Empirical Research Article

Artificial Intelligence Tool Use and Learners' Attitudes toward EFL Learning

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Abstract
The study explores the relationship between Artificial Intelligence (AI) tool use and learners' attitudes toward English as a Foreign Language (EFL) learning. A mixed-methods approach was adopted. A Likert-scale questionnaire was administered to 70 first-year secondary school pupils at the Abu El Kassem Echebbi Secondary School of Gabes, Tunisia, to collect quantitative data on AI tool use and learners' attitudes toward EFL learning. In addition, semi-structured interviews were conducted with three secondary school EFL teachers. Quantitative data were analyzed using Seaborn, and qualitative data were examined through thematic analysis. The results revealed positive correlations between AI tool use and the three aspects of attitudes (i.e., cognitive, emotional, and behavioral), with the emotional component showing the strongest correlation. Qualitative findings highlighted key facilitators and barriers to AI tool use. Based on these findings, the study emphasizes the urgent need for AI professional training programs for teachers and pupils to ensure the effective and equitable use of AI tools in EFL learning.

Keywords
AI tools, EFL learning, attitudes toward EFL learning, emotional component

Introduction

Success in learning a foreign language, including English as a Foreign Language (EFL), depends on multiple factors: cognitive, social, and affective (Acosta-Gonzaga & Ramirez-Arellano, 2022; Arnold, 2020). Among the affective factors, attitudes toward EFL learning play a critical role as they can have either a positive or negative impact on the learning process. Put differently, they directly influence learners' motivation, engagement, and overall achievement (Getie, 2020). Recently, with the integration of AI applications in education, technology has been leveraged to create opportunities for EFL learners to enhance affective factors in EFL learning (Nichant et al., 2020). AI tools provide EFL learners with personalized EFL learning experiences, which are often lacking in traditional EFL classrooms.

However, despite the potential benefits of AI integration in EFL learning, research studies investigating the effectiveness of AI in shaping learners' attitudes toward EFL learning remain scarce (AlTwirji & Alghizzi, 2024). The majority of the literature focuses on how AI applications promote cognitive skills and knowledge, often overlooking their significant role

in developing affective skills (Yuan & Liu, 2025), particularly attitudes toward EFL learning, which are crucial for learners' well-being. Even when studies do address attitudes, they primarily explore learners' perceptions of using AI tools in learning rather than examining how AI integration influences attitudes toward EFL learning. Consequently, little is known about the impact of AI tool use on learners' attitudes toward EFL learning. Therefore, this study aims to investigate how AI tools can influence learners' attitudes toward EFL learning, providing valuable guidance for future researchers, policymakers, and educational practitioners in enhancing the EFL learning experience. In addition, while much of the existing research on EFL learning and the use of AI tools has been conducted in Western contexts, research in non-Western, Global South contexts is limited. That creates a gap in knowledge about how these innovations are understood and experienced in underrepresented contexts. By focusing on secondary school pupils in Tunisia, this research bridges the gap and decenters dominant scholarly discourses, delivering insights that diversify and enrich the topic.

Then, the current study is situated within the context of teaching English in secondary schools in Tunisia. English is among the primary subjects taught in these schools, and efforts are made to enhance students' language standards using conventional classroom strategies. Nowadays, AI integration in Tunisian secondary school EFL education is mostly indirect; learners do not make direct contact with AI tools during classroom activities, but will probably use them outside of school to support their homework and self-practice in language. As AI tools have become more prevalent and accessible, students' attitudes toward EFL learning may be influenced by their exposure to these technologies. This study aims to explore the link between students' uptake of AI instruments in their English as a Foreign Language (EFL) learning and their attitudes toward EFL learning. It considers how students' attitudes are shaped by their use of AI outside the classroom. Noteworthy is the fact that this study targets secondary school students, as this age group represents a pivotal stage in learners' academic, social, and cognitive development (Eccles & Roeser, 2011; Sawyer et al., 2018; Steinberg, 2005). To investigate the link between the use of AI tools for EFL learning and learners' attitudes towards EFL learning, the study draws on data from both learners and teachers. EFL secondary school teachers can provide complementary insights that help contextualize and interpret the findings.

In line with the aim of this study, four research questions are posed to explore the link between AI tool use and various aspects of learners' cognitive, behavioral, and emotional attitudes toward EFL learning in the Tunisian context:

RQ1. Is there a significant correlation between the use of AI tools and learners' cognitive attitudes toward EFL learning?
RQ2. Does the use of AI tools relate to learners' behavioral attitudes toward EFL learning?
RQ3. How strongly is the use of AI tools linked to learners' emotional attitudes toward EFL learning?
RQ4. What are the main facilitators and barriers to the effective use of AI tools in EFL learning?

Literature Review

Attitudes towards EFL learning

Attitudes represent relatively stable beliefs, emotions, and predispositions to act in certain ways toward particular objects, events, or ideas (Davis, 2018). The tripartite model of attitudes, encompassing cognitive, emotional (affective), and behavioral dimensions, was first proposed by Rosenberg and Hovland (1960). They categorized attitudes into three interconnected dimensions: cognitive, emotional, and behavioral. The cognitive dimension encompasses an individual's beliefs, thoughts, or perspectives regarding the object of the attitude. The emotional

dimension relates to the feelings and emotional responses an individual has toward the object, such as liking or disliking it. Lastly, the behavioral dimension reflects the inclination to engage in specific actions or behaviors related to the object. Wenden (1991) applied this tripartite framework specifically to the context of language learning.

In the context of language learning, attitudes hold a crucial position within the affective domain, carrying importance equal to the cognitive and skill-based domains. As far as EFL learning is concerned, attitudes toward EFL learning have been widely viewed as a significant factor affecting language learning and learner performance (Alsoudi et al., 2024). Research studies consistently highlight the intricate interplay between learners' attitudes, motivation, and overall proficiency. Favorable attitudes have been proven to be associated with higher motivation, increased engagement, and successful language learning outcomes. Conversely, unfavorable attitudes can lead to lower achievement (Gardner & Lambert, 1972; Garrett, 2010).

Brown (2000) reviewed multiple studies on the impact of attitude on language learning and concluded that having a positive attitude toward people, the native language group, and the target language group can contribute to higher proficiency. In other words, students with positive attitudes are more likely to succeed in language learning, as their attitudes serve as reinforcement for their progress. Conversely, those with negative attitudes may struggle and experience failure in their learning journey.

Similarly, Kara (2009) points to the fact that attitude towards learning English significantly influences learners' performances. She concluded that learners with positive attitudes towards language learning tend to be more excited to learn and also show willingness to work hard, which ultimately helps them achieve better learning outcomes. She argues that negative attitudes toward learning may lead to anxiety in the class and ultimately to low cognitive achievements. This assumption has been empirically proved by the researcher through a class observation. During the observation, learners who hold positive attitudes tend to be more engaged and motivated, whereas negative attitudes towards the foreign language and group can hinder the language learning process.

As Abidin et al. (2012) make it clear, mastering a particular language is not solely determined by mental competence or language skills but is also significantly influenced by learners' attitudes and perceptions toward the target language. In other words, they affirm that attitude plays a crucial role in shaping learners' inclination and tendency to acquire that language. Positive attitudes can foster motivation and willingness to learn, ultimately resulting in higher achievement. On the other hand, negative attitudes may act as a barrier to language acquisition, leading to poorer performance.

Artificial Intelligence (AI) in EFL learning

The rapid progress of AI has transformed multiple fields, including education, significantly impacting teaching and learning methods (Chen et al., 2020). Particularly, AI has become a valuable tool in language learning and teaching, playing a crucial role in improving learners' academic performance and overall learning outcomes (Haristiani, 2019). The use of AI tools is currently a prevailing trend in EFL learning (Fan & Zhang, 2024; Haristiani, 2019; Huang et al., 2023; Knox, 2020; Pedro et al., 2019; Pikhart, 2020). A wide range of AI applications utilizing advanced analytical methods, such as Machine Learning (ML), Natural Language Processing (NLP), Artificial Neural Networks (ANNs), and Affective Computing (AC), have been widely implemented, leading to substantial effects (Bouzayenne & Harizi, 2024; Ma & Chen, 2024). Artificial intelligence has the potential to significantly boost students' academic

achievement by offering tailored learning experiences (AlTwirji & Alghizzi, 2024). Thanks to advanced algorithms and data analysis, AI tools can adapt to individual learning styles, strengths, and weaknesses, offering personalized learning pathways for each learner. This customized approach ensures that learners receive content that meets their unique needs, enabling them to progress at their own pace. Additionally, AI-powered tools can offer real-time feedback, determine areas requiring improvement, and provide targeted exercises to tackle gaps in knowledge (Qiao & Zhao, 2023). By enhancing a more engaging and efficient learning environment, AI enables learners to achieve their full academic potential. Thus, by leveraging AI tools, such as chatbots, machine translation tools, intelligent learning management systems, and automated writing-evaluation systems, EFL learners can enjoy a more engaging, efficient, and effective path to mastering the English language (Chu et al., 2023).

As beneficial as AI use in EFL teaching is, its utilization is not unlimited. Several limitations have been highlighted, such as access, technical reliability, and ethics. Unequal access to technological hardware, for instance, sustains disparities among learners of varying levels of technological accessibility, while technical issues or over-reliance on automated output can discourage authentic language interaction and critical thinking (Knox, 2020). Equally, issues of data privacy and limitations of AI systems in human emotional intelligence are also still fundamental challenges to its widespread adoption in the education sector (Xu et al., 2025). Educators have also exhibited fears about whether they themselves are adequately trained for legitimate use of AI technologies in teaching, and a de-emphasis on human roles in the learning process. Therefore, while there is immense potential for AI in EFL enhancement, its application must be done with due consideration to these pedagogical, ethical, and practical restrictions.

While the benefits of using AI tools in EFL learning are well-documented (Hsu et al., 2024; Junaidi, 2020; Kim, 2019; Xu et al., 2023; Yuan & Liu, 2025; Yan, 2023; Zheng et al., 2023), existing research has primarily focused on exploring learners' attitudes toward the use of AI tools. Investigating how such tools influence attitudes toward EFL learning remains underexplored (Ma & Chen, 2024; Wei, 2023). This gap highlights a critical area for further exploration. Understanding whether and how AI tools shape learners' attitudes toward EFL learning can provide valuable insights into the broader impact of technology on language learning. Empirical research is needed to examine the relationship between AI tool usage and shifts in attitudes toward EFL learning, as this could inform the development of more effective and engaging AI-driven educational strategies. Addressing this gap will not only deepen our understanding of AI's role in language learning but also help optimize its potential to foster positive and enduring attitudes toward EFL.

Methodology

This study adopted a mixed-methods approach, incorporating a self-report questionnaire and semi-structured interviews to collect comprehensive data on the relationship between AI tool use for EFL learning and learners' attitudes toward EFL learning. The questionnaire was designed to report on pupils' usage of AI tools and their attitudes toward English as a Foreign Language (EFL) learning, aiming to capture quantitative insights into how pupils' usage of AI tools in their EFL learning impacts their attitudes toward EFL learning. Additionally, to further investigate the link between the variables under question, qualitative data were collected through semi-structured interviews with three EFL secondary school teachers, which focused on exploring teachers' perceptions of the impact of AI tools used for EFL learning on their pupils' emotions toward EFL learning, as well as the facilitators and barriers associated with the implementation of AI tools in secondary EFL education. This dual approach allowed for a holistic understanding of the use of AI tools for EFL learning in secondary education, providing

valuable insights into the role of AI in enhancing EFL learning. It is noteworthy that the semi-structured interview questions for EFL teachers were designed after the quantitative questionnaire results were collected and analyzed. This approach allowed the interviews to explore and contextualize patterns observed in the learners' responses.

Participants

The participants in this study comprised 70 first-year secondary school students, aged between 15 and 18, from the Abu El Kassem Echebbi Secondary School of Gabes, Tunisia. A convenience sampling method was employed, ensuring a readily accessible group for data collection. Participants were selected based on their willingness and availability to participate, together with their relevance to the research context as secondary school EFL learners in Tunisia. This technique was adopted because it provided easy access to respondents who fit into the study requirements within available time and resources. It is worth mentioning that since the study involved human participants, strict ethical guidelines were followed throughout the research process. Informed consent was obtained from all participants, ensuring they fully comprehended the study's purpose, procedures, and potential implications. Confidentiality was meticulously preserved, with all personal data securely stored to safeguard participants' privacy. Additionally, participation was entirely voluntary, allowing individuals the freedom to withdraw at any time without any repercussions. These measures were adopted to uphold ethical research standards and protect the well-being and rights of all participants. In addition, as the participants were minors, parental consent was obtained for all participants: as part of the questionnaire, a consent form was included and required to be signed by the parents to provide permission for their child's participation in the study.

Additionally, three English secondary school teachers were interviewed to provide their insights into the impact of AI tools use for EFL learning on their pupils' emotions toward EFL learning, as well as their perceived AI facilitators and barriers within the EFL learning in the secondary school context. Their experiences and expertise contributed valuable qualitative data, enriching the understanding of the challenges and opportunities associated with using AI in secondary education for EFL learning.

Table 1 presents the demographic information of the secondary school EFL teachers who participated in the semi-structured interviews.

Table 1
Demographic Information of EFL Teachers Interviewed

	Gender	Age	Teaching Experience
Teacher 1	Female	45	20
Teacher 2	Female	49	22
Teacher 3	Male	52	27

Instruments

Regarding data collection instruments, first, a self-report questionnaire was utilized to gather quantitative data. It was divided into two parts. The first part focused on gathering respondents' demographic information, including their names, ages, and whether they used AI tools for EFL learning or not. The second part of the questionnaire assessed attitudes toward EFL learning and was adapted from Vandewaeter and Desmet's Attitudes Toward Foreign Language Learning (A-FLL) (2009). It was divided into three components reflecting the cognitive, behavioral, and emotional dimensions of attitudes. In this second part, the Likert scaling method was employed, with statements rated on a scale ranging from 1 (strongly disagree) to

5 (strongly agree), including a medium value labeled as neutral. It is worth mentioning that the A-FLL questionnaire was originally designed to assess learners' attitudes toward foreign language learning, comprising several items that assess emotional, cognitive, and behavioral dimensions of language learning attitudes. For the purpose of this study, the questionnaire was carefully adapted to target specifically the attitude of students towards English as a Foreign Language (EFL). In adapting the instrument, some items were changed to suit the context of EFL learning, but retained the original structure and intention of the questionnaire in a manner that would effectively capture the attitude of secondary school students towards EFL learning. Second, semi-structured interviews were conducted with three EFL secondary school teachers to gather qualitative insights into the use of AI for EFL learning in secondary school education. Each interview lasted between 15 and 20 minutes, allowing respondents sufficient time to share their perspectives in detail. This semi-structured approach provided a flexible framework, ensuring consistency across interviews while allowing for an in-depth exploration of participants' perspectives on the topic. Semi-structured interviews were positioned within the literature as being appropriate to exploring complex educational phenomena where participant perceptions and contextual understanding are paramount (e.g., Kvale & Brinkmann, 2009; Gill et al., 2008).

This semi-structured interview aimed to gain deeper insight into the use of AI tools for EFL learning among secondary school pupils. It was designed to complement the quantitative data, which explored the link between AI tool use for EFL learning and students' attitudes toward learning English. The interview covered teachers' perceptions of the impact of AI tools for EFL learning on their pupils' emotions toward EFL learning, as well as their views on key facilitators and barriers to AI integration in EFL learning.

The interview began with an introduction to establish rapport, explain the study's purpose, and ensure confidentiality. Participants were then asked about their experiences with AI tools used in EFL learning, namely, whether AI tools used for EFL learning enhance or hinder their emotional engagement. The open-ended and follow-up questions allowed for deeper discussion and personal insights. The interview concluded with reflections on the perceived challenges and benefits, and any additional thoughts participants wished to share.

A pilot of the questionnaire and the semi-structured interview schedule was conducted before data collection. The pilot of the questionnaire was done on a small group of secondary school students to ensure clarity, readability, and relevance of the items, and some slight adjustments were made based on their observations. Similarly, the pilot of semi-structured interview questions was conducted with a small number of EFL teachers to check if the questions were sensible and could elicit rich information about learners' use of AI tools and affective reactions to learning EFL.

Quantitative data preparation

During the data collection phase, the study questionnaire was distributed in person to participants at their school during the second term of the 2024/2025 academic year. Respondents were asked to provide information on their names, ages, and use of AI tools for EFL learning, as well as indicate their agreement or disagreement with various declarative statements. To ensure clarity, participants were first guided through a sample question to familiarize them with the answering procedure.

Then, they were instructed to read carefully and independently complete the questionnaire. Notably, the questionnaire items were presented in a scrambled order, without being grouped

into specific sections or components. This approach aimed to reduce response bias, where participants might develop a pattern of answers that does not accurately reflect their true behaviours.

A total of 70 students participated in the survey, but only 61 were retained for the final analysis. Nine responses were excluded due to incomplete answers. The final score for each respondent on a given component of the second part of the questionnaire was determined by summing their ratings for the relevant statements.

When analyzing the impact of AI tool usage for EFL learning on pupils' attitudes toward EFL learning, AI tool use was treated as the independent variable. The three dimensions of attitude, cognitive, behavioral, and emotional, served as the dependent variables.

Data analysis

The data analysis process involved a dual approach to examine the relationship between AI tool usage for EFL learning and attitudes toward EFL learning. Data collected from the Likert-format questionnaire were analyzed using Seaborn, a Python data visualization library, to explore correlations between AI tool usage for EFL learning and the cognitive, behavioral, and emotional components of attitudes toward EFL learning.

Seaborn is a widely used and powerful tool in Python, offering several advantages over traditional statistical analysis. Firstly, it provides an intuitive, high-level interface for creating visually appealing and informative statistical graphics, thanks to its built-in colour palettes, customizable plot styles, and support for complex statistical visualizations (Waskom, 2021). Secondly, Seaborn simplifies the creation of various types of plots, including scatterplots, bar plots, line plots, histograms, and heatmaps. While traditional statistical methods help researchers draw conclusions about population parameters, Seaborn enhances data exploration by enabling the visualization of even highly complex datasets to reveal underlying patterns and relationships. The high-quality visualizations generated by Seaborn play a crucial role in the data analysis process, making it easier to detect trends and correlations at a glance (Waskom, 2021). In other words, Seaborn presents data in a clear and accessible manner, ensuring that information is effectively communicated.

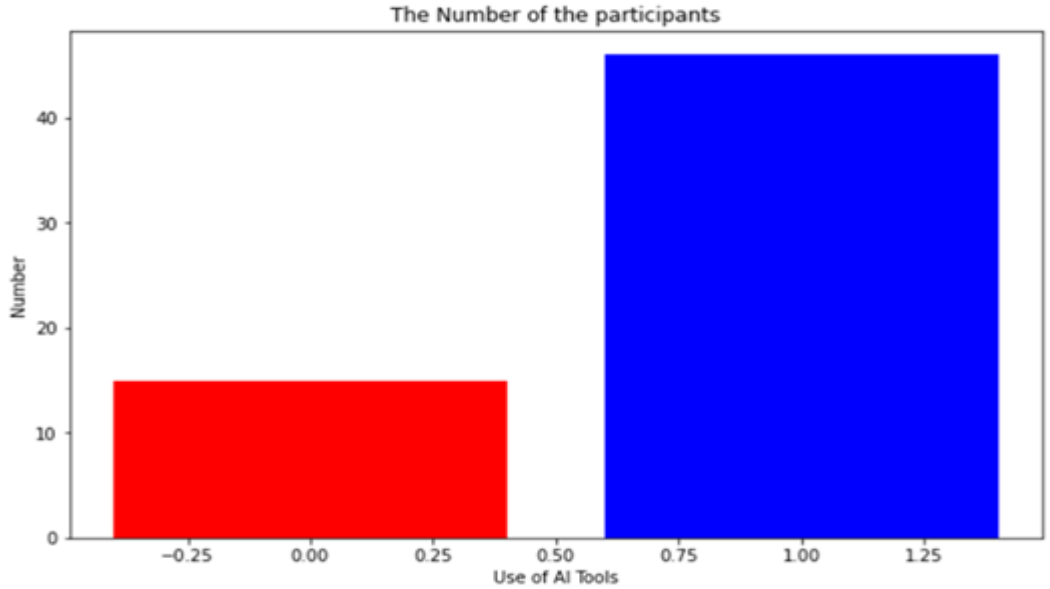
Meanwhile, the semi-structured interview transcripts with EFL teachers were analyzed thematically, a method championed for its rigor and transparency in revealing, examining, and reporting on patterns within qualitative data (Braun & Clarke, 2006). Transcripts were first read multiple times to become familiar with the data. Systematic initial codes were then generated across the dataset regarding patterns in terms of the research questions. The codes were organized and grouped into potential themes, reviewed, and constructed to make them coherent and distinct. Themes were therefore titled in clear terms, supported by corresponding quotations from the data. Thematic analysis allows for uncovering teachers' views on the emotional impact of AI tool use for EFL learning on pupils, as well as potential facilitators and barriers related to AI tool usage in EFL learning. This thematic analysis provided qualitative insights that complemented the quantitative findings, offering a comprehensive understanding of the interplay between AI tool usage for EFL learning and attitudes toward EFL learning.

Results

The findings were displayed according to the four research questions posed in the study.

The correlation between the use of AI tools and learners' attitudes toward EFL learning
As evident from Figure 1 below, the number of AI tool users for EFL learning exceeded that of non-users, justifying the need for a more detailed investigation.

Figure 1
Distribution of Participants by AI Tool Usage



Note: the red bar represents non-users of AI tools for EFL learning; the blue bar represents the users of AI tools for EFL learning

The analysis of the quantitative data revealed significant insights into the relationship between AI tool usage for EFL learning and attitudes toward EFL learning among first-year secondary school pupils. Using a correlation heatmap generated with the Seaborn library in Python (see Figure 2), the study identified varying degrees of correlation between AI tool usage for EFL learning and the three components of attitudes toward EFL learning: namely, cognitive, behavioral, and emotional.

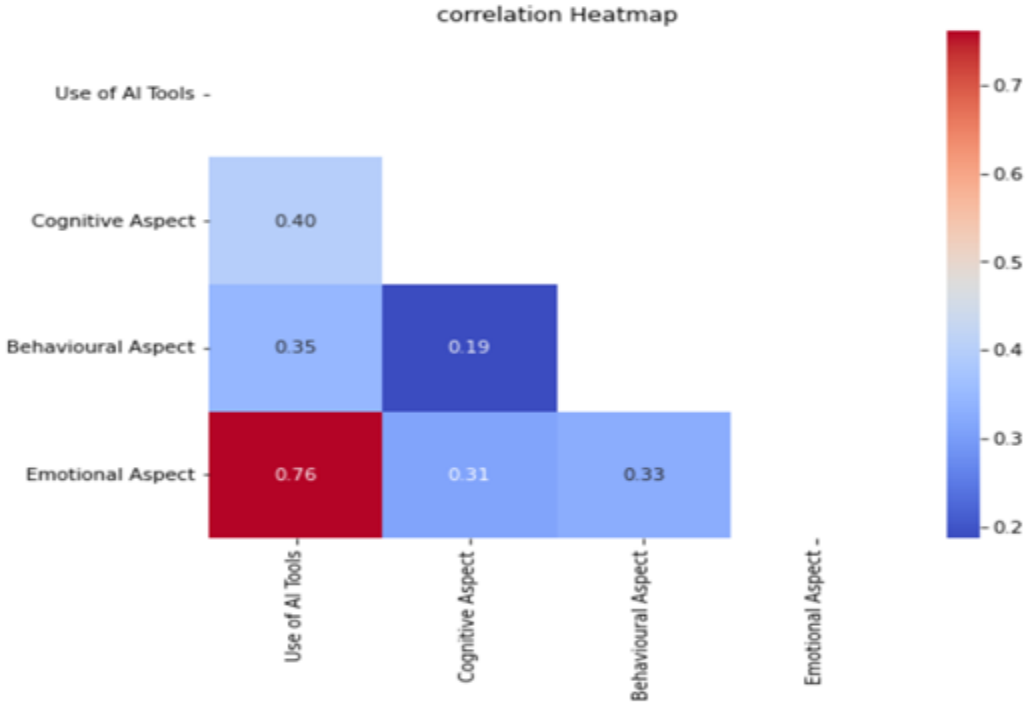
The results indicated that AI tool usage for EFL learning had a moderate positive correlation with the cognitive aspect of attitudes toward EFL learning, with a correlation coefficient of 0.4. This suggests that pupils who frequently used AI tools for EFL learning demonstrated a stronger understanding and awareness of the benefits of EFL learning, such as improved language skills and academic performance.

Similarly, AI tool usage for EFL learning showed a slightly lower but still positive correlation with the behavioral aspect, with a coefficient of 0.35. This implies that pupils who engaged with AI tools were more likely to exhibit proactive behaviors, such as consistent practice, participation in language activities, and the use of additional resources to enhance their EFL learning experience.

The strongest correlation was observed between AI tool usage for EFL learning and the emotional aspect of attitudes, with a notably high coefficient of 0.76. This finding highlights that pupils who utilized AI tools reported more positive emotions, such as enthusiasm, motivation, and confidence, toward EFL learning. The high correlation suggests that AI tools for EFL learning may play a significant role in fostering a positive emotional connection to EFL learning, which is crucial for long-term engagement and success.

Overall, these findings underscore the potential of AI tools for EFL learning to influence not only the cognitive and behavioral dimensions of EFL learning but also to significantly enhance the emotional engagement of first-year secondary school pupils to learn EFL.

Figure 2
The Correlation Heatmap: Presenting the Correlations between the Study Variables



Encouraged by the positive correlation between AI use for EFL learning and various aspects of attitudes toward EFL learning, particularly the strong positive correlation with the emotional component, this relationship was further explored in greater depth through qualitative analysis. To gain deeper insights into this connection, semi-structured interviews were conducted with three EFL secondary school teachers as the questionnaire respondents, allowing to complement the quantitative findings with qualitative perspectives.

In the following, the thematic analysis of the semi-structured interviews is displayed.

The main facilitators and barriers to the effective use of AI tools in EFL learning

More specifically, the semi-structured interviews aimed to gain deeper insights into the teachers' views on the emotional impact of AI tool use for EFL learning on pupils, as well as perceived facilitators and potential challenges or barriers to the use of AI tools for EFL learning among secondary school pupils. By exploring teachers' perspectives, the study sought to further examine the results obtained from the questionnaire regarding the relationship between AI tool use for EFL learning and attitudes toward EFL learning, with a particular focus on the link between AI use and pupils' emotions toward EFL learning. Besides, the key factors that encourage or hinder the effective usage of AI in EFL learning in secondary education were reported. This qualitative approach allowed for a more holistic understanding of the conditions necessary for successful AI use for EFL learning, as well as the obstacles that may need to be addressed to enhance its effectiveness in EFL learning in secondary education.

The emotional impact of AI tool use for EFL learning on pupils

The first theme that emerged from the semi-structured interviews focused on the perceived impact of AI tool use for EFL learning on pupils' emotions toward EFL learning. The three teachers highlighted the significant impact of AI tools, particularly ChatGPT, on students' motivation, engagement, and excitement in English classes. Teacher 1 emphasized how pupils who previously experienced fear, unease, and hesitation to participate in class now feel more supported in their EFL learning experience, especially when completing writing assignments. Teacher 2 pointed out that using ChatGPT has led to a noticeable boost in pupils' self-confidence, as they now believe in their ability to write well-structured, error-free paragraphs in English, saying, "*they feel more confident about their writing now*." This increased self-esteem has been particularly evident among those who previously struggled with their writing skills. Similarly, Teacher 3 expressed gratitude for ChatGPT's role in making the classroom more inclusive, noting, "*Thank you so much, ChatGPT*." They noted that, as secondary school pupils, who are in a critical stage of adolescence, self-confidence and self-image play a crucial role in their learning experience. With AI tools acting as supportive assistants, the fear of being laughed at or judged for their writing struggles has diminished, allowing pupils to participate more actively and confidently in EFL classes.

Key facilitators of AI use for EFL learning

Regarding the second theme, all three teachers identified different facilitators of AI use for EFL learning. Teacher 1 highlighted the accessibility and convenience of AI tools, describing them as readily available "*agents*" that assist pupils anytime and anywhere, which encourages frequent use, noting, "*It is there any time, ready to help you — it is your assistant in learning*." Teacher 2 emphasized ease of use, specifically mentioning ChatGPT as a user-friendly application that requires minimal technical knowledge, making it a potential facilitator of AI adoption, explaining, "*As simple as that — write to it, and even if your English isn't perfect, it will understand your intention*." Teacher 3 pointed to the fact that AI tools, particularly ChatGPT, are free of cost, making them accessible to all students and further motivating their use, saying, "*It is free for everyone, so why not use it?*".

Perceived barriers to AI use for EFL learning

While the three EFL teachers acknowledged the positive impact of AI tools in enhancing pupils' emotional attitudes toward EFL learning, as well as key facilitators of their use, they also discussed several perceived barriers that could hinder their adoption. Teacher 1 highlighted the issue of technology disparity, emphasizing that not all students have equal access to the internet and necessary digital resources, which creates a gap in AI tool usage for EFL learning among secondary school pupils. Teacher 2 addressed technical issues, noting that occasional malfunctions or connectivity problems could frustrate pupils and demotivate them from using AI tools consistently. Teacher 3, on the other hand, pointed to the resistance toward AI use, explaining that both pupils and their parents sometimes hold traditional views on language learning and may be hesitant to embrace AI-assisted learning. This resistance stems from concerns about over-reliance on technology and a preference for traditional learning methods. These potential challenges indicate that while AI tools for EFL learning offer significant advantages, their effective use in the EFL learning experience requires addressing issues of accessibility, reliability, and acceptance among both pupils and parents.

Additionally, all three teachers expressed strong concern about the potential for over-reliance on AI tools, fearing that pupils might become too dependent on them and, as a result, put less effort into developing their own language skills. Teacher 1, in particular, warned that AI tools "*may kill creativity in our pupils*," stressing that while these tools can be highly beneficial, they

could also hinder pupils' ability to think critically and independently. In this sense, AI in EFL learning is viewed as both a blessing and a curse, offering valuable support but also posing risks if not used in a balanced and controlled manner. These challenges indicate that while AI tools offer significant advantages, their effective implementation in EFL learning requires addressing issues of accessibility, reliability, acceptance, and the need to foster independent learning and creativity among pupils.

Discussion

The present study aimed to explore the link between AI tool use for EFL learning and secondary school pupils' attitudes toward EFL learning. Using a mixed-methods approach, the findings revealed a positive correlation between AI tool use and the three aspects of attitudes toward EFL learning, with a particularly strong correlation observed in the emotional component. The findings of the present study align with those of Ma and Chen (2024), which revealed that the experimental group, exposed to AI-powered applications, exhibited significantly higher levels of affective, cognitive, and behavioral engagement compared to the control group. Also, these findings correspond with a study conducted by Zhong and Yang (2025), which explores the transformative role of AI-enhanced social-emotional learning (SEL) frameworks in improving the engagement and emotional well-being of English as a Foreign Language (EFL) students in China. Their study found that AI-enhanced SEL creates a more emotionally supportive learning environment. In addition, the findings are consistent with those of Ebadi and Amini (2024), who examined the effects of AI-assisted language learning on EFL learners' engagement. Their research demonstrated that the AI tool significantly enhanced learners' motivation and engagement in the language learning process.

The positive correlation between AI tool use for EFL learning and pupils' attitudes, particularly the emotional aspect, revealed by the quantitative results, along with the widespread use of AI tools for EFL learning among secondary school pupils, motivated us to conduct qualitative semi-structured interviews. These interviews aimed to gather insights from a different source, EFL secondary teachers, to further validate the quantitative findings on correlation tests and to complement the data by identifying key facilitators and barriers to AI tool adoption in EFL learning. The quantitative findings were further supported by qualitative data, as interviewed EFL teachers reported that AI tools, thanks to their consistency, availability, and assistance in writing assignments, contributed to increased self-confidence and active participation among pupils in EFL classes. This contradicts the findings of a study by Kruk and Kluzna (2025), which found that while AI tools fostered motivation in the AI Group (AIG) and the Mixed Technology Group (MTG), some participants expressed concerns that over-reliance on technology could lead to reduced engagement. Additionally, the present study's qualitative findings provided deeper insights by identifying key barriers to AI tool use for EFL learning, such as unequal technology access, reliability, acceptance, and the importance of promoting independent learning and creativity among pupils. These findings underscore the importance of addressing these challenges to ensure equitable and effective adoption of AI tools in EFL learning.

Conclusions

The present study is situated within the field of EFL learning and computer-assisted language learning (CALL) (e.g., Bouzayenne, 2023a; Bouzayenne, 2023b; Bouzayenne, 2025; Dammak & Maaoui, 2022; Derbel, 2017; Hermessi, 2023; Melliti & Henchiri, 2024; Ounis, 2016). Particularly, the present study explores an under-examined area in the growing research field of Artificial Intelligence (AI) tool use for English as a Foreign Language (EFL) learning, and its relationship with learners' attitudes toward EFL learning. The study, employing a mixed-

methods approach, found a positive correlation between AI tool use for EFL learning and pupils' attitudes toward EFL learning. The quantitative findings demonstrated that increased engagement with AI tools was associated with more favorable attitudes toward EFL learning. Additionally, qualitative data from EFL secondary teachers provided further validation of these results while offering deeper insights into key facilitators and barriers to AI adoption in EFL learning. These combined findings highlight the potential of AI tools in enhancing EFL learning experiences and emphasize the need to address challenges to their effective integration in the EFL learning experience.

A notable observation from the interview analysis is that all three EFL teachers specifically mentioned ChatGPT when discussing AI tools that assist their learners in their EFL learning journey. Furthermore, they consistently highlighted ChatGPT's role in supporting pupils with writing assignments. Given these findings on the limited knowledge about AI tools for EFL learning, along with the perceived facilitators, barriers, and also quantitative findings, which revealed a strong positive correlation between AI tool use and attitudes toward EFL learning, particularly in the emotional aspect, several recommendations emerge. These recommendations are primarily directed at policymakers and the Ministry of Education, emphasizing the need for AI literacy programs and equal access to AI tools to maximize the benefits of AI adoption in EFL learning in secondary education.

It is worth noting that the interviewed teachers did not explicitly mention the integration of AI into school-based EFL teaching or the need for digital literacy training. However, such considerations can be implicitly conveyed through discussions of the benefits and barriers of AI tool use, highlighting the importance of providing both teachers and pupils with appropriate training to ensure effective implementation. Indeed, it is now an urgent necessity to provide both EFL secondary school teachers and secondary school pupils with hands-on training in AI literacy. This training program should focus on key areas, including an introduction to various AI tools that support EFL learning beyond just writing skills, ensuring a comprehensive approach to EFL learning. Moreover, training should emphasize strategies for using AI tools effectively to prevent overreliance and instead foster creativity and critical thinking among pupils. By implementing such a program, AI tools can serve as a means to enhance, rather than hinder, the EFL learning process.

Fair and equitable access to these innovative AI tools must be guaranteed to ensure inclusivity. Secondary school pupils, regardless of their socioeconomic background, should be provided with the opportunity to benefit from AI tools for EFL learning. It is worth mentioning that the lack of proper access, the digital divide, may widen, limiting the potential advantages for certain groups of pupils. Therefore, policymakers and educational institutions need to apply strategies to provide equal access to AI resources, such as integrating AI tools into school curricula, offering school-based AI training programs, and ensuring that all pupils have the necessary technological infrastructure. By doing so, the full potential of these innovative educational tools can be leveraged to support and enhance EFL learning for all.

Although its findings are promising, the present study has its limitations. The potential limitation of the present study is the small sample size, as it included only 70 participants, all from a single secondary school. This limited scope restricts the generalizability of the findings to a broader population of EFL secondary school pupils. Since attitudes toward EFL learning may vary across different schools, regions, and educational contexts, the results cannot be assumed to represent all secondary school pupils. Future research should consider larger and more diverse samples to enhance the reliability and applicability of the findings to a wider

audience. Another limitation concerns the use of convenience sampling, which may not fully capture the diversity of the student population. Future research could address this by employing random or stratified sampling methods across multiple schools or regions, in order to ensure a more representative and diverse sample of EFL learners.

Research on AI use in EFL learning is still in its infancy, highlighting the need for further exploration, especially regarding the relationship between AI tool use and attitudes toward EFL learning. The scarcity of studies on this topic calls for more in-depth investigations to better understand the potential benefits and challenges. Future research should expand to larger and more diverse samples, including participants from different schools and regions, to enhance the generalizability of findings. Additionally, examining AI use in EFL learning at other educational levels, such as primary and higher education, would provide a more comprehensive understanding of its impact. These efforts will help maximize the benefits of AI tools and ensure their effective integration into EFL learning.

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