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OER 3.1.1

Managing 'Black Box' Systems: Governing Opacity to Safeguard Intellectual Freedom

Identifier	OER 3.1.1
Title	Managing 'Black Box' Systems: Governing Opacity to Safeguard Intellectual Freedom
Creator	Konak Science and Art Center (BILSEM) - Türkiye
Description	The resource does not aim to teach how to explain AI systems but to enable teachers to govern their opacity. It distinguishes three levels of transparency — simulability, decomposability and algorithmic transparency — and contrasts post-hoc explanations with real transparency, warning against the halo effect. The practical focus is on translating the right to explanation into concrete demands on providers and into classroom choices that protect students' intellectual freedom.
Keywords	black box; opacity; transparency levels; explainability; post-hoc explanations; halo effect; intellectual freedom; AI governance
Language	EN (English)
Affiliation	Konak Science and Art Center (BILSEM) - Türkiye
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-3.1.1
Citation	Konak Science and Art Center (BILSEM). (2026). *Managing 'Black Box' Systems: Governing Opacity to Safeguard Intellectual Freedom* [Educational guide]. Slow Tech Innovation: AI, Ethics, and New Teaching Methods (STIAEM), 2025-1-IT02-KA220-SCH-000365213.
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. (2019). Ethics guidelines for trustworthy AI. High-Level Expert Group on Artificial Intelligence. https://digital-strategy.ec.europa.eu/en/library/ethics-guidelines-trustworthy-ai Lipton, Z. C. (2018). The mythos of model interpretability. Communications of the ACM, 61(10), 36-43. https://doi.org/10.1145/3233231 Miao, F., & Cukurova, M. (2024). AI competency framework for teachers. UNESCO. https://doi.org/10.54675/ZJTE2084 Rudin, C. (2019). Stop explaining black box machine learning models for high stakes decisions and use interpretable models instead. Nature Machine Intelligence, 1(5), 206-215. https://doi.org/10.1038/s42256-019-0048-x UNESCO. (2021). Recommendation on the ethics of artificial intelligence. UNESCO. https://unesdoc.unesco.org/ark:/48223/pf0000381137
Educational Level	Secondary School
Associated Module / MOOC Video Lesson	Module 3 - AI Ethics and Systemic Biases / Video 3.1 - Black Box Systems, Opacity and Algorithmic Hallucinations

Learning Objectives	distinguish the three levels of transparency - simulability, decomposability and algorithmic transparency - and not reduce opacity to a single metaphor; recognise the difference between a post-hoc explanation and real transparency, using it as a criterion for evaluating tools; translate the right to explanation into concrete demands on providers and into teaching choices that protect students' intellectual freedom.
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