Chapter 8
Future of Education With AI–Assisted Technologies

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ABSTRACT

By leveraging AI-driven solutions, students also have the ability to adjust learning based on personal preference, with unique content that both improves understanding and boosts interest. Virtual tutors, interactive simulations, and smart assessments allow students to learn at their own pace and get real-time feedback. AI-enabled data analytics tools can spot skill gaps and forecast the likelihood of students that feed back into their re-evaluated teaching and streamline to boost success in the classrooms. AI collaborative platforms create a shared worldwide ecosystem for learning having students from all walks of life. Administrative aspects of teaching like grading and curriculum development are streamlined through automation, enabling educators with more bandwidth for mentorship and innovation. AI-assisting technologies are thus building blocks of a better educational system, with equitable, efficient, and future-proof learning developed by bridging the entry gaps.

DOI: 10.4018/979-8-3693-9395-6.ch008

1. INTRODUCTION

Artificial Intelligence (AI) Integration in Education: A New Era of Learning With the shift towards a knowledge-driven economy, the need for efficient, inclusive, and adaptive education systems has never been more pressing (Zint et al., 2024). The many cornerstones of this transformation are newly devised AI-assisted technologies that rethink traditional pedagogies by allowing the content of knowledge to be taught, reflected and interacted in novel and unprecedented ways. Instead of primacy being given to methodology, it is offered to methodology, while upholding the best of practice; a new paradigm is established to better meet the unique needs of learners and educators globally.

Biggest AI Contributions in Education Traditional classroom models often adopt one teaching method for a large group of students, while AI education platforms customize education for the specific needs of an individual. By studying data related to learning habits, strengths, weaknesses, and preferences, these technologies create personalized learning paths. Adaptive learning software, for example, can detect when a student is struggling to master a particular concept and provide focused exercises, tutorials or interactive modules to overcome those challenges. With this personalized framework, students can learn at their own pace, allowing them to have a deeper grasp of subjects instead of risking a lag in learning. AI has also become a vital part in improving accessibility in education (Raaj, 2024). Many students with disabilities or those living in remote areas are deprived of quality education. AI-supported tools like speech-to-text applications, real-time translation services, and virtual sign language interpreters tear down these walls, helping ensure education is more inclusive. AI supports the formation of virtual classrooms, allowing students from diverse geographical backgrounds to share access to the same quality of resources, thus providing a backbone for the seamless operation of urban and non-urban education systems. Through techniques like real-time translation, AI breaks down language barriers and promotes global learning by enabling students from different linguistic backgrounds to work together seamlessly.

The other game-changer is the role of AI in automating administrative tasks. And for educators often spend time performing tasks like grading assignments, tracking attendance, or planning curriculum, they aren't able to really dedicate their time to focusing on teaching and mentoring (Romero et al., 2017). This allows for better allocation of resources by helping to identify bottlenecks in school processes and prioritizing learning where needed; AI-powered systems enable such tasks to be automated precisely and efficiently, leaving educators more time to engage in more substantive interaction with students. One example might be AI-driven grading tools that can assess a student's assignments and tests and manage all of the feedback