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From Tool to Thought Partner: Ethical and Transformative Uses of AI in PreK–16 Education

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Abstract

We present nine mini-case studies that explore the transformative and nuanced ways artificial intelligence, particularly large language models (LLMs) and generative AI are being integrated into educational practices across PreK–16 settings, including colleges and universities Moving beyond prevailing narratives focused on academic dishonesty, our presentation repositions AI as a co-creative, instructional, and organizational partner for educators and students. The first case highlights AI-guided creative writing in secondary schools, demonstrating how co-creation with LLMs can enhance student voice, imagination, and confidence. The second describes a collaborative professional learning initiative across a network of schools in New South Wales, Australia, illustrating how AI tools like NSWEduChat are improving evidence-based instruction. The third case provides practical prompt engineering strategies to unlock deeper student inquiry and teacher efficiency. The fourth showcases an interdisciplinary psychoeducational framework, presenting ten GenAI strategies to improve student mental health and well-being. Other cases explore broader applications: how professional developers can support GenAI adoption through multi-modal training (Case 5); the integration of AI in Multi-Tiered Systems of Support (MTSS) to enhance data-driven intervention (Case 6); and how cognitive apprenticeship can guide ethical and creative writing instruction with AI (Case 7). Case 8 critically examines the cognitive limits of LLMs, advocating for the continued centrality of human consciousness and virtue in education while case 9 adopts a systems-thinking lens to reimagine institutional structures for AI integration in teaching and learning. Collectively, these mini-case studies emphasize a vision of AI that is ethical, interdisciplinary, and human-centered, offering educators practical models, adaptable strategies, and conceptual frameworks in an era of rapid technological change.

Keywords: Co-Creative AI Partnership; Ethical AI Integration; Adaptable Educator Strategies; Effective Prompt Engineering; Sustainable AI In Prek-16 Instructional Leadership