



CHATGPT USE, LEARNER PERCEPTIONS, AND ACADEMIC ACHIEVEMENT IN MOROCCAN EFL HIGHER EDUCATION

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ABSTRACT

Aim/Purpose	The purpose of this study was to investigate Moroccan EFL university learners' perceptions of and use of ChatGPT regarding usability, learning support, and development, and to examine the relationship between these perceptions and academic achievement in English.
Background	Generative AI tools such as ChatGPT are increasingly used in higher education. Still, limited research has examined Moroccan EFL learners' perceptions of ChatGPT regarding usability, learning support, and developmental constructs. Empirical evidence linking these perceptions to academic achievement in Moroccan EFL contexts remains scarce.
Methodology	A quantitative cross-sectional descriptive research design was employed. Data were collected from 171 EFL university students from two Moroccan public universities using an adapted 18-item ChatGPT Usage Scale. Descriptive statistics, Pearson correlation, multiple regression, and independent-samples t-tests were conducted for data analysis.
Contribution	This study provides context-specific empirical evidence from Moroccan higher education on learners' perceptions of ChatGPT and clarifies the complex, non-significant relationship between perceived AI use and academic achievement in EFL contexts.
Findings	Participants reported generally positive perceptions of ChatGPT, with usability receiving the highest mean score ($M = 3.73$), followed by learning support ($M = 3.68$) and development ($M = 3.43$). Usability, learning support, and development were significantly correlated with one another ($p < .01$); however, none

Accepting Editor Joko Slamet | Received: February 22, 2026 | Revised: April 17, May 11, June 4, July 14, August 15, 2026 | Accepted: August 20, 2026.

Cite as: Baissane, O. (2026). ChatGPT use, learner perceptions, and academic achievement in Moroccan EFL higher education. *Journal of Information Technology Education: Innovations in Practice*, 25, Article 38.

<https://doi.org/10.28945/5870>

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	showed a significant relationship with academic achievement. Multiple regression analysis confirmed that ChatGPT-related variables did not significantly predict English achievement ($R^2 = .025$, $p = .236$). No statistically significant gender differences were found in the present study.
Recommendations for Practitioners	EFL instructors should provide structured, guided integration of ChatGPT into learning activities and promote AI literacy to ensure its use is critical and responsible. Informal and unguided use alone may not translate into measurable academic improvement.
Recommendations for Researchers	Researchers should examine the long-term and causal effects of structured integration of ChatGPT on language achievement using experimental and mixed-methods designs. Further studies should also explore mediating variables such as learner autonomy, motivation, and digital literacy.
Impact on Society	The study highlights the importance of responsible and structured integration of generative AI in higher education. It emphasizes the need for AI literacy and ethical guidelines to ensure that tools like ChatGPT enhance learning without encouraging overreliance or academic misuse.
Future Research	Future studies should use longitudinal, experimental, and mixed-methods designs to examine causal relationships between structured use of ChatGPT and language achievement. Research should also explore contextual and pedagogical factors that influence the effectiveness of AI across diverse higher education settings.
Keywords	academic achievement, ChatGPT, higher education, generative AI, learning support, perceived usability

INTRODUCTION

Artificial intelligence (AI) technologies are increasingly reshaping educational practices in higher education (Topham et al., 2025). Among recent developments, generative AI tools such as ChatGPT have gained widespread attention for their ability to generate human-like responses, provide on-demand explanations, and support interactive learning experiences (Campbell, 2023; Kasneci et al., 2023; Kohnke et al., 2023). In foreign language learning contexts, where learners sometimes face limited opportunities for individualized support and sustained interaction, ChatGPT can extend learning beyond the classroom (Garcia Castro et al., 2024; Karataş et al., 2024).

In Moroccan higher education, instruction is often constrained by large class sizes, teacher-centered practices, and limited access to personalized feedback, which restrict learners' engagement and opportunities for timely support (El Karfa, 2019; Ghaicha & Mezouari, 2018). The worldwide adoption of ChatGPT is increasing rapidly. Recent studies have highlighted its swift global uptake and significant growth in usage (Chatterji et al., 2025; Y. Liu et al., 2025). Various studies have documented positive perceptions of ChatGPT in EFL learning, including its usability, learning support, and developmental potential (Çobanoğulları & Özbek, 2025; Xiao & Zhi, 2023). However, empirical evidence examining these factors in Moroccan higher-education EFL contexts remains limited. Therefore, it remains unclear whether globally reported positive perceptions of ChatGPT translate into meaningful academic outcomes for Moroccan learners.

An essential factor that influences the effectiveness of AI tools in education is usability. Drawing on the Technology Acceptance Model (TAM) (Davis, 1989), this study conceptualizes usability as perceived ease of use and learning support as perceived usefulness, two key determinants of users' engagement with technology. Consistent with TAM, perceived ease of use is expected to positively influence perceived usefulness and engagement with a technological tool (Marangunić & Granić, 2015).

In educational contexts, learners who perceive a system as useful are more likely to engage with it meaningfully, and such engagement has been associated with better academic outcomes (Navarro et al., 2023). Extending TAM, this study conceptualizes usability as perceived ease of use and learning support as perceived usefulness and hypothesizes that both constructs facilitate learner engagement and development, which may represent intermediate processes through which technology acceptance translates into educational outcomes.

Previous studies have examined the use of AI chatbots for tasks such as clarifying concepts, completing assignments, and practicing communication (Grothe-Hammer et al., 2025; Labadze et al., 2023), but these findings are not related to Moroccan EFL settings. Most existing studies have been conducted in non-Moroccan or technologically distinct educational contexts, leaving a limited understanding of how ChatGPT is perceived and used in Moroccan higher education. Moreover, AI tools have been associated with increased motivation, self-efficacy, and higher-order skills (Yilmaz & Yilmaz, 2023); however, it remains unclear whether learners' perceptions of ChatGPT translate into improved academic achievement. Thus, the study not only maps usability and learning support onto TAM constructs but also situates development within the same framework to examine how these variables collectively relate to academic achievement. Accordingly, the present study addresses this context-specific gap by examining whether globally reported positive perceptions of ChatGPT are similarly reflected among Moroccan EFL university learners and whether these perceptions relate to academic achievement.

Therefore, this study examines how Moroccan EFL university learners' perceptions of ChatGPT, across usability, learning support, and development, relate to their English academic achievement. Guided by this perspective, the study moves beyond descriptive accounts to examine the relationships among these constructs. Accordingly, the study addressed the following research questions:

1. How do Moroccan EFL university learners perceive and use ChatGPT in their academic learning in terms of usability, learning support, and development?
2. What is the relationship between Moroccan EFL university learners' perceptions and use of ChatGPT and their academic achievement in English?
3. Are there statistically significant differences in learners' perceptions and use of ChatGPT based on gender?

LITERATURE REVIEW

GENERATIVE ARTIFICIAL INTELLIGENCE AND CHATGPT IN EDUCATION

Recent advances in AI have led to the quick development of generative AI systems capable of producing human-like text, images, and interactive responses. Among these systems, large language models (LLMs), such as ChatGPT, have attracted significant attention in educational contexts for their conversational capabilities and accessibility (Bettayeb et al., 2024; Law, 2024). ChatGPT can generate context-sensitive responses, explain concepts, and engage in extended dialogue, which makes it a potentially valuable learning support tool. In higher education, generative AI has been explored for a range of purposes, including content generation, academic writing support, tutoring, and formative feedback (Lee & Moore, 2024).

Research generally suggests that such tools may enhance learning by providing immediate responses, personalized explanations, and flexible access to information. However, concerns have been raised regarding the reliability of AI-generated content, the risk of learner overreliance, and challenges related to academic integrity and critical engagement (Kasneci et al., 2023). These contrasting perspectives suggest that the educational value of ChatGPT remains context-dependent and not yet fully established. Consequently, recent literature emphasizes the importance of examining learners' experiences and perceptions to evaluate the pedagogical value of AI tools, including how learners interact

with, perceive the usability of, and use ChatGPT in authentic learning contexts (Godwin-Jones, 2023).

In the field of foreign language education, ChatGPT has been discussed as a tool that may support language learning through interactive dialogue, explanation generation, and language practice (Godwin-Jones, 2023). Studies in this area consistently indicate that AI chatbots provide opportunities for learners to ask questions, request examples, and practice language use in low-anxiety environments, which may be beneficial for learners who lack confidence or access to individualized instruction (Kohnke et al., 2023; Ng Kok Wah, 2025). In this regard, empirical studies in EFL contexts have examined ChatGPT's role in supporting writing processes, idea generation, and language accuracy. For example, Alsofyani and Barzanji (2024), Teng (2025), and Xiao and Zhi (2023) reported that learners use ChatGPT to brainstorm ideas, improve sentence structure, and receive feedback during writing tasks. They often perceive the tool as a helpful companion rather than a replacement for teachers. Similarly, other studies report positive learner perceptions regarding ChatGPT's ability to clarify language-related questions and provide immediate explanations, thereby facilitating more self-directed learning (Alshammari, 2024; Li et al., 2024).

USABILITY, ACCEPTANCE, AND LEARNING SUPPORT OF CHATGPT IN EDUCATION

Usability is an important factor that influences learners' use of educational technologies. Drawing on technology acceptance research, tools that are perceived as easy to use and useful are more likely to be integrated into learners' regular academic practices (Davis, 1989). In the context of AI tools such as ChatGPT, perceived usability may determine learners' willingness to interact with the tool, experiment with its features, and rely on it for learning support (Liling & Aklani, 2023). In this regard, recent studies that examined ChatGPT in educational settings suggest that learners generally perceive the tool as accessible and easy to use due to its conversational interface and minimal technical requirements (Sukirman et al., 2024). Moreover, evidence indicates that perceived ease of use is positively associated with learners' frequency of interaction with ChatGPT and their intention to continue using it for academic purposes (G. Liu & Ma, 2023; Ma et al., 2024).

In foreign language learning contexts, usability may be especially significant, as learners vary widely in their technological confidence and digital literacy. Tools with complex interfaces or specialized knowledge requirements may discourage use, whereas easy-to-use tools such as ChatGPT may lower barriers to engagement (Godwin-Jones, 2023).

A significant body of research indicates that learners use ChatGPT in multiple ways to support their academic learning in higher education. It has been reported that students frequently employ ChatGPT to retrieve information, clarify difficult concepts, generate summaries, and support exam preparation and coursework completion (Alshammari, 2024; Barrot, 2024). These patterns suggest a broader shift toward more autonomous and self-directed learning, where learners seek immediate, on-demand support beyond traditional classroom boundaries (Kasneci et al., 2023).

In EFL contexts, research indicates that learners use ChatGPT to address gaps in their understanding of course content, practice language use, and obtain explanations aligned with their learning needs. More specifically, learners commonly engage with ChatGPT to clarify language-related questions, request examples, and explore alternative explanations (Kohnke et al., 2023). Such practices align with learner-centered approaches to language education that emphasize autonomy, flexibility, and the strategic use of learning resources. What is more, the nature of conversational AI tools allows learners to engage in repeated questioning without fear of negative evaluation, which may encourage deeper exploration of language difficulties and reduce anxiety associated with language learning (Wang et al., 2024).

RELATIONSHIP BETWEEN CHATGPT AND ACADEMIC ACHIEVEMENT IN ENGLISH

The relationship between ChatGPT use and academic achievement investigated in the current study remains in its early, exploratory stage. Existing studies suggest a generally positive but still inconclusive association between ChatGPT use and academic performance. However, findings across studies remain mixed. Certain studies reported positive effects on learning outcomes, while others emphasized limited impact or raised concerns regarding overreliance, accuracy, and the quality of AI-supported learning. For example, Ahmad et al. (2025) conducted a quantitative study with 120 participants, using standardized tests and a structured two-week ChatGPT intervention integrated into writing tasks, which likely contributed to measurable improvements in performance and illustrates how well-designed experimental studies produce stronger outcomes.

In contrast, Uppal and Hajian (2025) conducted a smaller pretest-posttest study with 45 participants, relying on self-reported performance and less structured use of ChatGPT, which may explain why measurable effects were limited, even though participants reported positive attitudes toward the tool. The variations observed in these studies in sample size, study design, intervention structure, and measurement approaches seem to help account for the mixed results reported in the literature. In this sense, structured and experimental studies tend to show measurable gains, whereas perception-based or correlational studies report positive attitudes without clear improvements in achievement, highlighting the role of methodology in explaining divergent results.

Additionally, other studies have explored this relationship using experimental or mixed-methods designs. Alneyadi and Wardat (2023), for instance, found that students with access to ChatGPT demonstrated significantly higher post-test achievement scores than a control group, suggesting that structured use of the tool may support learning performance. In higher education contexts, Singh et al. (2024) reported that learners use ChatGPT to support understanding, complete assignments, and improve learning efficiency, while also expressing concerns about accuracy and academic integrity. Survey-based studies further indicate that high-achieving students are more likely to view ChatGPT as a valuable learning tool for understanding complex topics and completing academic tasks (Madiyah & Mak, 2025). Despite these findings, the relationship between learners' perceptions of ChatGPT and academic achievement in EFL contexts remains insufficiently examined.

GENDER DIFFERENCES IN THE PERCEPTION AND USE OF CHATGPT

Like this study, recent research has investigated how male and female students view and use ChatGPT in higher education, and it has found subtle but consistent differences. For example, Bouzar et al. (2024) reported no significant gender differences in overall acceptance of ChatGPT; however, male students tended to use the tool for longer durations, while female students reported more frequent use and greater concern regarding overreliance and privacy issues. Similarly, Ali et al. (2025) found that gender significantly influenced exposure to and attitudes toward ChatGPT in academic settings, with male participants showing higher exposure and more favorable perceptions. Moreover, Raman et al. (2024) identified gender-based differences in drivers of adoption. They showed that male students tended to prioritize compatibility, ease of use, and observability, whereas female students emphasized ease of use, relative advantage, compatibility, and trialability. The previously presented findings suggest that gender differences in ChatGPT use are primarily reflected in patterns of engagement, perceived benefits, and concerns, rather than in fundamental acceptance of the technology.

In general, review and synthesis studies show careful optimism about ChatGPT's impact on education. Kasneci et al. (2023) pointed out that large language models can support learning, especially in text-based academic tasks, while also noting the lack of strong evidence linking their use to clear improvements in academic achievement. Similarly, Law (2024) found that many studies report positive student perceptions and short-term learning benefits. However, few studies in Morocco examine

EFL university learners' use of ChatGPT in relation to their perceptions of usability, its role in supporting learning activities, its contribution to language development, and its relationship with academic achievement in English. In addition, limited research has explored gender differences in students' perceptions of and use of ChatGPT.

METHODOLOGY

RESEARCH DESIGN

The present study employed a quantitative, cross-sectional research design to investigate EFL university students' perceptions of ChatGPT as a learning support tool and to examine its relationship with English academic achievement. A questionnaire was used to collect data from university learners and to facilitate both descriptive and inferential analyses of learners' perceptions, use of ChatGPT, and English academic achievement.

PARTICIPANTS

The participants in this study comprised 171 EFL university students enrolled in English studies at two Moroccan public universities. A convenience sampling approach was employed because it provided access to readily available participants in the target population of EFL university students and facilitated efficient data collection through existing academic networks. Individual invitations to participate in the study were sent via WhatsApp groups used by EFL students at Sultan Moulay Slimane University in Beni Mellal and at Cadi Ayyad University in Marrakesh. The questionnaire was distributed through these groups over a specified data collection period, and participants who voluntarily responded and completed the survey constituted the final sample of 171 respondents. Participation was voluntary, and informed consent was obtained from all participants before data collection. Participants were informed that their responses would be used solely for research purposes and that the survey would be conducted anonymously. Formal ethics committee approval was not required for this study. Due to the use of online group-based distribution, the exact response rate could not be determined; however, the sample reflects students who had access to and engaged with the survey during the data collection period. 77 participants were recruited from Sultan Moulay Slimane University, and 94 participants were affiliated with Cadi Ayyad University. All participants were undergraduate students at different academic levels, including first-year, second-year, and third-year students. In terms of gender distribution, the sample comprised 109 female students (63.7%) and 62 male students (36.3%). Participants ranged in age from 17 to 25 years and above. Most students were between 19 and 22 years old, followed by those aged 25 and over, while relatively fewer participants fell within the 17-18 and 23-24 age groups.

INSTRUMENTATION

Data for the present study were collected using a structured questionnaire adapted from the ChatGPT Usage Scale for Foreign Language Learners developed by Çobanoğulları and Özbek (2025). The instrument has demonstrated strong psychometric properties, including excellent internal consistency (Cronbach's $\alpha = .93$) and construct validity supported by confirmatory factor analysis. The questionnaire consists of 18 items, listed below, which were retained from the original scale and organized according to the three-factor structure proposed by the authors: usability, learning support, and development.

The Usability variable assesses learners' perceptions of ease of use and accessibility of ChatGPT. The Learning variable assesses how ChatGPT supports learning-related activities, such as understanding course content, preparing for exams, and addressing learning difficulties. Finally, the development variable examines broader learning outcomes, including confidence, motivation, creativity, and perceived academic growth. Although development is not a core TAM construct, it is considered in this study a potential outcome of technology-supported engagement, thereby extending TAM by incorporating learner-level cognitive and affective development. To illustrate, usability items focused on ease

of interaction, learning support items captured academic assistance functions, and development items reflected perceived cognitive and affective gains.

All items were rated on a five-point Likert scale, ranging from strongly disagree (1) to strongly agree (5). For the purposes of the current study, minor wording modifications were made to improve clarity and ensure contextual relevance for Moroccan EFL university students, while preserving the items' original meaning and structure. Content validity was ensured through careful alignment of the adapted items with the original scale constructs and a review of item clarity and relevance in the target context.

A pilot test was conducted with 30 EFL students to ensure clarity, comprehension, and appropriateness of the questionnaire items before full data collection. In addition to the scale items, the questionnaire included a demographic section that collected information on participants' age, gender, university affiliation, and self-reported final English course grade from the previous semester, used as a proxy for academic achievement because official institutional records were not accessible. This measure was chosen for its practicality and comparability, and research indicates that self-reported grades are generally reliable (Kuncel et al., 2005; Richardson et al., 2012).

However, self-reported grades may still introduce measurement error, restricted variability, or reporting bias, which should be considered when interpreting relationships between ChatGPT-related variables and achievement. Standardized tests were also considered, but were not feasible within the study context. To assess the internal consistency of the three subscales comprising the 18 items listed below, Cronbach's alpha coefficients were computed for usability, learning support, and development in the current sample. The usability subscale comprised three items ($\alpha = .77$), the learning support subscale comprised seven items ($\alpha = .79$), and the development subscale comprised eight items ($\alpha = .87$). All reliability analyses were based on responses from 171 participants.

- Q1.** Using ChatGPT is easy for me
- Q2.** I use ChatGPT regularly
- Q3.** I use ChatGPT effectively
- Q4.** I use ChatGPT to learn new information
- Q5.** I use ChatGPT to study for my exams
- Q6.** I use ChatGPT to learn subjects I am lacking in
- Q7.** I use ChatGPT to access learning materials
- Q8.** I use ChatGPT because it provides versatile learning
- Q9.** I use ChatGPT to enhance my linguistic skills
- Q10.** I use ChatGPT to learn communication skills
- Q11.** I use ChatGPT to enhance my analytical and critical thinking skills
- Q12.** I use ChatGPT to improve my creative thinking skills
- Q13.** I use ChatGPT to obtain different views and ideas
- Q14.** I use ChatGPT to increase my learning motivation
- Q15.** I use ChatGPT to make my learning process more enjoyable
- Q16.** I use ChatGPT to boost my self-confidence in language learning
- Q17.** I use ChatGPT to enhance my learning self-efficacy
- Q18.** I use ChatGPT for inspiration

DATA COLLECTION PROCEDURE

Data were collected using an online questionnaire administered via Google Forms and distributed to participants through WhatsApp groups used by EFL students at the participating universities. The data collection process was conducted over a period of approximately two months, during which participants were invited to complete the questionnaire voluntarily. Participation was voluntary; therefore, only students who were interested and willing to participate provided responses. All responses were collected anonymously, and no personally identifiable information was recorded, ensuring participant confidentiality.

DATA ANALYSIS

Data were analyzed using the Statistical Package for the Social Sciences (SPSS), version 25. To address Research Question 1, descriptive statistics were computed to summarize participants' demographic characteristics, frequency of ChatGPT use, and perceptions of the three constructs of the questionnaire: usability, learning support, and development.

To address Research Question 2, which examined the relationship between ChatGPT use and academic achievement in English, inferential statistical analyses were conducted. It is acknowledged that the self-reported nature of academic grades may introduce measurement error or limited variability, which could partly explain non-significant regression results. Despite this limitation, Pearson product-moment correlation was used to assess relationships between learners' perceptions of ChatGPT, mainly usability, learning support, and development, and self-reported English academic achievement. Multiple regression analysis was performed to assess the extent to which these variables predict variation in academic achievement, while accounting for potential measurement limitations.

To address the final research question, an independent-samples t-test was conducted to examine whether statistically significant gender differences existed in learners' perceptions and use of ChatGPT across the three constructs. The t-test was appropriate for comparing mean differences between two independent groups. Given that the male subsample ($n = 62$) represents only 36.3% of the sample, the observed Cohen's d values (0.19, 0.06, 0.19) indicate small effects. This suggests that the non-significant gender results may partly reflect limited statistical power rather than true null effects, consistent with conventional effect size benchmarks (Cohen, 1988).

Before analysis, the dataset was screened for completeness, and no substantial missing data were identified. Prior to conducting the analyses, the assumptions of normality and homogeneity of variance were examined. Normality was assessed using skewness and kurtosis values, and homogeneity of variance was evaluated using Levene's test. Multicollinearity was also examined using variance inflation factor (VIF) values to ensure the robustness of the regression analysis.

RESULTS

LEARNERS' PERCEPTIONS AND USE OF CHATGPT

To address Research Question 1, descriptive statistics were computed to examine Moroccan EFL university learners' perceptions and use of ChatGPT. As shown in Table 1, the results indicate that learners reported generally positive perceptions of ChatGPT in terms of usability, learning support, and development.

On the 5-point Likert scale used in this study, mean scores above 3.5 were interpreted as indicating relatively high agreement, while scores around 3.0–3.5 reflect moderate perceptions. Usability received the highest mean score ($M = 3.73$, $SD = 0.74$), suggesting that participants found ChatGPT relatively easy to use and accessible for academic purposes, and that learners also perceive it as a user-friendly tool that can be easily integrated into their learning activities.

Table 1. Descriptive statistics for learners' perceptions of ChatGPT

Variable	N	Minimum	Maximum	Mean	SD
Usability	171	1.00	5.00	3.73	0.74
Learning	171	1.00	5.00	3.68	0.73
Development	171	1.00	5.00	3.43	0.77

Learning support also yielded a moderately high mean score ($M = 3.68$, $SD = 0.73$), which reflects positive perceptions of ChatGPT's role in facilitating academic learning. It also indicates that participants viewed ChatGPT as a helpful resource for understanding course content, completing academic tasks, and supporting language learning.

The development construct yielded a slightly lower, yet still positive, mean score ($M = 3.43$, $SD = 0.77$). This suggests that learners acknowledge ChatGPT's contribution to their academic development, but they perceive it somewhat less strongly than usability and learning support. In general, the findings show that Moroccan EFL university learners hold positive perceptions of ChatGPT regarding its usability and its supportive role in learning. However, they hold moderate endorsement of its contribution to academic development.

THE RELATIONSHIP BETWEEN LEARNERS' PERCEPTIONS AND USE OF CHATGPT AND THEIR ACADEMIC ACHIEVEMENT IN ENGLISH?

To address Research Question 2, Pearson product-moment correlation and multiple linear regression analyses were conducted to examine the relationships between learners' perceptions and use of ChatGPT and their academic achievement in English, as measured by the previous semester's overall grade.

Pearson correlation analysis revealed significant positive relationships among the three ChatGPT-related variables. As presented in Table 2, usability was moderately and positively correlated with learning support ($r = .55$, $p < .01$) and development ($r = .47$, $p < .01$). Learning support and development were also positively correlated ($r = .59$, $p < .01$), which indicates moderate to strong associations among the constructs. However, academic achievement in English was not significantly correlated with usability ($r = .14$, $p = .067$), learning support ($r = .07$, $p = .402$), nor with development ($r = .10$, $p = .192$). The correlation coefficients found in this study reflect weak relationships with academic achievement. The results suggest that learners' perceptions and use of ChatGPT are interrelated. Still, no significant associations with students' English academic achievement were detected in the present sample, which may partly reflect measurement limitations and restricted variability in reported grades.

Table 2. Pearson correlations among ChatGPT variables and academic achievement

Variable	1	2	3	4
Usability	—			
Learning	0.55** [.44, .65]	—		
Development	0.47** [.34, .58]	0.59** [.48, .68]	—	
Academic Achievement	0.14 [−.01, .28]	0.07 [−.08, .22]	0.10 [−0.05, 0.25]	—

Note. $p < .01$. $N = 171$. Values in brackets indicate 95% confidence intervals.

In addition to Pearson correlation, a multiple linear regression analysis was conducted to determine whether usability, learning support, and development significantly predicted learners' academic achievement in English. Table 3 shows that the overall regression model was not statistically significant, $F(3, 167) = 1.43$, $p = .236$, as it explained only 2.5% of the variance in academic achievement

($R^2 = .025$). This indicates a very small effect size and limited explanatory power of the model. Moreover, none of the predictor variables made a statistically significant contribution to the model. Therefore, usability ($\beta = .15$, $p = .118$), learning support ($\beta = -.11$, $p = .414$), and development ($\beta = .12$, $p = .349$) did not significantly predict English achievement, which indicates that learners' perceptions and use of ChatGPT, although positively evaluated, did not significantly predict academic achievement in English within the present sample.

Table 3. Multiple regression analysis predicting academic achievement in English

Predictor	B	SE B	β	t	p	95% CI for B	
						Lower bound	Upper bound
Constant	2.07	1.05	—	1.97	.05	-0.00	4.15
Usability	0.46	0.29	.15	1.57	.11	-0.11	1.04
Learning	-0.35	0.43	-.11	-0.82	.41	-1.19	0.49
Development	0.36	0.38	.12	0.94	.34	-0.397	1.11

Note. $R^2 = 0.025$, $F(3, 167) = 1.43$, $p = .236$

GENDER DIFFERENCES IN LEARNERS' PERCEPTIONS AND USE OF CHATGPT

To address Research Question 3, which examined whether male and female Moroccan EFL university learners differed significantly in their perceptions of and use of ChatGPT regarding usability, learning support, and development, an independent-samples t-test was conducted. It is worth noting that before conducting the t-test, Levene's test for equality of variances was examined. The results indicated that the assumption of homogeneity of variance was met for usability ($p = .739$), learning support ($p = .396$), and development ($p = .351$). Therefore, the results for equal variances assumed were reported.

Table 4 reveals no statistically significant gender differences in usability, learning support, or development. For usability, male learners ($M = 3.82$, $SD = 0.77$) did not differ significantly from female learners ($M = 3.68$, $SD = 0.72$), $t(169) = -1.22$, $p = .224$. The difference between groups was small. Similarly, no significant gender differences were found for learning support, with males ($M = 3.71$, $SD = 0.70$) and females ($M = 3.66$, $SD = 0.76$), $t(169) = -0.39$, $p = .695$, indicating a negligible difference between groups. In addition, perceptions of development did not differ significantly between male learners ($M = 3.52$, $SD = 0.73$) and female learners ($M = 3.37$, $SD = 0.80$), $t(169) = -1.19$, $p = .235$. This suggests a small and non-meaningful difference. In general, these results show that learners' perceptions and use of ChatGPT do not differ significantly by gender, indicating similar levels of engagement and evaluation among male and female Moroccan EFL university learners.

Table 4. Independent-samples t-test results by gender

Variable	t	df	p	Cohen's d
Usability	-1.22	169	.224	0.19
Learning	-0.39	169	.695	0.06
Development	-1.19	169	.235	0.19

DISCUSSION

This study investigated Moroccan EFL university learners' perceptions and use of ChatGPT, the relationship between ChatGPT use and academic achievement in English, and gender differences in learners' perceptions. The discussion interprets the findings in relation to the research questions, drawing on the existing literature on generative AI and foreign language learning.

LEARNERS' PERCEPTIONS AND USE OF CHATGPT

The results for the first research question indicate that Moroccan EFL university learners generally have positive perceptions of ChatGPT regarding usability, learning support, and academic development. In this regard, usability had the highest mean score, followed by learning support, and then development. The results suggest that learners view ChatGPT as an accessible tool that can be integrated into their academic learning practices. These findings are consistent with prior research that emphasized the ease of use and accessibility of ChatGPT in educational contexts (G. Liu & Ma, 2023; Sukirman et al., 2024). The conversational design and minimal technical requirements of ChatGPT likely contribute to learners' positive usability perceptions, which align with Davis's (1989) Technology Acceptance Model. It suggests that perceived ease of use influences technology adoption. From a theoretical perspective, these findings confirm that high perceived ease of use and usefulness can promote engagement with technology, even when such engagement does not necessarily translate into measurable academic outcomes. Consistent with findings reported by Liling and Aklani (2023), the high usability ratings in the present study suggest that learners are more willing to engage with ChatGPT when interaction is easy and does not require advanced technical skills.

The moderately high mean score for learning support aligns with research indicating that ChatGPT is frequently used to clarify concepts, support coursework, and provide immediate explanations in higher education and EFL contexts (Alshammari, 2024; Barrot, 2024; Kohnke et al., 2023). This supports the view that learners perceive ChatGPT as a supplementary learning resource rather than a replacement for instructors, and also aligns with the findings of Alsofyani and Barzanji (2024) and Teng (2025), who reported that learners use ChatGPT primarily as a supportive tool for academic tasks. This pattern suggests that ChatGPT is predominantly used for task completion and short-term understanding rather than for deeper, sustained learning processes.

However, the relatively lower mean score for the development construct suggests that learners acknowledge ChatGPT's contribution to their learning, but they may be less convinced of its long-term impact on academic growth or skill development. This finding aligns with concerns raised in the literature regarding overreliance on AI tools and the limitation of deeper cognitive engagement (Godwin-Jones, 2023; Kasneci et al., 2023). This may indicate that ChatGPT supports immediate learning needs, but it does not necessarily promote higher-order cognitive processes such as critical thinking and long-term knowledge. Learners may perceive ChatGPT as effective for immediate support and task completion, but remain uncertain about its role in enhancing long-term language development and learning outcomes. Therefore, the results of this study extend prior research, provide context-specific evidence from Moroccan higher education in EFL, and reinforce the idea that ChatGPT is widely perceived as usable and supportive.

RELATIONSHIPS BETWEEN CHATGPT USE AND ACADEMIC ACHIEVEMENT

The second research question examined the relationship between learners' perceptions and use of ChatGPT and their academic achievement in English. The findings revealed that usability, learning support, and development were significantly correlated with one another. Furthermore, multiple regression analysis indicated that ChatGPT-related variables did not significantly predict English achievement. The self-reported English grades were coded on a nine-point scale, with grades from 8 to 16 recoded as 1 to 9, respectively. The concentration of grades toward the higher end may have limited variability and weakened the observed relationships with ChatGPT-related variables. Future

research could use official academic records or standardized assessments to provide a more objective measure of achievement.

These findings, to some extent, contradict studies that reported a positive relationship between ChatGPT use and academic achievement (Ahmad et al., 2025; Uppal & Hajian, 2025). However, they align closely with more cautious interpretations presented in recent review studies (Kasneci et al., 2023; Law, 2024), which emphasized that positive learner perceptions do not necessarily translate into successful academic achievement. One possible explanation for this finding is that perceived usefulness, as conceptualized in the Technology Acceptance Model, reflects users' subjective evaluation of a tool rather than its actual impact on performance outcomes.

The lack of a significant relationship in the present study may also be due to the difference between perceived usefulness and actual instructional integration. In this regard, learners may frequently use ChatGPT for clarification and support, but such use may not be sufficiently structured or pedagogically guided to influence their academic achievement meaningfully. In addition, the relationship between ChatGPT use and academic achievement may be influenced by mediating variables that were not examined in the present study, such as learner autonomy, digital literacy, frequency of structured use, and the quality of interaction with AI-generated content. This suggests that the effectiveness of ChatGPT may depend not only on frequency of use but also on the quality, depth, and pedagogical integration of its use within formal learning environments.

In addition, the findings differ from experimental research such as Alneyadi and Wardat (2023), which demonstrated achievement gains when ChatGPT was systematically integrated within instructional activities. This contrast suggests that ChatGPT's impact on academic achievement may depend largely on how the tool is integrated into learning contexts. Unlike the present correlational and cross-sectional study, studies such as Alneyadi and Wardat (2023) employed more structured instructional integration and experimental comparison, which may explain why stronger achievement effects were observed. In the present study, learners' use of ChatGPT appears to be largely self-directed and informal, which may limit its impact on course grades, which are influenced by multiple factors, including assessment design, instructional methods, and learners' study strategies. Alternative explanations may also include reliance on self-reported academic achievement and the study's cross-sectional design, which limit the ability to capture causal relationships.

The non-significant findings also support arguments by Madiah and Mak (2025), who noted that high-achieving students may view ChatGPT positively without necessarily relying on it as a determinant of academic achievement. In this sense, ChatGPT may function more as a learning assistant that enhances understanding or efficiency rather than as a direct contributor to achievement outcomes. Accordingly, the findings suggest that TAM is useful for understanding learners' positive attitudes toward the adoption of ChatGPT, but additional pedagogical and cognitive variables may be necessary to explain academic achievement outcomes in EFL contexts. Moreover, technology acceptance may represent an initial stage of adoption, whereas measurable learning outcomes may depend on the quality and structure of technology integration. The findings of this study contribute to the literature by emphasizing the gap between positive perceptions of AI tools and their measurable impact on academic performance in EFL contexts.

GENDER DIFFERENCES IN LEARNERS' PERCEPTIONS AND USE OF CHATGPT

The final research question explored whether learners' perceptions and use of ChatGPT differed by gender. The results revealed no statistically significant gender differences in terms of usability, learning support, or development. Nevertheless, these findings should be interpreted with caution because the male subsample was smaller than the female subsample, and the observed effect sizes were small, limiting the ability to draw definitive conclusions about gender differences. In general, the findings indicate that male and female Moroccan EFL university learners perceive and use ChatGPT similarly.

The gender-related findings of this study are consistent with those of Bouzar et al. (2024), who reported no significant gender differences in overall acceptance of ChatGPT, despite variations in usage patterns and concerns. Similarly, Raman et al. (2024) suggested that gender may influence specific adoption drivers, but general acceptance and perceived usefulness remain the same across genders. The absence of significant gender differences in this study suggests that ChatGPT's conversational design and ease of access may help reduce traditional gender gaps in technology adoption. This may indicate that AI tools with low technical barriers promote more equitable access and engagement across demographic groups.

However, the findings differ from those of Ali et al. (2025), who reported more positive perceptions among male students, which may be attributed to contextual differences, as the present study focuses on EFL learners in Moroccan higher education, where access, exposure, and pedagogical use of ChatGPT may be more uniform across genders. In general, the results suggest that males and females do not differ significantly in how useful or easy they perceive ChatGPT to be, and that any differences may relate more to patterns of use rather than overall evaluation of the tool.

IMPLICATIONS AND LIMITATIONS

The findings of this study indicate that learners perceive ChatGPT as usable and supportive; however, its association with academic achievement may depend on how it is pedagogically integrated, a possibility that warrants further investigation. Therefore, EFL instructors should provide structured guidance on effective and ethical uses of ChatGPT, such as idea development, language clarification, and autonomous learning. They should also discourage overreliance on AI-generated content. Institutions may also incorporate AI literacy training to help students evaluate outputs and use ChatGPT as a complementary learning tool.

Future research should adopt longitudinal and experimental designs to examine the relationship between ChatGPT use and language outcomes. Mixed-methods designs, including interviews and classroom observations, could also offer deeper insight into learner interaction patterns and their influence on learning processes. Additional studies in underrepresented contexts, such as Moroccan higher education, are needed to explore further the contextual factors that shape AI adoption and impact.

This study has several limitations that should be acknowledged. First, reliance on self-reported questionnaire data may not accurately reflect actual usage patterns of ChatGPT. Second, the cross-sectional design prevents causal inferences. Third, academic achievement was measured using self-reported prior-semester English grades rather than official institutional records, which may limit the reliability and accuracy of the measure. In addition, self-reported grades may be affected by recall inaccuracies or subjective reporting, which should be taken into account when interpreting non-significant findings related to academic achievement. Furthermore, the sample offered useful insights into Moroccan EFL university learners, but may not be fully representative of all EFL students in Morocco due to the use of a non-probability sampling approach and the inclusion of participants from only two institutions, which limits generalizability. Moreover, the unequal gender distribution in the sample, with a larger proportion of female participants, may have reduced the sensitivity of the independent-samples t-test to detect subtle gender differences. Finally, the study did not assess the quality, frequency, or pedagogical nature of ChatGPT use, which may affect learning outcomes.

CONCLUSION

This study examined Moroccan EFL university students' perceptions and use of ChatGPT, their relationship with academic achievement, and gender differences. Participants generally viewed ChatGPT as highly usable and moderately supportive, though they expressed uncertainty about its long-term impact on language development. Despite positive perceptions, no significant relationship emerged

between ChatGPT-related perceptions and self-reported academic achievement in the present sample; however, given the reliance on self-reported grades and measurement limitations, these findings should be interpreted with caution. The results indicate that the educational value of ChatGPT may depend, at least in part, on how it is pedagogically integrated rather than on its informal or self-directed use. The absence of gender differences further suggests similar patterns of adoption across male and female learners in Moroccan higher education. The study contributes to the literature by providing context-specific evidence from Moroccan EFL higher education and by highlighting the gap between positive perceptions of ChatGPT and its measurable impact on academic achievement. This study, therefore, contributes exploratory evidence from an underrepresented EFL context and highlights the need for further research that may examine guided implementation, AI literacy, and instructional design in relation to the educational use of generative AI.

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