STIAEM

Slow Tech Innovation

AI, Ethics and

New Teaching Methods

Transnational STIAEM Project Architecture and asynchronous tracking mechanisms

Co-funded by the European Union

2025-1-IT02-KA220-SCH-000365213

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor EACEA can be held responsible for them... Project reference code: 2025-1-IT02-KA220-SCH-000365213

Università di Foggia

Studi Umanistici, Lettere, Beni Culturali, Scienze della Formazione

İSTANBUL - ESENLER

İLÇE MİLLİ EĞİTİM MÜDÜRLÜĞÜ

1474

STIAEM

Slow Tech Innovation
AI, Ethics and
New Teaching Methods

Co-funded by
the European Union

2025-1-IT02-KA220-SCH-000365213

eduOpen



CC BY-NC-SA 4.0 International

This license requires that reusers give credit to the creator. It allows reusers to distribute, remix, adapt, and build upon the material in any medium or format, for noncommercial purposes only. If others modify or adapt the material, they must license the modified material under identical terms.

Università di Foggia
Studi Umanistici, Lettere, Beni Culturali, Scienze della Formazione

OER 1.1.1: Transnational STIAEM Project Architecture and asynchronous tracking mechanisms
Reference Module: Module 1 – Introduction to STIAEM and Pedagogical Framework
Related Video-Pill: Video 1.1: Presentation of the STIAEM project
Authoring partner: University of Foggia - Italy
Topic / Thematic Focus: Transnational project architecture, institutional governance and asynchronous tracking protocols for MOOC certification

Introduction and Learning Objectives

This resource opens the training pathway of the Erasmus+ STIAEM project (2025-1-IT02-KA220-SCH-000365213), introducing the transnational cooperation structure and outlining the technological architecture of the Massive Open Online Course (MOOC) on the EduOpen platform. The module provides secondary school teachers (ISCED 2 and ISCED 3 levels) with the conceptual and procedural tools needed to navigate the asynchronous learning environment, master the conditional tracking mechanisms (gating) and meet the criteria required to obtain the final 10-hour certified Attendance Certificate.
The resource is mapped onto the European Framework for the Digital Competence of Educators (DigCompEdu), with specific reference to Area 1: Professional Engagement (organisational communication 1.1, professional collaboration 1.2, reflective practice 1.4) and Area 2: Digital Resources (selecting 2.1, modifying and creating 2.2).
By the end of the learning experience, teachers will be able to:
Understand the systemic articulation of the STIAEM consortium and the Slow Tech ethical matrix applied to secondary school.
Navigate the asynchronous architecture of the MOOC, interpreting the requirements of sequential progression, the criteria for passing the formative micro-tests and the gating rules.
Recognise the role of Artificial Intelligence as an epistemic co-creator and limited cognitive support, preserving the teacher's agency and evaluative primacy (human-in-the-loop).

1. From Instructions to Exemplars: Understanding Few-Shot Prompting

The integration of Artificial Intelligence into education systems brings about a structural reconfiguration of teaching and learning processes, requiring the shift from a reactive technological adoption to an educational mediation grounded in criteria of epistemological and ethical rigour (Alsuhaymi & Atallah, 2026; Tagare et al., 2025). The empirical evidence and the surveys connected to the Digital Education Action Plan 2021-2027 highlight a significant gap between the speed with which students access generative AI tools and the level of methodological and ethical-critical competence of the teaching staff (European Commission, 2020; Ofosu-Asare, 2026). This asymmetry generates critical issues linked to cognitive offloading, to the standardisation of assessment processes and to the unintentional reproduction of algorithmic bias within classroom practices (Dúo-Terrón et al., 2026).
In this context, and in line with emerging European regulatory frameworks, including the European AI Act, the transnational project Slow Tech Innovation: AI, Ethics, and New Teaching Methods (STIAEM – 2025-1-IT02-KA220-SCH-000365213), funded under Key Action 2 of the Erasmus+ programme, is situated. The initiative responds to the need to establish a transferable pedagogical and ethical model for the initial and continuing training

of secondary school teachers (ISCED 2 and ISCED 3 levels), oriented towards alignment with the European DigCompEdu (Redecker, 2017) and DigComp 3.0 (Cosgrove & Cachia, 2025) frameworks and with international standards of algorithmic literacy (Delcker et al., 2025).

At the level of its programme intentions, the project pursues the definition and empirical validation of an interdisciplinary theoretical-methodological framework founded on the Slow Tech paradigm, aimed at guiding teachers in the critical analysis and sustainable didactic integration of algorithmic technologies (Patrignani & Whitehouse, 2014; Smits et al., 2026). This aim is accompanied by the development of advanced professional competences for safeguarding teacher agency (human-in-the-loop), preventing cognitive homogenisation and designing equitable and inclusive learning environments through the application of the principles of Universal Design for Learning (Cascales-Martínez et al., 2026; Pauzi & Mavrikis, 2026). Finally, the initiative intends to draw up policy guidelines and standardised recommendations addressed to policymakers and school institutions, aimed at mitigating the risks of socio-technical exclusion and guaranteeing the integrity of assessment processes within the framework of the European digital transformation (Crompton et al., 2026).

The Erasmus+ programme and its transnational cooperation priorities constitute the reference institutional framework of the STIAEM project (European Commission, 2025).

The Beijing Consensus on Artificial Intelligence and Education indicates the ethical and pedagogical integration of AI as a global priority for education systems (UNESCO, 2019).

The 2023 Global Education Monitoring Report analyses the role of technology in school systems and the conditions for its effective use (UNESCO, 2023).

2. The Slow Tech Paradigm and the Safeguarding of Teacher Agency

The epistemological apparatus of the STIAEM project adopts the Slow Tech paradigm as a critical lens and operational foundation for rethinking the presence of algorithmic technologies in secondary school (Patrignani & Whitehouse, 2014). This perspective does not postulate a technophobic or anachronistic rejection of advanced computational systems, but openly challenges technological determinism and the imperative of quantitative efficiency for its own sake (Alam, 2025). In the context of algorithmic teaching, Slow Tech requires a deliberate design of learning times and spaces, aimed at preserving cognitive effort, hermeneutic reflection and analytical depth against the risks of attention fragmentation and intellectual disengagement (Dúo-Terrón et al., 2026; Stankowski et al., 2026).

The pedagogical translation of this approach identifies teacher agency as the indispensable axis of any digital transformation (Smits et al., 2026; Zhai, 2025). Indeed, the integration of language models and machine learning systems risks triggering drifts towards standardisation and the bureaucratisation of platforms that erode the decision-making autonomy and the deontological responsibility of the educator (Javadinejad & Davari, 2026; Löfving et al., 2025; Pauzi & Mavrikis, 2026). To counter the uncritical delegation of the assessment and design act to the machine, the STIAEM model promotes the principle of active supervision (human-in-the-loop), positioning Artificial Intelligence as a limited cognitive support tool (bounded expert) and reaffirming the inalienable primacy of pedagogical judgement and of the human relationship within the school ecosystem (Cho et al., 2026; Reichert et al., 2026; Winstone et al., 2026).

3. Consortium Governance and Work Package 2 Devices

The empirical implementation of the STIAEM model rests on a multi-level network that integrates nine partners distributed across five European countries: Italy, Spain, Greece, Turkey and Lithuania. The composition of the partnership combines academic pedagogical and computational research (University of Foggia as lead partner and coordinator, Universidad de Alicante and Universidad de Zaragoza), territorial regulation and governance (Directorate of Secondary Education of the Dodecanese and Esenler Ilce Milli Egitim Mudurlugu) and direct experimentation in secondary classrooms (the hub school Liceo “Don Lorenzo Milani” with its associated site “Leonardo da Vinci”, the Esperino Gymnasio Rodou, the Konak BILSEM centre and the Panevezio Vyturio progimnazija). This transnational configuration guarantees an ecological and contextualised validation of the framework, overcoming the specificities of individual national education systems through a continuous action-research flow between academic theory, school policies and classroom practice.

At the level of the operational articulation of Work Package 2, the consortium develops its proposal through the convergence of three didactic devices: an advanced training pathway for teachers, a public and bilingual archive of Open Educational Resources (OER) for secondary school and a series of pilot experimentation protocols in the field. The integration of these channels aims to build a sustainable and scalable ecosystem, in which the production of open content, continuing training and the monitoring of learning outcomes contribute to the dissemination of good practices for algorithmic education at European level (Crompton et al., 2026).

4. From the Empirical Survey to the STIAEM Pedagogical Model (ARTE and UDL)

The scientific articulation of the STIAEM project rejects any prescriptive top-down approach, rooting its training proposal in a preliminary empirical investigation conducted according to a sequential explanatory Mixed Methods research design. In order to accurately map digital competences, levels of technological anxiety and the Slow Tech attitude of teachers and students, the consortium structured and harmonised a quantitative-qualitative survey protocol administered in the five partner countries: Italy, Spain, Turkey, Greece and Lithuania (Işık et al., 2024; Ng et al., 2024). The large-scale quantitative investigation, conducted on a transnational sample of over five thousand participants among secondary school teachers and pupils, integrated validated psychometric scales (the Teachers’ Perception Scale for the teaching staff and the assessment of DigComp 3.0 competences, alongside the Artificial Intelligence Literacy Questionnaire for students) with specific Situational Dilemmas (SD) designed to measure authentic ethical behaviours in the face of critical choices such as cognitive delegation, algorithmic hallucination and privacy management (Cosgrove & Cachia, 2025; Işık et al., 2024; Ng et al., 2024).

The processing of the statistical data led to the drafting of five national reports, the results of which will guide the subsequent qualitative in-depth phase through focus groups, semi-structured interviews and co-design workshops with school leaders and teachers, making it possible to investigate the emotional resistances, the unencoded training needs and the attitudinal paradoxes that emerged in the field. From the quantitative evidence arose the theorisation of the STIAEM Pedagogical Model, a multidimensional construct that presents the integrated ARTE model (Agency, Reflection, Transformation, Ethics), conceived to govern the interaction between the heterogeneity of learners and algorithmic systems from a Universal Design for Learning perspective (CAST, 2024).

5. Training Architecture

The development cycle adopts the iterative PDCA architecture (Plan-Do-Check-Act). Once the empirical diagnosis (Plan) has been completed, the current phase of didactic operationalisation (Do) takes concrete form in the Massive Open Online Course (MOOC) hosted on the EduOpen portal (learn.eduopen.org), calibrated on ten hours of certified training (ANVUR, 2020). The hourly load is divided between six hours of expository teaching (18 video-pills and 36 bilingual OER) and four hours of interactive teaching (formative micro-tests).

The learning environment adopts a gated progression protocol (gating) aimed at promoting self-regulation of study: access to subsequent modules requires the complete viewing of the videos through unavoidable markers and the passing of the post-video micro-tests with a minimum threshold of 80%. The questions offer immediate feedback aimed at clarifying methodological misconceptions (Burke, 2025; Winstone et al., 2026).

The completion of the six modules and of the final summary test validates the tracking audit and automatically generates the official 10-hour Attendance Certificate, a formal prerequisite for the launch of the pilot experimentation in secondary classrooms (Check) and the consolidation of the European policy recommendations (Act; Crompton et al., 2026).

6. Conclusions

The overall articulation of the STIAEM project demonstrates how the response to the challenges posed by Artificial Intelligence in secondary school cannot be resolved either in the uncritical adherence to purely instrumental models or in defensive closure in the face of innovation. The convergence between the Slow Tech paradigm, the ARTE construct and the principles of Universal Design for Learning defines a pedagogical space in which algorithmic technology is brought back to its function of cognitive and heuristic support, subordinated to the intentional mediation of the teacher and to the enhancement of student agency. The entire pathway, founded on a rigorous transnational empirical survey and structured according to the iterative logic of the PDCA cycle (Plan, Do, Check, Act), provides the educational community with the theoretical and operational tools needed to guide the digital transition with deontological awareness, social responsibility and methodological equity.

The adoption of such a model foreshadows a profound transformation of the classroom ecology, in which ethical reflection on data, the protection of privacy and attention to environmental sustainability become an integral part of the disciplinary and cross-curricular curriculum. Starting from these premises, the transition from theoretical training to pilot experimentation in the field constitutes the opportunity to validate the effectiveness of flexible learning environments, oriented towards the development of critical thinking and the full inclusion of every learner profile. The consolidation of the evidence gathered in European classrooms will ultimately contribute to the definition of stable guidelines and open resources capable of sustaining, in the long term, a technological innovation that is authentically humanistic and pedagogically sustainable.

Conclusions and Metacognitive Reflection Prompts

The overall articulation of OER resource 1.1.1 reaffirms that the presence of Artificial Intelligence in secondary school cannot be resolved in a technological race disjointed from an explicit pedagogical intentionality. Adherence to the Slow Tech paradigm and integration with the principles of Universal Design for Learning (UDL) redefine the educational ecosystem as a space of cognitive sustainability, in which advanced computational systems operate as scaffolding supports subordinated to the teacher's agency and irreplaceable judgement (human-in-the-loop). The asynchronous architecture of the MOOC on EduOpen and its related conditional tracking mechanisms (gating) constitute the methodological translation of this vision: a training structure designed to promote self-regulation, the sedimentation of concepts and continuous reflective practice.

In order to consolidate the conceptual nuclei examined and to foster the critical transfer of these principles into one's own daily teaching practice, the following prompts for self-reflection are proposed:

At which specific stages of classroom design or assessment does the adoption of an AI system risk turning into a passive cognitive delegation, and which operational criteria can be adopted to keep pedagogical supervision (human-in-the-loop) firmly in place?

In what ways can the logic of gated progression and reflection (AI-off) experienced in this training pathway be readapted in secondary school to protect the physiological times of students' cognitive consolidation against the drifts of digital accelerationism?

Which cognitive barriers or equity distortions (Fair IT) might emerge when introducing generative tools among students with different profiles of individual variability (UDL), and how is it possible to configure AI as an authentic epistemic co-creator accessible to all?

Visual scaffolding

STIAEM Project:
An Ethical Architecture for AI in Schools

ETHICAL VISION: THE SLOW TECH PARADIGM



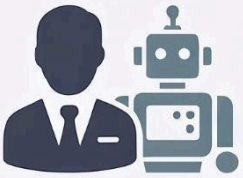
Good, Clean, and Fair Technology.

An approach that rejects technological determinism to promote a deliberate design of learning times and analytical depth.



Mitigate "Cognitive Offloading"

Protecting cognitive effort and hermeneutic reflection against attention fragmentation caused by uncritical AI use.

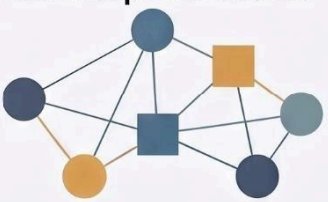


The Primacy of Pedagogical Judgment

AI is considered a "bounded expert", while the teacher maintains active supervision and responsibility for assessment.

GOVERNANCE AND OPERATIONAL DEVICES (WP2)

Partnership Transnationals



9 Partners in 5 European Countries.

A consortium led by the University of Foggia that unites Italy, Spain, Greece, Turkey, and Lithuania among universities, school authorities, and high schools.

The 3 Work Package 2 Devices



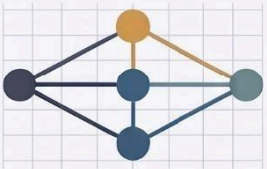
Advanced Training Pathway

Public Repository of Bilingual Open Educational Resources (OER)

Field-Testing Protocols

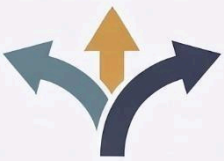
From Theory to Pilot Experimentation.

THE STIAEM PEDAGOGICAL MODEL



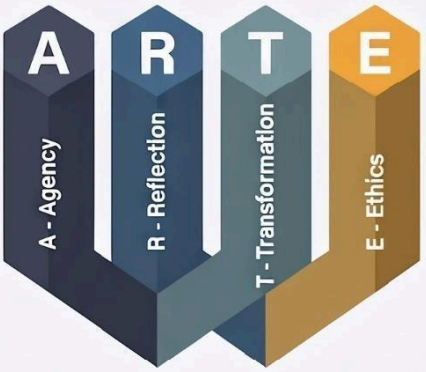
ARTE Framework

The four fundamental dimensions to govern the interaction between learners and algorithmic systems.

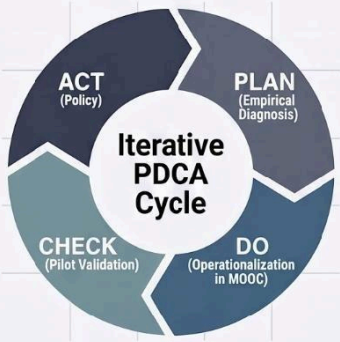


Universal Design for Learning

The ARTE model is designed to ensure equity and inclusion, adapting to diverse learning profiles.



TRAINING ARCHITECTURE AND PDCA CYCLE



MOOC EduOpen

10 Hours

Certified Training

Pathway structured in 6 modules with 18 short videos and 36 bilingual DER on **learn.eduopen.org**.



Gated Progression and 80% Threshold

Access to subsequent modules requires full viewing of the video and passing of the formative tests with a minimum required score.

Gemini Notebook

Technical Metadata Sheet

Metadata Field	Specification / Parameter Value
Identifier	OER 1.1.1
Title	Transnational STIAEM Project Architecture and Asynchronous Tracking Mechanisms
Creator	University of Foggia - Italy
Description	Opening resource of the STIAEM MOOC, this text introduces the transnational architecture of the Erasmus+ project and the asynchronous governance mechanisms that sustain the online course. It maps the resource onto DigCompEdu Area 1 (Professional Engagement) and frames AI as an epistemic co-creator that leaves pedagogical judgement and evaluation authority to the teacher. The operational focus is on how the gated, asynchronous learning path and the certification workflow are designed and administered.
Keywords	STIAEM project; transnational governance; asynchronous learning; MOOC architecture; DigCompEdu Area 1; human-in-the-loop; educational certification; Slow Tech
Language	EN (English)
Affiliation	University of Foggia - Italy
Contributor	STIAEM Transnational Scientific Board (peer review, Rhodes validation protocol)
Media Format	Text; Infographics
Genre	Training Manual; Educational Guide
URL	
Citation	Alam, A. (2025). Critical Digital Competencies and Pedagogical Frameworks Within Human Rights Jurisprudence: Democratic Accountability and Policy Implications. In Ethics, Justice, and Governance in the Age of AI and Digital Societies (pp. 155–204). IGI Global. https://doi.org/10.4018/979-8-3373-8510-5.ch006 Alsuhaymi, A. O., & Atallah, F. A. (2026). Sustainable Education in the Age of Artificial Intelligence and Digitalization: A Value-Critical Approach. Sustainability, 18(3), Article 1257. https://doi.org/10.3390/su18031257 Burke, C. M. (2025). AI-Assisted Exam Variant Generation: A Human-in-the-Loop Framework for Automatic Item Creation. Education Sciences, 15(8), Article 1029. https://doi.org/10.3390/educsci15081029 Cascales-Martínez, A., Vespasiani, L., Gómez Navarro, C. M., & Peñalver Garcia, D. M. (2026). Inclusive practices mediated by AI and UDL: psychometric evidence and structural models among Italian teachers. Frontiers in Education, 11, Article e8071720365. https://doi.org/10.3389/feduc.2026.1720365 CAST. (2024). Universal Design for Learning Guidelines version 3.0. CAST. https://udlguidelines.cast.org/ Cho, Y.-S., Kim, K., Kim, D.-J., Kim, D.-K., & Koh, D.-W. (2026). Human in the Loop AI Framework for Fair and Reliable Educational Assessment. In International Conference on Artificial Intelligence, Computer, Data Sciences, and Applications (ACDSA 2026) (pp. 1–8). IEEE. https://doi.org/10.1109/ACDSA67686.2026.11468169 Cosgrove, J., & Cachia, R. (2025). DigComp 3.0: European Digital Competence Framework - Fifth edition (Report No. EUR 40491). Publications Office of the European Union. https://doi.org/10.2760/0001149 Crompton, H., Burke, D., Bozkurt, A., Nickel, C., Miao, F., Pegrum, M., Curry, J., Parsons, D., Edmett, A., Lindsey, L., Garcia, M. B., Chigona, A., Bonk, C. J., Bellas, F., Benali, M., Yongpradit, P., Palalas, A., de Bem Machado, A., Tinmaz, H., … Yu, S. (2026). A framework for generative AI policy and guidelines in K-12 education. Journal of Research on Technology in Education, Article in press. https://doi.org/10.1080/15391523.2026.2661641 Delcker, J., Heil, J., & Ifenthaler, D. (2025). Evidence-based development of an instrument for the assessment of teachers' self-perceptions of their artificial intelligence competence. Educational Technology Research and Development, 73(1), 115–133. https://doi.org/10.1007/s11423-024-10418-1 Dúo-Terrón, P., Gil-Ramos, L.-P., Marín-Marín, J.-A., & Román-González, M. (2026). Generative Artificial Intelligence Literacy. Teachers' Knowledge, Use, and Cognitive

	Offloading. Revista de Educación a Distancia, 26(84), Article 7. https://doi.org/10.6018/red.684721 European Commission. (2020). Digital Education Action Plan 2021-2027: Resetting education and training for the digital age. Publications Office of the European Union. Işık, S., Çakır, R., & Korkmaz, Ö. (2024). Teachers' Perception Scale Towards the Use of Artificial Intelligence Tools in Education. Participatory Educational Research, 11(H. Ferhan Odabaşı Gift Issue), 80–94. https://doi.org/10.17275/per.24.95.11.6 Javadinejad, A., & Davari, M. (2026). The Architecture of AI-Mediated Learning: A Three-Layer Framework. Applied Sciences, 16(10), Article 4991. https://doi.org/10.3390/app16104991 Löfving, C., Bergviken Rensfeldt, A., & Hillman, T. (2025). Platform bureaucratization as pedagogy in highly platformized classrooms. Learning, Media and Technology, Article in press. https://doi.org/10.1080/17439884.2025.2572619 Ng, D. T. K., Wu, W., Leung, J. K. L., Chiu, T. K. F., & Chu, S. K. W. (2024). Design and validation of the AI literacy questionnaire: The affective, behavioural, cognitive and ethical approach. British Journal of Educational Technology, 55(6), 2465–2489. https://doi.org/10.1111/bjet.13411 Ofosu-Asare, Y. (2026). Guiding the future: developing an ethical framework for generative AI use in education. International Journal of Information and Learning Technology, 43(1), 26–44. https://doi.org/10.1108/IJILT-06-2024-0113 Patrignani, N., & Whitehouse, D. (2014). Slow tech: A quest for good, clean and fair ICT. Journal of Information, Communication and Ethics in Society, 12(2), 78–92. https://doi.org/10.1108/JICES-11-2013-0051 Pauzi, Z., & Mavrikis, M. (2026). Should Machines Get to Judge? Rethinking the Design of AI-Mediated Assessment in Education. In DIS 2026 Companion Proceedings (pp. 171–175). ACM. https://doi.org/10.1145/3802974.3809410 Redecker, C. (2017). European Framework for the Digital Competence of Educators: DigCompEdu (Y. Punie, Ed.). Publications Office of the European Union. https://doi.org/10.2760/159770 Reichert, H., Briceno, D., Tabarsi, B., & Barnes, T. (2026). Human-Centered Design of LLM-Powered Educational Chatbots: A Study with Secondary Teachers. Lecture Notes in Computer Science, 16746, 516–535. https://doi.org/10.1007/978-3-032-31048-4_32 Smits, A., Valtonen, T., Piispa-Hakala, S., Forkosh-Baruch, A., Khaddage, F., Laferrière, T., Ueda, H., & Yeung, S. (2026). Protecting teacher agency in times of strong technology push: Grounding decisions in Biesta's educational purposes. Computers and Education Open, 10, Article 100383. https://doi.org/10.1016/j.caeo.2026.100383 Stankowski, A., Varab, D., Clarke, M., Gschwendtner, P., & Avramidis, E. (2026). Design for Cognitive Outcomes First: Countering Instrumental Drift in Generative AI for Knowledge Work. In DIS 2026 Proceedings (pp. 1205–1222). ACM. https://doi.org/10.1145/3800645.3813061 Tagare, D., Karki, T., & Yu, W. (2025). K-12 teachers' ethical competencies for AI literacy: Insights from a systematic literature review. Computers and Education, 239, Article 105435. https://doi.org/10.1016/j.compedu.2025.105435 Winstone, N. E., Gravett, K., Bearman, M., Noble, C., Jensen, L. X., Jones, A., & Nicola-Richmond, K. (2026). The care-full craft of feedback in an age of generative AI. Assessment and Evaluation in Higher Education, 51(5), 911–927. https://doi.org/10.1080/02602938.2026.2643333 Zhai, X. (2025). Transforming Teachers' Roles and Agencies in the Era of Generative AI: Perceptions, Acceptance, Knowledge, and Practices. Journal of Science Education and Technology, 34(6), 1323–1333. https://doi.org/10.1007/s10956-024-10174-0
Educational Level	Secondary School
Associated Module / MOOC Video Lesson	Module 1 - Project Introduction and Pedagogical Model / Video 1.1 - Presentation of the STIAEM project
Learning Objectives	Understand the systemic articulation of the STIAEM consortium and the Slow Tech ethical matrix applied to secondary school. Navigate the asynchronous architecture of the MOOC, interpreting the sequential progression requirements, the criteria for passing the formative micro-tests and the gating rules. Recognise the role of Artificial Intelligence as an epistemic co-creator and limited cognitive support, preserving the teacher's agency and evaluative primacy (human-in-the-loop).

Rights	Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International (CC BY-NC-SA 4.0)
Date Available	02/09/2026
Date Modified	

References

Alam, A. (2025). Critical Digital Competencies and Pedagogical Frameworks Within Human Rights Jurisprudence: Democratic Accountability and Policy Implications. In Ethics, Justice, and Governance in the Age of AI and Digital Societies (pp. 155–204). IGI Global. https://doi.org/10.4018/979-8-3373-8510-5.ch006

Alsuhaymi, A. O., & Atallah, F. A. (2026). Sustainable Education in the Age of Artificial Intelligence and Digitalization: A Value-Critical Approach. Sustainability, 18(3), Article 1257. https://doi.org/10.3390/su18031257

Burke, C. M. (2025). AI-Assisted Exam Variant Generation: A Human-in-the-Loop Framework for Automatic Item Creation. Education Sciences, 15(8), Article 1029. https://doi.org/10.3390/educsci15081029

Cascales-Martínez, A., Vespasiani, L., Gómez Navarro, C. M., & Peñalver Garcia, D. M. (2026). Inclusive practices mediated by AI and UDL: psychometric evidence and structural models among Italian teachers. Frontiers in Education, 11, Article e8071720365. https://doi.org/10.3389/feduc.2026.1720365

CAST. (2024). Universal Design for Learning Guidelines version 3.0. CAST. https://udlguidelines.cast.org/

Cho, Y.-S., Kim, K., Kim, D.-J., Kim, D.-K., & Koh, D.-W. (2026). Human in the Loop AI Framework for Fair and Reliable Educational Assessment. In International Conference on Artificial Intelligence, Computer, Data Sciences, and Applications (ACDSA 2026) (pp. 1–8). IEEE. https://doi.org/10.1109/ACDSA67686.2026.11468169

Cosgrove, J., & Cachia, R. (2025). DigComp 3.0: European Digital Competence Framework - Fifth edition (Report No. EUR 40491). Publications Office of the European Union. https://doi.org/10.2760/0001149

Crompton, H., Burke, D., Bozkurt, A., Nickel, C., Miao, F., Pegrum, M., Curry, J., Parsons, D., Edmett, A., Lindsey, L., Garcia, M. B., Chigona, A., Bonk, C. J., Bellas, F., Benali, M., Yongpradit, P., Palalas, A., de Bem Machado, A., Tinmaz, H., … Yu, S. (2026). A framework for generative AI policy and guidelines in K-12 education. Journal of Research on Technology in Education, Article in press. https://doi.org/10.1080/15391523.2026.2661641

Delcker, J., Heil, J., & Ifenthaler, D. (2025). Evidence-based development of an instrument for the assessment of teachers' self-perceptions of their artificial intelligence competence. Educational Technology Research and Development, 73(1), 115–133. https://doi.org/10.1007/s11423-024-10418-1

Dúo-Terrón, P., Gil-Ramos, L.-P., Marín-Marín, J.-A., & Román-González, M. (2026). Generative Artificial Intelligence Literacy. Teachers' Knowledge, Use, and Cognitive Offloading. Revista de Educación a Distancia, 26(84), Article 7. https://doi.org/10.6018/red.684721

European Commission. (2020). Digital Education Action Plan 2021-2027: Resetting education and training for the digital age. Publications Office of the European Union.

European Commission. (2025). Erasmus+ Programme Guide 2025 – Part A. Publications Office of the European Union. https://erasmus-plus.ec.europa.eu/programme-guide/part-a

Işık, S., Çakır, R., & Korkmaz, Ö. (2024). Teachers' Perception Scale Towards the Use of Artificial Intelligence Tools in Education. Participatory Educational Research, 11(H. Ferhan Odabaşı Gift Issue), 80–94. https://doi.org/10.17275/per.24.95.11.6

Javadinejad, A., & Davari, M. (2026). The Architecture of AI-Mediated Learning: A Three-Layer Framework. Applied Sciences, 16(10), Article 4991. https://doi.org/10.3390/app16104991

Löfving, C., Bergviken Rensfeldt, A., & Hillman, T. (2025). Platform bureaucratization as pedagogy in highly platformized classrooms. Learning, Media and Technology, Article in press. https://doi.org/10.1080/17439884.2025.2572619
Ng, D. T. K., Wu, W., Leung, J. K. L., Chiu, T. K. F., & Chu, S. K. W. (2024). Design and validation of the AI literacy questionnaire: The affective, behavioural, cognitive and ethical approach. British Journal of Educational Technology, 55(6), 2465–2489. https://doi.org/10.1111/bjet.13411
Ofosu-Asare, Y. (2026). Guiding the future: developing an ethical framework for generative AI use in education. International Journal of Information and Learning Technology, 43(1), 26–44. https://doi.org/10.1108/IJILT-06-2024-0113
Patrignani, N., & Whitehouse, D. (2014). Slow tech: A quest for good, clean and fair ICT. Journal of Information, Communication and Ethics in Society, 12(2), 78–92. https://doi.org/10.1108/JICES-11-2013-0051
Pauzi, Z., & Mavrikis, M. (2026). Should Machines Get to Judge? Rethinking the Design of AI-Mediated Assessment in Education. In DIS 2026 Companion Proceedings (pp. 171–175). ACM. https://doi.org/10.1145/3802974.3809410
Redecker, C. (2017). European Framework for the Digital Competence of Educators: DigCompEdu (Y. Punie, Ed.). Publications Office of the European Union. https://doi.org/10.2760/159770
Reichert, H., Briceno, D., Tabarsi, B., & Barnes, T. (2026). Human-Centered Design of LLM-Powered Educational Chatbots: A Study with Secondary Teachers. Lecture Notes in Computer Science, 16746, 516–535. https://doi.org/10.1007/978-3-032-31048-4_32
Smits, A., Valtonen, T., Piispa-Hakala, S., Forkosh-Baruch, A., Khaddage, F., Laferrière, T., Ueda, H., & Yeung, S. (2026). Protecting teacher agency in times of strong technology push: Grounding decisions in Biesta's educational purposes. Computers and Education Open, 10, Article 100383. https://doi.org/10.1016/j.caeo.2026.100383
Stankowski, A., Varab, D., Clarke, M., Gschwendtner, P., & Avramidis, E. (2026). Design for Cognitive Outcomes First: Countering Instrumental Drift in Generative AI for Knowledge Work. In DIS 2026 Proceedings (pp. 1205–1222). ACM. https://doi.org/10.1145/3800645.3813061
Tagare, D., Karki, T., & Yu, W. (2025). K-12 teachers' ethical competencies for AI literacy: Insights from a systematic literature review. Computers and Education, 239, Article 105435. https://doi.org/10.1016/j.compedu.2025.105435
UNESCO. (2019). Beijing Consensus on Artificial Intelligence and Education. UNESCO. https://unesdoc.unesco.org/ark:/48223/pf0000368303
UNESCO. (2023). Global Education Monitoring Report 2023: Technology in education – A tool on whose terms? UNESCO. https://unesdoc.unesco.org/ark:/48223/pf0000385723
Winstone, N. E., Gravett, K., Bearman, M., Noble, C., Jensen, L. X., Jones, A., & Nicola-Richmond, K. (2026). The care-full craft of feedback in an age of generative AI. Assessment and Evaluation in Higher Education, 51(5), 911–927. https://doi.org/10.1080/02602938.2026.2643333
Zhai, X. (2025). Transforming Teachers' Roles and Agencies in the Era of Generative AI: Perceptions, Acceptance, Knowledge, and Practices. Journal of Science Education and Technology, 34(6), 1323–1333. https://doi.org/10.1007/s10956-024-10174-0