

# Risks of AI-Assisted Learning on Student Critical Thinking: A Case Study of Albania

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## ABSTRACT

Artificial Intelligence (AI) has increasingly become a transformative force in the education sector, offering unprecedented opportunities to enhance learning experiences and outcomes. This study examines the potential adverse effects of AI-assisted learning on critical cognitive skills, particularly critical thinking and problem-solving, within the context of Albania's educational landscape. Employing a quantitative methodology, a survey of 53 students was conducted across a private educational institution in Albania to gather data on their experiences and perceptions regarding AI-assisted learning. The findings indicate no significant difference in critical thinking skills between students with prior exposure to AI tools and those without. However, there is a statistically significant negative correlation between reliance on AI tools for assignments and students' problem-solving skills, suggesting that excessive dependence on AI can hinder the development of independent problem-solving abilities. Conversely, a strong positive correlation was found between the frequency of AI tool usage and students' perceptions of academic performance and assignment efficiency, highlighting the potential benefits of AI in enhancing these aspects of the educational experience. These results emphasize the need for a balanced integration of AI tools in education to ensure they complement rather than replace traditional learning methods. The study's findings have significant implications for educators and policymakers, suggesting that while AI can enhance certain educational outcomes, it is essential to address its potential risks to promote the development of essential cognitive skills. Future research should focus on larger, more diverse samples, incorporate objective measures of cognitive skills, and explore the long-term impacts of AI-assisted learning.

## KEYWORDS

Technology Risk, Ethics, Cognitive Development, Pedagogical Implications, Educational Technology, Cognitive Load, Decision-making, Learning Outcomes, Ethical Considerations

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## INTRODUCTION

Artificial Intelligence (AI) has increasingly become a transformative force in the education sector, offering unprecedented opportunities to enhance learning experiences and outcomes (Bates et al., 2020; Çela et al., 2024). AI-assisted learning systems promise to revolutionize traditional educational paradigms including offering personalized learning pathways and real-time feedback mechanisms (Bates et al., 2020). However, alongside these advancements, there are growing concerns about the potential adverse effects of AI on critical cognitive skills, particularly critical thinking (Essel et al., 2024; Iqbal & Iqbal, 2024; Parsakia, 2023). This study examines these concerns through a focused examination of AI-assisted learning's impact on student critical thinking within the context of Albania's educational landscape. Critical thinking is a fundamental skill, essential for problem-solving, decision-making, and the ability to analyze and synthesize information effectively (Dwyer et al., 2014). Critical thinking is vital for students to develop these skills to navigate an increasingly complex and information-rich world (Kitsantas et al., 2019). However, there is a growing body of literature suggesting that AI-assisted learning, while beneficial in many aspects, may inadvertently undermine the development of critical thinking skills. This issue arises from the tendency of AI systems to provide readily available solutions and information, potentially discouraging students from engaging deeply with the learning material and developing their analytical abilities.

Education is a fundamental pillar of society, shaping the actions of new generations and preparing them to confront future challenges. An educated populace facilitates national development and accelerates improvements across various sectors. In a dynamic society, the acquisition of new knowledge and tools is essential, particularly in the field of education. The integration of AI within the educational system has revolutionized numerous aspects of teaching and learning. AI has introduced novel methods for enhancing personalized learning, improving assessments, and reducing administrative burdens for educators (Ayala-Pazmiño, 2023). The adoption of AI tools in both pre-university and university education is inevitable, as they provide efficient means for students to meet assignment deadlines and enable professors to generate tailored tasks that address specific student needs. Ayala-Pazmiño (2023) highlights the efficacy of AI in analyzing student data, thereby enabling the customization of learning experiences to individual requirements. The implementation of AI in education promises a more personalized and responsive approach to teaching, ultimately benefiting the educational process.

Despite the numerous benefits associated with AI in education, many educators recognize the potential risks related to data privacy and security. While students may not be fully aware of these risks, educators can discern the potential dangers associated with AI, particularly concerning the automated generation of outputs that may lack appropriate context or accuracy (Cardona, Rodríguez, & Ishmael, 2023). Consequently, AI tools are seen as critical instruments for redefining classroom dynamics and enhancing student engagement in the teaching-learning process (Pavlenko & Syzenko, 2024). However, the extent to which AI tools represent an advantage or a drawback for educational systems remains unclear. Instructors and administrators grapple with determining whether the use of AI tools by students in their assignments might undermine their problem-solving skills and reduce their capacity to independently address complex issues. Conversely, students, who are the primary users of these tools, often perceive AI as significantly aiding their comprehension of complex concepts, irrespective of their field of study. This study aims to investigate the impact of AI tools on students' problem-solving skills and to assess the extent to which these tools assist students in understanding and completing assignments. Through this study, a comprehensive analysis of the benefits and drawbacks of AI usage in education, with a focus on its implications for student learning outcomes and problem-solving abilities.

This study employs a quantitative methodology to explore the risks associated with AI-assisted learning on critical thinking. A survey of 53 students was conducted in an educational institution in Albania to gather data on their experiences and perceptions regarding AI-assisted learning and

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