AI-Assisted Learning: A New Dimension in Language Teaching

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Learning based on using artificial intelligence (AI) refers to an approach where, alongside the teacher and the student, AI becomes a tool in the educational process. In this model, the instructional work is enhanced by AI, facilitating not only personalised learning but also integrating competence and personality development tasks. When working with AI, interactions occur not only between the teacher and the student or between students and students but within a triad of student–teacher–AI. Communication in AI-assisted learning, therefore, involves three agents: the teacher, the student, and the AI tool(s), and it can be both verbal and written (Molnárné László, 2023a).

Using AI allows the teacher to step back, giving space for student development. Thus, learners have significant freedom to choose not only what to learn but also how to approach it. The teacher's role is mainly that of a facilitator and mentor as AI-assisted learning is capable of generating new knowledge for the student and reinforcing their existing knowledge. The learning environment is distinctly digital. Students can engage individually, but group tasks are also possible, where students collaborate to complete a project with AI acting as a supportive partner. Individual learning allows for differentiation and personalised learning, while group work focuses more on project tasks, with AI offering support.

Technological innovation in education brings with it a profound responsibility for educators. Past knowledge cannot remain static, nor can competitive, future-ready learners be prepared without reinterpreting, redefining, and reframing the role of the teacher. The rise of

AI in education, therefore, does not diminish the need for teachers but repositions the need. Teachers are no longer mere transmitters of information but must become designers of learning experiences**,** mentors**,** and critical mediators between students and digital systems. They play a crucial role in cultivating ethical awareness, digital literacy, and the ability to question and contextualise AI-generated content. Furthermore, teachers are essential in scaffolding students' critical thinking**,** supporting their emotional and social development, and ensuring that technology is used in pedagogically sound, inclusive, and meaningful ways. Without this human element, even the most advanced AI tools risk becoming irrelevant or even harmful in educational settings. The success of AI integration, therefore, depends not on the technology itself but on how well teachers are prepared, supported, and empowered to harness its potential with professional confidence and pedagogical insight.

The integration of AI into education marks a significant shift in how teaching and learning are conceptualised and delivered. This transformation is underpinned by both scientific evidence and international policy frameworks. The *Beijing Consensus on Artificial Intelligence and Education* (UNESCO, 2019), adopted at the International Conference on Artificial Intelligence and Education, laid out comprehensive guidelines for the responsible and inclusive use of AI in schools, emphasising its potential to personalise learning, improve educational outcomes, and reduce inequalities. This vision is reinforced by findings from Lee and Chen (2021), who demonstrated that AI can enhance student motivation and performance through adaptive instruction, real-time feedback, and engaging classroom environments. The *UNESCO Recommendation on the Ethics of Artificial Intelligence* (UNESCO, 2021) further emphasises the need for human-centred, transparent, and equitable AI integration, calling for strong safeguards to ensure that technological innovation aligns with fundamental rights and educational values. At the same time, scholars such as Nagy (2023) caution against overreliance on AI, warning that it may reduce student agency and encourage passive

learning habits. Particularly in secondary education, it is crucial to balance digital tools with active, hands-on learning that promotes creativity, collaboration, and social-emotional development.

Teaching Context

The integration of AI in schools must go beyond simplifying tasks such as lesson planning or administering grades. The emphasis should shift towards learning activities that encourage critical thinking, creativity, and deeper student engagement. Such tasks can help learners grasp both the potential and the limitations of AI technologies, keep them informed about ongoing technological developments, and improve their ability to interact effectively and responsibly with AI systems. Developing critical thinking is vital in this process; educators must explicitly address the risks of AI use and guide students in learning how to verify AI-generated content.

In my own practice, I implemented AI-assisted language instruction in my English classes, working with 90 students aged 9 to 17, across Years 3 to 11. Most students had four English lessons per week, apart from Years 3 and 4, who had two. AI was integrated regularly into both classroom instruction and structured homework assignments, transforming traditional pedagogical practices and supporting linguistic development alongside critical engagement with technology. This approach complemented conventional methods while encouraging deeper cognitive involvement. AI-supported learning activities were conducted in both school and home settings. Students accessed AI tools using either personal or school-provided laptops connected to the internet via home networks or institutional infrastructure, ensuring a consistent learning experience across environments.

Over time, the students became familiar with a variety of AI tools, which they gradually incorporated into their classroom activities. Importantly, they were not using these

tools passively. I guided them through understanding how the technologies worked, focusing on how to formulate effective prompts to achieve accurate and useful results. Together, we explored ways to communicate purposefully with AI.

In addition to practical usage, we addressed the broader implications of working with AI, including limitations, potential biases, and ethical considerations. In many cases, we explored the same task across different AI platforms, comparing output and discussing the accuracy of responses, their creativity, and their relevance to language learning. These comparative exercises sparked valuable conversations about how different systems interpret prompts and generate content, giving students deeper insight into the architecture and functionalities of the tools they were using. For instance, we investigated how platforms such as ChatGPT, Grok, Microsoft Copilot, DeepSeek, and Perplexity responded to identical prompts. Students were working with the free versions of the AI tools throughout the project. Some platforms provided more detailed or imaginative output, while others excelled in concise, fact-based responses or integration with real-time web search. Through this process, students began to recognise the individual strengths and design purposes of each system and to appreciate the importance of selecting the most suitable tool for specific educational or communicative goals.

By embedding this level of critical reflection into the learning process, students not only improved their language skills but also developed a more nuanced understanding of how AI functions. They stopped perceiving AI as an unquestionable authority and began to view it as a collaborative partner—one whose capabilities must be understood and whose limitations must be recognised.

AI can be meaningfully integrated into any curriculum-based topic, whether it involves grammar practice, vocabulary development, or oral communication tasks. Its

flexibility enables teachers to adapt it to a wide range of pedagogical aims, including differentiation, creativity, and project-based learning. AI supports both teacher-led and student-led approaches, making it appropriate for individual work, pair tasks, or group projects.

One particularly important topic that emerged through our classroom use of AI was the phenomenon of hallucination—when AI systems generate responses that sound plausible but are in fact incorrect or entirely imaginary. We spent considerable time discussing why hallucinations occur, and students were introduced to the idea that large language models generate output based on statistical patterns in training data, rather than genuine understanding or factual reasoning. The students reviewed real examples in which AI confidently produced false claims, including fabricated references, misattributed quotations, and distorted historical facts. We analysed how different platforms managed uncertainty: Some would invent plausible-sounding details when lacking information, whereas others were more transparent, expressing doubt or redirecting the query. These discussions helped students understand the technical limitations of current AI models and highlighted the dangers of relying on such tools without critical oversight, particularly in academic settings.

To help students develop strategies for dealing with hallucination, we practised verification techniques. These included cross-checking information with trusted external sources, identifying red flags in AI-generated responses, and modifying prompts to observe how changes affected output accuracy. This stage of the process noticeably enhanced the students' digital literacy and critical reading skills. They came to understand that AI is not a neutral or infallible source, but a tool whose output requires human judgement, contextual interpretation, and ethical scrutiny.

Importantly, students also learned that AI requires a fundamentally different kind of trust. While traditional technologies—like calculators or mechanical systems—tend to inspire automatic trust because of their predictable output, AI demands a more sceptical and analytical approach. Because generative AI can present convincingly false information, students must learn to approach it with critical awareness, verifying and evaluating every response. In our classroom practice, we explored how to identify linguistic cues that suggest uncertainty or fabrication and how prompt phrasing can influence the quality and credibility of AI responses. Through this process, we redefined the concept of trust in the context of human–AI interaction. Rather than encouraging blind acceptance or outright rejection of AI-generated content, students were taught to engage with it reflectively and responsibly. Hallucinations were treated not as failures but as educational opportunities—moments that could support the development of sharper critical faculties. By learning when and why hallucinations occur, the students became more thoughtful and responsible digital citizens, capable of navigating a world in which technology plays an increasingly central role, but where intelligent use requires awareness, intentionality, and informed decision-making.

This dual focus on language acquisition and digital literacy forms the foundation of the pedagogical approach outlined above. Through the integration of AI, students do not only engage more actively with language learning but also develop the analytical mindset and technological fluency needed to thrive in a world shaped by rapid digital transformation.

Sample Tasks

In the following section, I will present a range of carefully designed task types that illustrate how AI can be integrated into language instruction. Each example highlights a specific aspect of language learning, such as grammar, speaking, writing, or vocabulary development, and demonstrates how AI tools can be used not just to automate but to deepen

and enrich the learning process. These tasks are drawn from real classroom experience and are intended to show how AI can support meaningful, curriculum-aligned learning while encouraging creativity, critical thinking, and learner autonomy.

Prompt Writing From Memory

In this task, students are presented with a text, image, or diagram previously generated by ChatGPT in response to an unknown prompt. The selected AI-generated content is shown to the whole class either via a projector or individually on students' screens. They are given a few minutes to carefully examine and memorise the material, paying attention to not only the factual content but also to the structure, language, tone, and level of detail. No contextual clues or source prompt is provided at this stage. After the initial observation phase, students are asked to reverse-engineer the prompt: Based on what they see, they are to infer what kind of input likely led the AI to generate that specific output. They then formulate their own version of the prompt, trying to match both the topic and the communicative style (e.g., informative, persuasive, descriptive) as closely as possible. Once they have written down their version of the prompt, they test it directly by entering it into ChatGPT (or another large language model). The goal is to compare the output they receive with the original AI-generated version shown earlier.

Organising a Trip

Students should be divided into small groups, with each group receiving a virtual budget (e.g., €1,500) and a clearly defined target audience—such as families with young children, elderly individuals with limited mobility, or business travellers with restricted time availability. The groups are tasked with designing an optimal multi-day trip that meets the specific needs, interests, and constraints of their assigned audience. They are expected to use a range of AI-based tools (such as ChatGPT, AI-powered travel planners, translation tools,

and interactive mapping applications) to search for suitable destinations, plan itineraries, estimate costs, and ensure logistical feasibility. The activity explicitly trains students in applying AI tools for complex, real-world planning tasks, where decisions are made after considering multiple interrelated variables. Each group is required to justify their choices, that is, why certain activities were included or excluded; how accessibility, cost, or timing influenced the design; and in what ways the final itinerary reflects the assumed values and preferences of the target group. Students are encouraged to conduct comparative prompt testing to refine their planning strategies, for instance, by asking ChatGPT for a "budget-friendly 3-day itinerary in Barcelona for a family with a toddler" and then refining the prompt to adjust for mobility needs or dietary restrictions.

Once the planning phase is complete, groups present their trip proposals to the class, and the outcomes are evaluated according to clearly defined criteria. These may include how effectively the itinerary fits the needs of the target audience, how diverse and culturally rich the selected activities are, how well the group managed their budget, and how thoughtfully they responded to real-world constraints (e.g., travel time, language barriers, local climate). This evaluation can be conducted either informally through peer review and teacher feedback, or formally with the help of a scoring sheet that includes innovation, practicality, inclusiveness, and digital tool integration.

As an alternative output format, students may choose to visualise their proposed itinerary through digital means. For example, they can use Canva to create an infographic-style poster summarising the key elements of the trip, such as destination highlights, daily activities, transportation plans, and budget breakdowns. Alternatively, they may design a digital flipbook or interactive presentation (e.g., using Genially or Book Creator) that narrates the journey day-by-day, integrating text, visuals, and even AI-generated images or voice narration. These examples of creative output allow students to synthesise factual and

logistical content into coherent, audience-friendly communication products, thus engaging multimodal literacy skills alongside practical planning competencies.

Beyond logistical problem-solving, this task promotes transversal skills such as teamwork, project management, communication, and empathy. By attempting to meet someone else's—rather than their own—needs, students practice perspective-taking and are challenged to go beyond their default assumptions about what makes a trip enjoyable or successful. Moreover, the iterative use of AI throughout the process reinforces critical reflection: Students experience firsthand the difference between generic output and precise, context-sensitive information that results from thoughtful, well-formulated prompts. Through this activity, learners move from using AI as passive consumers to employing AI tools as intelligent assistants in authentic, socially relevant scenarios, thereby developing both their digital literacy and their capacity for autonomous, purpose-driven learning.

Exploring Family Resemblance Through AI-Generated Imagery

As part of a thematic unit on "Family" (Molnárné László, 2023b) in the language or social studies curriculum, students are invited to engage with generative AI tools to explore the concept of physical resemblance and family identity. In this task, each student uses the Leonardo.ai platform to generate an AI-created portrait that resembles one of their parents (or another close family member), based on descriptive input provided by the student. Students begin by writing a detailed prompt in English (or the target language of instruction), describing the physical appearance, age, clothing style, and facial expression of their chosen family member. For example: "A middle-aged woman with short brown hair, wearing glasses and a blue sweater, smiling gently, seated in a kitchen with warm light." This process encourages both descriptive precision and linguistic creativity while also requiring students to reflect on personal observation and visual memory.

Once the prompt is complete, students input it into Leonardo.ai and generate an image. They are allowed to iterate the prompt a few times to improve the likeness, learning how subtle changes in wording affect the AI tool's visual output. Students are encouraged to compare the generated image with an actual photograph (privately, not submitted) and evaluate how closely the AI captured key features. The activity fosters digital literacy by introducing students to prompt-based image generation and critical thinking as they assess the limitations and interpretative nature of AI-rendered images.

Collaborative AI-Assisted Cookbook Project

As part of their AI-integrated language learning activities, students complete a creative task that develops their descriptive writing, speaking skills, and critical engagement with AI-generated content. The project begins with a homework assignment in which each student uses an image generation tool—such as DALL·E, Bing Image Creator, or another AI-based visual platform—to create a picture of their favourite dish. Alternatively, students may take a photo of the meal at home if it is something they have access to in real life. The focus should be on generating or selecting a clear, detailed image that could inspire others to describe and reconstruct the dish.

At the start of the following lesson, students upload their food images to a shared platform such as Padlet, Google Slides, or a class folder. The images are displayed without any identifying names so that others do not know who created which one. Each student then chooses one image created by a peer (i.e., any image other than their own) and writes a recipe based solely on what they see. This includes a guess at the ingredients, the preparation steps, and where the dish might originate from. If the task is completed in pairs, students first discuss their interpretations in the target language before jointly composing the written

description. This promotes spontaneous speaking, idea-sharing, and negotiation of meaning in an authentic context.

After completing their own version of the recipe, students input the same image (or describe it in detail) into a large language model such as ChatGPT, asking it to generate a recipe for the same dish. The AI's output is then compared with students' own texts. Learners reflect on how similar or different the two descriptions are in terms of vocabulary, sentence structure, creativity, and accuracy. They also consider how well the AI understood the visual cues, what it guessed correctly, and where it failed to meet expectations. Once both versions have been analysed, the teacher reveals who the original creator of the image was. The student presents the actual name of the dish, the real ingredients, and how it is typically prepared. This can lead to lively discussions about what was guessed correctly, which elements were misleading, and how the assumptions made by both students and the AI tool differed from reality. The entire activity takes place in the target language, both in student-to-student interaction and in communication with the AI tool. This ensures that language learning remains central while digital literacy and 21st-century skills are meaningfully integrated into the process.

Hallucination Hunting

In this classroom activity, students explore the limits of AI-generated content by engaging in a critical thinking task focused on hallucination detection. The task begins with a prompt designed to encourage creativity and potentially trigger factual inaccuracies: "Describe a little-known but fascinating natural phenomenon that only occurs in one specific location on Earth and explain the science behind it." Students enter the prompt into Perplexity AI and generate a complete response of approximately 150–200 words.

After reading through the AI's answer, students are asked to carefully examine the content and identify every factual claim it makes. These may include specific place names, scientific processes, statistics, or timelines. Students then copy the full response and paste it into ChatGPT, using a follow-up prompt such as "please fact-check this passage. Point out anything that is inaccurate, unverifiable, or potentially fabricated." ChatGPT's analysis helps students understand which parts of the original text are reliable, which may be exaggerated, and which are likely to be hallucinations. In the next phase, students are invited to return to Perplexity and attempt to refine their prompt in order to produce a more accurate version. They may rephrase the original request, introduce a known real-world example, or ask for cited sources. Students are encouraged to repeat this process up to three times, each time submitting the new response to ChatGPT for checking and comparing the results. As they progress, they observe how changing the input affects the reliability, style, and factual accuracy of the output. This iterative approach allows them to see whether clarity and specificity in prompting lead to more trustworthy results.

Key Fields Being Developed

The Council Recommendation on Key Competences for Lifelong Learning (European Commission, 2018) offered a comprehensive framework that identifies key competence areas essential for personal development, active citizenship, social inclusion, and employability. This framework emphasises the development of four interrelated dimensions: knowledge, skills, attitudes, and autonomy, which form the foundation for competence-based education and provide guidance for designing effective learning environments across all educational levels. Considering these four dimensions, the activities described in this article are well-suited for fostering development in the following areas:

1. In terms of knowledge, the instructional design was intended to develop a conceptual understanding of AI, particularly its underlying mechanisms and practical limitations. Students were not merely introduced to AI as a tool, but they engaged in activities that made them critically reflect on how these systems function. For instance, they compared the output yielded by the same prompt across multiple platforms (e.g., ChatGPT, Copilot, Perplexity, and DeepSeek) and documented differences in structure, content depth, and factual consistency. These activities revealed to them that AI systems do not *know* in a human sense but rely on probabilistic pattern generation based on training data.

2. Attitude development was embedded in the workflow of classroom and homework tasks through the cultivation of dispositions that support sustained cognitive engagement in uncertain and evolving digital contexts. Students were required to formulate their own prompts, critically evaluate the responses they received, and revise their queries iteratively when results were unclear or inaccurate. This recursive process trained them in persistence and precision as they learned that effective use of AI depends on carefully composed input and patience with trial and error. For example, one group of students working on a vocabulary expansion task became increasingly skilled at reformulating their prompts to avoid overly simplistic or repetitive definitions. Rather than becoming frustrated with ambiguous responses, they exhibited curiosity about why the AI tool had misunderstood them and adjusted their language accordingly. Moreover, students were systematically encouraged to work in pairs or small groups to solve problems or evaluate AI output, which promoted the development of interpersonal communication, tolerance of ambiguity, and openness to diverse viewpoints. In these collaborative settings, interaction with both peers and AI provided an opportunity for cultivating trust, resilience, and

reflection. The need to explain, defend, or critique AI output strengthened their ability to identify key ideas, question assumptions, and articulate uncertainty—a set of skills vital for navigating contemporary knowledge environments.

3. The development of cognitive and digital skills was supported through scaffolded tasks that required learners to independently gather, evaluate, and synthesise information using AI tools. Instead of relying on AI for final answers, students were encouraged to use it as a springboard for further exploration. In one task, they had to write a comparative cultural description of two English-speaking countries using AI to draft an outline and subsequently verify each section using academic or governmental websites. This process required them to actively control information flow, select relevant sources, and develop original formulations. Furthermore, students engaged in metacognitive activities in which they analysed their own information search strategies—what keywords they had used, how they had modified questions, and what kinds of results they had received. Over time, students became increasingly aware of how prompt design influences AI output and learned to recognise the linguistic signals of uncertainty or vagueness in responses. Skills such as abstract thinking, keyword-driven summarisation, and the construction of structured arguments were explicitly taught and practised in these contexts. Additionally, by revisiting the same problem through multiple AI interfaces and approaches, students developed the capacity to compare, contrast, and synthesise divergent answers, and in so doing, they strengthened their analytical thinking, pattern recognition, and inferencing abilities. These are not general digital competences but specific, transferable skills aligned with high-level cognitive processes.

4. Finally, autonomy was not treated as a background goal but as an explicit instructional target. From the outset, students were told that part of their responsibility

was to judge the usefulness, reliability, and relevance of AI-generated content. They were given tasks with open-ended outcomes, such as preparing a mini-presentation on an unfamiliar topic using AI as their primary assistant, where the success of the work depended not on the tool but on their ability to shape and direct it. They had to decide which prompts to use, how to filter the answers, and how to integrate information into their own linguistic output. In doing so, they moved away from dependence on teacher guidance and became more self-reliant in their decision-making. The iterative nature of many AI interactions—requiring refinement, clarification, and elaboration—also habituated them to working through initial failure rather than abandoning the task.

This integrated, competence-oriented design ensured that AI was not a novelty or shortcut but an element of a structured learning process, promoting depth, reflection, and intellectual independence across knowledge domains.

Summary

In summary, AI-assisted learning has the potential to transform language education, offering personalised, interactive, and efficient learning environments. This approach enhances language proficiency and supports the development of critical thinking, problem-solving, and technological literacy—skills essential for the 21st-century job market. My work underscores that AI-assisted learning is not just an approach but a shift that empowers students to take active roles in their learning. This foundation prepares them for future success.

By the end of an AI-assisted learning activity, students will have gained practical insight into the strengths and limitations of AI tools, developed a more critical eye for misinformation, and improved their ability to evaluate information thoughtfully—

competencies that are increasingly vital in today's AI-influenced world. Although some parents initially expressed hesitation, possibly due to unfamiliarity or concerns about technology, two years of classroom experience has shown that these fears were unfounded. In fact, many of the parents who were initially cautious have since become supportive, even enthusiastic, recognising the value of their children engaging with current, future-facing learning methods. They now appreciate that their children are not only acquiring language and literacy skills but are also becoming digitally literate, adaptable learners in tune with the demands of the modern world.

Effective AI integration is not a futuristic ambition but a present-day necessity that requires thoughtful implementation and professional readiness. As both educators and students become more confident in navigating AI tools, the classroom evolves into a dynamic, responsive space that mirrors the real-world digital environments learners will encounter beyond school. Ultimately, AI in education is not about replacing the human element but about enhancing it by enabling teachers to focus on what they do best: inspiring, guiding, and empowering the next generation.