

Artificial Intelligence and Didactics: Insights for teaching Latin

By Rita Colace^{}, Michele Domenico Todino[±] & Iolanda Zollo[•]*

The article examines the integration of artificial intelligence (AI) into the didactics of Latin, framing AI as a transformative epistemic mediator rather than a mere technological adjunct. In the evolving digital landscape, AI is reshaping educational processes by influencing how knowledge is accessed, structured, and interpreted. The study critically explores four key areas—adaptive learning, gamification, assisted translation, and digital resources—demonstrating how AI can enhance pedagogical personalization, engagement, and inclusive learning experiences. Special attention is given to the challenges posed by algorithmic opacity, teacher mediation, and the ethical tensions surrounding automation in educational settings. The Latin language, understood as a symbolic and logical construct, is presented as uniquely suited to benefit from AI-enhanced learning environments, which can support complex interpretive practices. When implemented within a coherent pedagogical framework, critically and ethically, AI has the potential to revitalize classical language teaching, enhance students' interpretive skills and metalinguistic skills, foster both critical literacy and meaningful interaction with classical texts. Ultimately, this contribution argues for a humanistic and ethically grounded approach on AI integration in education: Latin and AI together offer new avenues for promoting critical thinking and cultural awareness in education, reaffirming the relevance of classical studies in the digital age.

Keywords: Artificial Intelligence; Inclusion; Teacher Education; Latin Didactics; Inclusive Technologies.

Introduction

We live in an era where the digital environment is no longer merely an external dimension of reality but increasingly becomes an integral and structuring component, significantly impacting our personal, professional, and social lives. Consequently, the field of education and pedagogical research must engage with the resources that artificial intelligence (AI), which is no longer a secondary tool, is introducing into the realm of educational technologies (Luckin et al., 2016).

As education occurs within a constantly transforming cognitive space, where distinctions between natural and artificial, human and computational, become increasingly blurred, intelligent technologies are shaping the ways we learn, teach, access information, and construct knowledge (Williamson & Eynon, 2020). This process is neither uniform nor predetermined, but probabilistic and dynamic, open to multiple interpretations and trajectories.

^{*}PhD Student, Università degli Studi di Salerno, Italy.

[±]Senior Researcher, Università degli Studi di Salerno, Italy.

[•]Full Professor, Università degli Studi di Salerno, Italy.

Rather than representing a radical and univocal change, AI is emerging as a potential epistemic mediator. If consciously embedded within an educational project, it can filter, structure, and reinterpret the relationship between subject and knowledge, opening new methodological and reflective perspectives. This involves rethinking the role of teaching and educational aims in a dialogical and flexible way. The integration of AI into schools, through both teachers' knowledge of these tools and students' guided, active use, represents a profound educational choice, one that encourages students to engage with a world increasingly mediated by technology, with intelligence, critical thinking, ethical awareness, and cultural depth (Pham & Sampson, 2022).

Given these premises, it is essential to more precisely articulate the relationship between AI and education, focusing on how AI interacts with didactics in general and with Latin teaching in particular. Artificial intelligence may represent an opportunity for methodological renewal that enhances the formative and inclusive value of Latin. If integrated into a pedagogical framework aimed at understanding and reflection, AI can serve as a catalyst for complex educational experiences. It can promote deeper analysis and create cognitively stimulating environments in which learner-text interaction, supported by human-machine collaboration via avatars and NPCs, fosters a new form of critical, dialogical learning, one that does not merely provide automatic answers, oversimplify texts or replace the teacher.

This paper seeks to understand how artificial intelligence can constructively engage with Latin pedagogy, enhancing its cultural, formative, and inclusive value while redefining how Latin can be learned, without simply adding technology to the subject.

By considering AI as an epistemic mediation tool that transforms learning conditions (Holmes et al., 2019), and by analyzing regulatory frameworks and national and international strategies that guide the use of AI in education (UNESCO, 2021; OECD, 2021), this study aims to explore the tools, methodologies, and digital resources currently available for Latin instruction. It will highlight both potentials and limitations, with a focus on the pedagogical, cultural, and epistemological implications of AI in the humanities (Miao et al., 2021).

Reflecting on the use of AI in Latin education invites a dialogue between tradition and innovation, between memory and future, encouraging educators to consider how such technologies can inspire new teaching practices. These practices must align with Latin's inherent complexity, and be part of a thoughtful pedagogical design that integrates existing methodologies and technologies to enrich the cultural dimension of Latin and the relationship between humanistic knowledge and new forms of intelligence.

Artificial Intelligence and Education

Within the theoretical and pedagogical framework in which artificial intelligence is situated, this section focuses on how AI intervenes in educational processes by transforming the very structure of the teaching relationship. It explores AI's contribution to the transformation of educational mediation and highlights the implications of its use in school settings.

Every educational act is a form of mediation, between knowledge and learner, content and context, intention and interpretation, where meaning is not transmitted but co-constructed. In this context, artificial intelligence introduces new possibilities, but also new responsibilities. It becomes a technology *of* education, not merely *in* education, because it reshapes the ways in which cognitive experiences take form. As Floridi (2023) notes, every digital artifact is an information and representation technology that filters, structures, and guides our relationship with knowledge.

AI actively participates in knowledge construction by selecting data, proposing patterns, suggesting connections, and introducing adaptive personalization models (Brusilovsky & Millán, 2007), as well as predictive models for assessment and environments capable of dynamically responding to students' behaviour. In these intelligent environments, learning becomes a dynamic system of adaptive interactions mediated by algorithms that continuously reshape experiences based on students' cognitive actions and strategies (Luckin et al., 2016).

However, it is essential that these systems operate based on transparent, interrogable, and negotiable algorithmic logics (Bender et al., 2021). A fundamental tension arises: while AI offers opportunities to personalize learning, adjust difficulty levels, and provide immediate and consistent feedback, it simultaneously renders the logic behind didactic mediation increasingly invisible and opaque. This is the issue of the so-called "algorithmic black box": who controls the cognitive infrastructure of learning? What criteria guide the interaction? Who determines what is "correct" or "incorrect" in an AI-generated exercise? (Williamson & Eynon, 2020; Binns, 2018).

In this context, the teacher becomes a conscious mediator between student, knowledge, and technology, safeguarding the purpose and intention behind didactic choices, something that AI, by its nature, cannot possess. Therefore, a new kind of critical professionalism is essential, one capable of interpreting and evaluating AI-generated outputs, integrating algorithmic contributions into pedagogical design, especially in the humanities. In these fields, the value of learning lies in semantic complexity, interpretive plurality, and reflective depth.

Thus, discussing artificial intelligence in education also means rethinking pedagogical paradigms, since AI redefines the very notions of knowledge and competence.

If embedded within a deliberate pedagogical vision, artificial intelligence can represent a valuable opportunity to rethink the foundations of contemporary education. It can help restore the teacher's central role as a critical intellectual, a mediator of meaning, and a designer of authentic learning experiences. Only within this framework can AI truly serve as a cultural tool, rather than being reduced to

just another technological device for adaptive training. To achieve this, a deep epistemic and ethical awareness is necessary, one that can guide didactic choices and critically manage mediation through human-machine interaction using avatars and NPCs (Coppola, 2024; Di Tore et al., 2022).

Artificial Intelligence and Education: Key International Frameworks

The integration of artificial intelligence in educational contexts today requires more than ever a careful and multi-level regulatory approach. Such regulation must balance innovation with responsibility and manage the systemic transformation affecting the very nature of learning, teaching, and assessment. In recent years, major international and European organizations have developed a range of guidelines, recommendations, and strategic documents aimed at guiding AI integration into society and educational systems based on shared ethical principles.

The European Union has taken a leading role in this process, which culminated in the enforcement of the *Artificial Intelligence Act (AI Act)* in August 2024. This is the world's first comprehensive legal framework dedicated to AI regulation. The act classifies AI systems based on risk levels, imposing stricter requirements on high-impact technologies, particularly those used in education, healthcare, employment, and security, thereby establishing a legal foundation for the safe and responsible use of AI within the EU. It seeks to protect fundamental rights while fostering innovation (European Commission, 2024).

Another structured initiative promoted by the European Commission is the policy document titled "*A European Approach to Artificial Intelligence*" (European Commission, 2021). This vision emphasizes reliability, transparency, safety, and respect for fundamental rights. The European model is built on the premise that AI must be "*trustworthy by design*", meaning it should incorporate democratic and social values at its core. The educational sector, given its high social impact, is identified as a priority area. Technologies used for learning must remain under human oversight, their operational logic must be inspectable, and their outcomes verifiable.

This approach aligns closely with UNESCO's *Recommendation on the Ethics of Artificial Intelligence* (2021), which asserts that every AI technology should aim to strengthen human rights, promote inclusion, guarantee equitable access to education, and preserve cultural diversity. The document also stresses the urgency of global AI governance in education, grounded in principles of non-discrimination, accountability, and algorithmic transparency.

Earlier, the OECD had also addressed AI's educational implications through its *Future of Education and Skills 2030* project. This initiative offers a framework focused on developing transversal, metacognitive, and social skills in response to the challenges of new digital environments. AI is viewed as a lever to reshape school curricula, guiding them toward lifelong learning, adaptability, and student empowerment, where learners are seen as active agents in their own educational journey (OECD, 2019).

These international perspectives have also found resonance at the national level. In Italy, policy documents such as the *Proposals for a National AI Strategy* (MIMIT, 2021) and the *Guidelines for AI in Public Administration* (ACN, 2022) emphasize the need to train school staff, build digital educational ecosystems, promote shared ethical standards, and develop critical and interdisciplinary digital skills from the early stages of education. These documents also emphasize the importance of providing teachers with specific training programs so that they can become interpreters and mediators of intelligent technologies in the classroom.

Nonetheless, these frameworks are not without limitations. In many cases, the language adopted is deliberately general, avoiding the deeper pedagogical tensions introduced by AI, such as those between personalization and standardization, support and surveillance, or educational freedom and algorithmic optimization. In particular, key elements such as the epistemic value of error and ambiguity, which are essential to the learning process, are still largely overlooked.

The risk is that AI regulation in education may be reduced to a technical-legal issue, overlooking its cultural and pedagogical nature. Therefore, policies should not be viewed merely as administrative constraints, but rather as starting points for conscious educational design. Such design must integrate AI in ways that are consistent with a humanistic and critical vision of learning.

Artificial Intelligence and Latin Didactics

At present, no large-scale international project exists to assess the impact of artificial intelligence on schools, nor are there ministerial documents offering practical guidance for its application to specific subjects. It is therefore crucial to begin reflecting on these issues through a deeper understanding of AI tools and the training of students to use them actively and critically. Teachers also need specific training on such tools and should engage in large-scale action research in their classrooms to test possible uses and opportunities. Moreover, it is important to ask how humanistic knowledge can be reformulated within today's digital infosphere (Floridi, 2023), and to what extent AI can be useful for the teaching of Latin in a way that is sustainable and respectful of the dialogical nature of knowledge, its epistemological foundations, and the dignity of the student.

In order to explore the implications of artificial intelligence in Latin teaching (pedagogy) in an articulated way, it is useful to focus on a number of key directions: the use of adaptive learning systems, which open up possibilities for constructing personalized pathways that respond to learners' specific difficulties; the integration of gamification to strengthen motivation through playful and immersive environments; the reflective use of assisted translation to support linguistic and semantic analysis of texts without replacing the student's hermeneutic activity; and the adoption of specific digital tools that help reinforce reading and comprehension practices, fostering interdisciplinarity and inclusivity.

Adaptive Learning

Adaptive learning systems, based on predictive analysis and the modelling of learning behaviours, represent one of the most advanced forms of artificial intelligence in education. They work by identifying recurring patterns in student interaction with content and by proposing learning paths tailored to those configurations (Brusilovsky & Millán, 2007).

Such systems can reveal the mismatch between prescribed knowledge and actual internalization. Through continuous interaction, personalized feedback, and adaptive monitoring, intelligent systems can make this discrepancy visible far more precisely than traditional assessment. For example, an AI tutor might detect that a student, although correctly completing exercises on grammatical rules, consistently makes errors in open-ended contexts (the student may know that a final clause uses *ut* and the subjunctive but may fail to recognize that *ut hoc facerent* is an example). This gap between theoretical knowledge and genuine understanding thus becomes observable and subject to analysis.

In this sense, adaptivity identifies obstacles and suggests alternative paths. In Latin teaching, this allows for the design of exercises that do not assume linear learning progression but reflect the discontinuity of learning and the complexity of syntactic constructs.

Alatin is an example of such an intelligent system: a Latin course platform designed to support remediation and skill enhancement through personalized exercises delivered via tablet or smartphone, based on the most frequent errors and the learner's progress (<https://alatin.it>). The teacher, in turn, gains the opportunity to personalize instruction, respect individual learning paces, embrace diversity, and construct flexible, participatory learning paths (Sibilio & Aiello, 2015).

Based on the same principles, other platforms have been developed that rely on adaptivity and offer students exercises based on prior mistakes, providing immediate feedback. These platforms act as virtual tutors that guide learners in analyzing, understanding, and translating Latin texts. When students make mistakes, the multimedia assistant helps them move forward without interruption (<https://www.cloudschooling.it/cicero/demo/9845/>) (Balbo, 2021). Other platforms, such as Atticus (<https://sanoma.it/prodotti-digitali/atticus>), provide personalized learning by adapting to individual student needs through artificial intelligence, with the aim of progressively developing language skills using a cognitive approach to Latin.

Gamification and Motivation

Another area in which artificial intelligence has introduced an epistemic discontinuity is that of gamification. If play, in its archetypal form, represented for Plato a simulation of true learning, the current convergence of AI and gamification generates a new dimension of educational attention, in which playful interaction becomes a tool for cognitive immersion.

In Latin education, this translates into responsive and intelligent learning environments capable of recognizing mistakes, sterile repetition, and proposing

new challenges, lateral pathways, and alternative puzzles to solve. Gamification supported by AI thus restructures learning as an exploratory process.

Scientific studies have shown that a gamified approach to Latin learning results in higher levels of student engagement and satisfaction. Bibliometric analyses confirm that gamification is increasingly regarded as an effective strategy to enhance student motivation and classroom participation (Irwanto et al., 2023).

Gamification is becoming increasingly present in school settings, contexts traditionally not associated with play, because it has been shown that gaming increases student motivation and reframes error not as failure but as an opportunity to reflect on and analyze one's weaknesses in a given subject area. Through virtual reality, gamification can create immersive and interactive ancient environments that aim to reduce the sense of distance students often feel when studying cultures that thrived millennia ago. It can “transport” learners to ancient Rome, allowing them to hear spoken Latin and see the places and people of Roman civilization. Through this immersive approach, students can also explore contemporary issues, such as gender representation in antiquity, showing that not only the Latin language but also Roman culture can be experienced as a living subject (Torres & Pérez, 2022). Students can reflect on the concept of the Roman Republic and engage in interdisciplinary learning, thereby demonstrating the interconnectedness of knowledge domains and enhancing teaching quality and engagement of students.

The gamified lesson itself proves to be motivating because it includes clear communication and a formal reward system embedded in each session. Increased motivation helps students to be more productive and engaged, making it easier for them to meet lesson objectives. Based on the feedback received, students would like greater immersion in virtual learning environments, as they find it enjoyable to use Latin in the same way they play video games and to learn it during their leisure time (Beams & Crofton-Sleigh, 2024). This dynamic, in turn, enhances intrinsic motivation, an essential factor in student success.

Among the most widely used language learning apps that include Latin are *Duolingo*, available only in English-Latin version, and *Rosetta Stone*, which includes Latin only in its desktop version and requires at least a six-month subscription. Feedback on these apps is generally positive (noting feelings of progress and satisfaction, as well as in-app gamification features), but some limitations remain, for instance, the apps' difficulty in accurately recognizing pronunciation, which can lead to frustration and a sense of failure (Yuen & Schlote, 2024).

Regarding the future of AI in language learning and instruction, it is important to acknowledge both the numerous advantages it brings to educational apps and the challenges it presents. These include the need for continuous updates and improvements to AI algorithms and ethical considerations about potential bias in AI-based language assessments. Such biases must be identified and counteracted to ensure fairness and inclusivity in the design and implementation of AI systems. Emerging educational AI policies, such as UNESCO's guide for generative AI in education and research (Miao & Holmes, 2021), offer valuable insights for developing best practices for integrating AI into language learning.

Overall, teaching techniques based on play show strong results in terms of motivation. A range of transversal skills and playful dimensions are unconsciously activated by students, and the benefits of integrating AI functionalities into language learning applications, particularly in terms of motivation and learner assessment, appear to outweigh the risks.

Computer-assisted Translation

One of the main objectives in teaching Latin is to develop the ability to translate, a skill that is among the least automatic. Translation entails a hermeneutic act, contextual interpretation, and semantic work that goes far beyond simple word-for-word correspondence. It involves complex interpretive activity that promotes deep comprehension, taking into account the communicative intent, context, and logical structure of a passage.

Faced with this complexity, current machine translation technologies show clear limitations. While tools like *DeepL* or *Google Translate* can produce acceptable versions in modern languages, this is not the case with Latin. In fact, *DeepL* does not even include Latin among its supported languages.

A more promising approach lies in assisted translation, which does not aim to replace the student's interpretive actions, but rather to accompany it. Such tools offer suggestions, disambiguations, and alternative logical structures, fostering deeper reflection and stimulating doubt. The most well-known and widely used tool in this context is *ChatGPT*, a chatbot based on machine learning language models. Its online accessibility and ongoing development have contributed to its widespread use, although it now has competitors such as *Google Gemini*, *Microsoft Copilot*, and *Perplexity AI*.

When considering the use of *ChatGPT* in Latin instruction, the following activities are currently possible:

- text production
- basic text correction
- error detection and analysis
- imitation of literary styles ("writing in the style of...")
- textual analysis
- assignment development and execution
- introduction drafting
- translations
- information retrieval
- preparation of intermedial teaching materials
- simulation of oral examinations and questionnaires
- creation of summary tables

From various exercises submitted to the chatbot, it emerges that it is capable of accurately translating simple, artificial texts of a primarily grammatical nature, and it also offers acceptable lexical suggestions. Its performance is reliable at basic grammatical levels but still imperfect when it comes to more complex tasks. One

must also consider that the model's primary language is English, and although it handles Italian correctly, it is not always precise (Balbo, 2024).

Moreover, it is important to note that the chatbot does not generate knowledge capable of explaining or interpreting problems; it can only describe them in depth based on the databases it was trained on (Hayashi, 2023). This becomes evident when analyzing literary responses. When presented with a passage from a classical Latin author, the AI produces approximate answers, particularly in translation, summarization, and analysis of complex syntactic structures. Furthermore, whether in completing or solving exercises, it often fails to recognize all Latin verb voices or distinguish the different uses of the same prepositions such as *cum*.

Even when prompted correctly, ChatGPT cannot always respond adequately because the model operates using short-term memory mechanisms, such as Retrieval Augmented Generation (RAG), which allow it to temporarily retain information during a session in order to refine its replies. However, ChatGPT's capabilities remain tied to the data and algorithms it was originally trained on, and it lacks the capacity for dynamic, permanent learning based on user input (Balbo, 2024).

This highlights the static nature of its training and the ethical and legal constraints that currently prevent real-time adaptive learning, raising important questions about the balance between the adaptive capabilities of language models and regulatory limits, as well as the challenge of ensuring both innovation and privacy protection in the use of conversational AI.

Digital Tools

The recent advances in artificial intelligence applied to Latin teaching rely largely on the availability of open, annotated, and interoperable linguistic *corpora*, which serve as the raw material for automated processing.

In this area, resources such as the *Perseus Digital Library* (part of the *Alpheios Project*) (<https://www.perseus.tufts.edu/hopper/>; <https://alpheios.net>) or the *Digital Latin Library* (<https://digitallatin.org>) make it possible to achieve an enhanced understanding of classical texts. Unlike simple repositories like *The Latin Library* or *Classic Archive* (<https://www.thelatinlibrary.com>; <http://classics.mit.edu>), these platforms offer advanced semantic functionalities, such as automatic morphosyntactic analysis, logical structure visualization, and textual variant comparison. In this way, reading a Latin text becomes an experience characterized by interaction, exploration, and rich contextual information.

There are also digital platforms specifically dedicated to Latin, such as *Perseids (Arethusa)* (<https://www.perseids.org/perseids-platform/>; <https://www.perseids.org/tools/arethusa/app/#/>), which includes projects that graphically represent syntactic structures of Latin sentences, often drawn from classical literature, using tree diagrams and color coding to highlight syntactic dependencies. These visualizations engage spatial-visual learning channels, which can help students develop active competence and support learners with Specific Learning Disorders (SLD) (Rydberg-Cox, 2016).

Daniel Patterson, for instance, created the website/platform *Latinitium* (<https://latinitium.com>), which contains Latin-language videos with English subtitles on literary topics, presented by Patterson and his colleagues. It also includes multimedia and self-learning resources such as a detective story written in classical Latin. Additionally, the *Legentibus* app, a free mobile tool for Latin learning, is centered around a library of classical and modern Latin texts that can be listened to and read. Exercises are integrated to help learners progress in their skills.

This approach combines Latin texts with synchronized audio and targeted comprehension tasks, promoting both textual understanding and learner motivation.

Ultimately, the proper use of new technologies in teaching Latin offers the clear advantage of reaching every student and making each learner an active protagonist in their own educational journey.

Conclusions

Every technology, as a product of design aimed at action, carries both a transformative potential and an epistemic responsibility. When applied to education, artificial intelligence (AI) emerges as a technology of mediation, capable of reorganizing both the forms of knowledge and its modes of transmission. However, no informational infrastructure is ever neutral, as it reshapes the very ontology of the subjects involved, generating new relationships and new dependencies (Floridi, 2014).

Applying AI to the teaching of Latin therefore entails a dual challenge: on the one hand, to harness its advantages in terms of access, personalization, and cognitive enhancement; on the other, to recognize its structural limitations, ethical tensions, and epistemic risks that come with delegating learning processes to machines.

One of the main benefits of AI in Latin instruction is its ability to make the classical language more accessible, particularly for students who struggle with traditional methods. Tools based on Natural Language Processing (NLP) and machine learning, such as lexical assistants or educational chatbots, function as cognitive prostheses (Clark & Chalmers, 1998), helping to decode morphology and understand complex constructions. Especially adaptive learning platforms, as described by Brusilovsky and Millán (2007), personalize the educational experience according to learners' cognitive needs. In parallel, AI can suggest alternative readings, highlight semantic ambiguities, or pose metalinguistic questions that encourage active and critical engagement from students (Holmes, Bialik & Fadel, 2019).

However, if learning is entirely guided by machines, the roles of both teacher and learner are altered, and knowledge risks being transformed from a dialogical process into an algorithmic product. There is a real danger that students may become passive consumers of knowledge, relying on decision-making systems they do not fully understand (Floridi, 2014). This leads to the issue of algorithmic opacity, as many AI tools make it difficult to trace the origin of the responses they generate, thus creating a crisis of trust: "If we cannot know where a translation suggestion comes from, how can we assess its reliability?"

The teacher risks becoming a mediator of a technology they do not control, effectively delegating the educational act to the machine. In such a scenario, education risks losing its ethical and relational dimension and being reduced to data management rather than a shared construction of meaning. This is why it is essential to train teachers in the understanding and conscious use of artificial intelligence.

Alongside epistemic challenges are the structural and cultural limitations of using AI in Latin education. Firstly, there is the issue of infrastructure: not all schools have the technological resources needed to implement advanced AI tools, and not all teachers possess the skills to use them effectively. The risk is that the digital divide may widen, excluding precisely those students who would benefit most from personalized and adaptive teaching. Secondly, there remains a lack of high-quality Latin linguistic corpora for training effective AI models.

Finally, it must be remembered that language, every phrase, syntactic construct, or semantic nuance, is a product of worldview and context. As advanced as it may be, AI can calculate but not comprehend and thus cannot replace the experiential depth of human understanding (Selwyn, 2019).

If artificial intelligence can now participate, alongside students and teachers, in the construction of meaning in education, then a new pedagogical vision is needed: an *informational humanism* that reaffirms the centrality of the human within increasingly complex, interconnected, and autonomous digital environments (Floridi, 2023).

The exploration of how AI can be integrated into Latin teaching suggests that, if well designed and contextually grounded, it can contribute to redefining teaching practices. In particular, it becomes clear that when critically integrated, AI can help renew didactic approaches, broaden access to texts, enhance motivation and critical thinking, and support the formative and inclusive value of Latin.

The introduction of AI into Latin pedagogy represents a complex educational challenge, one that involves the meaning of learning itself, the teacher's formative responsibility, and the student's individuality. From this perspective, AI can be understood as a technology of epistemic mediation, capable of redefining how knowledge is perceived, explored, and shared, thereby transforming the relationship between teacher, learner, and content, and reshaping the very conditions of educational experience.

The learning modes examined, adaptive learning, gamification, assisted translation and digital tools, have demonstrated how AI can enrich various dimensions of education: from the personalization of learning pathways to the reactivation of motivation, from the facilitation of linguistic analysis to the construction of interactive environments. Adaptive learning, by tailoring pathways to students' errors and needs, proves to be a valuable tool for respecting individual learning rhythms and trajectories. Gamification, supported by intelligent digital environments, revitalizes the playful dimension of classical knowledge and strengthens motivation through immersive and narrative learning. Computer-aided translation serves as a form of cognitive mediation that fosters questioning, linguistic reflection, and textual awareness. Lastly, digital tools, from annotated *corpora* to interactive platforms, enable new forms of access to and engagement with Latin texts, supporting both inclusion and learner autonomy. AI thus emerges as a cognitive environment within

which Latin teaching can be reimagined, in a dynamic balance between methodological innovation and fidelity to the complexity of humanistic knowledge.

However, there are also ethical issues that accompany the introduction of AI into educational settings, such as algorithmic opacity, the outsourcing of cognitive processes, the risk of overdependence on tools, and unequal access to technologies.

In this context, the teacher plays a fundamental role in evaluating and managing intelligent systems in light of educational objectives, acting as an indispensable mediator between knowledge, technology, and learners. Latin can be understood as a symbolic and logical structure which, when supported by coherent digital environments, can be reactivated as a space for reflection, in-depth exploration, and interpretive practice, where artificial intelligence helps to make meaning more accessible, visible, and shareable.

Latin, as a language of the future (Gardini, 2018), and artificial intelligence, together, can help shape critically aware citizens. If educators and software developers collaborate and establish ethical guidelines and effective policies, the future of language learning, including Latin, enhanced by AI and new technologies, will continue to evolve and thrive.

Bibliography

- Balbo, A. (2024). Intelligenza artificiale e latino: sondaggi e riflessioni. *Lingue antiche e moderne*, 13, pp. 329-349
- Beams, B., Crofton-Sleigh, L. (2024). *Lingua vitae: teaching the latin language in virtual reality*. In B. Beams & L. Crofton-Sleigh (Eds.), *Past and Future Presence: Approaches for Implementing XR Technology in Humanities and Art Education* (pp. 93–118). Amherst College Press. <http://www.jstor.org/stable/10.3998/mpub.14371789.6>
- Bender, E. M., Gebru, T., McMillan-Major, A., Shmitchell, S. (2021). *On the dangers of stochastic parrots: Can language models be too big?* In *Proceedings of the 2021 ACM conference on fairness, accountability, and transparency* (pp. 610-623).
- Binns, R. (2018). Algorithmic accountability and public reason. *Philosophy & technology*, 31(4), 543-556.
- Brusilovsky, P., Millán, E. (2007). *User models for adaptive hypermedia and adaptive educational systems*. In *The adaptive web: methods and strategies of web personalization* (pp. 3-53). Berlin, Heidelberg: Springer Berlin Heidelberg.
- Clark, A., Chalmers, D. (1998). The Extended Mind. *Analysis*, 58(1), 7–19.
- Di Tore, S., Campitiello, L., Caldarelli, A., Todino, M. D., M.D., Di Tore, Iannaccone, A., Sibilio, M. (2022). Education in the metaverse: amidst the virtual and reality. *Italian Journal of Health Education, Sport And Inclusive Didactics*, 6(3).
- Floridi, L. (2014). *The Fourth Revolution: How the Infosphere is Reshaping Human Reality*. Oxford University Press.
- Floridi, L. (2023). *The Green and The Blue: naive ideas to improve politics in the digital age*. John Wiley & Sons.
- Gardini, N. (2018). *Le dieci parole latine che raccontano il nostro mondo*. Milano: Garzanti.
- Holmes, W., Bialik, M., Fadel, C. (2019). *Artificial Intelligence in Education: Promises and Implications for Teaching and Learning*. Boston: Center for Curriculum Redesign.
- Hayashi, R. (2023) *Can AI create knowledge? A counter to Noam Chomsky et al.*, <https://ryuseibesthayashi.medium.com/can-ai-create-knowledge-a-counter-to-noam-chomsky-et-a-l-06589c6f05d6>
- Irwanto, I., Wahyudiati, D., Saputro, A. D., Laksana, S. D. (2023). Research Trends and

- Applications of Gamification in Higher Education: A Bibliometric Analysis Spanning 2013–2022. *International Journal of Emerging Technologies in Learning (iJET)*, 18(05), pp. 19–41. <https://doi.org/10.3991/ijet.v18i05.37021>
- Luckin, R., Holmes, W., Griffiths, M., Forcier, L. B. (2016). *Intelligence Unleashed: An argument for AI in education*. Pearson.
- Miao, F., Holmes, W., Huang, R., Zhang, H. (2021). *AI and education: A guidance for policymakers*. Unesco Publishing.
- Ng, A. (2020). *AI Transformation Playbook*. Landing AI.
- Pham, S. T., Sampson, P. M. (2022). The development of artificial intelligence in education: A review in context. *Journal of Computer Assisted Learning*, 38(5), 1408-1421.
- Rydberg-Cox, J. (2016). *An Open Tutorial for Beginning Ancient Greek*. In G. Bodard & M. Romanello (Eds.), *Digital Classics Outside the Echo-Chamber: Teaching, Knowledge Exchange & Public Engagement* (pp. 69–82). Ubiquity Press.
- Selwyn, N. (2019). *Should Robots Replace Teachers? AI and the Future of Education*. Polity Press.
- Sibilio, M., Aiello, P. (2015). *Formazione e ricerca per una didattica inclusiva*. Milano: FrancoAngeli.
- Torres González, V. A., Pérez Zurita, A. D. (2022). Breakout y Webquest con perspectiva de género: Eumachia y Acilia Plecusa, matronas romanas. *International Journal for 21st Century Education*, 9 (1), 3-19. <https://doi.org/10.21071/ij21ce.v9i1.13750>.
- Yuen, C. L., Schlote, N. (2024). Learner Experiences of Mobile Apps and Artificial Intelligence to Support Additional Language Learning in Education. *Journal of Educational Technology Systems*, 52(4), 507-525. <https://doi.org/10.1177/00472395241238693>
- Williamson, B., Eynon, R. (2020). Historical Threads, Missing Links, and Future Directions in AI in Education. *Learning, Media and Technology*, 45(3), 223–235. <https://doi.org/10.1080/17439884.2020.1798995>

Normative References

- Agenzia per la Cybersicurezza Nazionale (ACN). (2022). *Linee guida per l'IA nella Pubblica Amministrazione*. <https://www.acn.gov.it/strategia/linee-guida-ia>
- European Commission. (2024). *Artificial Intelligence Act – Official Statement and Final Regulation*. Brussels.
- European Commission. (2021). *A European Approach to Artificial Intelligence*. <https://digital-strategy.ec.europa.eu/en/policies/european-approach-artificial-intelligence>
- Ministero delle Imprese e del Made in Italy (MIMIT). (2021). *Proposte per una Strategia Italiana sull'IA*. <https://www.mimit.gov.it>
- OECD. (2019). *Future of Education and Skills 2030*. <https://www.oecd.org/education/2030-project>
- OECD (2021). *AI and the Future of Skills: Learning from experience*. OECD Publishing. <https://doi.org/10.1787/3bf87444-en>; <https://www.oecd.org/skills/centre-for-skills/AI-and-skills.htm>
- UNESCO. (2021). *Recommendation on the Ethics of Artificial Intelligence*. <https://www.unesco.org/en/digital-education/artificial-intelligence>

Sitography

Coppola, F. (2024). *A Salerno il tutor universitario è un avatar: si sperimenta in una classe di dottorandi del dipartimento di Scienze Umane e della Formazione*. Prodotto da IA generativa. Rainews. <https://www.rainews.it/tgr/piemonte/video/2024/03/avatar-ia-universita-salerno-071d1616-01af-4b34-b59d-562cbe40cf8e.html>

<https://alpheios.net>

<https://alatin.it>

<https://www.cloudschooling.it>

<https://sanoma.it/prodotti-digitali/atticus>

<https://latinitium.com>

<https://digitallatin.org>

<https://www.perseus.tufts.edu/hopper/>

<https://www.perseids.org/tools/arethusa/app/#/>

<https://www.perseids.org>

<https://www.thelatinlibrary.com>

<http://classics.mit.edu>