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Leveraging AI-Embedded Block Model in IPTCs to Enhance Student Engagement: Underlying Mechanisms and Practical Implementation Paths

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Abstract

The rapid integration of artificial intelligence (AI) into educational environments has created new possibilities for transforming educaitonal design and enhancing student engagement. However, traditional instructional approaches in ideological and political theory courses (IPTCs) often encounter challenges related to limited interactivity, passive learning behaviors, and insufficient personalization. This study proposes an AI-Embedded Block Model as an innovative instructional framework aimed at improving student engagement in IPTCs by integrating AI technologies with modular teaching design. Drawing upon theories of student engagement, constructivist learning, and technology-enhanced pedagogy, this paper investigates the underlying mechanisms through which AI-embedded instructional blocks influence students' cognitive, emotional, and behavioral engagement. The proposed model conceptualizes teaching content as interconnected functional modules incorporating intelligent dialogue systems, adaptive learning pathways, data-driven feedback mechanisms, and scenario-based interactive tasks. Through personalized content delivery and real-time learning support, AI technologies facilitate greater learner autonomy, strengthen teacher–student interaction, and create immersive learning experiences. The study further develops practical implementation paths for applying the model in IPTCs, including curriculum structure redesign, AI-supported teaching resource integration, dynamic assessment systems, and collaborative learning environments. Particular attention is given to balancing technological innovation with educational values and maintaining the pedagogical objectives of ideological and political education. This research contributes both theoretically and practically by extending the understanding of AI-enabled learning engagement mechanisms and providing an actionable framework for educational innovation in IPTCs. The findings offer insights for educators and policymakers seeking to leverage AI technologies to foster active participation and improve learning effectiveness in contemporary higher education contexts.

Keywords: Artificial Intelligence; AI-Embedded Block Model; Ideological and Political Theory Courses (IPTCs); Student Engagement; Educational Innovation; Teaching Reform