Attitudes and perceptions: the role of artificial intelligence in the training of future secondary school foreign language teachers

Atitudes e percepções: o papel da inteligência artificial na formação de futuros professores de línguas estrangeiras do ensino secundário

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Abstract

This study explores prospective foreign language teachers' attitudes towards integrating artificial intelligence (AI) into their teaching practices, focusing on the TWEE tool. Using a mixed-methods approach, data from 29 pre-service secondary school teachers in Spain were analyzed using SWOT analysis to assess TWEE's strengths, weaknesses, opportunities, and threats. Internal strengths include resource variety and practicality, while weaknesses involve interface issues and language constraints. External opportunities include quick activity creation, while threats center on ethical concerns and teacher redundancy risks. Despite concerns, participants generally express a positive attitude towards AI, acknowledging its potential to enhance written tasks, motivation, and technological literacy. Pedagogical implications underscore the need for a balanced AI integration approach, considering accessibility and ethical concerns. Further research is suggested to explore AI tool implementation in classrooms. This study contributes to understanding AI's role in language education and informs strategic planning for its integration.

Keywords: Foreign language teaching. Artificial intelligence. Secondary Education. TWEE. Pedagogical perspectives.

Resumo

Este estudo explora as atitudes dos futuros professores de línguas estrangeiras relativamente à integração da inteligência artificial (IA) nas suas práticas de ensino, centrando-se na ferramenta TWEE. Utilizando uma abordagem de métodos mistos, os dados de 29 professores de ensino secundário em início de carreira em Espanha foram analisados utilizando a análise SWOT para avaliar os pontos fortes, os pontos fracos, as oportunidades e as ameaças da TWEE. Os pontos fortes internos incluem a variedade de recursos e o carácter prático, enquanto os pontos fracos envolvem questões de interface e restrições linguísticas. As oportunidades externas incluem a criação rápida de atividades, enquanto as ameaças se centram em preocupações éticas e riscos de redundância de professores. Apesar das preocupações, os participantes expressam geralmente uma atitude positiva em relação à IA, reconhecendo o seu potencial para melhorar as tarefas escritas, a motivação e o letramento tecnológico. As implicações pedagógicas sublinham a necessidade de uma abordagem equilibrada da integração da IA, tendo em conta a acessibilidade e as preocupações éticas. Sugere-se mais investigação para explorar a implementação de ferramentas de IA nas salas de aula. Este estudo contribui para a compreensão do papel da IA no ensino das línguas e serve de base ao planeamento estratégico para a sua integração.

Palavras-chave: Ensino de línguas estrangeiras. Inteligência artificial. Ensino secundário. TWEE. Perspectivas pedagógicas.

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1 Introduction

The educational landscape is undergoing significant transformation owing to technological advancements, with the incorporation of Artificial Intelligence (AI) into language teaching practices serving as a notable manifestation of this paradigmatic shift. This evolution traces its roots back to the initial adoption of Computer Assisted Language Learning (CALL), a term encompassing any utilization of technology for language instruction (Tafazoli; Gómez-Parra; Huertas-Abril, 2020, p. 1841). Acknowledging the crucial role of language educators in cultivating effective language learning environments underscores the necessity of comprehending their perceptions towards AI in language teaching.

As we find ourselves at the crossroads of conventional pedagogy and technological progress, investigating the perspectives and attitudes of prospective language instructors concerning the integration of AI becomes imperative. Consequently, this study seeks to examine the viewpoints and attitudes of aspiring foreign language teachers in the secondary education sector in Spain, with a specific focus on the utilization of AI in their instructional methodologies. This examination will particularly explore the implementation and impact of TWEE, a widely used AI tool among language instructors. To guide this inquiry, three research questions have been formulated:

R.Q. 1: How do participants use and what is their level of experience with AI?

R.Q. 2: What are the strengths, weaknesses, opportunities, and threats of using the digital application "TWEE: A.I. Powered Tools For English Teachers" based on prospective teachers´ perceptions?

R.Q.3: What are the prospective language teachers´ perceptions and attitudes of using AI regarding their future practice?

To achieve this objective, participants' responses were analyzed using the SWOT analysis method, which entails the scrutiny of Strengths, Weaknesses, Opportunities, and Threats. This analysis delved into internal and external factors with potential implications for the implementation of the aforementioned tool. The inclusion criterion for participants is restricted to individuals enrolled in the Master's Degree program in Secondary Education with a specialization in Foreign Language Teaching (FLT) at the University of A Coruña (UDC). The research design employed in this study is characterized by a quasi-experimental and exploratory approach, thereby adopting a mixed-methods paradigm. This comprehensive strategy incorporates both quantitative and qualitative methodologies for data collection.

2 Theoretical framework

2.1 Artificial Intelligence in Education

The integration of AI in education has garnered significant attention in recent years, revolutionizing educational goals, practices, and the learning environment. In this context, Roll and Wylie (2016) explore the evolutionary and revolutionary aspects of AI in education, emphasizing the transformative impact on educational objectives, classroom practices, and the broader learning environment. Building upon this, Chen, Chen, and Lin (2020) contribute by highlighting the positive outcomes and potential of AI systems across administrative, instructional, and learning domains, providing a comprehensive review of AI applications in education. Roll and Wylie's (2016) study underscores the shift in educational goals, moving away from rigid knowledge preparation for the workforce towards equipping students as adaptive experts and on-the-job learners. The ubiquity of smartphones has transformed educational goals, emphasizing knowledge application, collaboration, and self-regulated learning. This shift requires a corresponding change in assessments from summative to ongoing formative measures. In terms of practices, Roll and Wylie note the incorporation of authentic elements in classrooms, resulting in increased complexity and the challenge of personalization. The learning environment has expanded beyond traditional classrooms to include informal and workplace learning, transforming teachers from the "sage on the stage" to the "guide on the side" (Roll; Wylie, 2016, p. 592). Roll and Wylie also acknowledge challenges posed to AI in education, raising questions about effective technology support for teachers. Chen, Chen, and Lin's (2020) study complements this by providing a comprehensive review of AI applications in education, emphasizing AI's positive impact on administrative tasks, instructional quality, and learning experiences. AI has the capability in assisting teachers in tasks such as exam generation and grading. Chen et al. highlight the increasing integration of AI into

education, from early childhood to higher levels, showcasing the adaptability of AI, including the use of robots (cobots) in teaching routine tasks. It recognizes the growth in AI-related publications and explores the diverse applications of AI, emphasizing its transformative impact on various educational aspects. The positive outcomes of AI deployment include improved learning quality, collaboration, global access, enhanced academic integrity, and personalized learning plans.

On the other hand, the increasing integration of AI in education has prompted extensive exploration into its challenges, implications, and ethical considerations. Rodrigues and Rodrigues (2023, p. 4) delve into the philosophical, historical, and practical dimensions associated with tools such as ChatGPT and AI in education, emphasizing the necessity for a thoughtful and ethical approach to their integration within educational frameworks. This discussion is crucial as AI technologies, including natural language processing and datification, become more pervasive in educational settings. At the same time, Nguyen *et al.* (2023, p. 4222) explore the ethical principles governing AI in education, focusing on K-12 settings, emphasizing the need for global standards. The study critically evaluates existing ethical guidelines and explores the applications of AI, such as personalized learning systems, automated assessments, facial recognition, and predictive analytics, in supporting both teachers and students. However, the study acknowledges ethical challenges, ranging from systemic bias to privacy concerns, which call for the urgent need to develop comprehensive ethical guidelines in the field, emphasizing the need for global standards and unified ethical principles for trustworthy AI. Rodrigues and Rodrigues (2023) emphasize the importance of an ethical and considerate approach to AI integration, situating their study within the broader context of AI technologies' increasing influence, particularly in natural language processing. The authors address concerns about AI's impact on professions, particularly within education, questioning whether ChatGPT and AI pose a threat or a challenge to the educational landscape. They highlight the significance of datification in the Web 4.0 era, emphasizing ethical considerations in the intertwining of human-machine interactions, particularly in education. Nguyen *et al.* (2023) stress the urgent need to educate teachers and students about ethical concerns and justify the development of ethical guidelines in the field. Also, Regan and Jesse (2019, p. 170) identify six privacy concerns for teachers and learners. These are: information privacy, anonymity, surveillance, autonomy, non-discrimination and ownership of information.

In summary, these studies highlight the transformative impact of AI integration in education, emphasizing shifts towards adaptive learning methodologies, personalized approaches, and the redefined role of teachers. AI emerges as an evolving reality within the educational realm, prompting considerations of ethical, social, and methodological implications as discussed by the authors. Clear guidelines are deemed necessary, particularly concerning assessment practices, privacy issues, and technological infrastructure. Additionally, effective technology support for teachers is identified as essential, especially regarding AI tools such as cobots and chatbots.

3 Artificial Intelligence in Language Teaching

The integration of AI, particularly ChatGPT, in language teaching offers numerous opportunities but comes with challenges that require thoughtful consideration and strategic approaches. Teachers are encouraged to embrace AI as a complementary tool, continually enhance digital literacy, engage in human-machine collaboration, and shift towards student-centered education to navigate the evolving landscape of language teaching. Schmidt and Strasser (2022, p. 167) discuss the classification of key concepts in AI-powered language learning tools scenarios as outlined by Baker, Smith, and Anissa (2019). They identify three main categories:

- Learner-facing AI tools: These tools are designed to assist students directly in improving their language skills. They typically incorporate features like practice patterns, feedback mechanisms, and drills aimed at enhancing comprehension and proficiency. An example cited is Babbel, an application that offers immediate feedback tailored to the learner's input, with a focus on areas such as mixed tenses and verb forms.
- Teacher-facing systems: This category encompasses tools intended to alleviate the burden on educators by automating various aspects of their work. These tools handle tasks such as grading assignments, providing feedback to students, managing classroom activities, and handling adminis-

trative duties. For instance, GradeScanner is highlighted as a tool capable of automatically grading multiple-choice tests, thereby saving teachers valuable time and effort.

- System-facing AI tools: These tools primarily serve institutional administrators or stakeholders by providing them with processed data. By analyzing data such as student transcripts and performance metrics, these tools offer insights that can inform strategic decisions at the institutional level. They may utilize algorithms to predict future student performance or identify trends within the learning environment, aiding in the development of effective policies and interventions.

Ravshanovna (2023, p. 119–120) discusses the benefits and drawbacks of integrating AI into language teaching. AI offers personalized training programs based on individual student needs, automates evaluation tasks like grading essays and tests, and enhances feedback processes. It also streamlines educational management and improves access to education, particularly for remote learners through online courses. However, challenges include AI's occasional lack of accuracy, difficulty in adapting to diverse contexts, and limited ability to interpret human emotions. Moreover, AI solutions may lack clarity and struggle with creative thinking. Additionally, the implementation and maintenance of AI systems require qualified personnel. While AI presents opportunities for language teaching, it cannot entirely replace human involvement, emphasizing the importance of balancing technology with human intervention for optimal results.

The systematic review conducted by Sharadgah and Sa'di (2022) provides a comprehensive exploration of the literature on the integration of AI in English Language Teaching (ELT) from 2015 to 2021. The review identifies various AI applications in ELT, including automatic correction, listening skill enhancement, oral training through AI-based robots, machine translation, personalized teaching, and experimental studies evaluating AI-based systems. While highlighting the positive impact of AI on ELT efficiency and student satisfaction, the study also points out challenges and gaps in the literature, emphasizing the need for clear evaluation criteria and future research directions.

In a study by Hockly (2023, p. 449), various AI-powered tools supporting language development are discussed, such as Duolingo, Write & Improve, Grammarly, Google Translate, and chatbot apps. The focus is on the effectiveness of chatbots, which have proven beneficial, especially for lower-proficiency learners, offering clearly delimited contexts for language practice. Despite some limitations, chatbots contribute to improved learning confidence, motivation, and self-efficacy. Teachers are encouraged to recommend chatbot apps for additional exposure to English language content outside class time, enhancing overall learning outcomes.

Moreover, Huang and Li (2023, p. 78) highlight the extensive opportunities presented by ChatGPT in foreign language teaching. For learners, ChatGPT addresses limitations of traditional classrooms, providing opportunities for communication, easy access to learning resources, and individualized learning strategies. It fosters interest in learning through interactive conversations. For teachers, ChatGPT serves as a multifaceted tool, assisting in resource provision, conversation practice, assessment, and virtual teaching. The combination of teachers and AI tools is seen as a new model for effective teaching and learning.

However, challenges identified by Huang and Li (2023, p. 83) include potential reductions in intercultural communication skills, the weakening of self-correction abilities, difficulties in ensuring content accuracy, concerns about cheating, and inherent limitations in AI tools. To address these challenges, the authors propose teaching strategies, emphasizing the acceptance of AI as a supportive tool, the importance of continuous learning and digital literacy, human-machine collaboration, and a shift towards student-centered, competency-focused education.

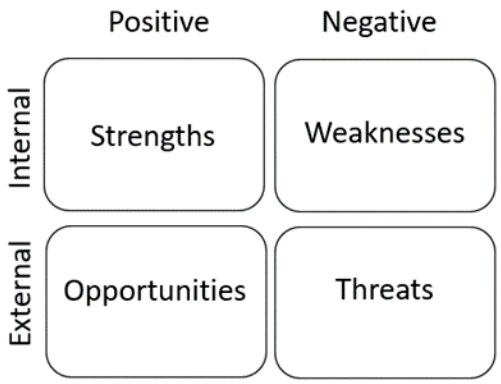
4 Methodology

This study adopts a quasi-experimental research design, employing a pre-established group comprising preservice foreign language teachers who met the requisite criteria for participation. The research was conducted in a field setting over the course of a three-hour session. Initially, the teacher trainer provided an overview of the TWEE tool, after which participants engaged with it to develop teaching materials for foreign language instruction. Subsequently, participants completed a questionnaire designed to gather both qualitative and quantitative data, following their practical introduction to the

tool during the class session.

The SWOT analysis, developed by LEARNED *et al.* (1965) in the 1960s, is a strategic planning tool that has found widespread utility in evaluating projects or organizations, transcending its original context in business planning (Chermack; Kasshanna, 2007) to become applicable in academic evaluation research (Gutierrez; Chico; Liso, 2015). The acronym SWOT represents Strengths, Weaknesses, Opportunities, and Threats, and it is interchangeably known as TOWS analysis. This analytical approach is designed to provide a holistic assessment of both internal elements, including strengths and weaknesses, and external factors, comprising opportunities and threats. The data analysis included content analysis of qualitative data to categorizing and arranging them into the SWOT matrix. Content analysis is "as a systematic, replicable technique for compressing many words of text into fewer content categories based on explicit rules of coding" (Stemler, 2000). The systematic exploration of these internal and external dimensions allows for a comprehensive understanding of the positive and negative aspects of a project or tool. In the context of analyzing the use of TWEE for language teaching, the SWOT analysis proves invaluable. It enables educators and stakeholders to identify the internal strengths, such as enhancing personalized learning, and weaknesses, like potential biases in AI algorithms. Simultaneously, it helps in recognizing external opportunities, such as improved language learning outcomes, and threats, such as ethical concerns and potential misuse of TWEE. Through this analytical framework, a systematic examination can inform strategic planning, ensuring the maximization of positive outcomes while addressing and mitigating potential challenges in integrating TWEE into language teaching practices (Figure 1).

Figure 1. 2x2 Matrix for SWOT Analysis.



Source: Adapted from Chermack and Kasshanna (2007, p. 387)

4.1 TWEE: A.I. Powered Tools For English Teachers

TWEE, as delineated by Ravshanovna (2023), represents an AI-driven instrument facilitating the creation of educational tasks tailored to EFL and ESL courses. Through the provision of various prompts encompassing language proficiency, topic, and word count, among others, TWEE generates activities targeting different linguistic skills such as reading, writing, listening, and speaking, alongside grammar and vocabulary exercises. It generates activities after providing several prompts (e.g. language level, topic, number of words, etc.) of the different linguistic skills (reading, writing, listening and speaking) as well as grammar and vocabulary activities, hence, reducing teachers' material preparation time. Activities such as word formation, Youtube video exercises, speaking prompts, creative writing and T/F questions are some of the examples this tool may generate for the English language teacher This functionality significantly diminishes the time spent by instructors on material preparation. Among the array of activities TWEE can generate are word formation tasks, YouTube video exercises, speaking prompts, creative writing tasks, and True/False questions, thereby catering to diverse pedagogical needs.

Furthermore, Quijano De La Rosa (2023, p. 101) expounds on the transformative impact of AI tools like ChatGPT and TWEE on time management in language instruction. The conventional paradigm of

teachers expending substantial time on planning, exercise creation, and content generation has shifted towards a more efficient utilization of time resources. With the integration of AI-based solutions, such as TWEE, these tasks are streamlined, affording educators the opportunity to redirect their focus towards teaching. De la Rosa also highlights alternative AI tools like Gamma ai and Diffit for teachers ai, which offer functionalities akin to ChatGPT and TWEE in generating customized content. Notably, TWEE stands out due to its ability to generate various language learning activities, including fill-in-the-gap exercises, word formation tasks, YouTube video exercises, and summaries, aligning with the requisites of standardized English language assessments.

4.2 Participants

The participants in this study comprised 29 pre-service secondary school teachers undertaking the Master's Degree in Secondary Education. Questions 1 through 6 of the questionnaire aimed at profiling them concerning both their training and teaching experience. The participants exhibited a diverse array of university degrees, with the majority holding degrees in English Philology (82%) and translation and interpreting (14%). They possess the capacity to instruct English (63%) and other languages, including French (13%), Portuguese (6%), and German (3%) in certain cases. In terms of age demographics, a significant proportion of participants fell within the range of 20 to 25 years (73%), while a smaller subset spanned from 26 to 30 (14%) and 31 to 35 (14%) years old. Notably, 55% of the participants have prior teaching experience in foreign languages, predominantly in private or academic settings, encompassing a spectrum of proficiency levels from elementary to advanced (A1, B1, C1).

4.3 Research tool

The formulation of the specific questionnaire emanated from the adaptation of instruments utilized by Fernández-Costales (2021). Employing the Delphi technique, characterized as a communication structure designed to facilitate a thorough critical examination and discourse (Green, 2014), the initial questionnaire underwent assessment by three researchers specializing in foreign language teaching and three practitioners in secondary language education. This iterative process aimed to elicit their perspectives and pinpoint pivotal topics for discussion. Subsequently, the insights proffered by the experts were incorporated into the final questionnaire, which encompassed three distinct sections.

The first section was devised to profile the participants, encompassing their language teaching training, experiences, general perceptions, and use of AI for general purposes. This profiling aimed to pre-establish potential implications for their subsequent responses in the ensuing questions. The second segment exclusively concentrated on identifying the internal strengths and weaknesses of the AI tool TWEE, along with the external opportunities and threats associated with its implementation in secondary education settings. The third and final section of the questionnaire gathered information on prospective teachers' perceptions of AI for general teaching purposes.

4.4 Data analysis

4.4.1 Participants use of Artificial Intelligence

In terms of their engagement with AI for academic purposes, the data indicates a diverse spectrum of utilization among participants (see Table 1). While some explicitly state a lack of utilization of AI tools for academic tasks, others detail specific platforms such as ChatGPT, DeepL, Reverso, and Bing Image Generator. Notably, the reasons behind tool usage vary significantly. For instance, some participants employ ChatGPT primarily for idea generation and structuring, while others utilize it for initial brainstorming sessions. DeepL emerges as a popular choice for translation tasks, particularly in instances where composition poses challenges. Furthermore, participants often integrate multiple AI tools, such as ChatGPT and DeepL, suggesting a complementary approach to leveraging various platforms for academic enhancement. Additionally, the inclusion of tools like Canva and WordReference alongside AI tools reflects a comprehensive approach to academic tasks, encompassing a variety of resources to optimize both productivity and quality. Overall, the data illustrates a broad array of preferences and strategies in utilizing AI tools for academic pursuits, highlighting the flexibility and

adaptability of these technologies in supporting scholarly endeavors.

Regarding the participants' utilization of AI tools for teaching and learning foreign languages, the data reveals a diverse set of approaches and preferences. While some participants report no use of AI tools for this purpose, others mention specific platforms like ChatGPT, DeepL, Reverso, and Bing Image Generator. Notably, there is an indication of an openness to explore new tools, such as TWEE, suggesting a willingness to embrace innovative technologies for language instruction in the near future. Furthermore, participants often employ combinations of tools such as Paddlet, Duolingo, and ChatGPT, indicating a multifaceted approach to language teaching and learning. ChatGPT emerges as a versatile tool, utilized for generating ideas for class dynamics, exercises, and other instructional materials. Moreover, participants integrate AI tools with other resources like Canva and Bing Image Generator, showcasing a holistic approach to language education that incorporates various technological and creative elements. Overall, the data underscores the varied strategies employed by participants in leveraging AI tools to enhance the teaching and learning experience in foreign language education. Most of these tools can be categorized following Baker, Smith, and Anissa's (2019) AI-powered language learning tools scenarios.

Regarding the use of AI for translation activities, the data showcases a variety of preferences and approaches. While some participants do not use any AI tools for translation purposes, others specifically mention platforms such as DeepL, Reverso, Cambridge Dictionary, and Google Translate. Notably, there is a mention of a participant preferring direct consultation of a dictionary, indicating a preference for traditional reference materials over AI-powered translation tools for learning assistance. DeepL emerges as a prominent choice among participants, often combined with other resources like WordReference and Reverso for comprehensive translation tasks. Additionally, participants highlight DeepL's accuracy and reliability, underscoring its effectiveness in facilitating translation activities. Overall, the data reflects a range of strategies employed by participants in leveraging AI tools for translation, with DeepL being prevalent due to its robust functionality and versatility in assisting with linguistic tasks. These translation tools are also being used successfully for language learning purposes (Birdsell, 2022; Kureth *et al.*, 2023).

In terms of other uses of AI, the data highlights the diverse applications and functionalities of AI tools beyond translation and language instruction. While some participants report no utilization of AI tools for other activities, others specifically mention ChatGPT as a versatile tool for various tasks such as generating ideas, managing travel arrangements, organizing menus, and even assisting in programming tasks. Some participants utilize ChatGPT for brainstorming sessions, while others rely on it for generating inspiration. Additionally, there is a mention of using Canva's automatic generation feature for creative tasks. Overall, the data showcases the varied ways in which participants leverage AI tools for a range of activities, from organization and planning to creativity and problem-solving.

Table 1. Results of the AI Usage.

AI Usage	Yes	No
Academic work	69%	31%
FL Teaching & Learning	62.1%	37.9%
Translation	62.1%	37.9%
Other uses	49.5%	50.5%

Source: Own elaboration (2023).

4.4.2 SWOT analysis

In the context of employing the SWOT methodology, the internal analysis pertained to the examination of the TWEE application itself, while the external analysis explored its prospective usage within the secondary school classroom setting.

Strengths (internal analysis)

The analysis of the strengths sheds light on the advantages participants find in the use of TWEE as a tool for the creation of innovative resources. The most frequently reported asset is the variety of resources it provides, as 57% of participants point out the wide array of activities provided by this tool. Its usefulness in terms of practicality, source of inspiration and starting point for the teaching practice is also reported by 38% of teachers. Furthermore, they place emphasis on the immediacy of the creation of resources while saving teachers' preparation time (33.3%), and the accessibility of the tool (33.3%). Similarly, creativity in terms of resources and topics is also reported (23.8%).

Weaknesses (internal analysis)

The inner workings of the tool was analysed by participants concerning possible inherent issues. It bears noting that 42.9% of participants report the lack of attention to students with special needs and different profiles in the use of this AI, establishing a clear link between the fact that the templates cannot be adapted and students' idiosyncrasies. This is further expanded on the second reported matter: interface issues (38.1%). In regard to this, participants describe problems on the app malfunctioning (e.g. not converting the Youtube videos adequately), the fact that the templates cannot be edited and the vast array of information which may lead to some confusion on its use. The English interface is also considered one of the weaknesses as the resources are only available in English rather than in several languages (38.1%). Furthermore, the fact that you need to pay for the Premium version to access all resources seems to be a drawback for 23.8% of participants. Curiously, the lack of 'human dimension' is only considered by 14.28% of teachers (to be discussed later).

Opportunities (external analysis)

As far as the possible external use of the AI goes, it is noted that participants' answers resemble some of the reported strengths mentioned in the internal analysis, which might be due to the inherent didactic nature of the tool (e.g. design of activities). Therefore, the most found advantage is the quick creation of activities and resources (47.6%), the reduction of the teachers' workload and planning time being one of the main assets of TWEE. Similarly to the first reported strength, the creation of diverse and innovative activities is the second most reported opportunity (42.9%) linked with the idea of innovation, originality and adaptation to the students' level. Furthermore, they place emphasis on the possible adaptation of the activities to students' likes and the 'entertainment' factor.

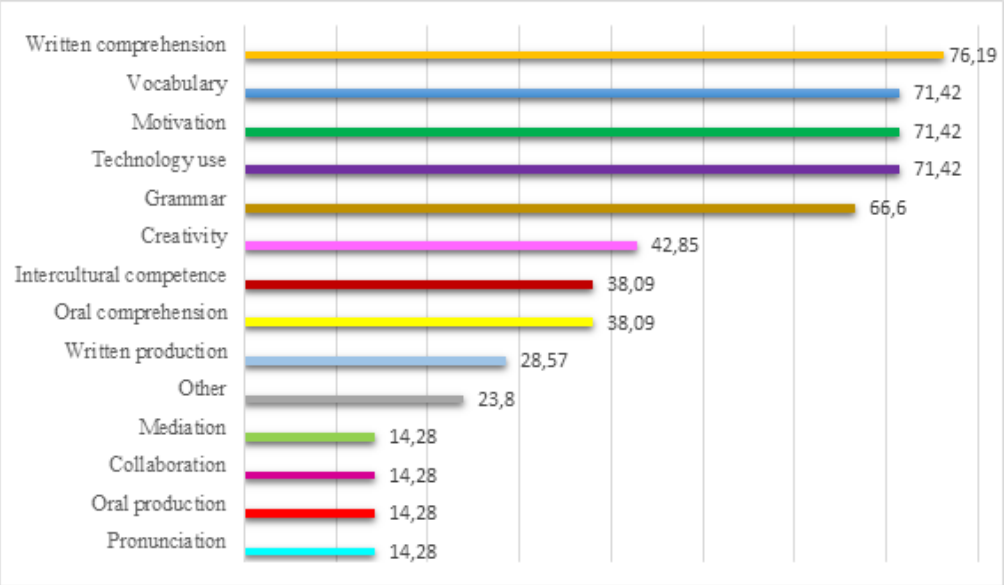
Threats (external analysis)

In line with Rodrigues and Rodrigues (2023), ethical concerns are the most frequently established danger by teachers (38.1%): issues such as copyright, lack of teacher effort and possible student misuse of AI are some of their major worries. What is more, possible drawbacks to students (e.g. lack of effort, attention span and catering to students with special needs) are concerns 33.3% of prospective teachers share. Furthermore, the abuse of AI in terms of teacher 'overuse' and intrinsic dangers (e.g. data collection) are also reported by 28.6% of participants.

In order to delve deeper into teachers' conception on the threats AI may pose, they were asked to state whether they found AI to pose any danger to teachers as well as students. It is interesting that 95.2% of participants believe AI to be a possible threat to students, but this number is reduced to 76.2% when it comes to teachers, which can be explained by the fact their prospective students to be mostly minors.

All in all, their major concern is the superfluity of the teacher's role (28.6%) considering AI may take over some of their tasks (e.g. material design). Surprisingly, the second concern on the dangers of AI for teachers deals with lack of student effort (19%), which seems to show an inherent relationship between the teacher's work and students' effort. This lack of effort is also reported to a greater

Figure 2. Areas benefitted by TWEE.



Source: Own elaboration (2023).

extent (28.6%) when asked about the dangers students may face using AI. However, participants' most frequent concern on the students' side is possible AI misuse and ethical concerns (42.9%), which resonates with the results found in the external analysis. Furthermore, the 'dehumanisation' of the learning process and lack of motivation are also some of the reported worries (9.5%)

4.4.3 Prospective teachers´ perceptions on TWEE in FLT

Bearing in mind teachers' opinions have an impact on their teaching practices, it is necessary to understand said perceptions. Overall, participants report a positive conception of TWEE: when asked about whether they enjoyed using TWEE as a didactic tool, 47.6% of participants agreed and 23.8% strongly agreed with the statement (cumulative percent: 71.4%), while only 14.3% disagreed. On a similar note, 90.5% would use TWEE in their classes to some extent and only 9.5% would not use these tools in their FL lessons, which bodes well for the implementation of AI tools in future teaching and learning scenarios.

Concerning the academic level they would use TWEE, there is a clear tendency towards higher academic courses: 4th year of secondary education (71.4%), 1st year of upper-secondary education (66.6%) and 3rd year of secondary education (61.9%)[1]. Considering the threats reported in the SWOT analysis, it is likely teachers believe AI to be detrimental at early formative stages, hence, its use on the first academic levels would be scarcer.

Concerning the linguistic areas and pedagogical issues which would benefit from TWEE, participants believe reading comprehension, vocabulary, encouraging technology use and motivation to be the most advantageous areas (see Figure 2). On the other hand, areas focused on orality (e.g. pronunciation and oral production) and groupwork (e.g. mediation and collaboration) are the least frequently reported domains; this may be related to interface issues, as TWEE does not allow for collaborative work. Furthermore, even though speaking activities are provided, no individual feedback can be given to students who use these.

5 Discussion

The analysis of participants' use and experience with AI tools (R.Q.1) provides valuable insights into their engagement with emerging technologies in both academic and non-academic domains.

[1] It bears noting that 2nd year of upper secondary education is not one of the most common answers (28.6%): this may be explained considering the fact that teaching at this academic level is focused on helping students pass the standardised examinations for university access, which have a clear-cut structure.

The data reveals a diverse range of use patterns among participants, showcasing a spectrum of preferences and approaches towards AI adoption. While some participants actively employ AI tools for tasks such as idea generation, translation, and language instruction, others exhibit a more reserved attitude, either abstaining from their use entirely or employing them sparingly. Moreover, participants display variability in their choice of AI platforms, with preferences ranging from widely recognized tools like Deepl and ChatGPT, as outlined by Schmidt and Strasser (2022) and to lesser-known options such as TWEE and Canva. Notably, there is an evident openness among participants to explore new AI technologies, as indicated by intentions to adopt novel tools and experiment with additional functionalities of existing platforms. Furthermore, participants frequently integrate multiple AI tools into their workflow, combining different platforms to address various aspects of academic tasks effectively. This integration underscores a holistic approach to leveraging AI technologies, wherein participants draw upon the strengths of each tool to optimize their productivity and outcomes. Overall, the findings suggest that participants' utilization and experience with AI are characterized by diversity, variability, openness to exploration, integration of multiple tools, and varied levels of experience. These insights provide a comprehensive understanding of how participants engage with AI technologies to support their academic and non-academic endeavors, emphasizing the multifaceted nature of AI utilization in contemporary educational contexts.

These findings highlight the high familiarity and proficiency of participants with AI for general purposes, which may translate into an appreciation for its potential professional applications. As most pre-service teachers belong to the digital-native generation, they are likely to adapt easily to AI technology and recognize its potential for future practice.

Concerning the R.Q.2, the results of the SWOT analysis are summarised in Table 2. The internal analysis shows a clear representation of strengths and weaknesses related to the nature of the app: participants report practical uses of the resource for the teacher's perspective such as the different activities, the speediness and usefulness of the software. Regarding the weaknesses, they factor diversity, both in terms of students with special needs (no option to adapt the activities within the app) as well as language constrictions (only in English), while also mentioning interface issues (e.g. video conversion). These findings align with those by Ravshanovna (2023).

The results found on the external analysis of opportunities and threats resonate to some extent with the answers for the internal analysis; this can be explained by the fact that TWEE is an educational tool itself so teachers analyse it as such. Therefore, the quick creation of diverse and innovative activities is reported once again along with the opportunities it provides for paying attention to students' likes, which can be linked to the idea of personalised learning thanks to AI (Chen; Chen; Lin, 2020). As far as threats and dangers, participants focus on the detriments it may pose for students in terms of ethical concerns (e.g. cheating) and learning factors (e.g. effort and attention span), while the major concern for teachers would be to become superfluous.

Table 2. Results of the SWOT Analysis.

Strengths	Weaknesses
- Variety of resources	-Students with special needs
- Usefulness and practicality	- Interface issues
- Immediacy	- English only
-Accessibility	- Premium tools
-Creativity	- Human dimension
Opportunities	**Threats**
- Quick creation of activities	- Ethical concerns (e.g. misuse)
- Diverse and innovative activities	- Drawbacks to students (e.g. lack of effort)
- Students' likes	- Abuse of AI

Source: [

Own elaboration (2023).

In line with Hartono *et al.* (2023), participants' attitudes and perceptions (R.Q.3) towards the use of AI are overall favorable as they report positive feelings concerning its use during classroom practice. Similarly, when asked about their possible future use of AI, the majority (90.5%) of prospective FL teachers believe they will use AI (in this case, TWEE) in their future careers, which resonates with the openness towards new technologies registered in R.Q.1. It bears noting that this positive overview is linked (to some extent) to participants' use of AI in other realms.

Concerning their future use, it is clear they believe AI to be suited for written tasks such as written comprehension activities and those related to use of English (vocabulary and grammar): this is related to the fact that TWEE does not provide the option for feedback to students (speaking) and its main input is in written format, thus, being found more suitable for the abovementioned activities. Furthermore, in line with Yang (2022), students' motivation is one of the reported areas which would benefit the most from the use of AI, as well as enhancing the use of technological tools by prospective students In this study, we aimed to explore the attitudes and perspectives of prospective foreign language teachers in secondary education in Spain regarding the application of AI in their teaching practices, with a particular focus on the AI tool for language teachers: TWEE. Through data analysis, we gained valuable insights into participants' engagement with AI tools for academic and non-academic purposes, as well as their perceptions of the strengths, weaknesses, opportunities, and threats associated with the TWEE application.

Our findings reveal a diverse spectrum of AI use among participants, ranging from active integration into academic tasks to more reserved attitudes or abstention from AI use altogether. Participants exhibit variability in their choice of AI platforms, with preferences ranging from well-established tools like Deepl and ChatGPT to lesser-known options such as TWEE and Canva. The data also highlights an openness among participants to explore new AI technologies, as indicated by their intentions to adopt novel tools and experiment with additional functionalities of existing platforms. Furthermore, participants frequently integrate multiple AI tools into their workflow, demonstrating a holistic approach to leveraging technology to enhance productivity and outcomes.

Regarding the TWEE application, our SWOT analysis reveals a range of internal strengths and weaknesses, including practicality, variety of resources, interface issues, and language constraints. External opportunities and threats resonate with the internal analysis, emphasizing the potential for quick creation of activities and innovative resources, as well as concerns related to ethical considerations and the risk of teacher superfluity. Participants' perceptions and attitudes towards AI are generally favorable, with the majority expressing intentions to incorporate AI tools into their future teaching practice. They believe AI is well-suited for written tasks such as comprehension activities and vocabulary instruction, while also recognizing its potential to enhance student motivation and technological literacy.

Pedagogical implications for the secondary school classroom include the need for educators to adopt a balanced approach to AI integration, maximizing its benefits while mitigating potential risks and challenges. Teachers should consider the diverse preferences and approaches of students and be mindful of issues related to accessibility, interface design, and ethical concerns. Additionally, there is a need for ongoing professional development to support educators in effectively integrating AI tools into their teaching practice.

Despite the valuable insights gained from this study, it is essential to acknowledge its limitations. The sample size and demographics of participants may not fully represent the broader population of prospective foreign language teachers in secondary education. Moreover, the study focused primarily on perceptions and attitudes, and further research is needed to explore the actual implementation and impact of AI tools in classroom settings.

In conclusion, this study contributes to our understanding of how prospective language teachers engage with AI tools and their perceptions of AI's role in future teaching practice. By addressing the multifaceted nature of AI use and its implications for pedagogy, educators can better navigate the opportunities and challenges associated with integrating AI into language learning environments.

References

BAKER, Toby; SMITH, Laurie; ANISSA, Nandra. *Educ-AI-tion rebooted? Exploring the future of artificial intelligence in schools and colleges*. [*S. l.*]: Nesta, 2019. Available from: https://media.nesta.org.uk/documents/Future_of_AI_and_education_v5_WEB.pdf. Visited on: 18 Jan. 2024.

BIRDSELL, Brian J. Student writings with DeepL: Teacher evaluations and implications for teaching. Ed. by P. Ferguson and R. Derrah. *Reflections and new perspectives*, Jalt, Tokyo, p. 117–123, 2022. DOI: 10.37546/jaltpcp2021-14.

CHEN, Lijia; CHEN, Pingping; LIN, Zhijian. Artificial intelligence in education: A review. *IEEE Access*, v. 8, p. 75264–75278, 2020. DOI: 10.1109/access.2020.2988510.

CHERMACK, Thomas J.; KASSHANNA, Bernadette K. The use and misuse of SWOT analysis and implications for HRD professionals. *Human Resource Development International*, v. 10, n. 4, p. 383–399, 2007. DOI: 10.1080/13678860701718760.

FERNÁNDEZ-COSTALES, Alberto. Subtitling and dubbing as teaching resources in CLIL in Primary Education: The teachers' perspective. *Porta Linguarum: revista internacional de didáctica de las lenguas extranjeras*, n. 36, p. 175–192, 2021. DOI: 10.30827/portalin.v0i36.16228. Visited on: 14 Jan. 2024.

GREEN, Ravonne A. The Delphi technique in educational research. *Sage Open*, v. 4, n. 2, p. 2158244014529773, 2014. DOI: 10.1177/2158244014529773.

GUTIERREZ, Miguel Romero; CHICO, Maria Martinez; LISO, Maria Rut Jimenez. Evaluation of the inter-university master in environmental education in accordance with the students and teachers perceptions of the SWOT analysis. *Revista Eureka sobre ensenanza y divulgacion de las ciencias*, Universidad de Cádiz. APAC-Eurek, Cádiz, v. 12, n. 2, p. 347–361, 2015. Available from: http://dx.doi.org/10.25267/Rev_Eureka_ensen_divulg_cienc.2015.v12.i2.09. Visited on: 1 Feb. 2024.

HARTONO, Wira Jaya; NURFITRI, Nurfitri; RIDWAN, Ridwan; KASE, Emanuel B; LAKE, Floribertha; ZEBUA, Rony Sandra Y. Artificial Intelligence (AI) Solutions In English Language Teaching: Teachers-Students Perceptions And Experiences. *Journal on Education*, v. 6, n. 1, p. 1452–1461, 2023. DOI: 10.31004/joe.v6i1.3101.

HOCKLY, Nicky. Artificial Intelligence in English Language Teaching: The Good, the Bad and the Ugly. *RELC Journal*, v. 54, n. 2, p. 445–451, 2023. DOI: 10.1177/00336882231168504.

HUANG, Jiamiao; LI, Shumin. Opportunities and challenges in the application of ChatGPT in foreign language teaching. *International Journal of Education and Social Science Research*, v. 6, n. 04, p. 75–89, 2023. DOI: 10.37500/ijessr.2023.6406.

KURETH, Sara Cotelli; BENITES, Alice Delorme; HALLER, Mara; NOGHRECHI, Hasti; STEELE, Elizabeth. "I Looked It Up in DeepL": Machine Translation and Digital Tools in the Language Classroom. *Studie e Ricerche: Human Translation and Natural Language Processing Towards a New Consensus?*, Fondazione Università Ca' Foscari, Venice, v. 35, p. 81–96, 2023. DOI: 10.30687/978-88-6969-762-3/006.

LEARNED, Edmund; CHRISTENSEN, C. Rowland; ANDREWS, Keneth; GUTH, William D. *Business policy: Text and cases*. [*S. l.*]: Irwin, 1965.

NGUYEN, Andy; NGO, Ha Ngan; HONG, Yvonne; DANG, Belle; NGUYEN, Bich-Puong Thi. Ethical principles for artificial intelligence in education. *Education and Information Technologies*, v. 28, n. 4, p. 4221–4241, 2023. DOI: 10.1007/s10639-022-11316-w.

QUIJANO DE LA ROSA, Jorge David. The Rise of AI in language education: a game changer for teaching English as a foreign language in Ecuador. *Kronos–The Language Teaching Journal*, v. 4, n. 2, p. 95–102, 2023. Available from: https://revistadigital.uce.edu.ec/index.php/KronosJournal/article/view/4638. Visited on: 9 Dec. 2023.

RAVSHANOVNA, Mukhitdinova Munirakhon. Use of Artificial Intelligence in Foreign Language Teaching. *International Journal of Formal Education*, v. 2, n. 10, p. 118–122, 2023. Available from: http://journals.academiczone.net/index.php/ijfe/article/view/1346. Visited on: 22 Jan. 2024.

REGAN, Priscilla M.; JESSE, Jolene. Ethical challenges of edtech, big data and personalized learning: Twenty-first century student sorting and tracking. *Ethics and Information Technology*, v. 21, n. 3, p. 167–179, 2019. DOI: 10.1007/s10676-018-9492-2.

RODRIGUES, Olira Saraiva; RODRIGUES, Karoline Santos. Artificial intelligence in education: the challenges of ChatGPT. *Texto Livre*, Belo Horizonte, v. 16, e45997, 2023. DOI: 10.1590/1983-3652.2023.45997.

ROLL, Ido; WYLIE, Ruth. Evolution and revolution in artificial intelligence in education. *International Journal of Artificial Intelligence in Education*, v. 26, n. 2, p. 582–599, 2016. DOI: 10.1007/s40593-016-0110-3.

SCHMIDT, Torben; STRASSER, Thomas. Artificial intelligence in foreign language learning and teaching: a CALL for intelligent practice. *Anglistik: International Journal of English Studies*, v. 33, n. 1, p. 165–184, 2022. DOI: 10.33675/angl/2022/1/14.

SHARADGAH, Talha A.; SA'DI, Rami A. A Systematic Review of Research on the Use of Artificial Intelligence in English Language Teaching and Learning (2015-2021): What are the Current Effects? *Journal of Information Technology Education: Research*, v. 21, p. 337–377, 2022. DOI: 10.28945/4999.

STEMLER, Steve. An overview of content analysis. *Practical assessment, research, and evaluation*, University of Massachusetts Amherst, Amherst, v. 7, n. 1, 2000. DOI: 10.7275/z6fm-2e34.

TAFAZOLI, Dara; GÓMEZ-PARRA, María-Elena; HUERTAS-ABRIL, Cristina A. A cross-cultural qualitative study on students' attitudes towards computer-assisted language learning. *The Qualitative Report*, v. 25, n. 7, p. 1841–1855, 2020. DOI: 10.46743/2160-3715/2020.4033.

YANG, Jaeseok. Perceptions of preservice teachers on AI chatbots in English education. *International Journal of Internet, Broadcasting and Communication*, v. 14, n. 1, p. 44–52, 2022. DOI: 10.7236/ijibc.2022.14.1.44.

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