

# Chapter 14

## Transforming Personalized Learning With Artificial Intelligence

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### **ABSTRACT**

*This chapter will explore how AI transforms the personalized learning experience by describing how AI is implicated in the tailoring of a student's learning experience. This has emerged as an important approach toward the improvement of the engagement, motivation, and success of students within the diversity present in any educational setting. These technologies in AI empower teachers to effectively analyze data of the students to set customized learning paths and adaptive designs for the curriculum. It also refers to the practical applications of AI practically in learning institutions as well as mentioning the case studies from schools to higher education institutes. In addition, the author gives a possibility in which the AI tools offer profiling students, constructing an individualized plan of learning and interaction through active learning. The chapter addresses practical recommendations to educators and institutions on data privacy and algorithmic bias to make the case for ethical AI use.*

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## 1. INTRODUCTION

It would be an education model in which the teaching experience will be tailored to each learner's needs (Oyebola Olusola Ayeni et al., 2024). All the tailored learning experiences are ready for the specific learner through customized pacing, content, and ways of delivery instead of standard approaches that would favor a uniform pace, uniform content, and a uniform manner of delivery. Using digital tools and AI enables one to implement scale personalization that is not thinkable with the old approach. A “one size fits all” curriculum has traditionally disadvantaged most non-typical learners, creating gaps in comprehension and involvement. Customized learning is trying to fill that gap with a curriculum tailored to the strengths and interests of the learner in addition to fitting in different paces in the case of learning (Sajja et al., 2024).

Education has become such an important event in everybody's lives nowadays (Tahiru, 2021); the role of personalization during such an event cannot be emphasized enough. It is a student-centered approach to learning, considered a unique learning pathway for every child. For example, the supplementary practice areas provided through AI-based applications will be there to address cases where a child might fail with a particular topic in his curriculum, while at times of exceptional performance by one of them, they just hop towards the next material. This strategy enhances engagement and motivation very highly as learners would have striven when the material emerges as relevant to them. Personalized learning contributes to the culture of lifelong learning since it helps cultivate skills such as reflective thinking and flexibility that the students would carry with them until quiet (Pratama et al., 2023). This aspect is why technology now become part and parcel of personalization learning. Classrooms have come of age from traditional textbooks and lectures to a vibrant, multimedia-enriched learning experience (Vandewaetere & Clarebout, 2014). It makes the processes scalable with AI technologies as it allows for automated assessment of learning content, real-time adjustments, and the provision of instant feedback mechanisms. It is easy and helps a teacher put a personal touch to not only a single classroom but even across a whole school setting such that students can all get the right help.

Involving AI in personalization isn't just about mechanizing processes as there are algorithms to perform machine learning that read off data about the students' performances. For example, if a learner had high marks for math but reading comprehension was still low, more resources and time might be devoted to improving a student's reading skills. Further, the assessments can take the dynamic approach through AI, which returns real-time feedback that may help the instructor know what mistakes need correction while it is learned by the student. This saves assessment time and provides a more effective and responsive learning environment.

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