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Agentic Intelligence in Constructivist Classrooms (AICC): Rethinking Educational Theory Through the Integration of Human-AI Co-Learning Models

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ABSTRACT

This conceptual paper introduces the theory of *Agentic Intelligence in Constructivist Classrooms (AICC)*—a novel pedagogical model that integrates artificial intelligence as a co-participant in the learning process. While constructivist education traditionally emphasises learner autonomy, active discovery, and social dialogue, the emergence of intelligent systems capable of interacting, adapting, and responding to learners challenges foundational assumptions about how knowledge is constructed and mediated in classrooms.Drawing upon Vygotsky's social constructivism, Bandura's theory of agency, and emerging research in educational technology, the AICC framework redefines the classroom as a triadic learning space—where human learners, educators, and AI systems engage collaboratively in meaning-making. Rather than positioning AI solely as a tool or content provider, this model proposes that AI can function as a *dialogic agent*—scaffolding inquiry, prompting reflection, and co-regulating learning through adaptive feedback and conversational interaction.

The paper outlines three core pillars of the AICC framework: (1) **Co-agency**—the shared construction of knowledge through human-AI interaction; (2) **Metacognitive Amplification**—AI's role in enhancing learners' self-awareness and strategic thinking; and (3) **Ethical Mediation**—the importance of human oversight, transparency, and values-led design in AI deployment.

By embedding these dimensions within classroom practice, the AICC model provides a foundation for a renewed theory of pedagogy that reflects the realities of digitally mediated education. The framework contributes to ongoing debates on the future of teaching, the role of automation in human development, and the preservation of learner agency in data-rich environments.This paper concludes with practical considerations for educators, school leaders, and policymakers, and proposes future research directions for assessing the impact of agentic AI on classroom dialogue, equity, and learner outcomes.

Keywords: autonomy; educational technology; human-computer interaction; metacognition; pedagogy