Chapter 12
AI-Driven Classroom Management With Intelligent Tutoring Systems

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ABSTRACT

This chapter examines the entry of AI into classroom management through Intelligent Tutoring Systems. ITSs enhance customized learning through adaptive learning as it customizes the educational content based on an individuals requirement thus enhancing the interactive learning experience for the learner and making it more productive. AI can be utilized by the ITS to monitor student behavior and performance data, identifying knowledge gaps and providing personalized intervention recommendations.

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The chapter explores ethical questions related to educational AI, such as data privacy and understood algorithms, aiming to develop learners' independence and teach teachers when to observe and intervene purposefully in educational AI. The study presents case studies and empirical evidence highlighting the transformative power of AI-enabled ITS in improving learning outcomes, equity, and inclusive styles, arguing that strategic adoption of AI technologies can lead to smarter, responsive classes.

INTRODUCTION

There is a new era in education, and a new generation of rapidly advancing knowledge workers in the field of technology has become increasingly important. Nothing can ensure a drastic transformation in classroom management and teaching instructions than equipping the school with Artificial Intelligence. Today's students are different and need the classroom model to change from one-size-fits-all ËC style of learning. Classrooms being heterogeneous, there lies the management of the diversity of learning styles, learning paces and interests of both the students. This is where ITS comes as the best solution to the issue. Everything mentioned so far as capabilities in AI, it allows people to access learnings that are suited for the specific needs and goals of the unique learner, fostering engagement and learning results (Yugandhar & Rao, 2024).

Intelligences tutoring systems are the computer-based programs that provide learners with immediate and customized feedback without the human teacher having to intervene. Such programs use algorithms and machine learning algorithms to analyze student interaction and performance data, which enables them to provide real-time content of instruction. The fundamental principle of ITS is that its interactions should most closely resemble one-to-one tutorials and that it should help the learner with the kind of tailored guidance and support he or she needs at his or her own pace. It helps much more than nowadays in the educational field, where students are so many that it is rather impossible for teachers to get in touch with each and every students (Praveen, 2024).

In this way, AI has found its way into education as a means to provide a more productive way for learning but more importantly, a way to facilitate an interactive and delightful learning environment. The students are of the digital native generation having known only responsive and user friendly technology. Old-school methods of teaching will no longer entertain their imagination or address their needs very well. Gamified learning experiences, interactive simulations, and immediate feedback mechanisms appealing to a modern learner fill this gap. The adaptive technology not only keeps a learner engaged but also makes one feel a sense of ownership towards their journey (Baumgart & Madany Mamlouk, 2022).

There are some challenges in this regard but when it comes to its implementation in classrooms. However there are issues like data privacy and ethical implications of using AI powered chatbot for educational purposes that need to be worked out. It raises questions about consent, data security and bias in algorithmic decision-making. Hence, educators, policy makers and technology developers must engage in the type of dialogue and develop policies that will ensure student privacy as an unwelcome outcome to take advantage of the bounty of AI (Rızvı, 2023).

After all, it is only through the collaboration of technology with teachers that Intelligent Tutoring Systems can be successful. Although AI might provide richer dimensions to learning, it cannot yet replace the empathetic role of the teacher in developing critical thinking, creativity and social-emotional growth. Ideally, this educational environment must then highlight the advantages of the ITS compared to the allusive nature and social perspective of the classroom educator instead. In fact, the interpretation