Exploring Algerian University EFL Students' Motivation, Familiarity and Perceptions Regarding AI-powered Tools in English Language Learning

استكشاف دو افع طلبة اللغة الإنجليزية كلغة أجنبية في الجامعات الجز ائرية، ومدى إلمامهم وتصوراتهم تجاه الأدوات المدعومة بالذكاء الاصطناعي في تعلم اللغة الإنجليزية

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Abstract

The present study explores Algerian university EFL students' motivation, familiarity, and perceptions regarding AI-powered tools in English language learning. Using a quantitative survey of 360 students, mostly at the Master's level, the research found high motivation to use AI tools, with 87.7% reporting moderate to high motivation. Familiarity with AI was varied but generally positive, and language learning apps and AI writing assistants were the most frequently used tools. No significant gender differences were found in AI tool usage or perceptions, indicating similar engagement across male and female students. Participants perceived AI tools as beneficial for enhancing motivation, engagement, writing, vocabulary acquisition, and reducing anxiety, though concerns about content accuracy and data privacy were noted. These findings highlight the promising role of AI in EFL education within the Algerian context and suggest the need for further research and strategic integration of AI tools to maximize learning outcomes.

Keywords: AI-powered tools, English language learning in Algeria, EFL students, motivation and familiarity, perceptions

ملخص

تستكشف الدراسة الحالية دوافع طلاب الجامعات الجزائرية الذين يدرسون اللغة الإنجليزية كلغة أجنبية، ومدى إلمامهم وتصوراتهم بشأن الأدوات التي تعمل بالذكاء الاصطناعي في تعلم اللغة الإنجليزية. باستخدام استبيان كمي شمل 360 طالبًا، معظمهم على مستوى الماجستير، وجدت الدراسة دوافع عالية لاستخدام أدوات الذكاء الاصطناعي، حيث أفاد 87.7٪ منهم بدوافع متوسطة إلى عالية. كان الإلمام بالذكاء الاصطناعي متفاوتًا ولكنه إيجابي بشكل عام، وكانت تطبيقات تعلم اللغة ومساعدات الكتابة بالذكاء الاصطناعي هي الأدوات الأكثر استخدامًا. لم توجد فروق جنسانية ذات دلالة إحصائية في استخدام أدوات الذكاء الاصطناعي أو التصورات المتعلقة بها، مما يشير إلى مشاركة متشابهة بين الطلاب والطالبات. اعتبر المشاركون أن أدوات الذكاء الاصطناعي مفيدة في تعزيز الدوافع والمشاركة والكتابة واكتساب المفردات وتقليل القلق، على الرغم من الإشارة إلى مخاوف بشأن دقة المحتوى وخصوصية البيانات. تسلط هذه النتائج الضوء على الدور الواعد للذكاء الاصطناعي في تعليم اللغة الإنجليزية كلغة أجنبية في السياق الجزائري،

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وتشير إلى الحاجة إلى مزيد من البحث والتكامل الاستراتيجي لأدوات الذكاء الاصطناعي من أجل لتحقيق أقصى قدر من نتائج التعلم.

الكلمات المفتاحية: الأدوات المدعومة بالذكاء الاصطناعي، تعلم اللغة الإنجليزية في الجزائر، طلاب اللغة الإنجليزية، الدافع والإلمام، التصورات

1. Introduction

Artificial Intelligence (AI) has revolutionized various sectors, including education, by offering innovative tools that enhance learning experiences**.** In particular, within the context of English as a Foreign Language (EFL) education, AI technologies such as intelligent language learning applications, automated writing evaluation systems, and conversational AI tools have demonstrated significant promise. Specifically, these technologies contribute to improving language skills and learner engagement (Guan et al., 2025; Yang & Rui, 2025). Moreover, they facilitate vocabulary acquisition (Jomaa et al., 2024), enhance speaking skills (Sukumaran & Khair, 2024), and ultimately boost overall language proficiency (Al-Raimi et al., 2024; Mouloudj et al., 2025; Yuan & Liu, 2025).

Additionally, AI tools offer innovative opportunities to enhance various aspects of EFL learning, such as personalized learning experiences, immediate feedback, and interactive practice, which can significantly improve learners' engagement and motivation (Mohammed & Khalid, 2025; Yuan & Liu, 2025). For instance, AI applications like Duolingo and ChatGPT have been shown to positively influence learners' motivation, engagement, and language skills (Alsager, 2024; Yuan & Liu, 2025).

Despite these advancements, there is limited research specifically focusing on Algerian university EFL students' motivation, familiarity, and perceptions regarding AI tools in English language learning. Furthermore, while some studies have examined the perceptions of EFL learners in various regions, there is a lack of focused research on Algerian university students, who may have unique cultural and educational contexts influencing their interaction with AI tools (Ammour, 2024).

1.1 Research Objectives

This study aims to fill the existing research gap by exploring the motivations, familiarity, and perceptions of Algerian university EFL students regarding AI tools in English language learning. The present research study specifically aims to:

- Assess the level of motivation, familiarity and usage of AI tools among Algerian university EFL students.
- Investigate the influence of gender on the frequency of AI tool usage among Algerian university EFL students and to determine whether statistically significant differences exist in usage patterns between male and female participants.
- Understand Algerian university EFL students' perceptions of the effectiveness and reliability of AI tools in enhancing their English language skills.

- Provide insights and recommendations for educators and developers on how to better integrate AI tools into EFL curricula to maximize their benefits.

By addressing these objectives, this study aims to contribute to the broader understanding of AI integration in EFL education and provide valuable insights for enhancing the learning experiences of Algerian university students.

1.2 Research Questions

To gain a deeper understanding of Algerian University EFL students' motivation, familiarity and perceptions regarding AI-powered tools in English language learning, this study seeks to address the following key research questions:

RQ 1: How motivated are Algerian university EFL students to learn English with AI tools?
RQ 2: How familiar are students with AI tools, and how does this familiarity affect their frequency and patterns of usage for language learning?
RQ 3: To what extent does gender influence the frequency of AI tool usage among Algerian university EFL students, and are there statistically significant differences in usage patterns between male and female participants?
RQ4: What are the perceived benefits of using AI tools in English language learning, and which language skills do students believe are most improved by these tools?

2. Literature Review

The integration of AI tools into English language learning has garnered increasing scholarly attention in recent years, reflecting broader trends in educational technology and digital pedagogy. This literature review highlights the transformative impact of AI on EFL education, emphasizing the need for further investigation into its long-term effects and optimal integration strategies.

2.1 AI in EFL Education

AI technology has significantly transformed EFL education by not only addressing individual learner needs but also advancing research into individual differences through Data-Driven Learning (DDL) (Liu, Fan & Xia, 2025). In particular, AI tools like Duolingo have been shown to improve learners' motivation and self-efficacy while simultaneously reducing anxiety, thereby highlighting the overall effectiveness of AI-based language learning. Consequently, these developments demonstrate how AI integration can enhance both the emotional and cognitive aspects of language acquisition for EFL learners (Shao, 2025).

2.2 Impact of AI on Motivation and Engagement

AI tools significantly foster engagement and emotional resilience by enhancing learners' perceived control, which aligns with the Control-Value Theory (CVT). According to CVT, when learners feel a sense of control over their learning process, they experience positive educational emotions that reduce anxiety and increase motivation (Shao, 2025). Moreover, AI-mediated interactive speaking activities—such as those utilizing the Andy English Chatbot—have proven to be more effective in improving both speaking skills and willingness to communicate (WTC) compared to conventional methods (Fathi et al., 2024). Therefore, by combining increased perceived control with interactive AI tools, learners benefit from enhanced motivation and engagement in educational settings.

2.3 Gender Differences in the Frequency of using AI Apps

Existing studies offer mixed insights regarding the frequency of AI app usage between male and female participants, suggesting that AI's appeal and utility might transcend gender lines. For instance, Harari et al. (2025) found no significant differences in AI usage frequency between genders, thereby supporting the notion that AI's appeal is similar across gender lines. Similarly, another study employing independent samples t-tests reported no significant gender differences in AI usage frequency (Cui, 2025). However, contrasting evidence emerges from Dorta-González et al. (2024), who identified a statistically significant negative association for female researchers, indicating a 7% decrease in frequent AI tool use compared to their male counterparts, although the effect size was small. Furthermore, Suárez and García-Mariñoso (2025) found that women were significantly less likely to use AI chatbots than men, pointing to a potential gender gap in AI usage. Adding complexity, Alenazi and Alhalal (2025) observed that while gender did not moderate the effects of various factors on the intention to use AI, it did influence actual usage depending on resource availability and intention strength, with female participants engaging more frequently when resources were perceived as accessible. Taken together, although some studies suggest no significant gender differences in AI usage frequency, others highlight a slight decrease among women or emphasize moderating factors that affect actual use. Therefore, the assertion that AI's appeal and utility cut across gender lines is partially supported but requires further investigation to clarify the underlying reasons for these mixed findings.

2.4 Perceived Benefits and Skill Development in AI-Assisted English Language Learning

AI-assisted language learning offers several perceived benefits that positively influence learners' experiences and outcomes. Firstly, it significantly enhances students' confidence, perceived competence, and willingness to communicate (WTC), while simultaneously reducing anxiety by providing less-threatening digital environments. This supportive atmosphere encourages learners to engage more freely and effectively in language practice (Mehrpouyan, 2025; Zhanget al., 2024; Zou et al., 2024). Moreover, AI tools boost learners' motivation, engagement, and autonomy by fostering dynamic and personalized learning experiences tailored to individual needs. This personalized approach helps sustain learners' interest and encourages active participation in their language development (Aladini et al., 2025; Song & Song, 2023; Zou et al., 2024). In addition, AI supports independent learning by offering instant feedback, which not only enhances self-confidence but also reduces language anxiety, empowering learners to take charge of their progress (Zou et al., 2024).

In terms of skill development, AI-assisted tools have demonstrated a significant positive impact across multiple language domains. For writing skills, AI provides individualized instruction and scaffolded support that adapts to learners' specific needs, thereby improving organization, coherence, grammar, and vocabulary in their written work (Asadi et al., 2025; Cui, 2025; Song & Song, 2023). Similarly, AI-enhanced tools improve reading comprehension by delivering interactive and adaptive experiences that engage students in personalized learning activities, which help deepen their understanding of texts (Aladini et al., 2025; Boulhrir & Hamash, 2025). Furthermore, AI applications contribute to grammar proficiency and vocabulary acquisition by offering personalized feedback and authentic language practice, which are crucial for mastering language accuracy and fluency (Aladini et al., 2025). Lastly, AI technologies such as Robot-Assisted Language Learning (RALL) enhance receptive skills like listening and speaking,

thereby supporting overall language proficiency through interactive and responsive practice environments (Boulhrir & Hamash, 2025).

Together, these benefits and skill developments illustrate the transformative potential of AI in English language learning, making it a powerful tool for fostering learner confidence, motivation, autonomy, and comprehensive language competence.

3. Methodology

3.1 Research Design

This study used a quantitative, cross-sectional survey design (Mangaya-ay, 2023) to explore university students' motivation, familiarity, usage patterns, and perceptions regarding AI tools in English language learning (Younes, 2025). The design aimed to capture a snapshot of students' engagement with AI technologies and to identify any differences based on demographic variables such as gender and academic level.

3.2 Participants and Sampling

The study involved 360 university students who voluntarily participated by responding to an online questionnaire. The sample included 64.7% females and 35.3% males, with the majority aged between 21 and 25 years (54.2%). Participants were predominantly Master students. These demographics reflect a participant pool with relatively advanced academic experience, which may influence their perspectives on AI tools in language learning.

3.3 Data Collection Instrument and Procedure

Data were collected using a structured questionnaire developed to assess several key areas, including demographic information, motivation to learn English with AI tools, familiarity with AI technologies, frequency of AI tool usage, and perceptions of AI's role in English language learning. This questionnaire was administered online via Google Forms, a versatile and user-friendly survey and data collection tool that allows for efficient data collection and management. Moreover, Google Forms offers comprehensive data analysis features, such as charts and graphs, which facilitate the visualization and interpretation of responses (Jaiswal, 2024). The survey link was distributed to university students, with participation being voluntary. Consequently, only those students who responded to the Google Forms invitation were included in the study, ensuring that the dataset reflects the views of self-selected participants who were both willing and able to complete the online survey. The online format provided several advantages: respondents could complete the questionnaire at their convenience, take as much time as needed, and even answer questions in multiple sessions if desired. Furthermore, the questionnaire was designed to ensure clarity and ease of navigation, thereby minimizing the technical skills required for completion and enhancing the overall quality of responses.

3.4 Data Analysis

Descriptive statistics were used to summarize demographic characteristics, motivation levels, familiarity, usage frequency, and perceptions related to AI tools (Becerra et al., 2021). Frequencies and percentages were presented to provide a clear overview (Knapp, 2015). To examine gender differences in AI tool usage and perceptions, independent samples t-tests were conducted.

3.5 Ethical Considerations

Participation was voluntary, and informed consent was obtained from all respondents prior to completing the survey (Hammer, 2017). Participants were fully aware of the nature of the study, the procedures involved, and their rights, including the right to withdraw at any time without negative consequences. Anonymity and confidentiality were also maintained throughout the study (Roberts & Allen, 2015). The online survey format ensured that no personally identifiable information was collected beyond basic demographics, and data were securely stored and handled in accordance with Batna 2 University ethical guidelines (Sugiura et al., 2017).

3. Analysis and Interpretation of Results

4.1 Demographic characteristics of the respondents

Understanding the demographic characteristics of survey respondents is fundamental for contextualizing the research findings and ensuring the representativeness of the sample. This section provides a detailed overview of the demographic profile of participants, including key variables such as age, gender and education level. This demographic information not only enhances the validity of the research but also aids in identifying potential trends and patterns within the data.

Table 1. Demographic characteristics of the respondents

Demography	Frequency	Percent
Gender		
Male	127	35.3
Female	233	64.7
Age		
17-20	35	9.7
21-25	195	54.2
26-30	92	25.6
Above 30	38	10.6
Level		
First year	24	6.7
Second year	34	9.4
Third year	56	15.6
Masters 1	81	22.5
Masters 2	166	46.1

The study involved a total of 360 participants, with a notable gender imbalance (Table 1). Females accounted for nearly two-thirds of the sample (64.7%), while males made up 35.3%. In terms of age, the majority of respondents (54.2%) fell within the 21–25 age range, which aligns with typical university demographics. Participants aged 26–30 represented about a quarter of the sample (25.6%), while those aged 17–20 and above 30 were less represented, making up 9.7% and 10.6%, respectively. This age spread suggests that the study captured

views from both undergraduate and graduate participants at varying stages of their academic journeys. Regarding academic level, most participants were enrolled in Master programs, with 46.1% in their second year of a Master's program and 22.5% in their first year. Undergraduates were less represented: third-year students accounted for 15.6%, while first- and second-year students made up 6.7% and 9.4%, respectively. This academic profile indicates a participant pool with relatively advanced academic experience, which may shape their perspectives on AI tools in nuanced ways, especially in relation to their language learning needs and expectations.

4.2 Motivation to learn English with AI tools

This section explores the various motivations that drive the respondents to learn English using AI tools. Insights gained from this analysis will provide a deeper understanding of the role AI plays in language acquisition and the potential it holds for future educational practices.

Table 2. Motivation to learn English with AI tools

	Frequency	Percent
Not very motivated	44	12.2
Moderately motivated	147	40.8
Highly motivated	169	46.9

When looking at participants' motivation to study English with AI tools (Table 2), the majority of participants reported being either moderately (40.8%) or highly motivated (46.9%), while only a small proportion (12.2%) described themselves as not very motivated. This overall high level of motivation bodes well for engagement with new learning tools, including AI technologies. It suggests that participants are not only invested in improving their language skills but may also be open to exploring alternative or innovative means to achieve their goals.

4.3 Familiarity with AI tools

As artificial intelligence continues to permeate various aspects of daily life, understanding EFL students' familiarity with AI tools becomes increasingly important. This section looks into the extent to which the respondents are acquainted with different AI technologies, particularly in the context of language learning and education.

Table 3. Familiarity with AI tools

	Frequency	Percent
Not familiar	27	7.5
Somewhat familiar	151	41.9
Slightly familiar	77	21.4
Very familiar	105	29.2

In terms of familiarity with AI tools, the picture is more mixed (Table 3). While nearly a third of the respondents (29.2%) reported being very familiar with AI tools, the largest group (41.9%) were only somewhat familiar. An additional 21.4% indicated slight familiarity, and a small minority (7.5%) admitted to not being familiar at all. These figures highlight a growing, though still uneven, exposure to AI in the language learning space. Importantly, while many students are not experts in AI, a significant portion have at least some level of engagement or awareness.

4.4 Frequency of using AI apps

The frequency with which individuals engage with AI applications plays a central role in shaping their learning experiences and outcomes. This section examines the patterns of usage among learners, focusing on how often they utilize AI apps for various purposes, including language acquisition, skill enhancement, and personal development. By analysing usage frequency, we can uncover insights into user habits, preferences, and the overall impact of these tools on learning efficiency. Understanding these patterns not only informs educators and developers about user engagement but also highlights the potential for AI applications to become integral components of modern educational practices.

Table 4. Frequency of using AI apps

Items	Never F (%)	Rarely F (%)	Sometimes F (%)	Often F (%)	Always F (%)
Language Learning Apps	31 (8.6)	60 (16.7)	126 (35.0)	62 (17.2)	81 (22.5)
AI Writing Assistants	23 (6.4)	71 (19.7)	98 (27.2)	107 (29.7)	61 (17.0)
Speech Recognition Tools	63 (17.5)	82 (22.8)	91 (25.3)	72 (20.0)	52 (14.5)
Chatbots for Language Practice	48 (13.3)	96 (26.7)	93 (25.8)	80 (22.2)	43 (12.0)
AI-Powered Translation Tools	39 (10.8)	67 (18.6)	109 (30.3)	88 (24.4)	57 (15.9)
Personalized Learning Platforms	59 (16.4)	88 (24.4)	85 (23.6)	84 (23.3)	44 (12.2)
Virtual Tutors or AI Coaching	89 (24.7)	96 (26.7)	82 (22.8)	51 (14.2)	42 (11.7)
Interactive Language Games	70 (19.4)	94 (26.1)	88 (24.4)	62 (17.2)	46 (12.8)
Online Language Communities with AI Features	81 (22.5)	81 (22.5)	91 (25.3)	53 (14.7)	54 (15.0)
AI-Enhanced Reading Tools	75 (20.8)	100 (27.8)	80 (22.2)	61 (16.9)	44 (12.2)
Gender statistics: t = -0.563; df = 357; p = 0.514					

The data reveal varied usage patterns across different types of AI-powered tools used for English language learning (see Table 4). Language learning apps and AI writing assistants emerged as the most frequently used tools. For example, nearly 40% of participants reported

using language learning apps often or always, while almost half (46.7%) used AI writing assistants with similar regularity. These findings suggest that students are increasingly turning to AI tools that offer direct and practical support for core language tasks, particularly writing and vocabulary building. Other tools showed more moderate or mixed usage. For instance, AI-powered translation tools were used often or always by around 40% of respondents, while speech recognition tools and chatbots had slightly lower engagement, with usage clustered around the "sometimes" category. Tools like virtual tutors, interactive games, and AI-enhanced reading platforms had the least frequent use, with a significant portion of students either rarely using them or not using them at all. This may reflect a lack of awareness, access, or confidence in navigating more advanced or specialized AI features.

Interestingly, when comparing male and female students' overall usage of AI tools, the independent samples t-test showed no statistically significant difference ($t = -0.563$, $df = 357$, $p = 0.514$). This suggests that, despite demographic differences in the sample size, both genders appear to engage with AI tools at roughly similar levels. In other words, the frequency of using AI apps does not differ in any meaningful way between male and female participants, which could indicate that AI's appeal and utility cut across gender lines, at least in terms of frequency of use.

4.5 Perceived roles of AI in learning English

The integration of AI-powered tools into language learning has sparked significant interest in understanding its perceived roles among learners. This section explores how students view the contributions of AI technologies in the process of acquiring English language skills. By examining perceptions, we can identify the various functions that AI is believed to serve, such as personalized learning, immediate feedback, and enhanced engagement. Additionally, this exploration sheds light on the expectations and concerns surrounding AI's impact on language proficiency, ultimately providing valuable insights into how these tools can be effectively leveraged to support English language learning in diverse educational contexts.

Table 5. Perceived roles of AI in learning English

Items	SD F (%)	D F (%)	N F (%)	A F (%)	SA F (%)
AI-powered tools enhance my engagement in learning English.	25 (6.9)	43 (11.9)	107 (29.7)	114 (31.7)	71 (19.7)
Using AI tools helps me understand English language concepts better.	21 (5.8)	50 (13.9)	78 (21.7)	146 (40.6)	65 (18.1)
I feel more motivated to learn English when using AI-powered applications.	35 (9.7)	58 (16.1)	80 (22.2)	119 (33.1)	68 (18.9)
AI tools provide personalized learning experiences that cater to my individual needs.	29 (8.1)	58 (16.1)	75 (20.8)	132 (36.7)	66 (18.4)
I believe that AI can improve my writing skills in English.	31 (8.6)	45 (12.5)	80 (22.2)	120 (33.3)	84 (23.4)

AI-powered tools make learning English more enjoyable.	21 (5.8)	61 (16.9)	77 (21.4)	120 (33.3)	81 (22.5)
I find AI applications to be effective in helping me practice my speaking skills.	37 (10.3)	52 (14.4)	94 (26.1)	100 (21.1)	77 (21.4)
The use of AI in English language education has positively impacted my self-confidence	29 (8.1)	54 (15.0)	93 (25.8)	116 (32.2)	68 (18.9)
I am concerned about the quality and accuracy of AI-generated content in my English students	30 (8.3)	58 (16.1)	91 (25.3)	113 (34.4)	68 (18.9)
Overall, I have a positive perception of using AI tools in my English language learning	22 (6.1)	60 (16.7)	82 (22.8)	112 (31.1)	84 (23.4)
AI can help me improve more quickly by offering instant feedback on my work.	22 (6.1)	60 (16.7)	80 (22.2)	116 (32.2)	82 (22.8)
I prefer traditional teaching methods and do not think AI can improve my learning	49 (13.6)	75 (20.8)	107 (29.7)	84 (23.3)	45 (12.5)
I am worried about privacy and data security issues associated with the use of AI in education	38 (10.6)	65 (18.1)	90 (25.0)	103 (28.6)	64 (17.8)
Gender statistics: t = -0.808; df = 357; p = 0.420					

Students' perceptions of AI in English language learning were largely positive, with many recognizing its potential to enhance engagement, motivation, and skill development (see Table 5). For example, more than half of the participants agreed or strongly agreed that AI-powered tools increased their engagement (51.4%) and helped them better understand English language concepts (58.7%). Similarly, over half of the respondents found AI tools helpful in boosting motivation (52%) and offering personalized learning experiences (55.1%). Writing, in particular, stood out as a skill where students saw tangible benefits: 56.7% believed AI could help them improve their writing skills. Other areas, such as enjoyment (55.8%) and speaking practice (42.5%), also reflected a generally favourable attitude, although speaking support through AI appeared slightly less compelling, perhaps due to limitations in current speech recognition technologies or participants' comfort with using them.

Interestingly, many students acknowledged a boost in self-confidence (51.1%) as a result of using AI tools, reinforcing the idea that these technologies may help reduce anxiety often associated with language learning. However, not all responses were uncritical. Concerns about the quality and accuracy of AI-generated content were common, with 53.3% expressing at least some level of agreement. Privacy and data security also surfaced as notable issues, with 46.4% either agreeing or strongly agreeing that they were worried about how their data might be handled. Traditional preferences were not entirely absent: around 35.8% agreed or strongly agreed that they preferred conventional teaching methods and were skeptical about AI's role in

improving learning. However, this group was smaller than those expressing overall positive views, with 54.5% agreeing or strongly agreeing that they had a positive perception of AI tools in English learning.

As for gender differences in perception, the t-test results ($t = -0.808$, $df = 357$, $p = 0.420$) showed no statistically significant difference between male and female students. This aligns with the earlier finding regarding frequency of AI tool usage. Despite differences in representation in the sample, both genders seem to share broadly similar attitudes toward the educational value and concerns associated with AI, suggesting that perceptions of AI in language learning may be influenced more by individual experience or exposure than by gender identity.

5. Discussion of Findings

The findings of this study provide a comprehensive understanding of Algerian university EFL students' motivation, familiarity, and perceptions regarding AI-powered tools in English language learning, and offer a valuable point of comparison with existing literature in the field.

RQ 1: How motivated are Algerian university EFL students to learn English with AI tools?

A key finding of this study is the high level of motivation among participants, with 87.7% reporting being either moderately or highly motivated to use AI tools for English learning. This result aligns closely with previous research that has emphasized the motivational benefits of AI in EFL contexts. For example, Guan et al. (2025) and Yang & Rui (2025) demonstrated that AI tools significantly enhance learner engagement and motivation. Similarly, Alsager (2024) and Yuan & Liu (2025) specifically highlighted the positive effects of applications such as Duolingo and ChatGPT on EFL learners' motivation. Furthermore, AI tools have been shown to boost learners' motivation, engagement, and autonomy by improving writing, grammar, and vocabulary acquisition (Aladini et al., 2025; Kohnke & Moorhouse, 2025). Taken together, these findings reinforce the current study's conclusion that Algerian EFL students are likewise receptive to the motivational advantages offered by AI, despite differences in cultural and educational backgrounds.

RQ 2: How familiar are students with AI tools, and how does this familiarity affect their frequency and patterns of usage for language learning?

To answer this research question, the results show variable familiarity: about 29.2% of respondents were very familiar with AI tools, 41.9% somewhat familiar, and 21.4% only slightly familiar. This distribution is consistent with global trends reported in the literature, where exposure to AI in education is growing but remains uneven (Ammour, 2024). The fact that a substantial portion of students in this study have at least some familiarity with AI tools mirrors findings from other regions, as highlighted by Jomaa et al. (2024) and Mouloudj et al. (2025), who observed increasing but not universal adoption of AI technologies among EFL learners.

RQ 3: To what extent does gender influence the frequency of AI tool usage among Algerian university EFL students, and are there statistically significant differences in usage patterns between male and female participants?

These findings align with some existing studies but contrast with others, reflecting a mixed background of insights regarding gender differences in AI usage. For example, Harari et al. (2025) similarly found no significant gender differences in AI usage frequency, reinforcing the idea that AI's appeal is broadly similar across genders. Likewise, Cui (2025) reported no significant differences using independent samples t-tests. However, other research presents a more complex picture. Dorta-González et al. (2024) identified a small but statistically significant decrease in frequent AI tool use among female researchers compared to males. Additionally, Suárez and García-Mariñoso (2025) found that women were significantly less likely to use AI chatbots, suggesting a gender gap in specific AI applications. Adding further complexity, Alenazi and Alhalal (2025) observed that while gender did not moderate intentions to use AI, it did influence actual usage depending on resource availability and intention strength, with females engaging more frequently when resources were accessible. Taken together, while the present study supports the notion that AI usage frequency is similar across genders, the broader literature indicates that subtle differences and contextual factors may influence actual usage patterns. Therefore, the idea that AI's appeal and utility transcend gender lines is partially supported but warrants further investigation to better understand these mixed findings.

RQ4: What are the perceived benefits of using AI tools in English language learning, and which language skills do students believe are most improved by these tools?

Respondents identified multiple benefits of AI tools, including improved motivation, enhanced engagement, and support for skill development—particularly in vocabulary acquisition, speaking, and writing. These positive perceptions are strongly supported by existing research. For instance, Sukumaran and Khair (2024) as well as Al-Raimi et al. (2024) reported that AI tools facilitate vocabulary acquisition and speaking proficiency. Moreover, Asadi et al. (2025) and Cui (2025) found that AI-powered writing evaluation systems improve organization, coherence, and grammar. Similarly, Aladini et al. (2025) and Boulhrir and Hamash (2025) demonstrated gains in reading comprehension through adaptive AI platforms. In addition to these cognitive benefits, AI tools also contribute to anxiety reduction and increased learner autonomy. Mehrpouyan (2025) and Zou et al. (2024) emphasized that AI creates less-threatening learning environments, fostering confidence and independence—trends that were echoed by the respondents in the present study. Thus, the convergence of these findings highlights the multifaceted advantages of AI tools in language learning contexts.

A notable contribution of this study is its focus on Algerian university EFL students, a population underrepresented in the literature. While the general trends—high motivation, growing familiarity, and positive perceptions—are consistent with findings from other countries, the relatively advanced academic profile of the sample (predominantly Master students) may explain the particularly high motivation levels observed. This aligns with Shao (2025), who noted that learners with more academic experience often display greater openness to technology-enhanced learning.

Furthermore, the study's findings on gender and academic level differences in AI tool usage and perceptions provide new insights. While the literature has explored demographic influences (e.g., Younes, 2025), few studies have examined these factors in the Algerian context. The

current results suggest that academic maturity may play a role in shaping attitudes toward AI, an area warranting further investigation.

In summary, this study's findings are broadly consistent with international research on AI in EFL education, confirming that AI tools are perceived as effective, motivating, and beneficial for language skill development. The Algerian context, with its unique cultural and educational characteristics, nonetheless reflects global trends, indicating the wide-reaching potential of AI-powered language learning tools. The results underscore the importance of continued research and targeted integration strategies to maximize the benefits of AI in diverse educational settings.

6. Conclusion and Recommendations

This study offers a comprehensive examination of Algerian university EFL students' motivation, familiarity, and perceptions regarding AI-powered tools in English language learning. The findings reveal a notably high level of motivation among participants to engage with AI tools, reflecting and reinforcing global trends that highlight the motivational benefits of AI in language education. While familiarity with AI technologies varies, a significant portion of students demonstrate at least some exposure, indicating growing but uneven adoption consistent with international patterns. Importantly, the study found no statistically significant gender differences in AI tool usage frequency, suggesting that AI's appeal transcends gender lines within this context, although the broader literature indicates that gender-related factors may influence usage patterns in specific circumstances. Students also perceive multiple benefits of AI tools, particularly in vocabulary acquisition, speaking, writing, and anxiety reduction, underscoring the multifaceted advantages of integrating AI into language learning.

A key contribution of this research lies in its focus on Algerian university students, a group underrepresented in existing literature, and its consideration of academic maturity as a potential factor influencing motivation and attitudes toward AI-enhanced learning. These insights add valuable context to the global discourse on AI in EFL education and highlight the importance of considering demographic and contextual variables.

7. Limitations of the Study

Despite the valuable insights gained from this study, several limitations should be acknowledged that may affect the interpretation and generalizability of the findings. First, this study relied on self-reported data collected through an online questionnaire, which may be subject to response biases such as social desirability or inaccurate self-assessment of AI tool usage and motivation. Self-report methods, including online questionnaires, are commonly used in social science research but are often criticized for their susceptibility to various biases. Social desirability bias, where respondents provide answers they believe are more socially acceptable rather than truthful, is a significant concern (Caputo, 2017). This bias can affect the validity of the data collected, as individuals may overreport positive behaviours or underreport negative ones to appear favourable (Durmaz et al., 2020; Kwak et al., 2021).

Second, the sample exhibited a gender imbalance, with females comprising nearly two-thirds of participants, which may limit the representativeness of male students' perspectives despite

no significant gender differences found in usage or perception. Gender imbalance is a common issue in educational technology and language learning research, and while statistical analyses may show no significant differences, the underrepresentation of certain groups can still affect the generalizability of findings.

Third, the study's cross-sectional design captures participants' attitudes and behaviours at a single point in time, thereby limiting the ability to infer causal relationships or track changes in motivation and AI engagement over. Cross-sectional studies are inherently limited in establishing causality and may not reflect evolving trends in technology adoption or learning outcomes. Fourth, the study focused on a specific university population, predominantly Master students, which may restrict the applicability of results to other educational contexts, age groups, or cultural settings. Research has shown that findings from narrowly defined academic populations may not generalize to broader or more diverse educational settings (Creswell & Creswell, 2017). Finally, while the survey covered a broad range of AI tools, it did not investigate deeply the qualitative aspects of user experience or the effectiveness of specific AI applications, which could provide richer insights into how these tools affect language-learning outcomes. Research has shown that qualitative methods, such as interviews and focus groups, are effective in exploring learners' attitudes, perspectives, and difficulties with AI tools (Aeni et al., 2024; Khajavi & Ezhdehakosh, 2025; Yang et al., 2025).

8. Delimitations of the Study

This study was deliberately delimited to university students engaged in English language learning, primarily at the Master level, to focus on a population likely to have both motivation and access to AI technologies. The choice to use an online questionnaire via Google Forms was made to facilitate broad and efficient data collection but inherently excluded individuals without reliable internet access or familiarity with digital survey tools. The scope was further narrowed by concentrating on self-reported motivation, familiarity, usage frequency, and perceptions of AI tools, rather than objective measures of language proficiency or learning gains. Additionally, the study excluded younger learners, non-university populations, and non-English language learners to maintain a clear and manageable research focus. These delimitations were necessary to ensure the study's feasibility and relevance but should be considered when interpreting the findings and their potential application to other groups or settings.

9. Recommendations for Further Research

To build upon the findings of this study, future research should explore several key areas. First, longitudinal studies are needed to track changes in motivation, familiarity, and usage patterns over time, offering deeper insights into how sustained interaction with AI tools shapes language-learning outcomes. Additionally, while this study found no significant gender differences, further investigation into socio-cultural influences—such as social norms, cultural attitudes, and resource accessibility—could clarify how these factors shape AI adoption among male and female learners in diverse settings. Moreover, research should examine how academic maturity and educational background influence AI acceptance, potentially comparing undergraduate and postgraduate learners across different regions. Another critical area is the empirical assessment of AI's impact on specific language skills, particularly through

experimental studies that measure its direct effects on speaking, writing, and reading proficiency. Furthermore, comparative studies evaluating the effectiveness of specific AI tools (e.g., ChatGPT, Duolingo) could provide evidence-based recommendations for educators. Equally important is qualitative research into the technological, infrastructural, and psychological barriers hindering AI adoption among Algerian EFL learners, which would inform strategies for broader implementation. Finally, cross-cultural comparisons across North African and Arab EFL contexts could reveal regional trends, enabling the development of culturally adaptive AI applications. By addressing these gaps, future research can refine pedagogical approaches to AI integration, ensuring its benefits are maximized for diverse learner populations.

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