

AI Adaptive Programming Tutor Nearly Doubles Learning Gains for Disadvantaged Students — University of Dunaújváros

AI in Education · Good practice · Hungary

Quality score: 67/100

Evidence strength: Randomised controlled trial

Summary

A 13-week controlled study at four Hungarian universities found a ChatGPT-based adaptive tutor using Bayesian Knowledge Tracing nearly doubled programming gains for 122 disadvantaged students (Cohen's $d=1.40$, $p<0.001$) versus standard instruction ($d=0.74$).

Key dimensions

Dimension	Score
Evidence of learning impact	3/3
Equity & inclusion	3/3
Transparency, ethics & data protection	2/3
Teacher capability & pedagogy	1/3
Scalability & sustainability	1/3

Evaluated by C-NAPSE

Data sources

[C-NAPSE web research](#) — accessed 2026-08-16

[University of Dunaújváros](#) — accessed 2026-08-16

[TechTrends \(Springer\) — study DOI](#) — accessed 2026-08-16

[ResearchGate preprint](#) — accessed 2026-08-16

[Summary write-up](#) — accessed 2026-08-16

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