



Artificial Intelligence for Italian as a Foreign/Second Language: Insights from a Pilot Teacher Training Online Course

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Abstract

The DAI (Developing an AI-assisted Italian Language Teaching and Learning System) project (<https://www.dai-project.eu/>) investigates how artificial intelligence can be integrated into the teaching and learning of Italian as a foreign or second language to promote more personalized, inclusive, and pedagogically sustainable practices [1]. The paper reports on the pilot phase of the teacher training course, which was developed as one of the project's main outputs and tested with a group of educators before wider dissemination. The piloting phase aimed to strengthen teachers' AI literacy and their capacity to critically and creatively use AI-based tools in Italian L2/LS contexts [2]. The training combined short theoretical inputs, guided demonstrations, collaborative tasks, and reflective discussion, allowing participants to explore the pedagogical potential of generative AI, chatbots, adaptive platforms, and automated feedback tools. The course also encouraged teachers to examine issues of reliability, bias, transparency, academic integrity, and the changing role of the teacher in AI-supported language education. An important focus of the course was placed on practical classroom applications, such as lesson planning, scaffolding, differentiated instruction, vocabulary work, and learner engagement. The paper discusses the feedback collected from the course participants, highlighting that enrolees appreciated the concrete and immediately transferable nature of the activities, the relevance of the examples provided, and the opportunity to reflect on both the benefits and the drawbacks of integrating GenAI into language education. At the same time, they expressed concerns about technical uncertainty, time required for implementation, and the need for clearer institutional guidance. Overall, the pilot study indicates that effective AI integration in Italian language education largely depends on carefully designed teacher training initiatives that balance innovation with critical awareness and ethical responsibility [3].

Keywords: Artificial Intelligence, Italian as a foreign/second language, teacher training, AI literacy

1. Introduction

Artificial intelligence is reshaping the field of language education. Generative AI systems can produce texts, dialogues, and lesson plans in response to natural-language instructions in a very rapid way. These affordances have generated considerable interest among language teachers because they may foster personalisation, differentiated instruction, and the development of classroom materials. At the same time, AI introduces new questions concerning reliability, bias, privacy, and the professional role of the teacher. The emergence of generative AI requires us to reconsider teachers' and students' agency. Recent debate on AI literacy underlines that technical proficiency alone is not enough. Teachers need to evaluate AI outputs critically and integrate them into ethically responsible activities [1], [2]. This contribution focuses on the pilot phase of the DAI (Developing an AI-assisted Italian Language Teaching and Learning System) teacher training course. Funded under the Erasmus+ KA220-HED Cooperation Partnerships in Higher Education programme, the DAI project brings together eight European partner institutions to create an integrated educational ecosystem for Italian L2/LS instruction [3]. The pilot course was designed specifically to test the relevance, pedagogical usability, and instructional structure of the professional development package prior to its full European roll-out.

2. Theoretical Framework

2.1 AI Literacy in Language Education

AI literacy is a multidimensional construct that includes technical, cognitive, critical, and ethical dimensions. Long and Magerko [1] describe AI literacy as the set of competencies required to



understand, evaluate, use, and participate in the design of AI systems. In language education, AI literacy also refers to the ability to evaluate whether AI outputs are accurate, appropriate to the learners' proficiency level, and aligned with the communicative objectives of a language task.

The UNESCO AI Competency Framework for Teachers identifies key areas including a human-centred mindset, ethics of AI, AI foundations and applications, AI pedagogy, and AI for professional learning [2]. These dimensions are directly addressed by the DAI approach, which frames AI as a pedagogical resource to be integrated within a broader educational design rather than a standalone technological solution.

2.2 Generative AI and Language Learning

Generative AI offers significant transformative potential in language education. It enables educators to rapidly generate and adapt reading texts, construct communicative prompts, and design differentiated tasks tailored to diverse learner profiles [4], [5]. Furthermore, AI-driven conversational agents provide learners with opportunities for low-pressure interactive practice and dynamic feedback [5]. However, scholarly consensus emphasizes that the professional judgment of the teacher remains indispensable for validating content accuracy, evaluating register appropriateness, and mitigating algorithmic bias [6], [7]. The DAI training course adopts this critical stance, contextualizing AI tools strictly in relation to clear pedagogical objectives.

2.3 Teacher Professional Development

The effective integration of digital technologies depends fundamentally on teacher knowledge and professional agency. The Technological Pedagogical Content Knowledge (TPACK) framework [8] and its recent AI-TPACK extensions [9] highlight the dynamic interplay between technological, pedagogical, and subject-matter knowledge. In the context of Italian L2/LS, effective AI integration requires a synthesis of linguistic competence, language didactics, language testing methodology, and digital tool operation.

Teacher development initiatives must therefore transcend superficial tool showcases, offering structured opportunities to experiment, analyse outputs, discuss challenges, and reflect on ethical classroom implications [10]. In accordance with UNESCO's guidelines on generative AI in education and research [10], the DAI pilot course was constructed around principles of human agency, transparency, equity, and critical evaluation.

3. The DAI Pilot Course

The teacher training package developed within the DAI project was designed to achieve six core objectives: (1) strengthen teachers' foundational AI literacy; (2) introduce generative AI tools specifically relevant to Italian L2/LS instruction; (3) support educators in crafting effective, pedagogically aligned prompt sequences; (4) demonstrate concrete applications for lesson planning, scaffolding, differentiated instruction, vocabulary acquisition, and learner engagement; (5) cultivate critical awareness regarding reliability, algorithmic bias, and academic integrity; and (6) encourage reflection on the evolving role of the language educator.

The pilot version of the course was structured into seven thematic modules: Module 1 (AI Foundations in Language Education), Module 2 (Designing AI-Enhanced Learning), Module 3 (Integrating Digital Resources), Module 4 (Inclusive and Adaptive Teaching), Module 5 (Data-Driven Teaching Strategies), Module 6 (Ethical and Critical AI Use), and Module 7 (Practical Applications). Training materials comprised short video lectures, downloadable slide decks, practical application tasks, and self-assessment quizzes.

4. Methodology and Evaluation

To evaluate the usability, pedagogical relevance, and structural organization of the training course prior to wider dissemination, a pilot study was conducted in Spring 2026. A sample of 27 language educators from the partner institutions completed the full training package and answered a comprehensive evaluation questionnaire.

The respondent cohort represented a highly diverse group of language professionals: 51.9% (14/27) taught in higher education institutions, while the remaining 48.1% worked across lower-secondary



schools, upper-secondary schools, adult education centres, and language schools. Crucially, 70.3% of participants entered the training with intermediate or good prior knowledge of AI, reflecting an experienced cohort rather than technology novices.

The evaluation questionnaire comprised 28 closed-ended Likert-scale items (1 = strongly disagree; 5 = strongly agree) assessing content quality, instructional design, user experience, and perceived transferability, alongside open-ended items gathering qualitative feedback on specific module strengths and areas for revision. Given the exploratory purpose and the small pilot sample, the quantitative analysis was descriptive. Open-ended responses were analysed thematically using a hybrid deductive-inductive framework. Triangulation was then used to compare quantitative ratings with qualitative comments.

5. Results

The empirical evaluation of the pilot DAI teacher training course provides a detailed quantitative and qualitative profile of how participating language educators perceived, evaluated, and intended to transfer the training content.

5.1 Participant Profile and Prior AI Familiarity

The pilot dataset comprises 27 valid responses from educators working across five educational sectors. As shown in Table 1, over half of the participants (51.9%, (n = 14)) taught at the university level, followed by upper-secondary schools (18.5%, (n = 5)), lower-secondary schools (14.8%, (n = 4)), language/adult education centres (11.1%, (n = 3)), and vocational settings (3.7%, (n = 1)). Participants taught Italian as a foreign/second language, English, Spanish, French, linguistics, and educational methodology.

Table 1. Demographic profile and self-reported prior AI familiarity of pilot participants ((n = 27)).

Teaching Context	n	%	Prior AI Familiarity	%
University	14	51.9%	No prior knowledge	3.7% (n=1)
Upper-secondary school	5	18.5%	Basic knowledge	25.9% (n=7)
Lower-secondary school	4	14.8%	Intermediate knowledge	40.7% (n=11)
Language/adult centre	3	11.1%	Good knowledge	29.6% (n=8)
Other context	1	3.7%	Total Cohort (n)	100.0% (n=27)

A significant finding is that 70.3% of respondents entered the course with self-reported intermediate (40.7%) or good (29.6%) prior knowledge of educational AI. Only one participant reported no prior knowledge. This indicates that the pilot evaluation reflects the judgements of educators with pre-existing digital exposure rather than first-time users.

5.2 Overall Course Evaluation and Recommendation Rates

The overall evaluation of the course was very positive. On a 5-point Likert scale, the mean overall quality rating reached 4.26/5 (median = 4). In total, 88.9% (24/27) awarded a score of 4 or 5 (40.7% having awarded the maximum score of 5).

Willingness to recommend the course to peers was similarly high: 92.6% (25/27) responded Yes (59.3%) or *Probably* yes (33.3%). Furthermore, respondents strongly affirmed the need for domain-specific AI training for language teachers, yielding a mean score of 4.70/5 (median = 5; 81.5% selecting 5/5).



5.3 Quantitative Analysis of Course Indicators

Table 2 summarises the strongest and weakest quantitative indicators across the 28 Likert items. The highest scores clustered around ethical framing, pedagogical alignment, content clarity, and instructional inspiration. Adequate coverage of ethical aspects obtained the highest overall mean ($M = 4.48/5$, 96.3% agreement), while content-objective alignment and practical relevance of examples both achieved ($M = 4.44/5$) (the latter receiving 100% agreement).

Table 2. Highest- and lowest-rated quantitative indicators from the pilot evaluation ($n = 27$).

Course Evaluation Indicator	Dimension Category	Mean (1-5)	Positive (%)
Ethical aspects adequately addressed	Ethics & Criticality	4.48	96.3%
Content aligned with course objectives	Content & Alignment	4.44	92.6%
Examples relevant to teaching practice	Practical Relevance	4.44	100.0%
Content clear and understandable	Clarity & Structure	4.41	92.6%
Inspired new ideas for teaching activities	Transfer & Innovation	4.41	96.3%
Multimedia quality	Design & Delivery	4.00	77.8%
Videos + activities + quizzes engagement	Engagement	3.96	74.1%
Video duration appropriate	Design & Delivery	3.89	81.5%
Format maintained attention and interest	Engagement	3.89	77.8%
Theory-practice balance appropriate	Instructional Design	3.85	77.8%

Items with lower ratings highlighted areas for delivery refinement: theory-practice balance ($M = 3.85$, 77.8%), video duration ($M = 3.89$, 81.5%), format attention ($M = 3.89$, 77.8%), engagement from multimedia combinations ($M = 3.96$, 74.1%), and production quality ($M = 4.00$, 77.8%). These findings demonstrate that while teachers valued the core educational content, they signalled a clear demand for shorter video modules and higher audiovisual polish.

5.4 Perceived Learning Outcomes and Intentions to Transfer

As detailed in Table 3, self-reported learning and transfer indicators were positive across all key domains. Participants reported substantial improvements in AI literacy ($M = 4.33$, 88.9%) and understanding of AI limitations ($M = 4.33$, 92.6%). Operational confidence in using AI for teaching reached ($M = 4.04$) 81.5%, while 92.6% felt prepared to integrate proposed activities into lessons and evaluate AI tools critically.

Table 3. Perceived learning outcomes and professional transfer indicators ($n = 27$).

Perceived Learning & Transfer Outcome	Mean Score (1-5)	Positive Agreement (%)
Improved foundational AI literacy	4.33	88.9%
Better understanding of AI opportunities and limitations	4.33	92.6%
Inspired new ideas for designing teaching activities	4.41	96.3%
Intention to experiment with AI tools together with students	4.33	88.9%
Reflection on the changing role of teachers in the age of AI	4.33	92.6%
Ability to integrate proposed activities into lessons	4.26	92.6%
Better preparation to critically evaluate AI tools	4.26	92.6%



Self-confidence in using AI to support teaching

4.04

81.5%

5.5 Most Effective Course Formats and Qualitative Feedback

When asked to identify the most effective course format elements, 92.6% (n = 25) selected “concrete examples”, 70.4% (n = 19) selected “practical activities”, 59.3% (n = 16) selected “short videos”, and 37.0% (n = 10) selected “operational tools”. Quizzes (18.5%), critical discussions (14.8%), and PDF readings (11.1%) were selected less frequently. Qualitative comments reinforced this preference, showing that teachers valued step-by-step demonstrations, such as those included in the course for *Twee* and *AIDI*, far more than general feature overviews.

5.6 Module-Specific Evaluation and Revision Priorities

Participants were asked to identify which module should be prioritized for revision and improvement. As shown in Table 4, Module 5 (Data-Driven Teaching Strategies) was selected by 25.9% of respondents (n = 7), i.e., the highest proportion across all modules.

Table 4. Module prioritization for course revision and improvement (n = 27).

Course Module	Prioritized for Revision (n)	% of Cohort
Module 5 – Data-Driven Teaching Strategies	7	25.9%
None require significant revision	5	18.5%
Module 1 – AI Foundations in Language Education	4	14.8%
Module 7 – Practical Applications	4	14.8%
Module 2 – Designing AI-Enhanced Learning	2	7.4%
Module 4 – Inclusive and Adaptive Teaching	2	7.4%
Module 6 – Ethical and Critical AI Use	2	7.4%
Module 3 – Integrating Digital Resources	1	3.7%

Qualitative feedback explained that while university instructors appreciated corpus linguistics and Data-Driven Learning (DDL), secondary and adult education teachers found Module 5 overly theoretical, dense, and difficult to apply to lower-proficiency learners. On the other hand, 18.5% (n = 5) noted that no module required significant revision.

6. Discussion

The pilot evaluation of the DAI teacher training course provides valuable empirical insights into how language educators perceive, evaluate, and intend to integrate Generative AI (GenAI) into Italian as a foreign/second language (L2/LS) instruction. Overall, the findings demonstrate high satisfaction with course content (M = 4.31/5) and practical transfer (M = 4.27/5). However, a critical analysis of quantitative scores and qualitative feedback reveals key pedagogical and methodological nuances that warrant discussion.

6.1 The Operational Confidence Gap

A central finding is the contrast between teachers' recognition of AI's pedagogical utility and their self-reported operational confidence. While 100% of participants agreed that the examples were relevant to real teaching practice and 96.3% reported gaining new instructional ideas, lower agreement scores were observed for items related to course delivery (M = 4.07/5), video engagement (74.1%), and theory-practice balance (77.8%). Qualitative feedback indicates that exposure to AI tools alone does not automatically translate into immediate classroom implementation. Teachers value step-by-step demonstrations, such as those provided for the *Twee* platform and the *AIDI* chatbot, far more than



general feature overviews. Without guided hands-on experimentation, teachers experience uncertainty regarding prompt formulation, output validation, and task adaptation.

6.2 The AI-TPACK Paradox Among Experienced Educators

The demographic profile of the pilot cohort adds significant depth to these results. Over 70% of respondents entered the training with intermediate or good prior knowledge of AI. Despite this pre-existing familiarity, 96.3% rated language-teacher-specific AI training as highly important (81.5% awarding the maximum score of 5). This highlights an 'AI-TPACK paradox': general digital literacy or basic familiarity with consumer AI tools (e.g., ChatGPT) does not equip teachers with the Technological Pedagogical Content Knowledge required for specialized language education. Language teachers require domain-specific competence to evaluate whether AI-generated Italian text adheres to CEFR level descriptors, respects pragmatics and socio-cultural registers, and avoids systemic linguistic biases.

6.3 Contextualizing Complex Methodologies: The Case of Data-Driven Learning

The evaluation highlighted distinct variations in perceived module relevance based on educational context. Module 5 (Data-Driven Teaching Strategies) was selected by 25.9% of participants as the primary module requiring revision. While university-level instructors appreciated the exploration of linguistic corpora and Data-Driven Learning (DDL), secondary and adult education teachers noted that the module felt overly theoretical, dense, and difficult to apply to younger or lower-proficiency learners. This finding underscores that complex NLP methodologies cannot be presented uniformly; they must be scaffolded with context-differentiated examples tailored to secondary, university, and vocational settings.

6.4 Ethical Awareness and Human Agency

The item evaluating ethical aspects received one of the highest ratings in the entire questionnaire (96.3% agreement, $M = 4.48/5$). Participants strongly endorsed the course's emphasis on algorithmic bias, data privacy, academic integrity, and copyright. Rather than viewing AI as a replacement for human instruction, respondents reaffirmed the indispensable role of the teacher as an educational designer, critical evaluator, and cultural mediator. This aligns with human-centred frameworks such as the UNESCO AI Competency Framework for Teachers [2] and the AI-Forward Declaration 2026 [3], confirming that teacher training must prioritize critical literacy alongside technical skill acquisition.

7. Implications for Teacher Education

The empirical outcomes of the DAI pilot course yield four actionable design principles for future language teacher education initiatives in AI-powered contexts:

7.1 Restructuring Instructional Modality and Pace

To maximize teacher engagement and prevent cognitive overload, video materials should be restructured into short, chunked modules (5–8 minutes in duration). Passive 'talking head' lectures should be replaced by a structured four-stage learning sequence: (1) Theoretical Input (concise conceptual overview); (2) Guided Demonstration (screen-recorded walkthroughs of AI tools in action); (3) Hands-on Experimentation (interactive tasks where teachers generate and refine outputs); and (4) Critical Reflection (evaluating output accuracy, CEFR alignment, and potential biases). Furthermore, visual infographics, subtitled audio, and downloadable prompt checklists should accompany all video materials.

7.2 Differentiating Pedagogy Across Educational Tiers

Teacher training programmes must avoid one-size-fits-all approaches. Professional development materials should provide differentiated pathways: (a) Secondary & Adult Education: Focus on immediate, low-barrier applications, such as generating communicative scenarios, vocabulary exercises, text-to-speech listening tasks, and simplified reading materials; (b) Higher Education: Deepen



explorations of automated writing evaluation (AWE), intelligent dialogue agents (e.g., AIDI, DAIBot), corpus analysis (DDL), and AI-assisted language assessment.

7.3 Institutional Guidance on Privacy, Equity, and Tool Curation

Open-ended responses highlighted widespread teacher concern regarding technical uncertainty, data privacy regulations (e.g., GDPR compliance), platform costs (free vs. premium tiers), and student data protection. Teacher education must move beyond tool showcases to provide curated resource repositories. Training should supply teachers with clear institutional criteria and 'Safe AI Checklists' to evaluate tool security, copyright compliance, and accessibility before introducing software to students.

7.4 Fostering Human-Centred AI-TPACK

Finally, teacher education must continuously reinforce that AI technologies serve to augment, rather than replace, human expertise. Training should equip educators to use AI for administrative time-saving and scaffolded material design, freeing up valuable contact time for meaningful interpersonal interaction, intercultural dialogue, and emotional support.

8. Conclusion

This paper reported on the pilot evaluation of the teacher training course developed within the Erasmus+ DAI (Developing an AI-assisted Italian Language Teaching and Learning System) project. By combining foundational AI literacy, practical tool demonstrations, ethical reflections, and pedagogical application tasks, the course successfully fostered critical AI awareness among participating language educators. The empirical findings from the pilot study confirm that language teachers are eager to integrate GenAI tools into their practice when training is authentic, practically oriented, and directly transferable to classroom needs. At the same time, the feedback highlights that technical enthusiasm must be balanced with robust instructional design, shorter multimedia formats, clear institutional guidance, and critical ethical scrutiny.

In Italian L2/LS education, AI offers transformative possibilities for personalising learning pathways, creating adaptive materials, and providing dynamic communicative practice. However, realising this potential depends fundamentally on the agency, competence, and pedagogical judgment of the teacher. The insights gathered from this pilot study will directly inform the refinement of the DAI teacher training package prior to its full roll-out, supporting the broader development of the DAI online student course, resource repository, and learner corpus. Ultimately, effective AI integration in language education is not a purely technological endeavour, but a human-centred educational practice.

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