

Dear Reader,

The swift progress in artificial intelligence (AI) development is fundamentally transforming education in profound ways. As AI technologies advance, leaders, educators, researchers, and policymakers must navigate both the opportunities and challenges of integrating them into teaching and learning and all other aspects of education. AI is revolutionizing education by personalizing learning experiences, streamlining administrative tasks, changing the roles of teachers and students, and reshaping instructional methods, and all of that is before the possibilities that broad deployment of AI agents for research, AI companions for support, multimodal image generators, and the yet-to-be imagined uses for generative AI to transform the culture and design of learning environments might bring. Simultaneously, this shift raises critical concerns regarding equity, ethics, scalable implementation, and the evolving requirements for governance and policy so that all learners flourish.

As AI becomes an integral part of educational ecosystems, it is essential to critically examine its impact, ensuring that it is harnessed to support—not replace—human-centered learning experiences.

This special edition, *The Future of AI in Education: Innovations and Insights*, aims to do just that. We have brought together leading voices from across the globe to explore the dynamic relationship between AI and education. Curated by [Catalyst @ Penn GSE](#) and a diverse network of scholars, this collection of articles highlights cutting-edge research, innovative implementations, thought leadership, and emerging trends. By examining AI's role in education from multiple perspectives—including research, policy, technology development, and classroom practice—this edition aims to foster a deeper understanding of how AI is shaping the future of learning.

Catalyst @ Penn GSE is uniquely positioned to curate this edition, leveraging our work at the intersection of education, business, and technology. As a center for global education innovation, Catalyst connects people and ideas to develop new ways to advance education in novel and meaningful directions. Building on Penn GSE's legacy of education innovation and leadership, Catalyst facilitates public conversations, hosts working groups on pressing challenges, and supports both educators and entrepreneurs in transforming teaching and learning. Through professional development, capacity building, and fostering collaboration across the edtech ecosystem, Catalyst helps generate, test, and scale best practices and powerful new tools for educators at all levels. By drawing from this wealth of expertise, this edition provides a comprehensive and forward-thinking perspective on the future of AI in education.

The articles featured in this issue provide a rich exploration of AI's potential and challenges in education. Topics include AI literacy frameworks that prepare students for an increasingly AI-driven world, the use of generative AI in lesson planning and professional development, AI-powered tools for assessment and feedback, and the ethical considerations surrounding AI's role in shaping pedagogical practices. Contributors also investigate how AI can enhance student agency, promote ubiquitous access to education, and drive innovation in both K-12 and higher education settings.

We hope this edition will serve as both a reflection on current developments and a catalyst for ongoing dialogue about the responsible and innovative use of AI in education. By bringing together a broad range of perspectives, we aim to contribute to a more thoughtful, nuanced, and informed approach to AI's role in shaping the next generation of learners and educators.

Sincerely,

Michael & Katrina

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