

## Commentary

# AI in Education: Challenges and Opportunities

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## Abstract

Artificial Intelligence (AI) is transforming education, offering both opportunities and challenges. This commentary explores AI's role in personalised learning, the evolving function of teachers, ethical concerns, and the risks of over-reliance. While AI enhances adaptive learning, it struggles with personalisation and pedagogical depth. Teachers remain essential, advocating for AI as a collaborative tool rather than a replacement. Ethical concerns include data privacy, bias, and academic integrity. To address these challenges, educators must promote critical AI literacy and responsible integration, ensuring AI serves as a transformative tool that enhances, rather than replaces, human teaching and learning experiences.

**Keywords:** *artificial intelligence, personalised learning, teacher-AI collaboration, AI literacy*

## Introduction

The rapid advancement of AI is reshaping numerous aspects of human life, with education standing as one of the most dynamic areas of transformation. As an educator and researcher deeply invested in the role of AI in education, I have witnessed first-hand the potential of this technology to disrupt and enhance the learning process. The reflections in this brief article stem from moderating a panel discussion at the 2024 Annual International Multidisciplinary Conference, where experts debated the challenges and opportunities AI presents for education. This commentary builds on that discussion, critically examining AI's potential for personalisation, the shifting role of teachers, ethical considerations surrounding data usage, the need for critical AI literacy, and the risks of over-reliance on technology.

## **AI as a Disruptor: The Promise of Personalised Learning**

One of the most widely recognised promises of AI in education is its capacity to provide personalised learning experiences. AI-driven learning platforms can analyse student performance, identify strengths and weaknesses, and tailor educational content accordingly (Strielkowski et al. 2024). However, the current implementation of AI in education does not yet fully support such customisation. The constraints of existing educational systems, coupled with technological limitations, hinder the realisation of truly individualised learning experiences (Kaddouri et al. 2025).

Christensen et al.'s (2011) theory of disruptive innovation posits that technology only becomes truly transformative in education when it creates a fundamentally different learning experience rather than simply digitising traditional methods. While AI-based tools like intelligent tutoring systems and adaptive learning platforms show promise (Khine 2024), they can at times fall short in terms of providing meaningful, personalised feedback, especially if misaligned with the objectives of modern education (Laak, Aru 2024). Current research highlights that some students critique AI for producing misleading content, lacking contextual understanding, and manifesting deficiencies in higher-order thinking, pedagogical skills, and cultural awareness (Kim et al. 2025). They also criticise it for struggling with personalisation, relationship-building, and providing transparent explanations, thus making it difficult for them to trust its responses (Kim et al. 2025). This underscores the need for continued investment in AI research and pedagogy to ensure that the technology serves as a true enabler of personalised education rather than just an efficiency tool.

## **Supporting or Replacing Teachers? The Role of AI in Education**

The debate over whether AI will replace teachers remains contentious. Some educational theorists, like Sugata Mitra (2018), suggest that technology could eventually render human teachers obsolete. However, this perspective underestimates the irreplaceable psycho-social and emotional support that teachers provide. Such a view also disregards the fact that education is more than knowledge transmission—it involves mentoring, motivation, and emotional intelligence, areas where AI falls short (Selwyn 2019). Indeed, according to some studies, the majority of teachers and students believe that AI cannot at present replicate some of the unique human qualities of educators, thus making them irreplaceable (Chan, Tsi 2024, Okulich-Kazarin et al. 2024).

Toffler's (1970) assertion that future illiteracy will stem not from an inability to read and write but from an inability to learn, unlearn, and relearn underscores the importance of teacher adaptability. Harari (2018) similarly argues that the key to employability in the AI age lies in developing distinctly human competencies.

Rather than seeing AI as a replacement, educators must view their collaboration with the technology as enhancing their effectiveness (Kim 2024). Among the many forms of support it can provide, AI can streamline administrative tasks, generate lesson plans, and produce real-time insights into student progress (Luckin et al. 2022). Instead of fearing or shunning the technology, educators should embrace the perspective proposed by UNESCO's AI competency framework, which advocates for a human-centred approach, emphasising teacher agency, ethical responsibility, and the augmentation of human capabilities rather than their displacement (Miao, Cukurova 2024).

### **AI-Driven Data Analytics: Potential and Ethical Considerations**

AI systems rely on vast amounts of data to function effectively. The more data AI models process, the more refined their learning algorithms become. This raises both opportunities and concerns. On one hand, AI-driven data analytics can revolutionise assessment by enabling teachers to track student progress more accurately and intervene when necessary (Adu-Twum et al. 2024). On the other, the ethical implications of data privacy, security, and bias must be carefully considered (Sargiotis 2024).

Many students, particularly younger ones, exhibit a lack of concern regarding data privacy, freely providing their information to AI-driven platforms. This presents an opportunity for educators to promote AI literacy and ethical AI usage (Xerri 2024). However, as AI systems draw from diverse datasets, the risk of algorithmic bias remains significant. Large language models (LLMs) are trained on data predominantly sourced from Western, Educated, Industrialised, Rich, and Democratic (WEIRD) contexts, which can introduce biases that distort educational content (Seaborn et al. 2023). Educators must critically evaluate AI-generated outputs and advocate for more inclusive training datasets to mitigate these biases (Xerri 2025).

### **Fostering a Critical AI Mindset and Combating Over-Reliance on AI**

A concerning trend among some students is the tendency to perceive AI-generated content as infallible, with the consequence of relying too heavily on technology. These students fail to recognise that LLMs operate based on statistical pattern recognition rather than genuine comprehension. This underscores the necessity of embedding critical thinking skills into AI literacy education. Fortunately, research suggests that AI can be leveraged to cultivate critical thinking (Yusuf et al. 2024). When students are encouraged to question AI-generated content, identify biases, and compare outputs with credible sources, they develop a more discerning

approach to information consumption (Walter 2024). Educators should integrate activities that challenge students to critique AI outputs, fostering a culture of inquiry and analytical reasoning.

While AI has undeniable benefits, over-reliance on it can lead to detrimental effects, such as diminished problem-solving skills and academic dishonesty. The increasing prevalence of AI-generated content in assignments raises concerns about plagiarism and the erosion of independent thinking (Kovari 2025). However, resisting AI outright is not the solution. Instead of reverting to traditional assessment models such as high-stakes, pen-and-paper examinations, educators should explore alternative assessment methods that integrate AI responsibly. Formative assessment, project-based learning, and open-ended tasks encourage students to engage with AI critically while still exercising their intellectual autonomy (Luckin et al. 2022). Moreover, ethical AI education should emphasise responsible usage, highlighting the importance of maintaining a balance between technological assistance and independent cognitive effort.

## Conclusion

AI is poised to reshape education in profound ways, presenting both challenges and opportunities. While AI holds the potential to enhance personalised learning, redefine the role of teachers, and optimise data-driven decision-making, it also necessitates careful ethical considerations, critical engagement, and responsible usage. Educators must actively shape the integration of AI in education by promoting AI literacy, advocating for ethical AI practices, and fostering human-centred pedagogical approaches. Rather than perceiving AI as a disruptive force to be feared, educators should harness its potential as a transformative tool that complements and elevates the teaching and learning experience.

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