STIAEM

Slow Tech Innovation

AI, Ethics and

New Teaching Methods

Ethical and Professional Teacher Accountability in Automated Learning Environments

Co-funded by the European Union

2025-1-IT02-KA220-SCH-000365213

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Università di Foggia

Studi Umanistici, Lettere, Beni Culturali, Scienze della Formazione

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OER 3.2.1: Ethical and professional teacher accountability in automated learning environments
Reference Module: Module 3 - AI Ethics and Systemic Biases
Related Video-Pill: Video 3.2 - Accountability and Human-in-the-Loop
Authoring partner: Esenler District Directorate of National Education - Türkiye
Topic / Thematic Focus: Ethical teacher accountability, professional responsibility and automated learning environments

Introduction and Learning Objectives

This resource accompanies video-pill 3.2 "Accountability and Human-in-the-Loop", together with OER 3.2.2, and addresses what is perhaps the most delicate question for those who teach: who is accountable, and for what, when an educational decision passes through an artificial intelligence system? The stakes are not abstract: admissions, guidance, assessments of learning outcomes are acts that affect a person's life path.
The text connects to DigComp 3.0 (Cosgrove & Cachia, 2025), to the "AI pedagogy" pillar of the UNESCO Framework for teachers (Miao & Cukurova, 2024) and to the UNESCO (2021) perspective on the responsibility to govern the human impacts of AI. It helps to read all of this through the lenses of Slow Tech (technology at the service of people) and UDL (inclusive design).
By the end of the reading, teachers will be able to:

- reconstruct the chain of responsibility linking provider, distributor, institution and teacher;
- explain why AI systems in education are classified as high-risk and what follows from this;
- translate the obligations of human oversight and accountability into defensible institutional procedures.

1. Who is accountable for the error: the end of the magical "box"

A first misunderstanding to dismantle is the idea that responsibility is "offloaded" onto the system. European law constructs, on the contrary, a chain of responsibility distributed along the life cycle of the AI system. Article 25 of the European regulation on artificial intelligence establishes that, in certain circumstances, a distributor, an importer or a deployer who modifies the system or its intended purpose assumes the obligations of the provider. In other words: responsibility follows the decisions actually taken, not the formal convenience of "I didn't do it".
For schools this means that no one along the chain can claim to be irresponsible. The provider is accountable for compliance; the institution, as deployer, for the correctness of use; the teacher, for the professional judgement exercised. Not a fault to be attributed, but a system of safeguards to be kept in operation.
The principle that the machine proposes and does not decide, recalled by the UNESCO ethical framework (2021), summarises this arrangement, but it must be translated into concrete roles. If the provider is accountable for the system's compliance, the teacher is accountable for the judgement built on that output. This is not an attenuated responsibility: automation does not dilute professional conscience, it reorganises it. Precisely because the

machine does not decide, whoever decides remains fully accountable - and this is why European law requires that the human decision be possible and informed.

2. The school is a high-risk context

The regulation does not leave the educational question at the margins. Recital 56 explicitly recognises the importance of AI systems for quality digital education and, at the same time, the dangerousness of certain uses:

"AI systems used in education or vocational training, in particular to determine access or admission, to assign persons to institutions or programmes of education and vocational training at all levels, to evaluate learning outcomes of persons, to evaluate the appropriate level of education for an individual and materially influence the level of education and training that persons will receive or be able to access, or to monitor and detect prohibited behaviour of students during tests, should be classified as high-risk AI systems, as they may determine the educational and professional course of a person's life and therefore may affect that person's ability to secure their livelihood" (Reg. EU 2024/1689, recital 56).

The practical consequence is significant: if a tool used by the school falls into these cases, it is not enough to "acquire" it. Obligations of monitoring, impact assessment, documentation and information come into play. The high-risk classification is not a bureaucratic label: it is the activation of a series of precautions proportionate to the stakes.

3. Human oversight is a design requirement

The heart of the European model lies in Article 14, devoted to human oversight. The first paragraph establishes an obligation concerning the way systems are built:

"High-risk AI systems shall be designed and developed, including with adequate human-machine interface tools, in such a way that they can be effectively overseen by natural persons during the period in which they are in use" (Reg. EU 2024/1689, Art. 14(1)).

Paragraph 4 lists the conditions that must be ensured for those exercising oversight. First, diagnostic understanding: individuals must be able to correctly understand the system's capabilities and limitations and to monitor its operation, "also for the purpose of detecting and addressing anomalies, dysfunctions and unexpected performance". Then the prevention of automation bias, that is, the tendency to trust the output automatically or excessively. Then the contextual interpretation of the output, taking into account the available interpretation tools and methods.

Finally, there is a possibility that teachers must know as a professional right: that of not applying the recommendation, of disregarding, overriding or reversing it, and of interrupting the system. Human oversight, in the European model, is not a final stamp: it is the ability to decide differently from what the machine suggests.

"Human oversight shall aim to prevent or minimise the risks to health, safety or fundamental rights that may emerge when a high-risk AI system is used in accordance with its intended purpose or under conditions of reasonably foreseeable misuse..." (Reg. EU 2024/1689, Art. 14(2)).

"Oversight measures shall be commensurate with the risks, level of autonomy and context of use of the high-risk AI system..." (Reg. EU 2024/1689, Art. 14(3)).
The principle of proportionality in paragraph 3 provides a practical criterion for schools: not all situations require the same degree of vigilance. A system that suggests optional teaching materials requires fewer precautions than one that guides an admission or assesses a test. Commensurating oversight with the risk, the system's autonomy and the context means calibrating attention where it truly matters.
Research on human-in-the-loop machine learning studies how to maintain effective human control in automated decision cycles (Mosqueira-Rey et al., 2023).

4. The obligations of the institution (deployer)

Article 26 shifts attention to the entity that uses the system - in our case, the educational institution. The first requirement concerns method:
"Deployers of high-risk AI systems shall take appropriate technical and organisational measures to ensure they use such systems in accordance with the instructions for use accompanying the systems" (Reg. EU 2024/1689, Art. 26(1)).
Specific obligations follow. Oversight must be entrusted to personnel with adequate competence, training and authority. The deployer monitors the system's operation and reports any incidents. It keeps the automatically generated logs for an appropriate period, in any case not less than six months. And, a decisive aspect, it ensures that input data are relevant and sufficiently representative with respect to the intended purpose: if the school feeds the system with distorted data, responsibility falls on it.
A principle that Article 26 makes explicit should be emphasised: the deployer's obligations are not a limit to its organisational autonomy, but a task to be implemented with its own resources and procedures. In school terms: the institution must give itself an organisational arrangement - who adopts, who oversees, who trains, who answers - before entrusting educational decisions to an automatic system.
"AI actors should be accountable for the proper functioning of AI systems and for the respect of the above principles, based on their roles, the context, and consistent with the state of the art" (OECD, 2024, principle 1.5, letter a).
"AI actors should ensure traceability, including in relation to datasets, processes and decisions made during the AI system lifecycle, to enable analysis of the AI system's outputs and responses to inquiry..." (OECD, 2024, principle 1.5, letter b).
Two elements emerge clearly. First: accountability depends on role and context - in our case, the role of an educational institution and the context of a decision concerning minors. Second: without traceability there is no possibility of answering a question about what happened. With regard to students' personal data, the school already operates under the constraint of the GDPR; algorithmic accountability adds the need to trace also the assisted decisions, not only the data processed.

5. Accountability: rendering account, tracing, managing risk

The concept that holds everything together is accountability. The OECD AI Principles define it as the obligation to answer for the proper functioning of systems and for respect of the principles, according to one's role and context. Three elements make it operational: traceability (datasets, processes and decisions must be reconstructable), systematic risk

management throughout the life cycle, and the possibility, for those who suffer harm, of contesting the output.

In a school this translates into a minimal but concrete procedure: a register of assisted decisions, noting when the tool was used, with which data, with which output and with which final human decision; a periodic collegial review session; a channel for contesting an outcome. The teacher's professional responsibility is not diminished by automation: it emerges redefined, because it now includes the conscious governance of the machine. The message to bring into the classroom, and to convey to students, is simple and powerful: the machine proposes, it does not decide.

Bringing norms and principles together, the school's responsibility takes shape as a thoroughly organisational task. It is not enough for the individual teacher to be competent: the institution must put in place roles, procedures and tools. Who adopts the tool, who oversees its operation, who collects and keeps the logs, who trains the staff, who receives objections: these are all functions that, if left to improvisation, weaken protection. In this field, the ethical dimension and the procedural dimension coincide.

Role in the chain	Who it is	What it answers for	Legal source
Provider	The one who designs and places the system on the market	Compliance, documentation, oversight measures	Reg. EU 2024/1689, Arts. 16 and 25
Distributor / Importer	The one who makes the system available	Requirements before putting into service	Reg. EU 2024/1689, Art. 25
Deployer (institution)	The school that uses the system	Technical and organisational measures, oversight, logs, input data	Reg. EU 2024/1689, Art. 26
Teacher	The one who exercises professional judgement	Contextual interpretation and final decision	Reg. EU 2024/1689, Art. 14

Visual Scaffolding

AI Accountability in Schools: The Human-in-the-Loop

EDUCATION IS A HIGH-RISK CONTEXT

EU law classifies AI in admissions and assessment as high-risk due to life-path impact.



The Distributed Responsibility Chain

PROVIDER
Compliance and documentation
Arts. 16, 25

DEPLOYER (SCHOOL)
Oversight, logs, and input data
Art. 26

TEACHER
Contextual interpretation and final decision
Art. 14

"THE MACHINE PROPOSES, IT DOES NOT DECIDE"

Automation does not dilute professional conscience; it reorganizes it around human-centered governance.



HUMAN OVERSIGHT & OPERATIONAL GUARDRAILS



The Teacher's Right to Override
Teachers have the professional right to disregard, interrupt, or reverse AI recommendations.

Preventing Automation Bias
Oversight requires diagnostic understanding to detect anomalies and avoid excessive trust in outputs.



Concrete School Procedures



REGISTER OF ASSISTED DECISIONS
Schools must maintain a register of assisted decisions.



6-MONTH INTERACTION LOGS
Keep 6-month interaction logs.

Conclusions and Metacognitive Reflection Prompts

Accountability in automated learning environments is not an external constraint on teacher professionalism: it is its legal expression. The school is a high-risk context, human oversight is a design requirement, and the institution is required to give itself technical and organisational measures. Reconstructing the chain of responsibility and translating it into procedures means returning to the educational community control over its own decisions.

To reflect on your own practice:

- In your institution, if an AI system made a mistake in an assessment, could you say who adopted the tool, who oversees it and how an outcome is contested?
- Which of the five powers of Article 14 (interpret, disregard, interrupt, understand, prevent automation bias) seem to you today the most difficult to exercise, and why?
- What minimal procedure - register of decisions, collegial review, channel for objections - could you propose to your school board?

Technical Metadata Sheet

Metadata Field	Specification / Parameter Value
Identifier	OER 3.2.1
Title	Ethical and Professional Teacher Accountability in Automated Learning Environments
Creator	Esenler District Directorate of National Education - Türkiye
Description	The resource addresses who is accountable, and for what, when an educational decision passes through an AI system. It reconstructs the chain of responsibility linking provider, distributor, institution and teacher, and explains why AI systems in education are classified as high-risk. The practical focus is on translating human-oversight and accountability obligations into defensible institutional procedures.
Keywords	accountability; responsibility chain; high-risk AI; human oversight; educational governance; AI Act; deployer obligations; professional ethics
Language	EN (English)
Affiliation	Esenler District Directorate of National Education - Türkiye
Contributor	STIAEM Transnational Scientific Board (peer review, Rhodes validation protocol)
Media Format	Text; Infographics
Genre	Training Manual; Educational Guide
URL	
Citation	European Parliament and Council of the European Union. (2024). Regulation (EU) 2024/1689 laying down harmonised rules on artificial intelligence (Artificial Intelligence Act). Official Journal of the European Union. https://eur-lex.europa.eu/eli/reg/2024/1689/oj Mosqueira-Rey, E., Hernandez-Pereira, E., Alonso-Rios, D., Bobes-Bascaran, J., & Fernandez-Leal, A. (2023). Human-in-the-loop machine learning: A state of the art. Artificial Intelligence Review, 56(4), 3005-3054. https://doi.org/10.1007/s10462-022-10246-w OECD. (2024). Recommendation of the Council on Artificial Intelligence (OECD/LEGAL/0449). OECD. https://legalinstruments.oecd.org/en/instruments/OECD-LEGAL-0449 Miao, F., & Cukurova, M. (2024). AI competency framework for teachers. UNESCO. https://doi.org/10.54675/ZJTE2084 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 3.2 - Accountability and Human-in-the-Loop
Learning Objectives	reconstruct the chain of responsibility linking provider, distributor, institution and teacher; explain why AI systems in education are classified as high-risk and what follows from this; translate the obligations of human oversight and accountability into defensible institutional procedures.
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Date Available	14/09/2026
Date Modified	

References

European Parliament and Council of the European Union. (2024). Regulation (EU) 2024/1689 laying down harmonised rules on artificial intelligence (Artificial Intelligence Act). Official Journal of the European Union. https://eur-lex.europa.eu/eli/reg/2024/1689/oj

Mosqueira-Rey, E., Hernandez-Pereira, E., Alonso-Rios, D., Bobes-Bascaran, J., & Fernandez-Leal, A. (2023). Human-in-the-loop machine learning: A state of the art. Artificial Intelligence Review, 56(4), 3005-3054. https://doi.org/10.1007/s10462-022-10246-w

OECD. (2024). Recommendation of the Council on Artificial Intelligence (OECD/LEGAL/0449). OECD. https://legalinstruments.oecd.org/en/instruments/OECD-LEGAL-0449

Miao, F., & Cukurova, M. (2024). AI competency framework for teachers. UNESCO. https://doi.org/10.54675/ZJTE2084

UNESCO. (2021). Recommendation on the ethics of artificial intelligence. UNESCO. https://unesdoc.unesco.org/ark:/48223/pf0000381137