

13 Opportunities for Artificial Intelligence (AI) in Language Teaching and Learning

Javier Muñoz-Basols and Mara Fuertes Gutiérrez

13.1 The Emergence of ChatGPT: A Paradigm Shift in Education

The release of ChatGPT in November 2022 marked a ground-breaking change in the accessibility to generative artificial intelligence (AI). As a **large language model** (LLM), this chatbot is essentially a tool that uses a corpus comprised of vast amounts of text (a total of 300 billion words) sourced from books, newspaper articles, Wikipedia, blogs and other websites (Teubner *et al.*, 2023), to generate content and perform certain tasks. OpenAI's decision to make ChatGPT-3 available to the general public, paired with its ease of use, led to the gradual spread of this technology tool across various sectors of society around the world, acquiring 100 million users in just two months (UNESCO, 2023: 3). Due to its ability to simulate human behavior in conversation, answer any question or generate text in a matter of seconds, starkly different opinions emerged regarding the potential social and educational effects of this technology (Popp, 2023: 22, 24). In certain countries, such as Italy, its use was initially blocked, as it was thought to be in breach of data protection laws (Buj, 2023). Meanwhile, in other countries, such as the United States, task forces were created at universities to explore potential ways to integrate this new tool into the development of learners' digital competences (Baber *et al.*, 2022). The impact of this chatbot was practically instant, as demonstrated by a study conducted at the University of Cambridge in April 2023 which found, just five months after its launch, that 47% of the student body had already used this tool (Sleator & Hennessey, 2023).

Despite ChatGPT's potential when it comes to processing natural language as effectively as humans, and sometimes doing so even better, AI prototypes and applications have been part of our daily lives for

decades, not only in professional settings but also in education and everyday communication. Some examples include:

- (1) **messaging apps** (WhatsApp, Slack, etc.): they use predictive text to offer suggestions as users type;
- (2) **search engines** (Google, Bing, etc.): they apply AI algorithms to understand users' searches and provide suggestions or corrections;
- (3) **email platforms** (gmail, hotmail, etc.): they use AI algorithms to correct words, finish sentences and suggest answers or reactions;
- (4) **word processors** (Microsoft Word, Google Docs, etc.): they correct grammar and spelling and also offer suggestions through predictive text technology;
- (5) **online grammar checkers** (Grammarly, Ginger, etc.): integrated in browsers and word processors, they provide real-time suggestions to improve users' grammar, punctuation and style;
- (6) **machine translators** (DeepL, Google Translate, etc.): they use neural networks and advanced algorithms;
- (7) **writing assistants** (ProWritingAid, Wordtune, etc.): they analyze vast amounts of text and help the user improve their grammar, writing style and readability;
- (8) **voice assistants** (Siri, Amelia, etc.): they perform searches, transcribe speech to text, act as virtual assistants or voice-controlled devices (accessibility), or serve as security authentication devices, among other functions.

However, unlike the tools and apps that the general public was already familiar with, what really changed our way of perceiving the impact of AI is the fact that ChatGPT is a **text generator**. It is a user-friendly tool with a straightforward interface, where users can ask questions and copy large volumes of text. Its value lies in the speed with which it processes natural language and establishes instant communication, a speed to which no human can aspire. To generate text, the tool can **thoroughly analyze and understand linguistic parameters**, while also ensuring the **coherence** and logical order of the different parts as well as the **consistency** or internal connection of the information.

Among the aforementioned AI prototypes, the evolution of this technology can be illustrated through two particular cases. Firstly, **machine translators** were not originally capable of translating anything beyond simple phrases. As a result, when it came to translating text involving idioms or metaphors (e.g. *pull out all the stops*), or polysemous words or terms with different meanings (e.g. *bow: a knot with two loops, the front part of a ship, a weapon used by archers*, etc.), the tool generated literal results that had nothing to do with the context in question. Their gradual improvement as neural machine translators has significantly increased their sophistication (Muñoz-Basols,

2019: 315). Thanks to the enhancement of generative AI, these translators are currently capable of not only recognizing literal meaning but also of identifying a wide variety of idiomatic or metaphorical usage and offering versions tailored to a specific register (informal, formal or academic). In fact, the sophistication of these tools continues to increase as millions of users feed them with linguistic sequences on a daily basis; in other words, artificial intelligence thrives on interaction with humans to improve its ability to respond.

Secondly, for the past decade, we have been interacting with **speech recognition technology** such as Alexa, Google Assistant or Siri. The main uses of these tools include searching for information (e.g. *Hey, Google, what's the weather going to be like today?*) or requesting specific tasks (e.g. *Hey, Google, turn on the lights*). In contrast to these devices, what is novel about generative AI chatbots like ChatGPT is that they can process complex questions, find detailed information, generate text models and implement user feedback, since they operate based on neural networks (Pascual, 2023). Another advantage offered by ChatGPT is **personalized interaction**. In the case of language learning, this can have a positive impact from a motivational perspective, among other factors, due to its ease of use at the technological and interactive level (Belda-Medina & Calvo-Ferrer, 2022) or due to the ability of chatbots to promote ludic or gamified learning (Mayer, 2014). Current voice assistants, on the other hand, often cannot answer a question if a speaker deviates excessively from sentence logic. This is also the case if a statement is pronounced incorrectly or if the question lacks sufficient contextual information. In contrast, ChatGPT is able to understand a written message even if words or letters are missing, for instance, as a result of typing too quickly. In short, thanks to the use of **big data**, this chatbot is capable of processing and interpreting a message even if it is incomplete or contains typos or grammar mistakes. Table 13.1 illustrates the potential roles, functions and implementations of ChatGPT in education.

Although it does not appear in Table 13.1, it is in this context of neural networks, education and language learning that a key aspect arises regarding the potential of **deep learning**-based AI. Specifically, it is the ability to generate unlimited grammatically correct and entirely meaningful statements (in those languages for which the tool has been sufficiently developed), as well as the capacity to interact with this information on different levels and for different purposes. Compared to other chatbots that use **machine learning** (based on probabilistic and statistical models), this positions next-generation chatbots like ChatGPT as technology tools that allow for **continuous exposure** to the L2 with **instant** and **personalized feedback** (see Chen *et al.*, 2021). These functions would be impossible to emulate, with the same level of immediacy and depth in language processing, in a traditional language

Table 13.1 Examples of roles, functions and implementations of ChatGPT in education

Role	Description	Example of implementation
Possibility engine	AI generates alternative ways of expressing an idea.	Students write queries in ChatGPT and use the Regenerate response function to examine alternative responses.
Socratic opponent	AI acts as an opponent to develop an argument.	Students enter prompts into ChatGPT following the structure of a conversation. Teachers can ask students to use ChatGPT to prepare for discussions.
Collaboration coach	AI helps groups to research and solve problems together.	Working in groups, students use ChatGPT to find information to complete tasks and assignments.
Guide on the side	AI acts as a guide to navigate physical and conceptual spaces.	Learners use ChatGPT to generate content for classes (e.g. discussion questions) and advice on how to learn specific concepts.
Personal tutor	AI tutors each student and gives immediate feedback on progress.	ChatGPT provides personalized feedback to students based on information provided by students or teachers (e.g. test scores).
Co-designer	AI assists throughout the design process.	Teachers ask ChatGPT for ideas about designing or updating a curriculum (e.g. rubrics for assessment) and/or focus on specific goals (e.g. how to make the curriculum more accessible).
Exploratorium	AI provides tools to play with, explore and interpret data.	Teachers provide basic information to students who write different queries in ChatGPT to find out more. ChatGPT can be used to support language learning.
Study buddy	AI helps the student reflect on learning material.	Students explain their current level of understanding to ChatGPT and ask for ways to help them study the material. ChatGPT could also be used to help students prepare for other tasks (e.g. job interviews).
Motivator	AI offers games and challenges to extend learning.	Teachers or students ask ChatGPT for ideas about how to extend students' learning after providing a summary of the current level of knowledge (e.g. quizzes, exercises).
Dynamic assessor	AI provides educators with a profile of each student's current knowledge.	Students interact with ChatGPT in a tutorial-type dialogue and then ask ChatGPT to produce a summary of their current state of knowledge to share with their teacher/for assessment.

Source: UNESCO (2023: 9).

class. Another advantage of this technology lies in its ability to provide corpus-based **language models** at any time and from any device, expanding learning opportunities beyond the language classroom.

The introduction of AI represents a **paradigm shift** in language teaching and learning. Among the tools available today, one of the most immediate aspects is to consider chatbots like ChatGPT as part of a new dimension of interaction with the target language. As will be discussed below, this fourth dimension, spearheaded by generative AI (Muñoz-Basols & Fuertes Gutiérrez, 2025), constitutes a source of language exposure for learners as well as an opportunity for language instructors to guide their educational and pedagogical practices both within and beyond the classroom.

13.2 AI-mediated Interaction: A Fourth Dimension for Learning an L2

To understand the relationship of this new technology to language teaching and learning, it is important to distinguish between two independent yet interrelated concepts: artificial intelligence (AI) and natural language processing (NLP). On the one hand, **artificial intelligence** is the general term. It was first coined around 1950 in order to identify machines that could perform functions that were more complex than routine tasks (UNESCO World Commission on the Ethics of Scientific Knowledge and Technology, 2019: 3). Today, it is used to describe the creation of intelligent systems or machines capable of simulating real and plausible conversations (though not necessarily reliable). This technology is based on algorithms that enable **task automation** (Chaudhry & Kazim, 2022). In other words, the machine performs tasks inherent to human intelligence, such as language comprehension, problem-solving or decision-making.

On the other hand, **natural language processing** is a subfield of AI that handles linguistic interaction between humans and machines. Today, it is based ‘more on *brawn* (computational power) than on *brain* (grammatical analysis)’ (Boden, 2016: 61). That is, it relies more on **computational power** to process vast amounts of big data across multiple usage contexts than on a **probabilistic approach to grammatical analysis**, as was the case with statistical machine translation (SMT). This type of machine translation, which was based on probabilistic models that prioritized neither context nor fluency in communication, was used until the arrival of **neural machine translation (NMT)** in 2014 (Sutskever *et al.*, 2014). Indeed, neural machine translation is the model that prevails today. NLP focuses on the development of models and algorithms that enable a machine to understand, interpret and generate human language with logical meaning in various tasks, such as machine translation, speech recognition or response generation through text. In other words, while **NLP focuses specifically on how human language is processed** in specific tasks and applications within an AI environment, **AI involves the design and development of intelligent systems**. However, it is important to keep in mind that there is no single way to define AI; this is because its **definition evolves** alongside its technology (Gonsalves, 2017). Today, UNESCO defines it as a technology that is ‘potentially capable of imitating or even exceeding human cognitive capacities, including sensing, language interaction, reasoning and analysis, problem solving, and even creativity’ (UNESCO World Commission on the Ethics of Scientific Knowledge and Technology, 2019: 3).

Through a bibliometric analysis of publications on AI and language teaching between 2000 and 2019, Huang *et al.* (2023) identified a series of fundamental recurring themes in specialized literature on the

subject. Firstly, the study highlights the **application of AI to reinforce the acquisition** of the four traditional skills in the following order: writing, reading comprehension, speaking and listening comprehension. Furthermore, it is also used to support the development of two central aspects of language learning: **vocabulary** and **grammar**. Secondly, the various **benefits of using AI** are mentioned, such as personalized learning, the ability to adapt to learners' individual needs and the opportunity for additional and unlimited practice in such environments. Finally, the study addresses certain **educational challenges**, including the reliability of AI, the acceptance of this technology and its ethical use by educators and learners (Gómez Soler & Tecedor, 2025), as well as a series of **social challenges**, such as general accessibility (Dooly & Comas-Quinn, 2025) and privacy (Boden, 2016: 163).

Now, if indeed there is a **new dimension** in communication associated with the integration of this type of technology into language learning, it is **interaction**. AI offers opportunities that support the teaching–learning process since it constitutes a novel and unlimited way to interact with two **fundamental aspects** in the field of acquisition: **language exposure** and **personalized practice opportunities**. In fact, study abroad programs are based on this very premise: improving language proficiency requires meaningful exposure and the development of interactional competence at both the linguistic and intercultural level (Strawbridge, 2023a, 2023b). Although AI cannot entirely replace these in-person experiences, AI-powered tools can facilitate contact with the target language and create learning opportunities.

Therefore, it is necessary to understand the **teacher ↔ AI ↔ learner** relationship as a new dimension for interaction (see Muñoz-Basols & Fuertes Gutiérrez, 2025). With this in mind, to the three traditional types of interaction – (1) learner ↔ teacher, (2) learner ↔ learner and (3) learner → content or materials (Moore, 1989: 1) – we must add a **fourth: AI-driven tool (e.g. a chatbot) ↔ teacher + AI-driven tool (e.g. a chatbot) ↔ learner**. Even though it is still too early to say how educators and learners will interact with this technology (e.g. objectives, frequency and tasks), it is clear that it will provide opportunities to enhance language acquisition and consolidation.

In line with what has been discussed so far, it is possible to identify at least **three main areas** where sustained interaction with AI will have a profound impact: (1) language contact opportunities; (2) adaptation to different learning profiles; and (3) the analysis and systematization of linguistic material.

13.2.1 Language contact opportunities

AI-driven tools provide **continuous access to corpus-based linguistic material**, which is constantly growing and being updated. This access

facilitates the creation of scenarios to practice different aspects related to a variety of communicative contexts or potential interlocutors in the target language, ranging from informal conversations to job interviews. Similarly, it allows for the incorporation of the multimodal dimension (text, image and sound) (Mayer, 2021), from textuality in various genres (Del Rey Quesada, 2021) and orality – for example, through speech recognition (contributing to the improvement of pronunciation and fluency) – to the enhancement of visual memory through the use of images. Indeed, this can make learning much more memorable, meaningful and longlasting. These language contact opportunities can also have a positive impact on motivation (Cerezo & Yanguas, 2025). This is because they provide access to a wide variety of communicative learning situations that can be tailored to any context and level, while also paying attention to language use in line with the learner's interests and needs.

13.2.2 Adaptation to different learning profiles

One of the contributions of AI to the field of language acquisition is its ability to provide **personalized learning** opportunities, optimizing aspects such as pace, approaches, objectives, content and learning activities according to the individual needs and interests of each learner (US Department of Education, 2017, cited in Chen *et al.*, 2021: 201). Furthermore, this technology is able to tailor information to the specific requirements for each interaction. For instance, learners can ask a generative AI chatbot like ChatGPT to summarize, rephrase or explain the information they need in simple and less technical terms. This adaptability also enables the provision of immediate feedback by expanding on the presented information or by answering specific questions using language that is both grammatically correct and stylistically suitable. By adapting to the user, assessments can be tailored to specific learning profiles. Additionally, the tool can recommend supplementary language practice resources.

13.2.3 Analysis and systematization of linguistic material

AI enables the analysis and systematization of linguistic material, which is very useful when it comes to **raising learners' linguistic awareness**.

Through natural language processing, recurring or absent linguistic patterns can be identified in a text. Systematic use of this technology – through the design of specific activities such as translation, rewriting texts or modifying register, textual typology (see Muñoz-Basols & Pérez Sinués, 2021) or the communicative context – can contribute to expanding the learner's lexical repertoire by exposing them to new

vocabulary and reinforcing their grammar skills, achieved through the recognition of various language patterns and stylistic alternatives. Ultimately, interaction with this technology provides opportunities for **systematic practice** and exposure to a wide range of **conversational and textual patterns in the L2**.

To integrate AI into education, it is important to consider both the characteristics of the teaching context in which it is to be used, as well as the components and steps necessary to implement AI pedagogically and ethically into the field of language learning. With this in mind, the aim is to combine learning profiles, language contact and the systematization of linguistic material to get the most out of the integration of this technology into second language teaching and learning.

13.3 The IMI+ Framework for the Implementation of AI at Curriculum Level

Currently, we lack methodological approaches and large-scale validated experimental studies to understand how to fully integrate generative AI into L2 teaching practices. In relation to Spanish teaching, for instance, one of the first theoretical proposals for the implementation of AI is the **IMI+ framework** developed by Muñoz-Basols *et al.* (2023: 176) in a Special Issue of the academic journal *Hispania*, published by the American Association of Teachers of Spanish and Portuguese (AATSP). The aim of this framework, in the context of AI-driven machine translation tools, is to implement **applied translation**. In other words, the idea is to seek ‘the integration of translation in L2 education with an understanding of its multimodal and interactive nature in communication’ (Muñoz-Basols *et al.*, 2023: 171).

Beyond translation, the IMI+ framework is a versatile and adaptable model that can guide the implementation of generative AI into other areas or components of language teaching. The framework takes the form of a pentagon and includes, on the one hand, **five awareness-raising elements** to meet the needs of the teaching–learning context and, on the other, **five action components**, conceived as essential steps to guide the instructor in the implementation, development and management of AI (Figure 13.1).

The **five awareness-raising elements** address the particularities of AI as a new technology in the educational domain (Table 13.2).

Once these elements have been reflected upon and, therefore, the potential of AI in a given educational setting has been considered, the **five action components** (3 + 2), conceived as specific steps in the **IMI+ framework**, help to guide the implementation of AI (Table 13.3).

The **five awareness-raising elements** and the **five action components** described in the **IMI+ framework** (Muñoz-Basols *et al.*, 2023) serve as a starting point to guide language instructors when it comes to integrating

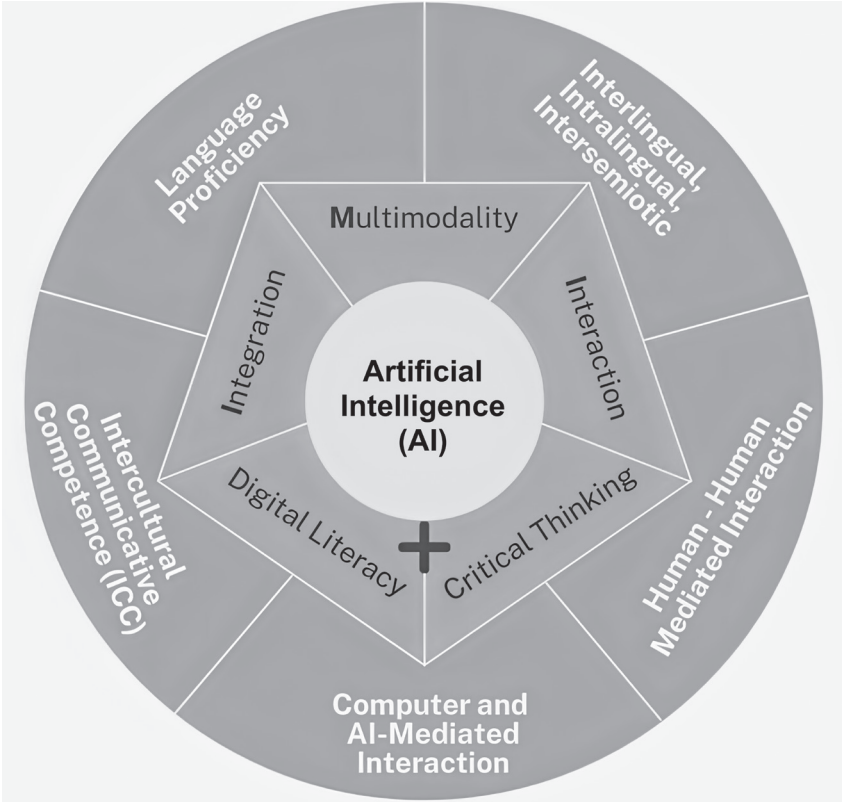


Figure 13.1 IMI+ framework (Integration, Multimodality and Interaction + Digital Literacy and Critical Thinking)
Source: Adapted from Muñoz-Basols *et al.* (2023: 176).

Table 13.2 Awareness-raising elements in the IMI+ framework (Muñoz-Basols *et al.*, 2023: 176) to consider AI

1. Linguistic competence. → Identifying how AI can contribute to the development of linguistic knowledge in a given context;
2. Intralinguistic, interlinguistic, intersemiotic. → Planning the integration of AI at the intralinguistic (internal study of the same language), interlinguistic (comparative or contrastive study of different languages) and intersemiotic levels (relationship between sign systems beyond verbal language, e.g. facial expressions, body language, onomatopoeia or emoticons);
3. Technology-mediated human-to-human interaction. → Analyzing prior needs in technology-mediated human interaction, including access to resources, personalized learning and feedback, opportunities to interact in the target language, individual or collaborative language practice or continuous learning over a given period of time from a longitudinal perspective;
4. Technology- and AI-mediated interaction. → Comparing the similarities and differences between technology-mediated human-human interaction and AI-mediated interaction to identify how the latter can meet or reinforce additional needs;
5. Intercultural Communication Competence (ICC). → Expanding the use of AI to enhance the acquisition of pragmatic and intercultural competences, thanks to its ability to generate communicative contexts and textual models in any modality (e.g. narrative, descriptive, expository, argumentative, academic, journalistic, advertising, legal-administrative, scientific-technical, etc.).

Table 13.3 Action components in the IMI+ framework (Muñoz-Basols *et al.*, 2023: 176) to implement AI

The first three components focus on planning and development :	
1. Integration. → Implementing AI into the curriculum as an additional learning tool;	
2. Multimodality. → Combining the potential of AI-driven technology in its different modalities (text, image and sound) to enhance the teaching–learning process;	
3. Interaction. → Designing activities and tasks that promote interaction in order to get familiar with the use of AI as an integral part of the educational process.	
+	
The two additional components focus on the evaluation and optimization of the AI-mediated teaching–learning process:	
4. Digital literacy. → Providing training in the competent and ethical use of AI-driven technology tools.	
5. Critical thinking. → Developing the cognitive process of formulating one’s own value judgements and promoting logical reasoning when compiling, analyzing and evaluating information provided by AI tools.	

AI into L2 education. However, as users of linguistic material, it is important to keep in mind that, although AI uses natural language processing, the generator of this information is a machine. Therefore, it is essential to critically evaluate its suitability and acceptability: in other words, it is crucial to foster a critical mindset (Hadley & Boon, 2023) to analytically and reflectively assess the material provided. Ultimately, it is necessary to integrate AI in a way that does not deprive learners of acquiring skills that are key in the development of 21st-century citizens (World Economic Forum, 2016, cited in UNESCO, 2021: 33), including ingenuity, self-efficacy, self-regulation, metacognition, and critical and independent thinking.

13.4 Immediate AI Opportunities: Informal Learning, Learner Autonomy and (Self-)Assessment

Due to its constant evolution, it is difficult to predict how the **integration of AI** will impact language teaching and learning (see Huang *et al.*, 2021, for a review of the advantages and disadvantages of using chatbots in this field). However, some immediate applications of this technology can be glimpsed in three key areas for language acquisition, where it is expected to have a profound impact: **informal (or incidental) learning, learner autonomy and (self-)assessment**.

Before addressing these applications, it is worth mentioning the need to schedule the implementation of AI in the language classroom **in line with learning objectives**, as well as to clearly establish its function, whether that is to facilitate learning, serve as a guide or analyze and solve problems (Kukulska-Hulme *et al.*, 2021: 24; see Table 13.1). This implementation should be carried out according to the principles governing the use of technology in the language classroom (Fryer *et al.*, 2020; Mayer, 2017), such as creating a favorable and positive atmosphere when it comes to implementing technological devices or resources (Sun *et al.*, 2022: 7). It is also essential to prevent the so-called **novelty**

effect associated with the use of AI (Fryer *et al.*, 2017: 466), since the presence of these tools in the classroom can lead to a short-term spike in learner motivation due to their ludic nature (Mayer, 2014). However, this affective variable may decrease over time, especially when it comes to speaking skills.

13.4.1 Informal learning

Informal (or incidental) language learning refers to activities performed either consciously or unconsciously outside formal educational settings that result in an improvement of proficiency in an additional language (see, among others, Dressman, 2020: 2). A large part of informal language learning takes place **through technology** (Rosell-Aguilar *et al.*, 2017: 3), using tools such as audiovisual media, videogames, apps, virtual reality and social networks, among others (Cerezo & Pujolà, 2025; Oskoz, 2025). AI plays a fundamental role in the configuration of these tools. For instance, it is used to develop algorithms that recommend specific content (in certain languages and linguistic varieties) to users on social networks. This, in turn, can have a positive impact on how a learner interacts with other users of their target language, while also improving their intercultural competence.

Various language learning apps use **AI-generated algorithms** to tailor the learning experience to each user and determine the difficulty level of the exercises proposed (Kharwal *et al.*, 2022; Settles & Meeder, 2016). The most advanced tools also have **speech recognition systems** that correct pronunciation or facilitate its acquisition by asking the user to repeat a statement if it is not understood. These features enable the automatic creation of personalized learning roadmaps tailored to the needs of each learner. Regarding chatbots, recent research reveals that their use can lead to the acquisition of basic communication skills in the target language (Dokukina & Gumanova, 2020: 544–545). However, further empirical studies are needed to confirm this hypothesis which, in any case, is only valid for languages in which the tools' design is sophisticated enough. Finally, AI can also be applied in informal language learning through apps that provide **subtitles for audiovisual content**, offering learners various advantages (see González Ortega & Mañas Navarrete, 2020; Muñoz-Basols, 2019).

13.4.2 Learner autonomy

The use of AI can also contribute to the development of language **learner autonomy**. According to UNESCO (2021: 33), this is one of the most immediate scenarios for the impact of this technology on education. Among its benefits, it is important to highlight how AI can enhance communication skills in the target language. For instance, the

use of chatbots is not limited to oral interaction. As noted by Sharples and Pérez (2022), chatbots can also be used to practice **creative writing**, through activities where the learner and the tool work together to write a story, as well as to develop other reflective skills such as **critical reading** or **reasoning**. Other applications of AI in autonomous learning include participating in **digital language immersion** opportunities (Soler Montes & Juan-Lázaro, 2025), resolving queries and receiving immediate personalized feedback. All these benefits help the learner to move forward in their learning journey (Kukulska-Hulme *et al.*, 2021: 23), adapting to their pace. They are also in line with various current educational trends, which lean towards the automation of learning processes (see Dukukina & Gumanova, 2020). According to Ellis (2022), AI can also assist language learners in managing the acquisition of certain **cross-disciplinary content**. While such content is rarely addressed in the language classroom, it is nonetheless useful for navigating academic settings. For example, in the context of higher education, Ellis (2022) refers to the use of assistants to create bibliographic references or to manage anti-plagiarism systems.

With regard to chatbots, Dokukina and Gumanova (2020: 544–545) emphasize a series of general advantages related to autonomous language learning. For instance, they offer the possibility of learning at a **personalized pace**, or even in small, fragmented blocks, as well as the opportunity to repeat and practice specific content as many times as necessary without experiencing anxiety or shame, which could occur in a classroom setting (Bárkányi, 2025). Ultimately, chatbots provide a safe learning environment free from expectations and judgement, which is, without a doubt, beneficial for learning (Dokukina & Gumanova, 2020: 544–545; Kukulska-Hulme *et al.*, 2021: 23). In this regard, AI has the potential to play a central role in the design of more accessible and inclusive language learning programs (Mizza & Rubio, 2025). That said, it is also important to ensure that the gap between those who have access to AI tools and those who do not is not widened.

In order to get the most out of all these opportunities, learners must become familiar with the functionalities and limitations of the tools they use and, to the extent possible, receive guidance on what tasks and activities enrich the use of this technology. Otherwise, if learners use AI without a clear objective, the learning process may be compromised.

13.4.3 (Self-)assessment

AI offers numerous benefits in the context of **(self-)assessment**. For instance, learners can use these tools to measure their progress or to revise and prepare for assessments, while educators can save time when it comes to designing and personalizing tests, grading papers and preparing feedback (Kukulska-Hulme *et al.*, 2021: 25; also see Bailini, 2025).

However, the implementation of AI into assessment practices is perhaps among the most concerning aspects for the educational community. Specifically, it is perceived as a threat to certain types of traditional assessments, such as essays, since several studies show that tools like ChatGPT or *advinci-003* can produce texts that achieve high grades (Uchendu *et al.*, 2021; Yeadon *et al.*, 2023). Another aspect to consider, as noted by Sharples (2022), is that if teachers also use AI for **grading**, none of the agents involved in the teaching and learning process actually benefits from the assessment processes.

In the field of language teaching, improper use of AI can especially affect writing tasks that learners prepare independently to then submit to the instructor. In response to this situation, educators might choose to limit assessment to tests that do not involve technology, as is the case, for example, in certification exams. This said, it should be noted that meeting this condition is not always feasible (for instance, distance education currently has no choice but to rely on technology for evaluation). However, this would mean forgoing the great opportunities offered by AI in the field of assessment. To mitigate this deficiency, **assessment tools** can be designed where AI is used to accompany learners. For example, learners could be asked to correct a text generated by a machine translator to subsequently discuss the errors detected. Alternatively, as suggested by Sharples (2022), learners could be provided with various AI-generated text models and asked to make improvements. Sharples (2022) also points out that these tools are not specifically designed for academic purposes. As a result, they have certain limitations that can in turn be exploited in educational contexts to design assessments.

One of the main criticisms of ChatGPT is that, while it does generate coherent statements, they are sometimes false or fabricated. In the context of AI models, these are known as **hallucinations** (see Bang *et al.*, 2023), and they may be related to factors such as the lack of a solid knowledge foundation, the inability to verify information in real time, data scarcity or the absence of sufficient context to generate accurate and relevant answers. In other disciplines, it may be easier to identify text generated by a chatbot. However, in the field of language teaching – where language content prevails – this is not always possible, since learners are often asked to produce texts based on imaginary scenarios in which factual accuracy is irrelevant (e.g. writing a letter or telling a story). As suggested in the **IMI+ framework** (Muñoz-Basols *et al.*, 2023) described above, one possible solution involves designing assessment questions that promote critical thinking and logical reasoning, so that learners can provide new, original information in their answers based on the given material. Another interesting skill that may be taught in the future is how to use language to pose questions that maximize communication and that consequently lead to the best possible response from an AI-powered tool.

13.5 Conclusion and Future Lines of Research

The debate on how to manage generative AI-driven tools like ChatGPT may initially lead to reinforcing the **human vs. machine** dichotomy as antagonistic elements. However, ‘all applications of AI in education should enhance, not threaten, what it means to be fully human’ (UNESCO, 2021: 27). AI as a new dimension for second language learning offers an endless array of pedagogical opportunities (Tuomi, 2018: 32), turning it into another **mediating technology** for learning. This is especially relevant due to, on the one hand, its **ability to transform teaching** as a new tool that is available for both educators and learners alike and, on the other, its **potential to enhance learning** by extending it beyond traditional settings, providing more opportunities for language exposure, continuous practice and interaction in the L2. However, **the way educators respond** to the challenges and opportunities presented by this technology will have a direct impact on its integration in the classroom (Sharples & Pérez, 2022). Therefore, in order to tackle any potential challenges, Sharples (2022: 1123) encourages teachers and learners to come together to explore the **practical and ethical issues** posed by the use of AI in education (also see Fyfe, 2022). Ultimately, as per UNESCO’s recommendations, it is essential to address ‘the responsible and ethical use of AI technologies in teaching, teacher training and e-learning, among other issues, to enhance opportunities and mitigate the challenges and risks involved in this area’ (UNESCO, 2022: 34).

Since the Gothenburg Summit held in November 2017, the European Union has been working on **three priority areas that will be impacted by AI** over the next few years: first, making better use of **digital technology** for teaching and learning; second, developing **digital competences and skills** that are relevant to digital transformation; and finally, improving education through **data analysis and prediction**. Technology advances driven by this technology will not only impact teaching: they will also influence how institutions operate and how educational policies are designed (Tuomi, 2018: 2). Therefore, it is important to consider what **role AI will play** in terms of **three fundamental aspects** that underpin language teaching and learning, as well as the field of education as a whole: **curriculum design, teaching practices and the creation and selection of materials** (Blake *et al.*, 2025; González-Lloret, 2025). As with any technology, the implementation of AI will require an adjustment period. However, it is clear that both educators and learners – perhaps now more than ever before, given that AI adds a **new interactional dimension** (Muñoz-Basols & Fuertes Gutiérrez, 2025) to the educational setting – will need to once again step out of their technology comfort zones (Muñoz-Basols, 2019: 299). This process will also require adapting this new technology to today’s learning methods (Mayer, 2022), which

will involve not only using AI efficiently and ethically (Pareto Boada *et al.*, 2021) but also getting the most out of this resource as part of the learning and professional development process – ‘a critical set of issues with which the AI-in-education community needs to fully engage’ (UNESCO, 2021: 27).

In future empirical studies in the field of second language acquisition, it will be necessary to address various questions regarding the impact of AI. However, these will surely be closely related to the **planning**, **personalization** and **implementation** (PPI model) of technology-mediated language teaching (see the PPI model in the introduction to this book; Muñoz-Basols *et al.*, 2025). Therefore, it will be essential to consider AI as a technology that generates innovation and transformation when it comes to planning curriculum needs, as a facilitator of personalized teaching and learning, as well as a tool for implementing activities and resources that can promote both linguistic and intercultural competence in additional languages.

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