

ARTIFICIAL INTELLIGENCE IN MATHEMATICS LEARNING: A LITERATURE STUDY ON EDUCATIONAL TRANSFORMATION IN THE DIGITAL ERA

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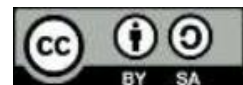
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ABSTRACT

Artificial Intelligence (AI) has fundamentally changed the landscape of mathematics learning in the digital era. This study aims to: (1) map trends and developments in the application of AI in mathematics learning, (2) analyze the effectiveness of AI in improving student learning outcomes and motivation, and (3) identify challenges and opportunities for implementing AI in the context of Indonesian mathematics education. The method used is a literature study by searching sources from various reputable scientific databases. The results of the study indicate that AI platforms such as Photomath, ChatGPT, and Socratic dominate the use in mathematics learning. Their effectiveness is proven by the increase in students' mathematics scores by 20.6% and teacher competency by 84.6%. However, student dependence on AI, limited infrastructure, and low digital literacy remain major obstacles. This study concludes that planned, ethical, and policy-based AI integration is crucial for realizing adaptive, inclusive, and quality mathematics learning in the era of digital transformation.

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