

AI-Adaptive Programming Education for Socially Disadvantaged Students — A 13-Week Study Across Four Hungarian Universities

AI in Education · Good practice · Hungary

Quality score: 60/100

Evidence strength: Quasi-experimental

Summary

A 13-week study across four Hungarian universities gave disadvantaged students an AI adaptive programming tutor built on ChatGPT and Bayesian Knowledge Tracing. Test-score gains ($d=1.40$, $n=61$) more than doubled the control group's ($d=0.74$, $n=61$), $p<0.001$.

Key dimensions

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

Evaluated by C-NAPSE

Data sources

[C-NAPSE web research](#) — accessed 2026-07-18

[University of Dunaújváros / Óbuda University / John von Neumann University / Budapest University of Economics and Business](#) — accessed 2026-07-18

[TechTrends \(Springer\)](#) — AI-based Adaptive Programming Education for Socially Disadvantaged Students — accessed 2026-07-18

[WINS Solutions](#) — summary of the study's methodology and results — accessed 2026-07-18

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