Chapter 11
Artificial Intelligence and the Future of Education in Bangladesh:
Impact, Challenges, and Ethical Implications of AI on Student Learning

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ABSTRACT

This chapter highlights the transformative impact of Artificial Intelligence on the education sector in Bangladesh, reshaping the learning experience for students. It emphasizes how AI fosters personalized learning, increases access to resources, and enhances skill development, while also addressing challenges like infrastructural limitations, teacher readiness, and societal resistance. The discussion includes important ethical considerations, such as data privacy and algorithmic fairness, underscoring the need for responsible integration. By synthesizing existing literature, the paper clarifies the complex relationship between AI and education and suggests

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avenues for further research. Collaboration among policymakers, administrators, students, and technology developers is crucial to ensure that AI benefits all learners in Bangladesh. The research highlights some key issues that are of the essence to inform the discussion on AI in education and as guidelines for developing a more inclusive and operational structure for education in Bangladesh.

1. INTRODUCTION

Artificial Intelligence (AI) has emerged as one of the most transformative forces in different verticals (Sedkaoui & Benaichouba, 2024). Artificial intelligence in education is already playing a magnificent role in digital transformation (Katsamakas et al., 2024). For the last decade, AI technologies have rapidly evolved to open up new possibilities that relate both to personalized learning and the adaptation of instructions as a means of improving student outcomes (Laak & Aru, 2024; Chen et al., 2020). From intelligent tutoring systems to automatic assessments, the use of AI stretches the limits of traditional pedagogic practices by making them much more efficient while concurrently making learning more interactive and relevant (Murdan & Halkhoree, 2024). With each passing day, educators and policymakers around the world are waking up belatedly to find that AI has a potential disruption in the classroom, moving away from one-size-fits-all models to data-driven, differentiated learning pathways comprised of immense variation in students' needs (Tan, 2023).

The integration of technology into education has been gradual in Bangladesh, especially with government reforms and digital learning initiatives that spurred the modernization of this country's educational system. However, the adoption of AI in Bangladeshi classrooms, despite the growing emphasis on digital education, remains in its infancy (Babu, 2021; K. Babu, 2021). While there are scattered examples related to the use of AI, such as those through language learning applications or exam preparation tools, challenges like infrastructure deficits, teacher training, and digital literacy stand in the way of more general diffusion among larger parts of the system. Notwithstanding the above, AI holds immense potential to address certain basic challenges facing Bangladesh, particularly overcoming inequalities created by inequitable access to quality education, especially in rural areas, and enhancing future-ready skills (Mahbub et al., 2024; K. Babu, 2021).

No doubt, AI can potentially play a significant role in the education system of Bangladesh. With its growing and young population, the pressure is huge to equip students with the competencies they need to prosper in an increasingly globalized and technology-based economy. AI uniquely befits the process of student learning and can effectively facilitate access to equal education (Sultana & Faruk, 2024). We