

Guest editorial: Investigating the effects and consequences of artificial intelligence on education quality

181

The emergence of accessible artificial intelligence (AI)-based writing support tools such as large language models that are able to generate coherent and complete text samples has presented the education sector with transformative opportunities and significant challenges. AI has added new dimensions to the way educators and students engage with knowledge by automating administrative tasks, enabling personalized learning and enhancing remote education. Yet, these innovations are accompanied by ethical dilemmas, questions about equity and concerns about the preservation of human-centric education. This special edition of *Quality Assurance in Education*, titled *Investigating the Effects and Consequences of Artificial Intelligence on Education Quality*, brings together scholarship that critically examines how AI is reshaping education, and the quality assurance measures necessary to guide its responsible implementation.

The implications of AI are far-reaching and multifaceted as it becomes increasingly embedded in education. AI-driven tools such as adaptive learning platforms, intelligent tutoring systems and automated grading mechanisms have shown promise in improving educational outcomes (Luckin *et al.*, 2016; Holmes *et al.*, 2019). There is also significant transformative potential for AI to be used in career guidance, with its ability to provide personalized, efficient, and accessible support (Ghafoor and Mohaghegh, 2024). However, the rapid adoption of these technologies raises pressing concerns about algorithmic bias, data privacy and the potential for overreliance on automated systems (Selwyn, 2019). The onset of the COVID-19 pandemic further accelerated the adoption of AI in education as institutions worldwide were forced into an unprecedented shift to online and hybrid learning models. These transitions amplified the reliance on AI tools and exposed both their potential and their limitations (Alam and Imran, 2021).

This special edition builds on these discussions and offers new perspectives that address the role of AI in enhancing education quality while safeguarding core educational values. In doing so, it tackles questions surrounding the integration of AI in teaching, assessment and administration, as well as its broader implications for educators, students and institutions.

Several articles in this special issue focus on the potential for AI to enhance teaching effectiveness and student engagement, particularly in remote and hybrid learning contexts. The article “Developing an Integrated Model for Remote Teaching Amelioration with Artificial Intelligence (AI) Awareness” provides a framework for understanding how AI awareness can mediate the relationship between knowledge-sharing practices, transformational leadership, and teacher performance. This article highlights the importance of AI literacy as a critical component of professional development by drawing from the experiences of educators adapting to remote teaching during the COVID-19 pandemic. This finding resonates with arguments presented in (Alam and Imran, 2021) that AI-savvy educators are better equipped to navigate the challenges of online education. The emphasis on foundational AI literacy aligns with results from MacCallum *et al.* (2023), which identifies the components of AI literacy as critical knowledge, skills and understandings needed to adapt to such challenges.



The theme of AI literacy extends beyond educators to students, as explored in the article “AI-Enhanced Education: Exploring the Impact of AI Literacy on Generation Z’s Academic Performance in Northern India.” This study demonstrates that students with higher levels of AI literacy are better positioned to leverage AI tools for academic success, underscoring the importance of integrating AI-related skills into curricula. This highlights the dual importance of equipping both teachers and students with the skills needed to thrive in AI-driven learning environments, and complements the Scaffolded AI Literacy Framework outlined in [MacCallum *et al.* \(2024\)](#), which emphasizes preparing learners to engage constructively with AI across all levels of education.

The implications of AI for academic integrity and assessment are addressed in multiple contributions. The article “Academic Integrity Considerations of Using ChatGPT in Assessment Activities Among University student Teachers” provides a timely exploration of the ethical challenges posed by generative AI tools like ChatGPT. The article examines the potential for misuse in assessments and highlights strategies for preserving academic integrity in an era, where students have unprecedented access to AI-generated content. Similarly, the study “Teacher Perspectives of ChatGPT as a Pedagogical Tool in the K-12 Setting: A Case Study” delves into how educators perceive and use AI tools, such as ChatGPT, to facilitate learning while also navigating the risks associated with overreliance on such technologies.

Writing skills development emerges as another key area where AI is making a significant impact, as highlighted by [Irons \(2022\)](#). The article “Experimental Evidence for the Efficacy of Generative AI in Improving Students’ Writing Skills” explores how AI-driven tools can enhance students’ writing abilities. By providing personalized feedback and adaptive learning experiences, these tools demonstrate the potential for AI to address individual learning needs in ways that traditional methods often cannot. These findings suggest that AI can act as a supportive mechanism for educators, complementing their efforts to foster critical thinking and communication skills.

Two articles in this issue specifically focus on the broader implications of AI for higher education in both global and localized contexts. The article “An Investigation of Generative AI in the Classroom and its Implications for University Policy” explores how generative AI tools like ChatGPT are transforming learning by enabling personalized education and automating routine tasks. Although generative AI offers immense potential, the article highlights challenges such as plagiarism, data privacy and academic integrity, underscoring the need for universities to adopt updated policies and frameworks to ensure ethical and effective integration.

Similarly, the article “A Conceptual Analysis of Artificial Intelligence (AI) on Academic Opportunities and Challenges: A Case Study Based on Higher Educational Institutions in Bangladesh” provides a contextual analysis of AI’s impact in a developing-country setting. This study highlights the potential of AI to bridge gaps in resource-constrained areas by improving access to education through adaptive learning platforms and intelligent tutoring systems. However, it also addresses challenges such as technological access divides, societal resistance and ethical concerns like plagiarism and data security. Together, these articles emphasize the global relevance of AI while addressing unique regional challenges.

In addition to its role in general education, AI is also transforming specialized fields. The article “Revolutionizing Costume Design Education: A Case Study on the Impact of Microsoft Copilot” illustrates how AI tools like Microsoft Copilot are revolutionizing creative disciplines by automating technical tasks and enabling students to focus on innovation. In the article “Exploring ChatGPT Literacy as Predictor and Moderator in

Enhancing Informal Digital Learning of English (IDLE): A Partial Least Square Analysis,” the authors examine the integration of ChatGPT within English as a second language course to enhance personalized learning and active language practice.

The evolving role of educators in AI-driven environments is critically examined in “Generative AI: Hopes, Controversies, and the Future of Faculty Roles in Education.” This article argues that as generative AI takes on more instructional responsibilities, the role of faculty is shifting toward mentorship and the facilitation of deeper critical thinking. This theme of adaptation is echoed in broader discussions about the balance between automation and human-centered learning (Holmes *et al.*, 2019).

Finally, the broader implications of integrating AI into education are considered in “Teacher Perspectives of ChatGPT as a Pedagogical Tool in the K-12 Setting” and “AI-Enhanced Education: Exploring the Impact of AI Literacy.” Both articles highlight the need for educational institutions to develop policies and practices that ensure equitable access, ethical usage and the sustainability of AI-driven tools.

As institutions continue to integrate AI into their educational practices, it is imperative to address the ethical, social and practical implications of these technologies. The insights presented provide a foundation for educators, policymakers and researchers to navigate these complexities and ensure that AI contributes positively to education quality.

We are deeply grateful to the authors for their thoughtful contributions and to the reviewers for their rigorous evaluations. Their collective efforts have enriched this edition and advanced the global discourse on AI and education. We hope this special issue serves as a valuable resource in the efforts to balance innovation with the preservation of educational integrity and equity.

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