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DEVELOPING CRITICAL THINKING THROUGH PROBLEM-BASED LEARNING

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ABSTRACT

This article presents a comprehensive analysis of the development of students' critical thinking through problem-based learning as an effective pedagogical approach in higher education. In the context of increasing informational complexity and professional uncertainty, the ability to analyze, evaluate, and interpret information has become a central educational objective. The article examines the theoretical foundations of critical thinking, outlines the pedagogical principles of problem-based learning, and explores their interconnection within the university educational process. It is argued that problem-based learning creates conditions for higher-order cognitive activity, reflective reasoning, and intellectual independence. The analysis demonstrates that systematic implementation of problem-based learning contributes significantly to the formation of critical thinking skills essential for academic success and professional competence.

INTRODUCTION

Contemporary higher education faces the challenge of preparing graduates who are capable of functioning effectively in conditions of rapid social, technological, and informational change. Traditional models of instruction, which prioritize transmission of ready-made knowledge, increasingly fail to meet the demands of modern society and professional practice. As a result, universities are required to adopt pedagogical approaches that promote independent thinking, analytical reasoning, and reflective judgment.

Critical thinking is widely recognized as a key outcome of higher education and an essential component of professional competence. It enables learners to assess information critically, identify assumptions, evaluate evidence, and make reasoned decisions. However, the development of critical thinking does not occur automatically through content exposure; it requires intentional pedagogical design and instructional strategies that engage students in complex cognitive activity.

Problem-based learning has emerged as one of the most effective pedagogical approaches for fostering critical thinking. By placing students in situations that require inquiry, hypothesis generation, and problem-solving, problem-based learning encourages active engagement with knowledge and supports the development of higher-order thinking skills. The purpose of this article is to analyze the potential of problem-based learning as a means of developing critical thinking in higher education.

THEORETICAL FOUNDATIONS OF CRITICAL THINKING

In pedagogical and psychological research, critical thinking is defined as a complex cognitive process that includes analysis, evaluation, inference, and self-regulation. Scholars emphasize that critical thinking involves not only cognitive skills but also intellectual dispositions such as open-mindedness, skepticism, and a willingness to revise one's judgments.

Critical thinking is closely associated with metacognition, as it requires individuals to monitor and regulate their own thinking processes. From an educational perspective, this implies that teaching strategies must create opportunities for reflection, questioning, and dialogue. Without such conditions, students are likely to remain passive recipients of information rather than active constructors of knowledge.

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PROBLEM-BASED LEARNING AS A PEDAGOGICAL APPROACH

Problem-based learning is an instructional approach in which learning begins with a problem that lacks a straightforward solution. Students are required to analyze the problem, identify what they need to learn, and collaboratively search for solutions under the guidance of an instructor. This approach shifts the focus from teacher-centered instruction to learner-centered inquiry.

The pedagogical value of problem-based learning lies in its ability to integrate knowledge acquisition with cognitive skill development. Students engage in processes such as questioning, hypothesizing, evidence evaluation, and argumentation, all of which are essential components of critical thinking. Moreover, problem-based learning promotes collaborative learning and communication skills, further enhancing its educational effectiveness.

PROBLEM-BASED LEARNING AND THE DEVELOPMENT OF CRITICAL THINKING

Research indicates that problem-based learning is particularly effective in promoting higher-order cognitive processes. By confronting students with ill-structured problems, this approach encourages them to explore multiple perspectives, assess alternative solutions, and justify their reasoning.

An important feature of problem-based learning is reflection. Through reflective discussion and self-assessment, students examine their reasoning strategies, recognize cognitive biases, and refine their problem-solving approaches. This reflective dimension strengthens metacognitive awareness and supports the internalization of critical thinking skills.

PEDAGOGICAL CONDITIONS FOR EFFECTIVE IMPLEMENTATION

The effectiveness of problem-based learning depends on several pedagogical conditions, including the complexity and relevance of problems, the level of student autonomy, and the quality of instructional support. Problems should be sufficiently challenging to stimulate inquiry but not so difficult as to discourage participation.

Instructors play a crucial role in facilitating problem-based learning by guiding discussion, encouraging reflection, and providing feedback. A supportive learning environment that values questioning and tolerates intellectual risk-taking is essential for the development of critical thinking.

PROBLEM-BASED LEARNING IN HIGHER EDUCATION PRACTICE

In higher education, problem-based learning can be implemented through case studies, research projects, simulations, and interdisciplinary tasks. These formats allow students to apply theoretical knowledge to practical situations and develop transferable cognitive skills.

For future educators, engagement in problem-based learning not only enhances critical thinking but also provides a model for implementing similar approaches in their own professional practice. Thus, problem-based learning contributes to both cognitive development and pedagogical competence.

CONCLUSION

The analysis presented in this article confirms that problem-based learning is an effective pedagogical approach for developing critical thinking in higher education. By engaging students in meaningful inquiry and reflective problem-solving, this approach promotes analytical reasoning, intellectual independence, and metacognitive awareness.

Systematic integration of problem-based learning into university curricula enhances the quality of education and prepares graduates to meet the complex demands of modern professional environments. Therefore, problem-based learning should be regarded as a methodological foundation for fostering critical thinking in contemporary higher education.

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