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OER 3.3.2

Safeguarding Adolescent Cognitive Effort against Algorithmic Dependency

Identifier	OER 3.3.2
Title	Safeguarding Adolescent Cognitive Effort against Algorithmic Dependency
Creator	Directorate of Secondary Education of Dodecanese - Greece
Description	Closing Module 3, the resource shifts attention to the student: what happens to adolescents' cognitive effort when a generative assistant is always ready to supply the answer. It distinguishes the Google effect on memory from the qualitative leap of generative models, and contrasts automatic delegation with desirable difficulties. The practical focus is on designing activities with deliberate friction that protect cognitive autonomy and self-regulation.
Keywords	cognitive effort; algorithmic dependency; desirable difficulties; Google effect; cognitive autonomy; self-regulation; deliberate friction; adolescence
Language	EN (English)
Affiliation	Directorate of Secondary Education of Dodecanese - Greece
Contributor	STIAEM Transnational Scientific Board (peer review, Rhodes validation protocol)
Media Format	Text; Infographics
Genre	Training Manual; Educational Guide
URL	https://www.stiaemproject.eu/?oer_download=OER-3.3.2
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References	Cosgrove, J., & Cachia, R. (2025). DigComp 3.0: European digital competence framework (Fifth edition). Publications Office of the European Union. https://data.europa.eu/doi/10.2760/0001149 European Commission. (2020). Assessment list for trustworthy artificial intelligence (ALTAI) for self-assessment. https://digital-strategy.ec.europa.eu/en/library/assessment-list-trustworthy-artificial-intelligence-altai-self-assessment Mehrabi, N., Morstatter, F., Saxena, N., Lerman, K., & Galstyan, A. (2021). A survey on bias and fairness in machine learning. ACM Computing Surveys, 54(6), Article 115. https://doi.org/10.1145/3457607 Miao, F., & Cukurova, M. (2024). AI competency framework for teachers. UNESCO. https://doi.org/10.54675/ZJTE2084 Sparrow, B., Liu, J., & Wegner, D. M. (2011). Google effects on memory: Cognitive consequences of having information at our fingertips. Science, 333(6043), 776-778. https://doi.org/10.1126/science.1207745
Educational Level	Secondary School
Associated Module / MOOC Video Lesson	Module 3 - AI Ethics and Systemic Biases / Video 3.3 - Fairness, Biases and Cognitive Effort

Learning Objectives	Recognise the difference between the 'Google' effect on memory and the qualitative leap introduced by generative models; distinguish automatic delegation, which replaces the learning process, from desirable difficulties, which strengthen it; design activities that introduce deliberate friction, protecting adolescents' cognitive autonomy.
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