

The Influence of Overreliant AI Chatbots Usage on Surabaya Middle School Students' Critical Thinking

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Abstract

The existence of AI reshaped almost everything, including in education which also impacted the students' critical thinking. This study investigates the influence of overreliance on AI chatbots, such as ChatGPT, DeepSeek, and GeminiAI, on the critical thinking skills of middle school students in Surabaya, Indonesia. This research using quantitative research design and the questionnaires to measure the dependent and independent variable of this research adapted from validated instruments. There were 104 middle school students as the respondents participated in this research. The data gathered from the respondents then process using SPSS 25. The result of the analysis indicates a weak but significant negative correlation ($r = -0.23$, $p = 0.018$) between AI chatbot usage and critical thinking; it shows greater reliance on AI is associated with reduced critical thinking ability. The findings highlight the "double-edged sword effect" of AI

in education. To solve this, researchers develop "Critical Thinking Development" applications. The application is designed to encourage students to cross-check AI outputs, extract keywords, and synthesize information from multiple sources. 50 respondents have took parts on trying this application and more than 75% respondents agree that the application

Keywords: AI Dialogue System, Critical Thinking, Overreliance

I. Introduction

A. Research Background

Artificial intelligence (AI) refers to the stimulation of human intelligence in machines that are programmed to think and act like humans.¹ Its developments in the field of education have been growing at a quick pace in tandem with the information age's expansion. On the contrary, Campus Technology noted that 86% of students are already

¹ "Artificial Intelligence – What it is and why it matters"