

Crafting Adaptive Future: Advancing AI-Personalized Asynchronous Learning in Information Systems Education

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Abstract

This exploratory study lays the groundwork for an innovative application of Artificial Intelligence (AI) in an asynchronous online learning environment within the Information Systems undergraduate curriculum, targeting an introductory programming course scheduled for Fall 2024. The research, deeply rooted in constructivist learning theory, seeks to harmonize AI pedagogical strategies with Gardner's theory of multiple intelligences, Vygotsky's zone of proximal development, and Deci and Ryan's self-determination theory. This theoretical fusion is anticipated to guide the judicious selection and customization of AI tools, such as Codio and Replit integrations to Canvas learning management system (LMS), aiming to cultivate personalized, inclusive, and flexible learning experiences. The present phase involves a qualitative, exploratory approach to methodologically frame the study and devise tools for capturing a broad spectrum of data upon course implementation. Current efforts concentrate on designing engagement metrics, interview protocols, and feedback mechanisms to evaluate AI's impact on diverse learner profiles. Ethical considerations, privacy safeguards, and strategies to bridge the digital divide are being scrutinized to inform responsible AI integration into the curriculum. While data collection is forthcoming, the preparatory work established will underpin the study's future execution, with an emphasis on generating empirical insights to enhance pedagogical practices. The anticipated outcomes will not only contribute to the academic discourse on AI in education but also delineate a path forward for creating adaptive learning environments that are equitable, empirically grounded, and responsive to the distinct needs of learners.

Keywords: adaptive learning, artificial intelligence, online asynchronous education, information systems, course design, constructivism, multiple intelligences, zone of proximal development, self-determination theory, qualitative exploration, ethical considerations.