Exploring AI in computer assisted language learning: pedAIgogies, prompts, personalisation and policies

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Abstract

This article is based on an institutional project entitled 'Generative Artificial Intelligence in teaching and learning processes of HE students: the case of language learners'. The aim is to establish the extent to which second year undergraduate language students experience, perceive and potentially employ the use of Artificial Intelligence tools and the possible impact upon their language learning and performance.

The study consists of data from language students (n=75) in an Irish university setting. The data elicitation was carried out using a number of methods: an anonymous online end-of-semester survey; a feedback session with breakout groups during the final lecture and final essays produced by students reflecting on their use of AI in their learning. A mixed-methods approach was employed using quantitative analysis for the survey results and qualitative analysis for the focus groups and the reflective essays. A deductive thematic analysis was implemented using the software *NVIVO*. The results from the analysis are discussed in comparison with the authors' ongoing research that has been investigating important emerging trends and practices within

Computer Assisted Language Learning and AI. These include: prompt writing processes; professional practices; pedAIgogies; personalisation; ethical issues and academic integrity policy processes. The final findings and conclusions reveal a need for rethinking our pedagogies and our pace - adopting a *festina lente* approach - and an urgent need for developing AI literacies in conjunction with university policies. In conclusion, we recommend the critical use of open educational resources to support the integration of AI in language learning.

Keywords

Artificial Intelligence; GenAI; AI literacy; language learning experiences; plagiarism; personalisation; AI education policies.

Explorando la IA en el aprendizaje de lenguas asistido por ordenador: pedAIgogías, prompts, personalización y políticas institucionales

Resumen

Este artículo es el resultado del proyecto institucional «La Inteligencia Artificial Generativa en los procesos de enseñanza y aprendizaje en educación superior: el caso de los estudiantes de idiomas». Su objetivo es establecer en qué medida estudiantes universitarios de idiomas de segundo curso experimentan, perciben y potencialmente emplean herramientas de Inteligencia Artificial (IA), y el posible impacto en su aprendizaje y rendimiento lingüístico.

Los datos para el estudio provienen de estudiantes de lenguas aplicadas (n=75) de una universidad irlandesa y se obtuvieron utilizando varios métodos: una encuesta anónima en línea al final del semestre; una sesión con grupos focales y los ensayos finales producidos por los estudiantes reflexionando sobre el uso de la IA en su aprendizaje. Para el análisis se empleó un enfoque metodológico mixto, con análisis cuantitativo de los resultados de la encuesta y análisis cualitativo -temático deductivo usando *NVIVO*- de los grupos focales y los ensayos de reflexión. Los resultados se discuten y comparan con investigaciones en curso de los autores sobre tendencias y prácticas emergentes dentro del Aprendizaje de Lenguas Asistido por Ordenador y la IA. Estas incluyen: escritura de *prompts,* prácticas profesionales, pedAIgogías; personalización; uso ético y política de integridad académica. Las conclusiones ponen de manifiesto la necesidad de crear nuevas pedagogías -adoptando un enfoque de *festina lente*- y la urgencia en el desarrollo de la literacidad en IA paralelamente a políticas universitarias sobre su uso. Terminamos recomendando el uso crítico de recursos educativos abiertos para apoyar la integración de la IA en el aprendizaje de idiomas.

Palabras clave

Inteligencia Artificial; IAG; literacidad en IA; aprendizaje de lenguas; plagio; personalización; políticas educativas de la IA.

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1. Introduction

The emerging technology of GenAI is undoubtedly reshaping education, and language learning is not an exception. AI technologies and GenAI have increased the levels of challenge, opportunity and complexity in learning processes and the "transformative potential of AI in language education" (Thorne, 2024: 570) is becoming a reality. Given this game-changing arrival of AI/Machine Learning tools, the digital wisdom debate (Prensky, 2011) has been re-ignited with yet another digital shift taking centre stage. After more than a decade, Schulze's (2008) prediction on the imminent arrival of AI proper, has now come true.

In this educational context, it is essential to know more about the attitudes and perceptions of students towards this new transformative technology in order to develop pedagogical practices that include AI in Higher Education (HE) curricula. While there is a growing literature on student perceptions and use of AI and GenAI in HE (Ravi and Raman, 2022; Nacua Obenza et al., 2023; Keleş and Aydin, 2021) and for language learning (Bantoto et al., 2024; Mandasari et al., 2024; Persulessy et al., 2024), most of these studies in the area of language learning focus on the learning of English. Our own article seeks to add to this debate offering results from a study with language learners from French, German, Irish, Japanese and Spanish contexts. The study is framed within the University of Limerick's strategic goal to embed technology-enhanced learning across curricula (University of Limerick, 2023), specifically in languages, and has been funded under the Strategic Alignment of Teaching and Learning Enhancement (SATLE) scheme. One of the main objectives underpinning this initiative is the educators' planning process for extending Critical Digital Literacies and AI literacies to language learners.

The study derives from Second Year Applied Languages student perceptions on the use and integration of Artificial Intelligence, including GenAI, in language learning. The research project explores the issues and opportunities of AI and language learning within the current university context. The study's main aim, then, is to establish the extent to which Second Year language students experience, perceive and potentially employ the use of Artificial Intelligence tools and the possible impact upon their language learning and performance.

Therefore, the questions guiding this research study are the following:

RQ1: Which experiences do second year students from Applied Languages have regarding the use of AI for their language learning?

RQ2: What are the perceptions and beliefs regarding the use and impact of AI for language learning that language specialist students have?

In order to answer these questions, the paper is structured as follows. First, we review the theoretical framework that underpins the research and revise concepts such as prompts, pedAIgogies (an emerging neologism, blending pedagogy and AI, see, for example, Bran and Grosseck, 2024), personalisation and policies, all of them understood in the context of (Gen)AI. We then offer an overview of the research context and the research methodology, detailing the data gathering tools and the data analysis used. Following this, the results are presented and discussed, focusing on the main categories presented in the section of the conceptual framework. Finally, we conclude with a discussion, and a set of recommendations based on the findings of the study. These recommendations are addressed to language educators in order to support the integration of language learning practices that use (Gen)AI tools. The article concludes with suggestions for further research.

2. Artificial Intelligence in language learning

It is universally recognised that GenAI is reshaping education and driving change in our professional practices on an almost daily basis (Thorne, 2024). This constant and rapid change may sometimes produce a sense of discomfort among educators, and the area of language learning is not an exception, as they find themselves in a powerless position, trying to continuously catch up with new technological practices and advancements. It is not our intention here to be alarmist, but rather to recommend proceeding with caution and in a measured fashion. To this end, this section will begin by offering certain concepts and ideas regarding AI in education and specifically in the area of language learning. Our goal is to anchor certain concepts and constant fundamentals to return to when considering the latest GenAI and AI developments. When integrating AI into CALL (Computer Assisted Language Learning), several key elements need to be considered for students and research practitioners alike. These elements, which we are denominating as the 'Ps', range from prompts, and pedagogies to practices, personalisation, policies and plagiarism. These concepts are driving this study from its inception to its findings and conclusions. Consequently, we will present them as the conceptual framework that underpins the research presented in this article.

2.1 Prompts

Working with GenAI tools involves a bi-directional human and AI interaction that requires specific skills for effective communication (Knoth et al., 2024). The crafting of prompts or user instructions, often known as prompt engineering, is a new skill at the center of this interaction, based on the principle that the quality of the input will affect the quality of the generated output. This represents an additional iteration of the old computer coding maxim of 'Garbage in. Garbage out'.

According to Knoth et al. (2024), the most common prompt engineering strategies that students use are in the form of generic, short and brief prompts (e.g. imperative,

exclamatory, declarative or interrogative statements) in GenAI interactions. Such prompts typically result in low-quality outputs. However, the interactions of a language learner with GenAI tools can focus on explicit knowledge inquiries (Isemonger, 2023: 8), in cases where the tool is used as a translator, dictionary or search engine, among other options. If we consider prompts such as "What does 'jueves' mean in Spanish?" or "Explain the present tense in the Spanish language", these may produce satisfactory output. Nonetheless, there are other instances in which students or teachers can struggle to write an effective prompt to perform a complex task. Such is the case when we intend, for example, to produce a simulation of interactive scenarios, to obtain some detailed feedback or a pedagogical explanation, or also to ask for complex localised translations, or create games, to offer but a few illustrative examples.

In the context of language education, an effective prompt would include the task (e.g., create, design, translate, check…), the context (e.g., role playing, language level, language methodology, language skill, etc.), the parameters (e.g., style, tone, formatting of the output, word count, etc.) as well as including some examples and constraints. It can also contain specific details to mitigate the different types of bias that are present and discernible in huge datasets of Large Language Models (LLMs), see, for example, the digital linguistic bias in the Spanish language as revealed by Muñoz-Basols et al. (2024).

It is also essential to not only write effective prompts but to fine-tune subsequent prompts (Kang and Yi, 2023) during the interactions while assessing the quality of the outputs (Hwang et al., 2023: 3), which is also challenging in itself. This is given greater weight especially if the student does not know enough about the target language that they are attempting to learn. In addition, multimodal Generative AI chatbots further exemplify how important it is to write efficient prompts to get the best from their particular functionalities. This is certainly the case when writing prompts to generate images that meet aesthetic expectations (Hao et al., 2023).

2.2 PedAIgogies (*sic*)

Another transformative aspect of recent developments in AI is a change in pedagogies. The integration of AI into education is reshaping the educational landscape, bringing new opportunities to rethink our pedagogies in the form of a new *PedAIgogy*. These new pedagogical approaches incorporate AI into the learning process and move away from knowledge access and search in favour of a new form of pedagogy based on co-creation and dialogue with AI teachers such as ChatGPT (Clark, 2024). At the core of new pedAIgogies is the concept and practice of prioritising and cultivating critical thinking through teaching methodologies (Stuchlikova and Weis, 2024) and curriculum design. In the context of language learning, the use of AI-driven language pedagogies is not new. Nevertheless, GenAI adds more opportunities for interactive and personalised learning experiences and breaks the limitations that previous AI tools possessed. These limitations were evident when simulating human-like dialogues, producing creative or original content, and recognising and correcting errors with the accuracy of a human tutor (Rebolledo Font de la Vall and Gonzalez Araya, 2023).

In contrast, the role of human teachers undergoes a different transformation that focuses on the importance of teacher professional development and upskilling. The development of new digital competencies is a continuous process, from understanding AI fundamentals and using AI in assisting their teaching to an effective AI-pedagogy integration with enhanced capacities to critically adapt and explore innovative practices with AI (Miao and Cukurova, 2024).

With regard to the challenges, on the one hand, educational institutions are (or should be) responsible for teaching students how to use AI tools responsibly, thus preparing students with the necessary new competencies required for evolving workforces (World Economic Forum, 2025). It must be acknowledged that this task comprises rethinking pedagogies, curricula designs and the way educators teach and assess (George, 2023), often without a coordinated strategy, sufficient AI competence or clear institutional policies. Data protection, copyright, privacy, academic integrity, environmental impact or transparency are among the ethical considerations that may also hinder successful AI-pedagogy integration (Yadav, 2025).

2.3 Practices and personalisation

New practices (including ethical ones) related to AI in education rely on the need for educators and students to upskill on AI technology and the latest developments therein. They must also acquire practices that cultivate critical thinking and adopt ethical practices when integrating AI into their teaching and learning. It should be noted that, for educators, GenAI has become a useful tool for creating lesson plans in seconds and also for creating language learning materials (songs, readings, activities, images, etc.). In addition, GenAI can produce more personalised material for student needs, it can boost productivity and help with idea generation and inspiration (Xiaoyu et al., 2025). Furthermore, it can serve as an advisor for addressing students' diverse and individualised needs. Students can also benefit from new practices that enhance their learning by getting immediate feedback, brainstorming ideas, having one-to-one discussions, getting help with academic tasks, or improving their writing skills (Schei et al., 2024). However, although teachers and students can become co-creators with AI, some studies have highlighted that overreliance on AI tools may limit their creativity (Stuchlikova and Weis, 2024) and critical cognitive abilities in favour of fast and optimal solutions even over ethical implications (Zhai et al., 2024). The implementation of good practices in the classroom in the form of transparency and open dialogue with peers and students is absolutely essential here. This can concentrate on how to integrate and use AI tools in the learning experience which can serve as a way to build trust in AI tools both as a teaching aid and in the learning experience itself.

Personalisation in language learning refers to individualised and customised learning paths and experiences for students. AI has underpinned the personalisation of language learning for some time now with intelligent tutoring systems (ITS) or adaptive learning apps (e.g., *Duolingo*, *Quizlet*) that can tailor educational content to individual learners' needs, preferences, and progress (Thorne, 2024). But GenAI tools give learners more independence and an active role in their learning, offering personalised

feedback (Hockly, 2024) for free written and oral production, as well as human-like interactions that can simulate a personal tutor or a conversation buddy as their design and operation continue to be those of chatbots.

2.4 Policies and plagiarism

The integration of GenAI into academic contexts has brought not just possibilities and excitement but also serious concerns about the ethical use of these new tools in relation to academic integrity issues. In this regard, we can already identify many policies governing the use of AI in education at various levels, including local policies at national or institutional level (e.g. The Academic Integrity Unit at the University of Limerick), World Health Organization guidelines (WHO, 2024) and academic integrity organisations such as the National Academic Integrity Network (NAIN, 2023). Discussing official AI policies when we are dealing with language acquisition practices may seem of limited relevance here. However, this discussion remains mandatory as it lies at the heart of ethical GenAI integration and use in education and in language learning. Students need to be aware of the major ethical issues involved in GenAI use, the academic integrity breaches associated with it, and the flaws in AI systems, particularly the role of machine bias in AI detectors. These systems can misidentify the writing of L2 (second language) users and learners with non-standard linguistic styles as artificially generated (Liang et al., 2023; Wu et al., 2024) and are "neither accurate nor reliable" (Weber-Wulff, 2023, p. 25), potentially leading to accusations of academic misconduct, compromising the fairness of academic integrity enforcement and policies. Issues related to plagiarism, as a key aspect of academic misconduct, need to be examined as the use of GenAI tools has started an ongoing debate asking if any content generated with GenAI could be considered as plagiarism. Equally, concepts such as authorship and copyright are part of this debate. Eaton (2023, p.20) states how artificial intelligence is challenging historical notions of plagiarism and she understands it as:

> "an era in human society in which advanced technologies, including artificial intelligence and neurotechnology, including brain-computer interfaces, are a normal part of life, including how we teach, learn, and interact daily."

When considering the unknown possibilities and the significant impact AI could have on teaching and learning languages, we must take these issues into consideration. What a language learner produces or co-creates (edited, revised, reworked, and remixed) with GenAI will soon be common in language learning. The finished result of which can be a product that is neither fully written by a human, nor by an AI, but a language co-production that is hybrid (Eaton, 2023).

3. Methodology

Data was collected using a mixed method approach, with both quantitative and qualitative instruments for data collection and for analysis. Researchers such as Cohen,

Manion, and Morrison, (2017) argue that mixed methods research should be the norm in education as it offers several perspectives for analysing and explaining the same educational phenomena, which in our case is based on the multiple student perceptions and experiences with the use of artificial intelligence tools.

3.1 Participants

The study aimed to explore the experiences, perceptions and use of AI tools and their potential impact on language learning performance among a group of 75 second-year Applied Languages students enrolled in the *Language Technology* module in the School of Modern Languages and Applied Linguistics at the University of Limerick. Furthermore, the class consists of students who are at different stages in their foreign language learning, with levels ranging from lower-intermediate to advanced stages. The main languages studied are French, Irish, Japanese, German and Spanish. Some Erasmus students were part of the module and they had English as one of their target languages as well. As such, the course provides these students with a valuable opportunity to adapt and personalise numerous types of CALLware and emerging technologies to their individual needs as learners, allowing them to become more independent and autonomous. Examples of CALLware evaluated by the students over the course of this programme include: generic and dedicated language learning websites and apps, automated summarising software, corpora and concordancing software, blogs, AI and GenAI tools. Those who register on this module are typically novice CALL users and have limited experience with the integration of either generic or dedicated software and AI tools into their language studies.

This context provides a greater scope to investigate educational issues (Almalki, 2016) while allowing the researchers to explore student involvement, perceptions and reaction to the AI and GenAI experiences.

From the total number of students, 24 participants voluntarily completed an online survey using *Qualtrics*, 15 students participated in focus groups, and 75 essays were analysed at the end of the semester. All the data was collected from the same group of students: a second-year BA Applied Languages cohort. However, there are notable differences in the size of each data source. In accordance with the ethics approval granted by University of Limerick for this study, participation in the questionnaire and focus groups was voluntary and anonymous, while the use of the students' essays for data analysis was subject to participant consent. Based on this, 24 students completed the questionnaire, and 15 students attended the focus group session. Conversely, all 75 students gave consent for their essay to be analysed and used for research purposes.

3.2 Data collection and analysis

As previously stated, this study uses a mixed methods approach and both qualitative and quantitative data was collected and analysed. For the qualitative dataset, two different sources were used. On one side, several focus group interviews were conducted during the final lecture of the semester. 15 students attended the session voluntarily and were

divided into small groups with whom the researchers carried out a semi-structured interview where the participants could contribute openly. The interviews were recorded and transcribed for the analysis. During the focus groups, the interviewees guided the conversation asking students about their use of AI and GenAI for language learning and let them drive the conversation. On the other side, another qualitative data source derives from the reflective essays that students submitted at the end of the semester as part of their module assessment. The students had to write an essay of two thousand words addressing the topic of: "Using AI Tools to Transform my Student Learning Experiences at University".

The quantitative data was gathered using a questionnaire delivered via *Qualtrics*. This survey was composed of a total of fifteen questions, which included rating questions based on a five-point Likert scale, multiple choice and open questions. This allowed the researchers to explore different viewpoints. The fifteen questions were mainly focusing on the knowledge, and use of AI tools and GenAI tools to be used when learning their target languages, their perceptions and gains from it, as well as the challenges therein and offer any possible recommendations. To assure reliability, the researchers conducted a test of the questionnaire design with the research group. Each researcher identified potential issues, such as ambiguity, recall of information and the use of double negatives, and the questions were rephrased when these issues were encountered. This secured the reliability of the questionnaire, which was confirmed by the consistency of the participants' answers.

The gathered qualitative data was analysed using a thematic analysis approach (Berger, 2018) in order to identify and map major themes (Gaskell, 2000) from the data, which in the case of this study followed a deductive approach using *NVIVO* software 2020. This data analysis technique was employed because it enabled the classification of the data content into different categories using the main areas that we wanted to explore and that were related to the Ps: pedAIgogies, prompts, personalisation, policies and plagiarism.

The top-down approach categorisation process comprises the four stages proposed by Marshall and Rossman (2014): (a) organisation of research material; (b) codification of categories; (c) examination of possible preliminary assumptions; and (d) search for alternative explanations. The researchers analysed individually the data, and compared and shared results to validate them and avoid any possible bias.

The final analysis comprises a triangulation of data from the three sources: questionnaire, focus groups and essays. As the quantitative and the qualitative data gathering tools had different objectives (e.g. the questionnaire had a broader scope), only themes relating to students' experiences and perceptions that were based on the pre-established codes and intersected with both types of data, quantitative and qualitative, were triangulated.

3.3 Ethical considerations

This research study received Ethics approval from the Arts, Humanities and Social Sciences Research Ethics Committee at University of Limerick. All survey participants were ensured complete anonymity and confidentiality in accordance with ethical requirements. The students were contacted via email with a letter of information about the research and invited

to participate on the anonymous questionnaire. The survey was distributed by a gatekeeper, who had no other type of involvement with the module *Language and Technology*. Furthermore, when circulating the survey and asking for consent from the students to participate in the focus groups and the analysis of the essay for research purposes, students were informed that the participation in the study was voluntary and that it was not related to the student performance in the module and had no bearing on their module assessment.

In the next section, we provide the analysis of the data reporting on the survey results and present an analysis of the qualitative data addressing the different main areas on which this study is based: prompts and pedagogies, practices and personalisation, policies and plagiarism.

4. Results

The data analysis in the surveys revealed aspects of AI literacy among participants, such as the level of confidence, regularity of use, and understanding of how AI is used in tools. 55% of participants felt moderately familiar with AI tools and 32% very familiar, indicating the normalized use of AI applications among language students. The data also reveals the regularity of use; most participants used the tools sometimes, indicating that there is no excessive overreliance on AI for learning processes. However, some described AI-driven translators as "too tempting to use" or stopping them from thinking for themselves: "Once I start using Reverso [Reverso Context is an advanced AI translator], it is almost that I cannot put words into sentences correctly independently".

As seen in Figure 1, 86 % of participants understand how AI is integrated into search engines, automatic translators, and grammar checkers, and a similar percentage for GenAI tools but slightly less when AI is used in social media platforms, word processors or voice assistants. This level of confidence is understandable because they were studying a language technology module and actively using and evaluating these tools in lectures and labs. However, in their ability to clearly explain what Generative AI technologies are, responses vary among participants with different degrees of understanding, from simplified to quite complex responses (see Table 1).

The diversity of mental representations that students have of how Artificial Intelligence functions shows how students are not familiar with it. None of them mentioned Large Language Models as the source of language/information of GenAI technologies.

Regarding the most used tools (see Figure 2), ChatGPT is the most utilized tool by 90% of participants, followed by DeepL (a translation and writing support tool in different languages) with 38% of participants using it regularly, positioning generative AI tools as leaders among AI tools for language students.

Participants also agreed with the need to include AI in educational settings for reasons such as "banning things doesn't stop usage, only teaching responsible usage curbs the risks", and "it is a huge advantage in technology that we can use to our advantage". On the other hand, one participant mentioned that "it should not be allowed while studying technical subjects such as medicine, aerospace engineering, etc." and another participant agreed that "we cannot ignore AI in educational settings" but "we can't rely on it

Figure 1. Participants' understanding of how AI is used in digital tools

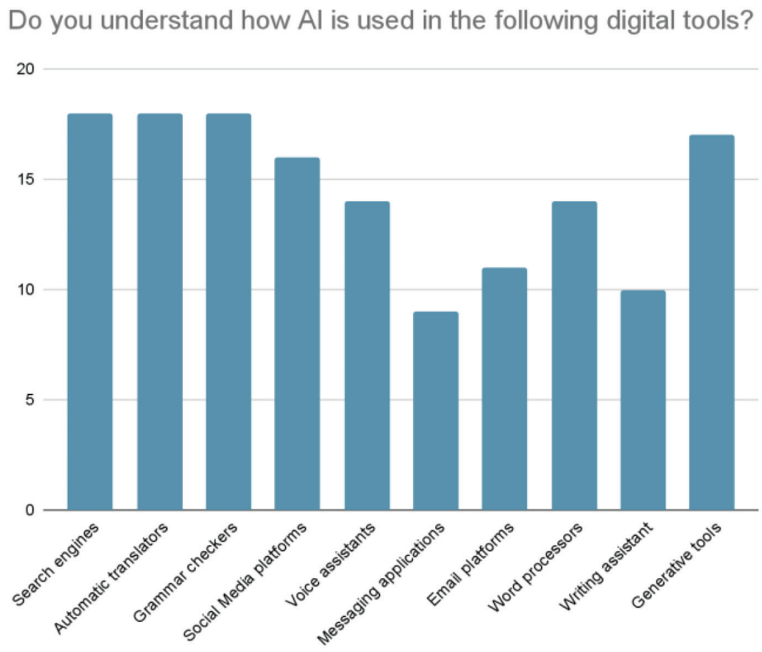
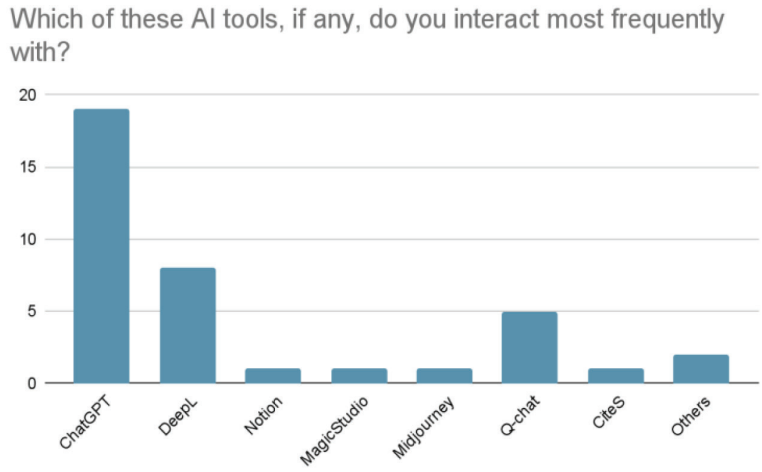


Table 1. Quotations on how participants define Generative Artificial Intelligence Technologies in the survey

"Kinda like Google."
"Helpful advanced technologies."
"Programs that create texts or media using a dataset previously provided."
"A tool that recollects global digital information, with which it responds to the searchers petitions as most accurate as it can be. Not being always correct since digital information is not always 100% viable."
"it is machine powered intelligence, that although can produce answers to questions lacks critical thinking so any real problems could not be solved by it, furthermore it can only provide answers that are on the internet it can not come up with conclusions on its own".

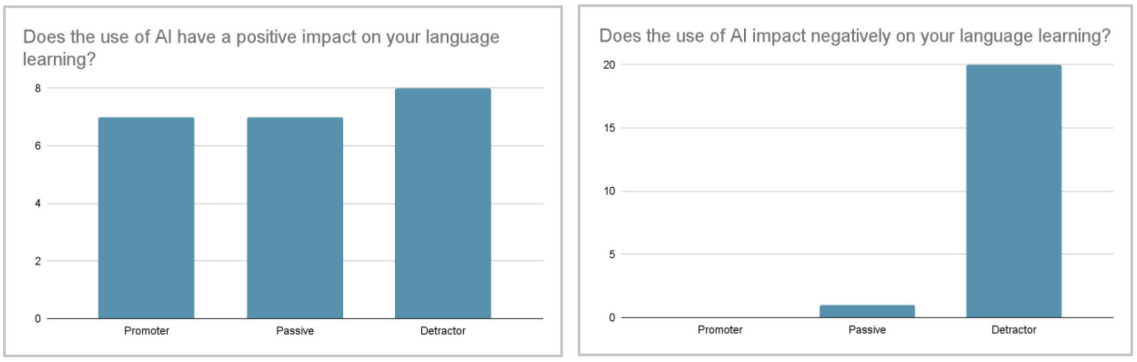
Figure 2. Participants' responses to most frequently used AI tools



either". Half of the participants were neutral in response to their willingness to use AI technologies in their language learning, which may be a sign that they still do not have a well formed or informed opinion or personal position in this regard.

The perception of the positive or negative impact of AI tools in language learning is mixed (see Figure 3). 95 % of participants answered that AI tools did not impact their language learning negatively, but when asked about the positive impact, 36% said there was no positive impact of using AI tools in their language learning, 32% found a positive impact, and the rest were neutral in their response.

Figure 3. Participants' responses to the positive and negative impact of AI tools in language learning



The student perception of the impact of AI tools in their language learning seems to be contradictory and reflects an early stage of reflection when considering the real impact of AI, especially GenAI in language learning. When asked about the positives of using AI in their language learning, the comments shed light on this aspect (see Table 2). Some participants found AI tools to be efficient tools, a vast source of information and an affordable language learning source. Other participants focused on their experience with the tools acting as personal tutors. It is not clear if all comments refer to GenAI tools, but they were used as learning aids rather than a one-for-all tool for language learning.

Table 2. Quotations on the positives of using AI regarding language learning in the survey

Efficient tool	"You can ask for anything, grammar, metaphors, examples, slang and so on."
Affordable tool	"Instead of using Duolingo, or buying grammar books, you can afford it [language learning] just by using AI."
Personal tutor	"It helps me with grammar rules." "They can generate many exercises to practice the different parts of languages." "It can help with direct translations and recommendations."

On one hand, the novelty of GenAI tools (at the time, less than 2 years had passed since the launch of ChatGPT) may explain their mixed perception while they

progressively introduce GenAI tools in their learning routines. On the other hand, it is positive to see that AI tools are integrated naturally while exploring the affordances and challenges in their learning. When they describe the effective and fruitful process of using AI tools, they mentioned aspects relating to practices and personalisation (see 4.2), but also a positive gradual improvement in the language learning when using AI-driven tools such as *Duolingo* ("I love Duolingo and have been noticing gradual improvements in my Spanish due to steady use of the app"), or a good and quick aid for generating ideas ("You have a doubt, you ask a question and the answer comes immediately. It can help you generate ideas"). When asked about GenAI tools and what they would use them for, participants agreed on uses regarding content generation, translation, content simplification, and getting feedback. A candidate said that "AI drastically reduces my stress level and helps me to complete basic functioning-related tasks".

In the next subsections we present the results from the focus groups and the thematic analysis. The data suggests students' perceptions on prompts, pedagogies, personalisation, practices, policies and plagiarism.

4.1 Prompts and pedAIgogies

In terms of prompting, participants understand the importance of developing their prompt literacy and the integration of prompt engineering in pedagogies as it is reflected in the data. For instance, in the focus group, a participant acknowledged that "AI literacy should be developed at university" (participant 3), and another participant confirmed the importance of "teaching of prompt engineering to get what you want out of AI" (participant 8).

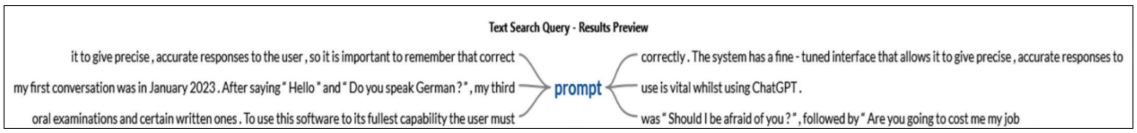
As part of their module, all learners took part in prompt engineering training and were familiar with how it works, why it is necessary to craft good prompts and how to evaluate the generated output, which implies that students are applying their critical thinking. A participant compared the pre-training and post-training phases of this process in their essay with a clear evolution in their communication with GenAI tools (see Table 3).

Table 3. Quotation on the process of improving prompting skills

Participant 3	"I always trusted the answers that ChatGPT gave to my prompts, and I used to ask vague questions, which meant long, vague answers from the chat too. However, now I give to the AI chatbot specific prompts, with the necessary details, in order to ensure that it answers as correct as possible. Besides doing that, I contrast the information given with other sources."

In Figure 4, there are examples of the different iterations employed by a participant in their first interaction with ChatGPT back in January 2023, all of which contain quite simple instructions, "Do you speak German?" or "Should I be afraid of you?", supporting the idea that prompt engineering is a skill acquired through guidance and practice over time.

Figure 4. Theme of prompt NVivo extract



In this same fashion, participant 15 (see Table 4) discusses the learning curve that involves using GenAI tools, with special attention to prompting literacy, in the increasing normalisation of these tools in their interactions. The students' perception of the impact of AI tools in their learning is highly positive, which evidences how an AI prompting literacy enhances the interactions that learners have with the AI chatbots and this is translated into a higher motivation and engagement with the language learning processes.

Table 4. Quotations about the learning curve when using GenAI tools

Participant 15	"There was definitely an initial learning curve when I first started using tools like ChatGPT. You have to be very clear and precise with your prompts in order to get the answer that you want. As my familiarity with these tools has grown, their impact on my learning has been evident. I can achieve a deeper understanding of subjects and learn at a much faster pace than I previously was, which makes studying a much more enjoyable experience for me."

4.2 Practices and personalisation

Most of the practices that students refer to in their essays are related to practices that deal specifically with managing information. That is, information retrieval and summarisation (see Table 5). Besides this, students also mention translation as a useful practice that enhances their language learning.

Table 5. Quotations about using AI tools for information retrieval and summarisation

Information retrieval	"I usually use AI tools for information retrieval and translation, but I also like to use to give me outlines before writing my essays, as that is something I am sometimes struggling with. I don't copy it exactly, but it gives me an idea about what I can write and in which order." (Participant 25)
Summarization	"AI is a useful tool for compiling information into a short summary which can give one an idea of how they may carry out their work and what the most important points are in the relevant topic." (Participant 12) "AI is a very useful tool for summarizing large texts to be more concise which can give one a better understanding of a topic as it cuts out a lot of the talk around the topic and gives you simply what you need to know." (Participant 58)

GenAI is offering students a new method of working, according to what the students say, as it aids them at the beginning of their essay writing by providing an outline

or by helping them to generate initial ideas and to organise them appropriately. Learners seem to be aware of the potential of GenAI, especially when they use it for idea generation. Equally, the quotations of Table 5 evidence how some of the uses of Gen AI are aiming at simplifying and making students work more efficiently. This is an aspect that we will be discussing in section 5, as skipping certain learning stages may have a serious impact on the cognitive activities related to learning.

Another important practice that students mentioned is the use of AI for receiving feedback from students' work, especially in relation to language syntax, grammar and vocabulary. Despite these uses, there is a certain awareness of the limitation of the tools. Table 6 shows some examples of what students said regarding using AI tool for feedback:

Table 6. Quotations about using AI tools for feedback

Participant from the survey	"[AI tools] are great to get feedback on a work, in case of doubts, I personally had to use them sometimes, to make sure that my work is correct. You can ask to fact check information, but [...] AI is not the most reliable tool. I usually check the syntax or the grammar of a work. As an Erasmus student, it is usually the part of the work that is the most tricky."
Participant 39	"The last thing I do to improve my student work at University is to ask ChatBot to correct some of my sentences when doing academic work, as English is not my native language, and in France, we learn it in a literal and superficial way. Thus, I found my weaknesses and corrected them to produce higher-quality work and improve my vocabulary. I learned many linking words and how to build an essay with new and more sought-after vocabulary."
Participant 59	"I think that ChatGPT has positively affected my work during my time in university as it helped me evolve my writing skills through constructive criticism and constant feedback on my writing abilities"

Finally, the last theme that we explored in this section is personalisation. Students are aware of the potentiality of GenAI when used as a tool that offers them the possibility of personalising their learning process. The personalisation could be for specific tasks related to grammar or vocabulary, as several participants highlight in Table 7.

Table 7. Quotations about using AI tools to personalise language learning

Participant from the survey	"[for] creating German quizzes on specific topics I want to test myself on" or "to generate content and images"
Participant 23	"I have used Chat GPT to ask questions with grammar rules for French and Spanish."
Participant 14	"it [AI] helped me on multiple occasions to understand a problematic grammar point in a given language which I had trouble comprehending previously in class or assignments and allowed me to use more advanced and professional vocabulary that I learned thanks to this tool"

Another practice that language students are carrying out when using AI is, somewhat predictably, for translation. Students may use different technological tools to

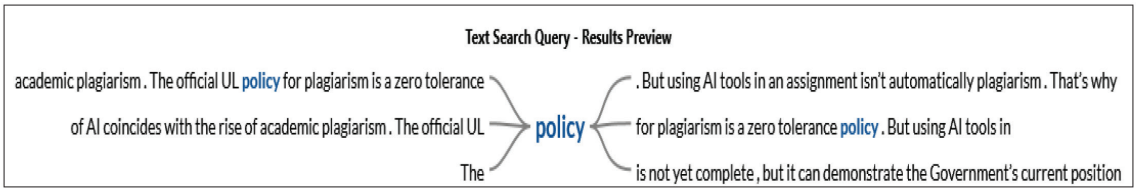
create the most suitable approach during their language learning: "I also used it [AI] for advice on written pieces in those languages and I compared its translation with Lingvanex and Google Translate from French to Irish with the news article" (participant 23). The results also show certain concerns regarding the future workplace for language specialists where "AI is going to take the translation job" (participant 7). However, machine translation or dedicated AI tools also seem to be used by students to prepare for their mobility experiences which are part of their studies, such as internships abroad. AI tools can be used by students to enhance their experience abroad in the target language country. Below, we encounter a quotation that shows a clear example of the personalisation potential that AI tools offer to learners of languages in a particular setting for a work placement abroad, in this case in Japan:

> "DeepL is fantastic [...] not only does it allow you to use high-quality translation completely free of charge, but it also allows you to personalise the formality of the translations, ranging from formal to informal tones. This is very beneficial to me as I am trying to learn a formal way of speaking in Japanese at the moment in preparation for my Co-op placement in Japan next semester; this is because levels of formality are a crucial element of Japanese culture. Therefore, having the ability to control the formality levels of MT, for example, when I need help writing an email to a superior in the future, will be easily accessible and convenient for me." (participant 33)

4.3 Policies

The theme of policies and plagiarism emerges as well in the analysed data. The students have a clear perception that AI is not accepted at all by university policy because the university has a very limited tolerance for plagiarism. Students recognise the use of GenAI to generate content that will be assessed and evaluated and clearly understand that this raises issues of academic integrity. Students do not yet seem to have a clear understanding of the university policy regarding the use of AI versus the policy for plagiarism (see Figure 5 from the *NVIVO* analysis), and they are even confused about the national government's position in this respect.

Figure 5. Theme of policy NVivo extract



Learners need to familiarise themselves with the policies to know exactly how AI can be used or not be used as part of their learning process. Due to this confusion, they may feel very reluctant to use any AI tools or even, they may have feelings of guilt or fear

(see student quotations in Table 8). The quotations from participant 8 refer to the stigmatisation of learners that use GenAI because of the blurred boundary between what constitutes plagiarism and what represents the students' own work when GenAI has been used, pointing out crucial issues such as how to cite the use of AI.

Table 8. Quotations from participants in the focus groups talking about policies and plagiarism

Participant 5	"Feeling guilty when using it. Have to learn how to use it"
Participant 8	"Fear of using AI, there is a stigma. Modules outlines have a line: DO NOT USE CHAT GPT. Where are the boundaries between your own work and plagiarism? Fear to be accused of plagiarism. A University policy will get rid of the fear. How to cite the use of AI?"

Other aspects related to academic integrity policies arise in some general comments that indicate ethical concerns ("where the data that I input goes"). This again shows how knowledge of such a policy would need to be part of an AI literacy so that students understand academic integrity issues and ethical concerns.

In ending this section, we will include a final quotation from participant 15, which states that all the opportunities (of personalisation, receiving feedback, student time management, real time engagement) that AI tools and GenAI can bring into the learning of languages needs to be supported and underpinned by adequate policies.

> "The advantages [when using AI tools] of engagement, learning time, personalisation and immediate feedback can be seen through my own personal experiences. The future of AI in education has great promise and opportunities for growth provided that the correct policies are put in place regarding data security and plagiarism etc."

5. Discussion

5.1 Experiences on the use of AI for language learning

This study examined the experiences of second-year students in Applied Languages, who were learning different languages at university level, in relation to the use of AI tools for language learning. When inquiring about the experiences that students had regarding the use of AI for their language learning it is evident that students already have familiarity with and indeed incorporate GenAI tools into their language learning. However, there is still a limited understanding of what AI is, how the technology works, and consequently what impact the use of AI tools may have on the students' learning. It is patently evident that learners need to have a clear understanding and conceptualisation of how AI tools operate (Smeaton, 2025) in order to realise the possibilities and limitations of these said tools.

ChatGPT is by far the most used tool by our student learners but the student inefficiencies and limitations when using it in a co-constructive manner implies that learners have not yet achieved a well developed AI literacy. Language learners are in need of incorporating AI literacy into those other critical digital literacies that they possess in their array of literacies as language learners (Thorne, 2024; Hockly, 2024).

The results indicate that students were generally aware of the importance of including AI literacy in their education. However, what they understand as AI literacy is not clear. Studies on AI literacy draw attention to the lack of consensus on what this skill entails (Černý, 2024), and its definition is still an ongoing task and is far from agreed upon (Laupichler et al., 2022). This further supports and illustrates the idea that our participants may understand the idea of AI literacy as a general construct rather than a well defined concept. Originally, "AI literacy" was used to refer to skills in the area of computer science (e.g., machine learning, robotics) and computational thinking. The evolution of the concept, pushed by the recent development of generative AI, is now also strongly interconnected with related fields such as digital literacy, information literacy and algorithm literacy (Yang et al., 2025), ethics, social impact, privacy and security (Černý, 2024). It should also incorporate the practical use of AI tools by non-experts, being "individuals who have not had formal AI training themselves and who interact or collaborate with AI rather than create or develop it" (Laupichler et al., 2023: 2). To bring this concept to the field of language learning, we can look at Warschauer's AI literacy framework for L2 writing (Warschauer et al., 2023) comprising 5 steps: to understand and access AI tools, to learn how to prompt, to corroborate the generated output, and incorporate it ethically and effectively. Our findings revealed that participants do acknowledge and apply some of these steps in their language learning with one clear example showing how crafting prompts and evaluating the generated output prove to help students in their learning.

The findings also demonstrated students' use of AI tools for language learning in practices, and both the survey results and the qualitative data reveal the perception of a positive impact in their learning (see Figure 3, Table 5). The main areas were managing information, translation, and personalisation of their learning processes with all respondents making reference to these points in the different types of data sources. When managing information, language students use AI tools for information retrieval, summarisation, content simplification, and feedback on their work (grammar, vocabulary, syntax). However, some participants were aware that hallucinations could happen and stated that they often checked the validity of generated content. Different studies have confirmed similar practices, for example, Zhou and Hou (2024), found language students to use GenAI tools for summarising key concepts, completing tasks, generating vocabulary lists and translation.

Translation is considered by our participants as a useful practice to enhance language learning, but they recognised the risk of overreliance on translation and the negative impact in their learning. Kruk and Kałużna (2024) concluded that although translation can enhance accuracy, motivation and language proficiency, it also causes anxiety and concern related to the potential over-reliance and dependency on AI tools.

On the other hand, the personalisation of learning among participants took place in a creative way. Learners used AI tools to create quizzes for personalised practice, to solve queries on grammar rules or vocabulary, for improving vocabulary or written skills for writing tasks, and lastly, to adapt to the needs of professional environments (e.g., work placements) in a foreign country. Hockly (2024) and Thorne (2024) have supported the potential role of GenAI for personalisation of the learning processes and this is further confirmed in our study on the student learning experiences.

5.2 Perceptions and beliefs regarding the use and impact of AI for language learning

Our results evidence how students have a positive attitude on the integration of Artificial Intelligence and GenAI within their language learning practices and process. The findings align with Persulessy et al. (2024) and Mandasari et al. (2024) in relation to having a positive attitude when embracing AI for language learning. The difference with these two 2024 studies is that the data was only from learners of English, while in our study students reported on their use of AI for learning different languages.

Students do generally have a positive attitude and are ready to use AI, which also reflects what Bantoto et al. (2024) concluded in their study. They perceive themselves to be moderately familiar with AI tools, use them regularly with their learners and have a preference for ChatGPT. Students still have mixed perceptions in relation to the impact that the use of AI technology may have on their language learning process. Data for this study was collected in early 2024, which means that learners were at an early stage of specific use of GenAI (ChatGPT) for their language learning. At this early stage of usage participants do not yet have a clear perception if it had a positive or negative impact. Language learners evidence their use of AI and GenAI for access to information in English or the target language, which enhances understanding. This variety of uses was also demonstrated in the Mandasari et al. (2024) study which focuses on the application of ChatGPT to assist students in improving their writing skills. The fear of over-reliance on technology and the potential impact on independent learning is part of the perceptions that students had in Mandasari et al. (2024) study, and in other studies (Darvishi et al., 2024). This issue also appears with our students. The controversial debate about using GenAI tools and the hindrance that those may have in the cognitive processes associated with learning when students substitute GenAI language output for their own L2 communicative abilities (Thorne, 2024) has not been resolved yet. Studies such as Susarla et al. (2023) shed some light on how the lack of scholarly understanding about using automated processes such as summarisation, or the simplifications that some students refer to, may hinder deep learning. Other studies have highlighted that over-reliance on AI tools may limit learners' creativity (Stuchlikova and Weis, 2024) and critical cognitive abilities in favour of fast and easy solutions (Zhai et al., 2024).

One possible solution to mitigate these concerns resides in the development of pedagogical approaches that encourage students to use GenAI to support learning (Kern, 2024), (see section 6).

At the same time, students exhibit great joy and enthusiasm in learning to use AI tools. The feedback that they received from the chatbots, in line with Persulessy et al.'s (2024) findings, may act in some instances as a motivational factor to keep learning and progressing in the language learning journey. Furthermore, our results confirmed that the use of AI-driven translation software impacted negatively on how they perceived the future of translation jobs. Zhou and Hou (2024) also confirmed this perception with a general concern among language students that AI will replace jobs, especially translators.

The final aspect for discussion arising from our data concerns dedicated policies. In the recent past and from our data, students have requested the creation of explicit and official guidance regarding the use of AI for learning. They need to be reassured that the use of AI is not necessarily associated with academic integrity and misconduct if it is used in an appropriate manner. It involves how one should/could use AI and GenAI and during which stages of learning and how ultimately to cite the style and quantity of use of named GenAI tools. Policies should exist at national, international and local levels: from UNESCO (Miao and Cukurova, 2024) to the EU AI Act (2024) https://eur-lex.europa.eu/eli/reg/2024/1689/oj down to a local level of taught modules on a university degree. Some policies already do exist, but they will require refinement on an annual basis due to the pace of change and development with GenAI tools.

6. Conclusions and recommendations

That the arrival of GenAI into education is a game changer should be no surprise to anyone. Ergo, educators need to act. Our main conclusion here calls for a radical rethinking of our pedagogies. Whilst Selwyn has warned: "The future of AI and education is not a foregone conclusion that we simply need to adapt to. Instead, the incursion of AI into education is definitely something that can be resisted and reimagined" (2024: 13), we would contend that it is incumbent upon each educator to become 'fluent' with at least the basic fundamentals of effective prompt engineering and become critically creative in assessing the potential of GenAI tools. Critical, when verifying and validating the output from the chatbots and dealing with the hallucinations and inherent bias therein. Creative, when collaborating with the GenAI tools to engage and enthuse the language and culture students in their learning.

We would recommend achieving this at a special pace: one of a *festina lente* ('slow down to go fast') whereby the teacher and the student may go fast in their learning but in a slow contemplative pace that suits them best. Prompt engineering writing will facilitate this: learning as quickly or as slowly/patiently/efficiently and as personalised as you wish. This exercise would form part of developing AI literacies in conjunction with new educational policies which would lie at the heart of a sound pedAIgogy.

In advocating for the development of AI literacies, we all, as users of AI and GenAI in language learning, need to be aware of how to integrate AI into our pedagogical practices and as learners how to integrate it into our language teaching. As part of our research project we developed several Open Educational Resources (OERs) informed from the results of the research reported in this article.

These resources could be accessed in this website[1] and entail teaching practice materials and a set of recommendations for students' effective and ethical use of AI for language learning purposes. The OERs are presented in different formats (infographics, videos and PDFs) to suit content and users.

This study had some limitations, specifically with regard to the small size of the sample when considering some of the data sources (e.g. the number of respondents to the questionnaire). Furthermore, the timeframe of the study had some restrictions. The data collection took place in early 2024, and in the fast (r-)evolution of AI tools it may be seen as a long enough timespan in relation to the performance of GenAI. For this reason, a replication of this study would be welcome and could serve to highlight how the perceptions and uses of AI tools and GenAI have changed among language students since 2024. Further research would be valuable in investigating whether an increase in the use of AI tools for language learning is sufficient for developing AI literacy over time. In the meantime, let us run slowly with our *festina lente* approach.

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