

**Университетските преподаватели и изкуственият интелект:
развитие на умения за бъдещето**
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University Teachers in the Age of AI: Shaping Skills for the Future
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Abstract:

This paper examines the growing role of Artificial Intelligence (AI) in higher education and its transformative impact on teaching and learning. As AI-driven tools become increasingly integrated into a diverse range of university courses worldwide, academic staff must cope with new demands on their capacity to incorporate these technologies effectively and ethically into their pedagogical practice. Building on a critical analysis of the existing AI competency frameworks and empirical research findings, a model framework is proposed which outlines the knowledge domains along with the competencies and skills 21st century educationalists need to possess in order to function successfully in AI-supported classrooms. The discussion of teachers' practical skills and AI literacy outlines the necessity of professional development initiatives on national level supported by robust institutional backing to facilitate a seamless adoption of a rich repertoire of AI-enhanced teaching methodologies.

Keywords: AI competency frameworks, university teachers, AI literacy

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INTRODUCTION

Higher education is one of the sectors in which Artificial Intelligence (AI) has gained significant momentum over the last decades, triggering a profound transformation of the traditional teaching and learning paradigm. The increased integration of AI technologies in universities is opening up new possibilities for educators to tailor instructional content to individual students' needs [1, 2, 3], monitor progress in real time [4], provide immediate feedback [5] and foster automated student assessment [6, 7, 8]. However, the adoption of language learning models (e.g., GPT-4, Gemini, Claude, etc.), intelligent tutoring systems, and generative AI tools is not only revolutionising university education but also posing new demands on the competencies and skills of university teachers. Educators nowadays are expected to act as facilitators of learning experiences, possessing the necessary capacities to engage competently, ethically, and critically with AI tools in order to create pedagogically effective, AI-supported learning environments.

Although the need to equip educationalists with “new” AI-informed professional competencies has been acknowledged in some of the strategic policy documents aimed at facilitating the process of educational reforms in an AI era (e.g. Beijing Consensus on Artificial Intelligence and Education (2019) [9], Guidance for Generative AI in Education and Research (2020) [10], Digital Education Plan 2021 – 2027 (Action 6) [11], AI Act (2024) [12] among others), efforts to translate this recognition into concrete reforms in teacher education and professional development remain uneven. This claim is supported by data from a recent survey conducted by the Digital Education Council, titled “Global AI Faculty Survey 2025” [13], which collected responses from 1,681 faculty members across 52 institutions in 28 countries. The survey reveals the gap between faculty staff interest and willingness to work with AI and the institutional support provided.

While 86% of the faculty members foresee themselves using AI in their teaching practices in the future, only 6% strongly agree that their institutions have provided sufficient resources to develop their AI literacy. Moreover, 80% of the respondents consider their university's AI guidelines to be lacking in specificity and comprehensiveness, and a similar percentage of faculty staff feel that there is insufficient clarity on how AI can be integrated into the teaching and learning process at the institutional level. In line with these data, recent research works report the discrepancy between the advancement of AI in higher education and the practical skills of university teachers. Mah, Knoth and Egloffstein (2025) [14] investigated the views of 112 German and Austrian academic staff on the integration of AI in their educational settings and established that even though the respondents recognised the ethical and domain-specific relevance of AI, their behavioural intention to use AI tools depended primarily on the perceived pedagogical value of AI for instructional design. Furthermore, the participants pinpointed the key elements for a future AI-oriented higher education: mandatory professional development opportunities and strong institutional support. Similarly, Chui et al. (2023) [15] reviewed 92 empirical studies examining the perspectives of both school teachers and academics on the potential and limitations of AI tools in education. They concluded that despite the potential that AI has for supporting teaching and learning, many university teachers are not sufficiently familiar with it, which hinders their abilities to interpret data from learning analytics successfully, create a variety of content formats, nurture students' critical thinking and creativity through AI or make sound pedagogical decisions about the appropriate use of a specific AI application. In line with this, in their empirical study with 79 Finnish university instructors, Kallunki et al. (2024) [16] highlighted that the effective implementation of AI tools in tertiary education requires the adoption of teacher training programmes that cultivate technological proficiency along with ethical awareness and robust pedagogical strategies.

These research findings consistently demonstrate that AI professional development for university staff needs to become a strategic priority in higher education systems. Still, to guarantee its effectiveness, we need to define the specific knowledge areas, competencies, and evolving professional roles of educators in the AI era. A helpful instrument in this regard is UNESCO's AI Competency Framework for Teachers [17], which provides a comprehensive roadmap of the possible progression of teachers' AI literacy across five different domains, encompassing ethical, technical, and pedagogical dimensions. Although a valuable tool, this framework serves as a global reference that must be adapted to national and institutional settings before it can be validated as a suitable model for structuring local teacher training programmes aimed at faculty members. Additionally, existing literature focused on the evolving qualities and agency of academic staff [18, 19, 20] provides a snapshot of various aspects of university teachers' AI capabilities without illustrating how these competencies intersect with their novice roles. This paper, therefore, aims to bridge this gap by proposing a model of AI university staff competence framework that clearly links the roles of 21st-century educators with their AI knowledge, competencies, and skills.

EVOLVING ROLES OF AI EDUCATORS

A starting point in the discussion of university teachers' roles in AI-driven classrooms is the acceptance of the idea that teachers “who use AI will replace those who do not” (Yu, 2018 in [19, p. 6]). Given that it is essential to refer to the conceptual frameworks underpinning the change in dichotomies that distinguish the traditional from the evolving, dynamic, and multifaceted AI teacher profiles.

Constructivism, for instance, positions teachers as facilitators, guides or mentors of students' active learning rather than as transmitters of knowledge. Resting on the learner-centred approach, which envisages students' direct involvement with new information as a boost to their critical thinking, creativity and metacognition, this perspective complies well with digitally and AI-supported environments [21]. Large language models and AI-powered learning assistants could support inquiry-based tasks, personalised learning and collaborative problem-solving. At the same time, the educator remains a moderator who orchestrates students and humanises their learning experience.

In parallel, digital pedagogical design emphasises the purposeful use of AI technologies in creating pedagogical scenarios that align with specific learning outcomes. Within this paradigm, university teachers are viewed as designers of flexible and inclusive learning pathways who make informed choices about AI tools so that they correspond to the content, lesson objectives, and individual learners' needs [22, 23]. Thus, academic interaction with AI can be approached as a developmental continuum that ranges from basic access to AI applications to advanced operational capacity entailing critical engagement, reflective practice and pedagogical innovation.

Postdigital critical pedagogy, which offers a contrasting perspective to digital pedagogical design, sees digital tools (including AI) as inherently connected to pedagogy rather than as separate instruments used to achieve specific educational aims [24]. Such a look upon the relationship between pedagogy and technology encourages university academic staff to critically reflect on how AI reshapes knowledge production and sharing, learner empowerment, teacher–student interaction and the very purpose of education. According to this framework, university teachers are not merely users of AI tools but active architects of AI literacy who guide both themselves and their students through a digital world full of many possibilities – possibilities that sometimes go beyond the limits of human values.

Consistent with this, the AI–human collaboration model suggests that faculty members act as mediators between technology and student-centred teaching and learning. Therefore, their ability to work alongside AI technologies is crucial because the future of education depends on the co-evolution of artificial and human intelligence. In this context, university teachers should not be seen as passive users of AI tools but as creative co-designers of pedagogical scenarios who work constructively with AI technologies. By doing so, they develop students' critical awareness of AI alongside their social and emotional skills because teachers contribute the human element in AI-driven education. they spark learners' curiosity, provide support and encouragement, and serve as role models of moral, ethical, and responsible behaviour – even in their use of AI.

TOWARDS A CONTEXTUALISED FRAMEWORK FOR UNIVERSITY TEACHERS' AI COMPETENCES

These roles align with emerging frameworks such as **UNESCO's AI Competency Framework for Teachers** [17], which is organised around five domains that combine the technical proficiency of educators with their pedagogical, ethical, social, and professional development capabilities for implementing AI in education (Table 1). Each of these domains follows a developmental trajectory encompassing the three levels of expertise – *Acquire* (basic users of AI tools), *Deepen* (critical thinkers who have gained mastery in AI technologies and their integration in the various aspects of the teaching profession) and *Create* (innovators at the forefront of AI education transformation).

Table 1. Mapping UNESCO's AI Competency Framework for Teachers, Theoretical Platforms and Teacher Roles in an AI Era

UNESCO AI Competency Framework for Teachers / Domains	THEORETICAL PLATFORMS AND TEACHER ROLES			
	Constructivism / <i>Teacher as Facilitator of Active Learning</i>	Digital Pedagogical Design / <i>Teacher as Designer of AI-Enhanced Learning Pathways</i>	Postdigital Critical Pedagogy / <i>Teacher as Critical Pedagogue & AI Literacy Architect</i>	AI-Human Collaboration / <i>Teacher as AI Co-Designer & Mediator</i>
1. Human-centred Mindset	Enhances learner agency through AI tools → <i>Motivator and Mentor</i>	Designs inclusive, human-first AI scenarios → <i>Inclusive AI Learning Designer</i>	Questions AI's role in human values and purpose → <i>Ethical Reflector</i>	Acts as a moral agent and emotional moderator → <i>Empathy Guide and Humaniser</i>
2. Ethics of AI	Promotes critical, ethical decision-making → <i>AI Ethics Mentor</i>	Selects AI tools aligned with ethical guidelines → <i>Ethical AI Technologist</i>	Encourages critical reflection on tech–power ties → <i>Critical AI Analyst</i>	Guides ethical awareness and social responsibility → <i>AI Ethics Role Model</i>
3. AI Foundations and Applications	Uses AI to scaffold exploration and metacognition → <i>Metacognitive Coach with the support of AI</i>	Matches tools to learner needs and goals → <i>AI Differentiator</i>	Analyses implications of AI beyond functionality → <i>AI Systems Analyst and Evaluator</i>	Builds hybrid human–AI skillsets in students → <i>AI Career Skills Facilitator</i>
4. AI Pedagogy	Uses AI to support inquiry, collaboration → <i>Facilitator of AI-Driven Inquiry</i>	Creates AI-driven lessons aligned to objectives → <i>AI-supported Learning Designer</i>	Connects AI use to a deeper learning purpose → <i>Pedagogical Innovator</i>	Orchestrates co-learning and reflective use of AI → <i>AI Co-learning Facilitator</i>
5. Professional Development	Reflects on AI-supported practice growth → <i>Reflective AI Practitioner</i>	Expands his/her teaching strategies using AI tools → <i>Continuous AI Learner and Adapter</i>	Cultivates continuous critical AI literacy → <i>Critical AI Practitioner</i>	Evolves with AI, shaping co-intelligent futures → <i>Future AI-Human Co-Architect in Education</i>

Each of these domains follows a developmental trajectory encompassing the three levels of expertise – *Acquire* (basic users of AI tools), *Deepen* (critical thinkers who have gained mastery in AI technologies and their integration in the various aspects of the teaching profession) and *Create* (innovators at the forefront of AI education transformation).

Since UNESCO's framework outlines the AI teacher competences, it is important to place it within the wider context of digital education frameworks that emphasise teachers'

abilities to utilise new technologies. One of these frameworks is the **European Framework for the Digital Competence of Educators (DigCompEdu)** [25], which defines six areas of academic staff professional expertise in leveraging digital technologies. These areas are positioned within three broad dimensions: educators’ professional competences, educators’ pedagogic competences, and learners’ competences, extending along six proficiency levels (from A1 – Newcomer to C2 – Pioneer).

A closer comparison between these two frameworks reveals that they complement each other, as digital competence is regarded as a significant component of 21st-century teachers’ professional profiles. However, while DigCompEdu mainly promotes the development of digital skills, UNESCO’s AI framework emphasises the knowledge and capabilities of academic members for operational use of AI in their classrooms (Table 2).

Table 2. Comparison between UNESCO’s AI Competency Framework for Teachers and DigCompEdu

Aspect	AI Competency Framework for Teachers, UNESCO	European Framework for the Digital Competence of Educators (DigCompEdu)
Purpose	To provide a set of AI competences for teachers, fostering a human-centred education	To define the digital competence of educators and guide their professional development in digitally-supported classrooms
Scope	Focused on AI-related competences of educators	Broader focus on digital competences of educators (incl. digital content creation, communication and collaboration in digital environments, etc.)
Key Competence Areas	1. Human-Centred Mindset 2. Ethics of AI 3. AI Foundations and Applications 4. AI Pedagogy 5. AI for Professional Development	1. Educators’ Professional Competences 2. Educators’ Pedagogic Competences 3. Learners’ Competences
Competency Levels	1. Acquire (Basic users of AI tools) 2. Deepen (Critical thinkers with AI expertise) 3. Create (Innovators in AI education)	1. Newcomer (A1) 4. Expert (B2) 2. Explorer (A2) 5. Leader (C1) 3. Integrator (B1) 6. Pioneer (C2)
Focus on Ethics	Emphasis on the ethical use of AI in education, concerning its impact on human values and society	Ethical behaviour when using digital technologies (i.e., compliance with netiquette policies concerning privacy, security, and autonomy in digital environments).
Pedagogical Focus	AI as a pedagogical tool which fosters and supports critical thinking, creativity, communication and collaboration among students and between the teacher and students	Pedagogical competences encompass the creation, implementation, and evaluation of digital teaching and learning strategies, student engagement, material design, and student assessment.
Technological Focus	Focus on AI tools and the development of AI pedagogy	Focus on general digital tools and their implementation for communication, creating educational content, teaching and learning management, and student assessment.
Professional Development	Continuous reflection and advancement of AI-supported pedagogical practices and innovations in education	Emphasis on continuous professional growth through intense use of digital tools, resources and spaces for collaborative practice.
Teachers’ Roles	Teachers as facilitators of AI-driven learning, role models and supporters of ethical AI use, AI literacy designers and human-AI collaborators	Teachers as digital content creators, collaborators and evaluators; builders of learners’ digital competence.
Students’ Roles	Active and autonomous learners who develop their AI literacy and critical awareness of AI technologies.	Active and autonomous learners with sound digital skills

Since both frameworks focus on a holistic view of educators’ roles and skills, they offer a solid foundation for designing a model framework of university AI teachers’ competences – Unified Digital-AI Competence Framework for University Educators (UniDAI-Edu).

KEY FEATURES OF THE MODEL FRAMEWORK

The UniDAI-Edu model framework comprises six areas which are a combination of UNESCO’s AI framework for teachers (areas 1, 2, 3, 4 and 6) and the DigCompEdu (area 5) (Fig. 1). Digital competence of educators is an essential prerequisite; therefore, this model framework focuses on the integration of the AI component in teachers’ instructional approaches.

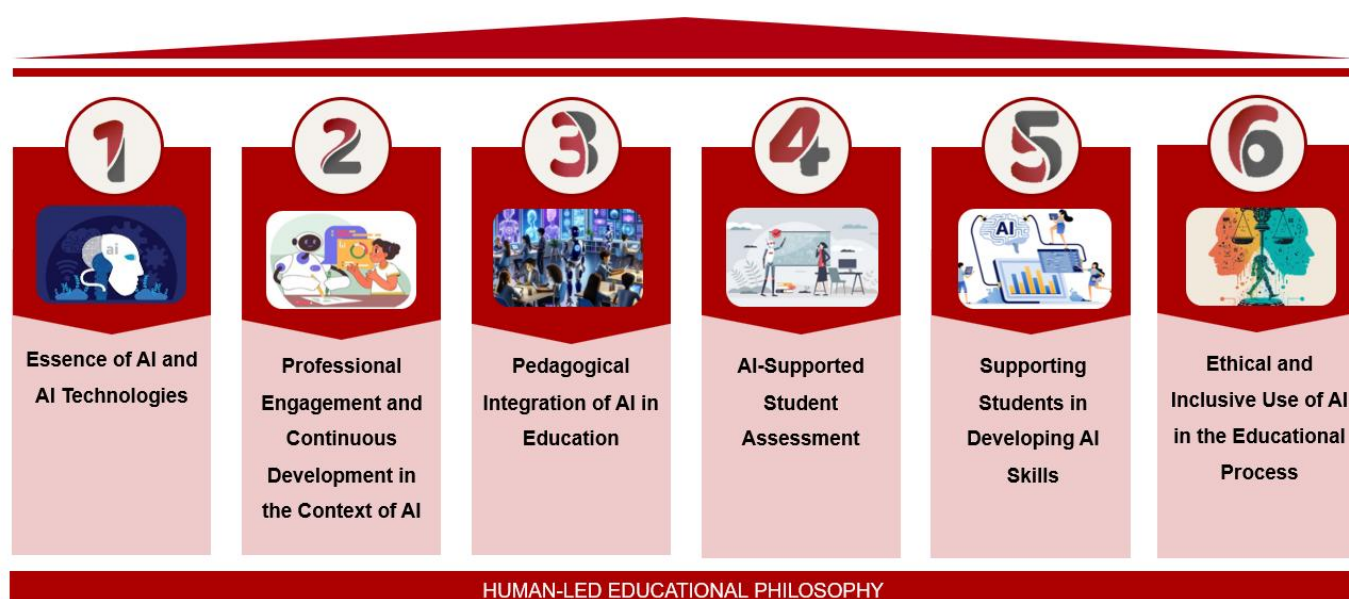


Fig. 1. Areas of the model framework of AI university educators’ competences

These areas are underpinned by three developmental levels – *Novice*, *Skilled Practitioner*, and *Transformative Leader* - which mark the progression from basic knowledge of AI technologies and initial abilities to integrate them in the teaching and learning process to the critical and innovative guidance in the integration of AI in education. The ethical dimension is both a standalone component and a cross-cutting principle that is integrated into all other areas of the framework, ensuring the responsible and sustainable use of AI. UniDAI-Edu also defines educator identity through roles such as *Supporters of AI-driven Inquiry*, *Responsible AI-enhanced Learning Designers*, *Student AI Literacy Mentors*, *Ethical and Inclusive AI Facilitators*, and *Reflective AI Change Agents*. A core principle of the framework is the dedication of faculty staff to fostering learners’ agency and developing their future-ready AI skills. The professional development of university academic staff is seen as an ongoing process based on self-reflection, collaborative learning, and hands-on experimentation with AI applications.

The structure of the proposed framework and the competencies within each area are displayed in Table 3.

Table 3. Structural components and key competencies across developmental levels of the UniDAI-Edu model framework

Area	Description	Novice	Skilled practitioner	Transformative leader
1. Essence of AI and AI Technologies	Understanding core AI concepts, functions and their implications in educational contexts.	Demonstrates basic awareness of AI principles and their relevance to education.	Applies knowledge of AI to select appropriate tools, evaluate their relevance and adapt them to the specifics of the learning process.	Develops and advances a vision of how AI can transform teaching, learning, and the long-term mission of universities.
2. Professional Engagement and Continuous Development in the Context of AI	Sustained engagement with AI-related professional learning and networks.	Recognises the potential of AI for professional development, begins exploring its possibilities, and takes initial steps in using basic AI tools in his/her work.	Integrates AI into his/her professional practice by collaborating with colleagues, reflecting on approaches, and gradually expanding and enriching the use of AI tools for his/her own professional development.	Supports and leads the AI training of academic staff, shapes institutional policy and leads strategic initiatives for the integration and development of AI in higher education.
3. Pedagogical Integration of AI in Education	Designing and adapting learning environments using AI to support diverse student needs.	Demonstrates an active engagement with AI, recognises appropriate didactic models and purposefully explores their implementation in education	Uses effectively and experiments with AI applications to support teaching and self-regulated learning, critically assessing their effectiveness and refining their teaching practice based on feedback.	Critically evaluates the application of AI in pedagogical practice, creates new educational models that incorporate AI applications, and plays a leading role in the transformation of education.
4. AI-Supported Student Assessment	Using AI to support assessment practices that are fair, timely, and pedagogically sound.	Uses basic AI tools for feedback or formative assessment.	Applies AI tools for differentiated, real-time, or competency-based assessment.	Leads ethical and innovative assessment practices using AI, ensuring fairness and transparency; Shares experience in AI assessment and supports colleagues in its integration in university education
5. Supporting Students in Developing AI Skills	Enabling students to understand, use, and critically engage with AI technologies.	Encourages students to explore fundamental uses of AI tools (e.g., searching, analysing, and critically evaluating information through AI applications).	Supports students in developing AI literacy, critical use, and problem-solving skills.	Guides students in becoming autonomous, responsible, and ethical AI users and co-creators.
6. Ethical and Inclusive Use of AI in the Educational Process	Ensuring AI tools are used in ways that support diversity, equity, and well-being.	Recognises key risks and ethical issues in AI use.	Applies inclusive strategies to minimise bias and protect learners' rights; Acts as a role model.	Leads initiatives to embed ethical, human-centred, and inclusive AI use across institutional practices.

CONCLUSION

The proposed UniDAI-Edu model framework provides a clear roadmap for integrating AI into university education. However, the successful implementation of this framework in the context of Bulgarian higher education requires consistent institutional support and the provision of professional development opportunities targeted explicitly at developing university staff's AI competences. This involves not only time and effort from faculty members but also ongoing engagement from university management bodies, as acquiring AI foundational knowledge and capabilities is merely the beginning of a long-term journey towards developing advanced professional AI expertise. Secondly, the introduction of AI in higher education will most likely face some resistance or hesitancy from certain academics, as AI applications require changing traditional teacher and learner roles. Overcoming this resistance will clearly require ongoing encouragement and a transparent demonstration of the positive aspects of integrating AI tools in the classroom. All this suggests that the AI transformation of university education, including teachers' readiness and ability to utilise AI technologies, is a collaborative effort involving policymakers, university governance, and the teachers themselves.

REFERENCES

- [1] Merino-Campos, C. (2025). The impact of artificial intelligence on personalized learning in higher education: A systematic review. *Trends in Higher Education*, 4(17), 1–15. <https://doi.org/10.3390/higheredu4020017>.
- [2] Stefanova, P., Ibryamova, E., Smrikarov, A., & Ivanova, G. (2024). Development and integration of audio and visual micro-resources in the learning process through the use of artificial intelligence systems. *Strategies for Policy in Science and Education / Strategii na Obrazovatelnata i Nauchnata Politika*, 32(5s), 233–243. <https://doi.org/10.53656/str2024-5s-23-dev>.
- [3] Stefanova, P., & Smrikarov, A. (2024). Possibilities for the application of artificial intelligence systems in the education of students of pedagogical specialties. *Strategies for Policy in Science and Education*, 32(5s), 263–270. <https://doi.org/10.53656/str2024-5s-26-pos>.
- [4] Khan, I., Ahmad, A., Jabeur, N., & Mahdi, M. (2021). An artificial intelligence approach to monitor student performance and devise preventive measures. *Smart Learning Environments*, 8(17), 1–18. <https://doi.org/10.1186/s40561-021-00161-y>.
- [5] Dever, D. A., Azevedo, R., Cloude, E. B., & Wiedbusch, M. (2020). The impact of autonomy and types of informational text presentations in game-based environments on learning: Converging multi-channel processes data and learning outcomes. *International Journal of Artificial Intelligence in Education*, 30(4), 581–615. <https://doi.org/10.1007/s40593-020-00215-1>.
- [6] Baykasoğlu, A., Özbel, B. K., Dudaklı, N., Subulan, K., & Şenol, M. E. (2018). Process mining based approach to performance evaluation in computer-aided examinations. *Computer Applications in Engineering Education*, 26(5), 1841–1861. <https://doi.org/10.1002/cae.21971>.
- [7] Zhao, C. (2024). AI-assisted assessment in higher education: A systematic review. *Journal of Educational Technology and Innovation*, 6(4). <https://doi.org/10.61414/jeti.v6i4.209>.

[8] Dimari, A., Tyagi, N., Davanageri, M., Kukreti, R., Yadav, R., & Dimari, H. (2024). AI-based automated grading systems for open book examination system: Implications for assessment in higher education. In *2024 International Conference on Knowledge Engineering and Communication Systems (ICKECS)* (pp. 1–7). IEEE. <https://doi.org/10.1109/ICKECS61492.2024.10616490>.

[9] UNESCO. (2021). *Beijing Consensus On Artificial Intelligence And Education*. Available online: <https://unesdoc.unesco.org/ark:/48223/pf0000368303> (accessed 4 April 2025).

[10] Miao, F., & Holmes, W. (2023). *Guidance for Generative AI in Education and Research*. UNESCO. <https://doi.org/10.54675/EWZM9535>.

[11] European Union. (2020). *Digital Education Action Plan (2021–2027)*. Available online: <https://education.ec.europa.eu/focus-topics/digital-education/action-plan> (accessed 22 March 2025).

[12] European Union. (2024). *AI Act (Regulation EU 2024/1689)*. Available online : <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32024R1689> (accessed on 6 March 2025).

[13] Digital Education Council. (2025, Jan. 05). *Global AI faculty Survey 2025*. Available online: <https://www.digitaleducationcouncil.com/post/digital-education-council-global-ai-faculty-survey> (accessed on 14 April 2025).

[14] Mah, D.-K., Knoth, N., & Egloffstein, M. (2025). Perspectives of academic staff on artificial intelligence in higher education: Exploring areas of relevance. *Frontiers in Education*, 10, Article 1484904, 1-13. <https://doi.org/10.3389/feduc.2025.1484904>.

[15] Chui, T. K. F., Xia, Q., Zhou, X., Chai, C. S., & Cheng, M. (2023). Systematic literature review on opportunities, challenges, and future research recommendations of artificial intelligence in education. *Computers and Education: Artificial Intelligence*, 4, Article 100118, 1-15. <https://doi.org/10.1016/j.caeai.2022.100118>.

[16] Kallunki, V., Kinnunen, P., Pyörälä, E., Haarala-Muhonen, A., Katajavuori, N., & Myyry, L. (2024). Navigating the evolving landscape of teaching and learning: University faculty and staff perceptions of the artificial intelligence-altered terrain. *Education Sciences*, 14(7), 727, 1-18. <https://doi.org/10.3390/educsci14070727>

[17] Miao, F., & Cukurova, M. (2024). *AI Competency Framework for Teachers*. UNESCO. <https://doi.org/10.54675/ZJTE2084>.

[18] Gentile, M., Città, G., Perna, S., & Allegra, M. (2023). Do we still need teachers? Navigating the paradigm shift of the teacher's role in the AI era. *Frontiers in Education*, 8, 1161777, pp.1-14. <https://doi.org/10.3389/feduc.2023.1161777>.

[19] Zhang, S., Diao, J., Ma, X., Tang, X., & Ding, X. (2024). What qualities do teachers need in the era of artificial intelligence: Analysis based on international experience. *STEM Education Review*, 2(3), 1-9. <https://doi.org/10.54844/stemer.2024.0557>.

[20] Lee, D., Arnold, M., Srivastava, A., Plastow, K., Strelan, P., Ploeckl, F., Lekkas, D., & Palmer, E. (2024). The impact of generative AI on higher education learning and teaching: A study of educators' perspectives. *Computers and Education: Artificial Intelligence*, 6, 100221, 1-10. <https://doi.org/10.1016/j.caeai.2024.100221>.

[21] Ibryamova, E., & Stefanov, G. (2020). Developing and implementing a labyrinth game for self-assessment. In *Proceedings of the 21st International Conference*

on Computer Systems and Technologies (CompSysTech '20). Association for Computing Machinery, New York, p106–110. <https://doi.org/10.1145/3407982.3408029>.

[22] Kukulska-Hulme, A., Ferguson, R., Sharples, M., Henderson, M., Holmes, W., & Aristeidou, M. (2024). *Innovating Pedagogy 2024: Exploring new forms of teaching, learning and assessment, to guide educators and policy makers*. The Open University. Available online: <https://iet.open.ac.uk/file/innovating-pedagogy-2024.pdf> (accessed on 13 March 2025).

[23] Voicu, C.-G. (2025). Integrating Artificial Intelligence into Digital Pedagogy: An Analysis of Challenges and Opportunities. *Revista de Pedagogie Digitala*, 4(1), 31-38. <https://doi.org/10.61071/RPD.2543>.

[24] Jandrić, P. & Hayes, S. (2022). Postdigital Critical Pedagogy. In: Abdi, A.A., Misiaszek, G.W. (eds). *The Palgrave Handbook on Critical Theories of Education*. Palgrave Macmillan, Cham (pp. 321-336). https://doi.org/10.1007/978-3-030-86343-2_18.

[25] Redecker, C., & Punie, Y. (2017). *European Framework for the Digital Competence Of Educators (DigCompEdu)*. Publications Office of the European Union. <https://doi.org/10.2760/178382>.