



CAN AI PERSONALIZE LEARNING FOR EVERY STUDENT?

What New Research Says About AI and Personalized Learning

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WHAT RESEARCH FOUND

Artificial intelligence (AI) is increasingly being promoted as a way to personalise learning by adapting lessons, assessments, and learning resources to each student's needs. This systematic review analysed **68 empirical studies** published between 2018 and 2024 to examine how AI is being used in personalised learning and the barriers that still limit its success.

The review found that AI-supported personalised learning is used most frequently in **higher education**, while blended learning is more common in primary and secondary schools. AI helps tailor instruction by analysing students' learning profiles, prior knowledge, learning pace, and performance. Technologies such as learning analytics, adaptive learning systems, and intelligent tutoring systems can recommend learning materials and adjust activities according to individual needs.

However, technology alone does not guarantee effective personalised learning. The researchers identified **five major barriers**: conceptual barriers (different understandings of personalised learning), institutional barriers (limited infrastructure, funding, and support), psychological barriers (teacher workload, lack of confidence, and resistance to change), technological barriers (limited digital skills, technical support, and ethical concerns), and pedagogical barriers (difficulty designing personalised instruction and monitoring individual progress). These challenges vary across educational settings, with pedagogical barriers becoming increasingly important as AI becomes more widely available.

The review concludes that AI should be viewed as a tool that supports teachers rather than replacing them. Successful personalised learning depends on combining technology with sound teaching practices, professional development, and thoughtful instructional design.

WHY THIS MATTERS

Schools are investing rapidly in AI-powered educational tools. This research reminds educators that meaningful personalisation depends not only on software but also on teachers who understand their students, interpret learning data, and make informed instructional decisions. AI can assist teaching, but effective learning still relies on good pedagogy.



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Research interpreted for real classroom

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CLASSROOM REALITY

Schools Hope For	Teachers Often Face
Learning tailored to every student	Limited time to personalise lessons
Better use of student learning data	Difficulty interpreting learning analytics
Efficient AI-supported instruction	Limited training and technical support
Improved learning outcomes	Balancing technology with effective teaching

TRY TOMORROW

Before introducing an AI-supported learning tool:

1. Decide the learning objective first—not the technology.
 2. Use student learning data to identify who needs additional support.
 3. Allow AI to suggest resources, but review recommendations before using them.
 4. Regularly discuss learning progress with students instead of relying only on automated feedback.
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CAUTION

AI does **not** automatically create personalised learning. Without thoughtful teaching, appropriate support, and sound instructional planning, technology may simply automate traditional teaching rather than improve it.

ONE KEY TAKEAWAY

Artificial intelligence strengthens personalised learning only when it complements skilled teaching, not when it replaces teacher judgment.

Keywords: personalized learning, artificial intelligence, adaptive learning, learning analytics, educational technology, differentiated instruction

Reference:

Barrera Castro, G. P., Chiappe, A., Ramírez-Montoya, M. S., & Alcántar Nieblas, C. (2025). *Key Barriers to Personalized Learning in Times of Artificial Intelligence: A Literature Review. Applied Sciences*, 15(6), 3103.