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Critical Thinking in the Age of Artificial Intelligence: A Systematic Literature Review of Emerging Concepts and Frameworks

Critical thinking skills are an essential competency in the era of artificial intelligence (AI). However, many of the critical thinking frameworks frequently employed in earlier studies are increasingly regarded as less relevant when applied to assess individuals'critical thinking abilities in the context of AI use. Consequently, this study aims to identify the conceptualizations of critical thinking adopted within this context. A systematic literature review was conducted following the PRISMA protocol. Thirteen empirical articles published between 2020 and 2025 and indexed in Scopus were systematically analyzed. Inclusion and exclusion criteria were set to identify relevant articles. The findings reveal a paradigm shift in the conceptualization of critical thinking: from traditional frameworks emphasizing analysis, evaluation, and inference of human arguments toward new frameworks that require users to assess, evaluate, and critique AI-generated responses. This shift demonstrates that critical thinking in the context of AI is not confined to logical and reflective reasoning but also encompasses digital literacy, awareness of algorithmic bias, and information validation skills. These findings carry important implications for the development of more contextually relevant indicators of critical thinking in the AI era and further encourage educators and researchers to adapt pedagogical and assessment strategies to address the emerging challenges of human–AI interaction

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