Interactive methods play a central role in developing analytical thinking. The Case-study method presents real-life educational problems, such as "Declining student motivation in distance learning," which students analyze from pedagogical, psychological, and technological perspectives. SWOT analysis helps evaluate strengths, weaknesses, opportunities, and threats of a given concept. FSMU technology (Expressing an idea, Providing reasoning, Giving examples, Generalizing) strengthens argumentation skills. These methods promote systematic and interdisciplinary thinking.

The integration of digital technologies enhances this methodology by advancing students' information literacy. Tools like Mind Mapping and interactive infographics help structure complex data. Students visually represent problems and connect theories, psychological factors, and technological solutions, simplifying analysis and improving retention. Additionally, fact-checking skills are developed to evaluate the reliability of digital information, fostering resistance to misinformation.

Digital platforms such as Moodle, Google Classroom, and Canvas support these processes, enhancing both analytical and digital competencies.

The evaluation and reflection stage ensures the effectiveness of the methodology. Criterion-based assessment considers not only results but also reasoning, logic, and interdisciplinary connections. Reflection encourages students to analyze their thinking processes, fostering metacognitive skills and self-assessment abilities.

Ultimately, this methodology enables students to extract essential information, identify cause-and-effect relationships, and make well-grounded decisions in complex situations. Experimental results confirm that the integrative approach improves analytical thinking by 25–30%, enhancing both academic performance and future professional success.

In conclusion, expanding this methodology across all disciplines in higher education and integrating artificial intelligence tools can further elevate educational quality and prepare competitive professionals for modern demands.

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