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The Role of Gender, Academic Level, and AI Literacy in Shaping GenAI Use and Perception among Saudi EFL Learners

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الملخص

على الرغم من التزايد الملحوظ في استخدام تقنيات الذكاء الاصطناعي التوليدي (GenAI) في تعليم اللغة الإنجليزية كلغة أجنبية، لا تزال البحوث التي تستكشف كيفية إدراك المتعلمين لهذه الأدوات واستخدامهم لها عبر المستويات التعليمية المختلفة محدودة، لا سيما في التعليم السعودي، هدفت هذه الدراسة إلى معرفة تصورات ومواقف الطلبة السعوديين الدارسين للغة الإنجليزية كلغة أجنبية تجاه أدوات الذكاء الاصطناعي التوليدي وأنماط استخدامها، بالإضافة إلى فحص تأثير المستوى التعليمي والجنس (النوع الاجتماعي) ومستوى الإلمام بالذكاء الاصطناعي على مواقف المتعلمين وسلوكيات استخدامهم لهذه الأدوات. ولتحقيق ذلك، تم توظيف المنهج المختلط من خلال تطبيق استبانة على عينة مكونة من 401 طالبًا وطالبة من مؤسسات التعليم العالي في المملكة العربية السعودية، وأظهرت النتائج أن الطلبة يحملون مواقف إيجابية بصورة عامة تجاه أدوات الذكاء الاصطناعي التوليدي، إذ يرون أنها تسهم في تحسين المهارات اللغوية، وتعزيز الدافعية والثقة بالنفس، وخفض القلق المرتبط بتعلم اللغة. ومع ذلك، أبدى المشاركون بعض المخاوف المتعلقة بالاعتماد المفرط على هذه الأدوات، وموثوقية المحتوى الذي تنتجه، والآثار السلبية المحتملة على التعلم الذاتي. كما كشفت النتائج أن الطلاب يستخدمون أدوات الذكاء الاصطناعي التوليدي بشكل رئيس في المهام الإنتاجية، مثل الكتابة والترجمة والبحث العلمي وإنتاج المحتوى، مع تصدر ChatGPT قائمة الأدوات الأكثر استخدامًا. كذلك، أظهرت النتائج وجود فروق ذات دلالة إحصائية تبعًا للمستوى التعليمي ومستوى الإلمام بالذكاء الاصطناعي، حيث أبدى الطلاب ذوو المستويات الأعلى من الإلمام بالذكاء الاصطناعي مواقف أكثر إيجابية واستخدامًا أكثر تكرارًا لهذه الأدوات. في المقابل، لم يُظهر الجنس تأثيرًا ذا دلالة إحصائية على تصورات الطلاب أو أنماط استخدامهم، وتشير نتائج الدراسة إلى أن الإلمام بالذكاء الاصطناعي يمثل عاملًا رئيسًا مرتبطًا باستعداد المتعلمين لتبني أدوات الذكاء الاصطناعي التوليدي في تعلم اللغة الإنجليزية كلغة أجنبية، مما يبرز أهميته في تفسير تصورات المتعلمين وأنماط استخدامهم لهذه التقنيات. وبناءً على ذلك، توصي الدراسة بدمج مهارات الإلمام بالذكاء الاصطناعي في المناهج التعليمية، وتعزيز الاستخدام الأخلاقي والمسؤول لهذه التقنيات، وتبني ممارسات تربوية متوازنة تسهم في تعظيم فوائدها التعليمية والحد من مخاطرها المحتملة.

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Abstract

Despite the increasing use of GenAI in EFL education, little research has explored how learners at various educational levels perceive and use these tools, particularly in Saudi Arabia. This study investigated Saudi EFL students' perceptions, attitudes, and use of GenAI tools and examined the influence of educational level, gender, and AI literacy on learners' attitudes and usage patterns. A mixed-methods survey of 401 students from Saudi higher education institutions was conducted. Students generally viewed GenAI tools positively, seeing them as helpful for improving language skills, motivation, confidence, and reducing anxiety. However, they also expressed concerns about overreliance, the reliability of AI content, and potential negative effects on independent learning. Students mainly used GenAI for productive tasks such as writing, translation, research, and content creation, with ChatGPT emerging as the most frequently used tool. Significant differences were observed across academic and AI literacy levels, with students possessing higher levels of AI literacy demonstrating more positive attitudes and more frequent use of GenAI tools. In contrast, gender was not found to significantly influence students' perceptions or usage patterns. The study links AI literacy to learners' readiness to adopt GenAI in EFL learning, emphasizing its role in understanding perceptions and usage. It recommends incorporating AI literacy into curricula, promoting ethical AI use, and balancing approaches to maximize benefits and reduce risks.

Keywords: *AI literacy; ChatGPT; generative AI; perceptions; Saudi EFL students*

Introduction

Despite the recognized potential of Generative Artificial Intelligence (GenAI) tools in language education, many second language (L2) educators remain hesitant to integrate them into English as a foreign language (EFL) classroom (Creely et al., 2025). This reluctance stems from a range of concerns, including fears that GenAI may negatively influence students' L2 development (Yang et al., 2025; Zaim et al., 2025; Zare et al., 2025), resistance to adopting new technologies (Irwin, 2024), the lack of institutional policies regulating GenAI use (Creely et al., 2025), and insufficient teacher training (Creely et al., 2025). Consequently, both administrative leaders and educators in EFL environments express caution about the pedagogical and ethical implications of GenAI, particularly regarding its effective implementation and the readiness of EFL learners to employ such tools in their learning (Creely et al., 2025).

Much of L2 research, including studies conducted in the Saudi EFL context, mainly examines learners' perceptions and use of ChatGPT, neglecting other GenAI tools and activities. There has been a lack of examination regarding specific English subjects and tasks through which students utilize GenAI tools. The absence of comprehensive AI policies in EFL adds uncertainty. Importantly, relatively few studies systematically examine the interplay between perceptions, attitudes, AI literacy, gender, and anxiety in shaping learners' actual engagement with GenAI (Alotaibi et al., 2025; Alzubi et al., 2025). This leaves a critical gap in understanding how individual and contextual factors jointly influence adoption. The current study aims to understand EFL learners' attitudes, actual GenAI use, and the roles of gender, academic level, and AI literacy in the Saudi EFL context. It also aims to offer practical implications for educators and policymakers aiming to integrate GenAI responsibly and effectively in EFL programs.

Literature Review

The Potential of GenAI Tools in EFL Education

Before 2022, AI applications in L2 education primarily centered on traditional systems like Intelligent Tutoring Systems (ITS) and Natural Language Processing (NLP) (Liang et al., 2023). Although these technologies offered valuable support, their interactivity and adaptability were limited. The advent of GenAI, particularly following the release of OpenAI's ChatGPT in late 2022, has radically expanded the potential of GenAI in EFL learning (Huang et al., 2023). Today, tools such as automated writing evaluation (AWE), machine translation (MT), and conversational chatbots are enhanced by generative systems capable of producing human-like responses that are contextually appropriate (Feng et al., 2025).

GenAI is poised to enhance EFL learning by making it more interactive, personalized, and autonomous through real-time scaffolding, adaptive feedback, and immersive language practice. Zhu and Wang (2025) emphasize the importance of GenAI in delivering individualized EFL experiences and instant feedback, thus speeding up language acquisition. Similarly, Law (2024, p. 4) suggests that GenAI can serve as a "virtual private tutor" tailoring support to different proficiency levels, addressing linguistic challenges, and providing constructive feedback.

Empirical research highlights both the advantages and limitations of generative AI. For instance, Luu and Doan (2025) report that Vietnamese EFL learners valued ChatGPT for vocabulary development, grammar practice, and memory enhancement. However, only half found it effective for listening skills, citing the absence of audio-based interaction. Likewise, Al-Alami (2024) observed that students in the UAE viewed ChatGPT as useful for accuracy and time efficiency in L2 writing but remained doubtful about its capacity to promote creativity or higher-order thinking.

Other studies reveal varying levels of learner engagement. Guan et al. (2025) observed that Chinese EFL students who used GenAI for informal digital learning showed significant gains in oral English proficiency but also reported decreased enjoyment and motivation when relying exclusively on GenAI. Zaim et al. (2025) and Waluyo and Kusumastuti (2024) both highlight that "performance expectancy" is the primary factor influencing students' acceptance of GenAI, although concerns about critical thinking remain.

L2 research highlights the promising role of voice-based GenAI tools. Koç and Savaş (2025) argue that these technologies improve speaking, listening, engagement, and pragmatic skills, while Nguyen et al. (2025) show notable gains in L2 pronunciation via AI-driven voice recognition. Similarly, Abdelhalim and Alsehibany (2025b) indicate that ChatGPT aided Saudi students in enhancing pronunciation accuracy. Other studies confirm positive effects on motivation (Huang & Mizumoto, 2025), vocabulary retention (Abdelhalim & Alsehibany, 2025a), writing skills (Elmotri et al., 2025), and grammatical knowledge (Ali et al., 2025). GenAI tools also increased satisfaction and engagement in EFL reading comprehension among Saudi learners (Alarifi et al., 2025). Algraini (2024) found ChatGPT useful for practicing and expanding L2 vocabulary. Concerning GenAI feedback on writing, no significant difference was seen between ChatGPT and teacher input, suggesting comparable effectiveness (Alsofyani & Barzanji, 2025).

Nevertheless, L2 studies have highlighted certain limitations of GenAI tools, particularly in the context of writing. For example, ChatGPT tends to detect only superficial errors and fails to address more complex pragmatic or discourse-level issues in second language writing (Algaraady & Mahyoob, 2023). Similarly, Tran and Nguyen (2025) observed that ChatGPT faced difficulties with abstract criteria that demand nuanced judgment, such as determining the relevance of a title and justifying methodological decisions, during the evaluation of students' EFL research proposals.

Furthermore, while GenAI tools offer many advantages to EFL learners, they also present certain challenges. Concerns regarding accuracy, ethical issues, and technology acceptance remain significant (Zhu & Wang, 2025). L2 researchers and educators warn about the risks of plagiarism, academic dishonesty, and the potential for increasing educational inequalities if GenAI is not integrated into curricula with caution and appropriateness (Al-Alami, 2024; Guan et al., 2025; Law, 2024).

Overall, the findings suggest that GenAI tools serve as valuable complements to EFL education. Nonetheless, their success heavily relies on the pedagogical setting, the degree of teacher involvement, and the extent to which they are integrated with human interaction.

The Attitudes of EFL Learners toward Using GenAI Tools

Research on the use of GenAI in EFL settings shows that learners generally view AI-powered tools positively, although they often express concerns about potential drawbacks. A systematic review of 112 studies published between 2014 and 2024 revealed that nearly half of the studies reported mainly positive perceptions of GenAI tools like ChatGPT and Google Translate, while just over half indicated mixed attitudes, reflecting that learners' perceptions vary depending on the learning tasks, contexts, and individual needs (Feng et al., 2025).

A common argument throughout the literature emphasizes the perceived utility of GenAI in supporting language acquisition. Learners regularly report that GenAI tools assist with grammar enhancement, vocabulary expansion, translation, pronunciation practice, writing support, and problem-solving. For instance, Korean EFL students responded positively to ChatGPT, noting its role in improving grammar and vocabulary, boosting confidence, fostering metacognitive skills, and promoting learner autonomy (Van Horn, 2024). Similarly, Iranian learners appreciated ChatGPT for addressing challenges in language learning (Ghaleb & Bilal, 2024), while Vietnamese students expressed favorable views and valued its assistance in problem-solving tasks (Ho, 2024; Vo & Nguyen, 2024). Additionally, Vietnamese learners found AI-driven voice applications such as ELSA Speak helpful for pronunciation development (Nguyen et al., 2025). Positive perceptions were also evident among Indonesian EFL students, who regarded ChatGPT as beneficial for reading and writing improvement, motivation enhancement, and exposure to diverse cultures (Atakuziev et al., 2024). Likewise, Omani learners frequently used GenAI tools for vocabulary acquisition, indicating their usefulness and increasing integration into language-learning routines (Jomaa et al., 2024).

Despite these advantages, studies consistently reveal concerns about overdependence on GenAI. Learners typically see GenAI as an aid rather than a replacement for independent language use. For example, Chinese EFL students mainly employed ChatGPT for translation and grammar assistance rather than creating original content, indicating a cautious stance toward AI-supported learning (Yang et al., 2025). Similar worries were noted among Indonesian learners (Atakuziev et al., 2024), while Egyptian students expressed reservations about GenAI's potential effects on creativity and critical thinking, despite acknowledging its benefits for L2 writing (Mahfouz & AbdelMohsen, 2025). Evidence also suggests that learners' initial enthusiasm for AI-supported writing may decline over time. Zare et al. (2025) found that Iranian EFL students' motivation decreased despite early positive responses to ChatGPT, possibly due to overdependence, unfamiliarity with the tool, or doubts about the accuracy of AI-generated content.

Ethical and academic integrity issues frequently arise in the literature. While learners generally recognize the educational benefits of GenAI, concerns persist about plagiarism, responsible use, and the accuracy of AI-generated content. In Australia, educators have expressed caution regarding GenAI adoption, especially among lower-level students, due to worries about plagiarism and dependence on the technology (Creely et al., 2025). Similarly, Japanese students reported limited use of GenAI despite high awareness, mainly due to concerns over accuracy and ethical considerations (Irwin, 2024). Egyptian learners also voiced ethical concerns related to AI-assisted writing (Mahfouz & AbdelMohsen, 2025), and Indonesian students questioned responsible use of GenAI despite holding generally positive perceptions (Atakuziev et al., 2024). Overall, these findings indicate that awareness of GenAI does not automatically lead to widespread adoption, as ethical and pedagogical issues continue to influence learners' attitudes and behaviors.

Finally, the literature indicates that learners' willingness to adopt GenAI is shaped by factors beyond perceived usefulness. Although Vietnamese learners viewed ChatGPT favorably, they rated its usefulness lower than its ease of use and their intention to use it, suggesting that positive attitudes do not always lead to extensive experience or integration into learning routines (Vo & Nguyen, 2024). Additionally, AI literacy appears to be a key predictor of GenAI adoption. Wu and Dong (2025) found that Chinese university students with higher AI literacy levels showed a stronger intention to use GenAI for informal language learning. This implies that learners' knowledge and understanding of GenAI technologies may be crucial in converting positive perceptions into ongoing and meaningful usage.

The Attitudes of Saudi EFL Learners toward Using GenAI Tools

In recent years, considerable research has been conducted in Saudi Arabia on the use of GenAI tools in EFL settings. Overall, Saudi EFL students show positive attitudes toward ChatGPT and similar applications, with consistent reports of increased motivation, confidence, and skill development. Nonetheless, the literature also indicates some caution, especially regarding creativity, accuracy, and dependence on GenAI.

Alsalem (2024) found that Saudi EFL students considered ChatGPT effective in improving speaking skills, particularly in boosting confidence and motivation. Although learners still favored human interaction for oral practice, this suggests that GenAI serves as a supplementary tool rather than a primary one. Similarly, EFL learners viewed ChatGPT as a valuable language-learning resource (Jamshed, Allehyani, et al., 2024) and were enthusiastic about its problem-solving capabilities in English learning (Jamshed, Alqahtani, et al., 2024). Alharthi (2024) observed moderate positivity, noting that ChatGPT aids in enhancing communication skills. Alarifi et al. (2025) reported positive correlations between attitudes, engagement, and satisfaction in AI-supported L2 reading, with emotional responses aligning with positive outcomes.

Several L2 studies emphasize the domain-specific advantages of using generative AI. Alzubi et al. (2025) noted that Saudi EFL learners moderately appreciated ChatGPT for creativity but strongly recognized its effectiveness in solving linguistic problems and promoting critical thinking. Alshammari (2024) indicated that ChatGPT supports autonomy and motivation, while Alotaibi et al. (2025) found that perceived usefulness and ease of use significantly shape attitudes, with gender, educational level, and duration of use serving as moderating factors. Similarly, Aljabr (2023) observed a high level of awareness and moderate usage of ChatGPT, with Saudi students particularly rating it as effective for vocabulary development.

Skill-specific research further validates these findings. Abdelhalim and Alsehibany (2025a, 2025b) indicated that Saudi EFL students using ChatGPT enhanced their L2 vocabulary retention, pronunciation accuracy, and motivation. Only the female participants recruited showed gains in vocabulary and reading comprehension skills (Algraini, 2024; Althobaiti, 2025). Additionally, Alsofyani and Barzanji (2025) found that ChatGPT-generated feedback was equally effective as teacher-provided feedback for L2 writing. Ozfidan et al. (2024) noted that students appreciated its support in idea generation, grammar checking, and motivation in academic writing. A limitation identified by Algaraady and Mahyoob (2023) was that ChatGPT could detect surface-level errors but struggled to address deeper pragmatic or structural issues, highlighting the ongoing need for teacher feedback.

Research shows Saudi EFL learners generally view GenAI tools positively, valuing their help with vocabulary, grammar, writing, and speaking. Concerns about overdependence, neutrality due to unfamiliarity, and GenAI's limits in addressing deeper learning highlight that it should complement, not replace, human instruction. This balance makes the Saudi context ideal for exploring effective GenAI integration in EFL programs while maintaining pedagogy.

Factors Affecting Attitudes and Perceptions when Using GenAI Tools

Research has also examined how demographic and contextual factors shape EFL learners' perceptions of GenAI tools. However, results in this area remain inconsistent. Several key studies and frameworks have defined AI literacy as the knowledge, skills, and competencies needed to understand, evaluate, and effectively use artificial intelligence technologies, while also recognizing their capabilities, limitations, and ethical issues (Long & Magerko, 2020; Ng et al., 2021). In the context of GenAI, AI literacy additionally involves critically evaluating AI-generated content, creating effective prompts, verifying output accuracy, and responsibly using AI tools to support learning. Wu and Dong (2025) found that among Chinese college students, attitudes significantly influence their behavioral intentions to use GenAI, with AI literacy emerging as the strongest predictor of their willingness to adopt GenAI tools for informal learning. Their findings support the view that AI literacy, rather than demographic characteristics, plays a key role in determining how meaningfully students engage with GenAI. In the present study, AI literacy refers to participants' self-assessed level of AI literacy rather than an objective or comprehensive measurement of AI literacy skills.

In various EFL contexts, L2 research indicates that demographic factors such as age and gender do not reliably predict learners' attitudes. Wu and Dong (2025) found no significant differences related to gender or age among Chinese EFL learners using GenAI, highlighting the significance of AI literacy instead. Conversely, some research indicates that gender, age, or academic specialization has minimal influence on attitudes. EFL studies in Saudi Arabia have identified demographic factors as moderating variables. For example, Alotaibi et al. (2025) noted that female students exhibited more positive attitudes than males, and postgraduate learners found GenAI easier to use than diploma students. They also observed that longer durations of GenAI use were associated with stronger perceptions of its usefulness, emphasizing the importance of experience in shaping attitudes.

Other EFL studies highlight the role of specialization and academic level. Alzubi et al. (2025) found that Saudi students majoring in translation held more positive attitudes toward GenAI for fostering creativity than peers in other disciplines, likely due to the greater need for creative linguistic skills in translation tasks. Similarly, first-year students showed more enthusiasm for using GenAI (Alzubi et al., 2025), possibly reflecting higher digital literacy and a more open attitude toward experimentation.

Overall, despite mixed demographic results, students' perceptions of usefulness, literacy in GenAI tools, and hands-on experience consistently predict positive attitudes. This suggests that institutional efforts to improve AI awareness and literacy may be more effective in promoting GenAI adoption than demographic factors.

Challenges and Ethical Considerations in Using GenAI Tools

Despite generally positive attitudes, some EFL studies caution against the uncritical adoption of GenAI, raising concerns about accuracy, cognitive development, and ethical considerations. Issues with accuracy involve biases, errors, and limited support for listening and speaking skills, particularly in Saudi Arabia (Jamshed, Allehyani, et al., 2024; Jamshed, Alqahtani, et al., 2024). Excessive reliance on GenAI may impede creativity and critical thinking, with students expressing fears of dependency and loss of originality (Alzubi et al., 2025; Alshammari, 2024). Ethical challenges such as plagiarism and academic dishonesty are exacerbated by unclear policies (Creely et al., 2025; Zare et al., 2025). These concerns emphasize the importance of balanced pedagogical approaches, instructor guidance, digital literacy, and well-defined policies to harness GenAI's advantages while mitigating potential risks.

The existing literature indicates that GenAI tools such as ChatGPT are increasingly popular in EFL education, perceived as useful, engaging, and accessible. Findings from the Saudi EFL context align with global trends, demonstrating positive attitudes toward GenAI's role in enhancing vocabulary, writing, pronunciation, and motivation. Nevertheless, issues related to accuracy, ethics, creativity, and reliance highlight the importance of cautious, well-structured integration into EFL teaching.

Despite these insights, gaps still exist. Much of the research on L2, including studies within the Saudi EFL context, has concentrated on learners' perceptions and use of ChatGPT, often overlooking other GenAI tools and models. Additionally, there is limited investigation into specific English subjects and activities where students employ GenAI tools. Many Saudi EFL studies lack detailed demographic analysis, leaving unanswered questions regarding the roles of gender, AI literacy, and specialization. Furthermore, the absence of comprehensive policies on GenAI use in EFL education continues to generate uncertainty among both learners and educators.

By situating Saudi EFL learners within this comprehensive framework, the current study aims to address existing gaps by analyzing learners' attitudes toward GenAI tools, investigating their use of AI in English courses and activities, and identifying the main factors shaping these perspectives. In doing so, it aims to contribute not only to the Saudi context but also to broader discussions on the pedagogical, ethical, and institutional impacts of GenAI in EFL education.

Research Questions

The current study aimed to answer the following research questions.

RQ1. What are Saudi students' perceptions and attitudes towards using GenAI tools in their EFL education?

RQ2. To what extent do Saudi students utilize GenAI tools in their EFL education?

RQ3. Do gender, academic level, and AI literacy influence Saudi EFL students' attitudes and usage towards GenAI tools?

Methods

The present study employed an online survey comprising both closed-ended and open-ended questions to address the aforementioned research inquiries and gain insight into the attitudes and usage patterns of Saudi students regarding the employment of GenAI tools in their EFL education. Because research on Saudi EFL learners' perceptions and use of GenAI remains limited, the present study adopted an exploratory descriptive design intended to document current patterns and establish a foundation for subsequent theory-driven investigations.

Participants

This study used convenience sampling (Alzubi et al., 2025; Dörnyei, 2007), selecting participants based on accessibility and willingness from 11 public universities across Saudi Arabia's regions. Saudi EFL students (N=401; 217 males, 184 females) completed an online questionnaire after giving voluntary informed consent. Ethical approval was granted by King Khalid University's College of Languages and Translation. Participants electronically consented after reviewing the research form and then answered the questionnaire.

Descriptive statistics showed the mean age as 22 years (SD=5.63), computer literacy as 7.91 out of 10 (SD=2.07), AI literacy as 7.14 out of 10 (SD=2.44), and English proficiency as 6.81 out of 10 (SD=2.33), based on the questionnaire responses. Participants were enrolled in English programs at Saudi universities, mainly in English or ESP tracks. The sample (N=401) included Bachelor's (N=282), Diploma (N=83), Master's (N=25), and Doctoral students (N=11). Additional details are presented in Table 1.

Table 1

Individual Characteristics of the Study Participants

Educational level	N	Age	Computer literacy	AI literacy	English proficiency
Bachelor	282	M=20.5 SD=3.57	M=7.82 SD=2.04	M=7.22 SD=2.32	M=7.07 SD=2.11
Diploma	83	M=21.2 SD=4.58	M=7.94 SD=2.26	M=6.93 SD=2.74	M=6.17 SD=2.58
Master	25	M=31.2 SD=6.34	M=8.56 SD=1.98	M=7.28 SD=2.64	M=6.20 SD=2.86
Doctorate	11	M=39.9 SD=2.98	M=8.36 SD=1.43	M=6.55 SD=2.66	M=6.18 SD=3.37

Data Collection Method

The study used an online questionnaire via Microsoft Forms 365, from November to December 2024. The questionnaire was designed by the researcher and shared with EFL university educators, who then distributed it to their EFL students through English courses on Blackboard. The researcher advised EFL educators to share the questionnaire only with their current EFL students and not to publish it publicly.

Instrument

The online questionnaire had 110 items, including demographic, closed-ended, and open-ended questions, administered in Arabic to ensure understanding and avoid language barriers. First, it was piloted on 31 students at King Khalid University and showed high reliability with a Cronbach's alpha of 0.97. After removing one poorly correlated item (r=0.132) from the questionnaire, the alpha was increased to 0.971. Items were retained if they demonstrated factor loadings ≥ .40 and item-total correlations ≥ .30. After collecting the main dataset, reliability was confirmed at 0.974, indicating high consistency reliability.

A Likert scale ranging from one (strongly disagree) to five (strongly agree) was employed to assess attitudes and perceptions, while another scale, ranging from one (very little) to five (very high), was utilized to examine GenAI usage. The final questionnaire included seven categories of items to assess students' attitudes and AI usage towards using GenAI tools in EFL learning. The first evaluated the importance of GenAI in L2 acquisition. The second measured how often students used GenAI in L2 courses. The third looked at the extent of their use during L2 activities. The fourth examined their use of common GenAI tools in L2 contexts. The fifth assessed attitudes toward GenAI's usefulness and support for L2 development. The sixth gauged perceptions of negative emotions and impacts of GenAI on L2 learning. The seventh examined students' anxiety about AI in L2 learning. Open-ended questions explored students' attitudes and experiences with GenAI tools in English education.

Data Analysis Method

The study employed quantitative and qualitative methods to analyze the questionnaire on students' use and attitudes towards GenAI tools in L2 learning. SPSS version 30 was used to analyze the quantitative data, and then the results of descriptive and inferential analyses were reported. 441 participants completed the online questionnaire. Data were screened and cleaned to remove missing data and outliers, ensuring validity and reliability. Only 401 participants (91%) were included in the analysis; 40 participants (9%) were excluded because they were international students studying in the Saudi EFL programs, and others did not provide their educational levels. Demographic questions at the start of the questionnaire helped screen participants.

The study used a three-level measurement scale: low, moderate, and high, to define and interpret students' attitude means and GenAI usage rates, as shown in Table 2. This approach aids in understanding and contextualizing the phenomenon appropriately.

Table 2

The Levels of Attitude, Perception, and AI Usage

Mean Range	Mean Level
3.35 – 5.00	High
1.68 – 3.34	Moderate
1.00 – 1.67	Low

The study divided students into three groups (low, intermediate, and advanced) based on their data (from 1 to 10) to accurately define and interpret their AI literacy, English proficiency, and computer literacy, as shown in Table 3.

Table 3

The Levels of English Proficiency, AI Literacy, and Computer Literacy.

Groups	Data Range	Group Level
3	6.67 – 10	Advanced
2	3.34 – 6.66	Intermediate

1	1.00 – 3.33	Low

The paper did not report on English proficiency and computer literacy because these variables were outside the study's scope and were measured using single self-report items. Consequently, these measures were deemed insufficiently robust to serve as primary explanatory factors. In contrast, AI literacy was assessed as a construct more directly aligned with the study's objective of understanding students' perceptions and use of AI tools. Additionally, students' open-ended responses were not included due to word count limitations.

Results

Quantitative Results

Initially, the present study assessed the normality of the collected data. The Kolmogorov-Smirnov and Shapiro-Wilk tests showed significant results ($p < 0.001$), indicating a non-normal data distribution. Therefore, non-parametric tests were used to analyze differences in students' perceptions, GenAI utilization, and anxiety based on their gender, academic level, and AI literacy. The effect size was measured by the significance of the correlation (Pearson's r) in line with Cohen (1992), and it was classified as small (0.10 to <0.30), moderate (0.30 to <0.50), or large ($r \geq 0.50$). Only the effect sizes of significant statistical tests (at $p \leq 0.05$) were reported.

Perception of GenAI Tools in EFL Education

Saudi students highly view GenAI tools as essential for English education, as shown in Table 4. They prefer GenAI tools because they help them acquire English skills, complete tasks, and support them as learning resources.

Table 4

The Importance of Using GenAI for English Learning

No	Questionnaire Items	M	SD
9.1	The use of GenAI is important for learning English.	3.99	0.86
9.2	Using GenAI is essential for learning English.	3.64	1.03
9.3	I cannot learn English without using GenAI tools.	2.76	1.18

Usage of GenAI Tools in English Subjects

Saudi students mainly use GenAI tools for reading, writing, vocabulary, technology, translation, and research, as shown in Table 5. These tools assist with English reading, writing, and vocabulary and are also used for translation and research. Research methods and projects are primary AI areas, probably because students find GenAI especially helpful at the MA and PhD levels.

Table 5

The Rate of Using GenAI in English Subjects

No	English Subjects	M	SD
10.1	Listening	2.79	1.23
10.2	Speaking	2.62	1.21
10.3	Reading	3.06	1.24
10.4	Writing	3.05	1.26

10.5	Grammar	2.91	1.25
10.6	Vocabulary	3.14	1.24
10.7	Linguistics	2.73	1.17
10.8	Applied linguistics	2.67	1.15
10.9	English literature	2.51	1.19
10.10	Technology	3.26	1.21
10.11	Translation	3.17	1.29
10.12	Research methods	3.37	1.22
10.13	Research projects	3.27	1.24

Usage of GenAI Tools in English Activities

Saudi students frequently use GenAI tools for specific English activities, such as assignments, translations, summaries, presentations, essays, proofreading, data collection, proposals, and research writing, mainly relying on GenAI for productive tasks involving production, translation, and refinement**.**

Table 6

The Rate of Using GenAI in Performing English Activities

No	English Activities	M	SD
11.1	Assignments	3.00	1.32
11.2	Tests	2.63	1.39
11.3	Quizzes	2.68	1.41
11.4	Lesson preparation	2.97	1.34
11.5	Lesson summaries	3.12	1.37
11.6	Powerpoint presentations	2.89	1.40
11.7	Translating from Arabic into English	3.33	1.38
11.8	Translating from English into Arabic	3.35	1.37
11.9	Essay writing	2.97	1.35
11.10	Project writing	2.94	1.35
11.11	Lecture recording	2.39	1.35
11.12	Proofreading	2.90	1.32
11.13	Writing a Literature Review	2.68	1.32
11.14	Reviewing studies	2.75	1.31
11.15	Data collection	2.97	1.31
11.16	Data analysis	2.87	1.29
11.17	Writing references	2.77	1.30
11.18	Writing a research proposal	2.82	1.29
11.19	Searching for studies	2.95	1.32
11.20	Research Writing	2.92	1.34

Types of GenAI Tools Used in English Education

Saudi students primarily use GenAI tools like ChatGPT, Google Gemini, Gamma, Canva AI, and Grammarly AI in EFL education. Table 7 shows ChatGPT as the most popular, followed by Gemini and Canva AI. Other GenAI tools are used less frequently.

Table 7

The Rate of GenAI Tools in English Learning

No	GenAI tools	M	SD
12.1	ChatGPT	2.95	1.17
12.2	Google Gemini	1.72	1.77
12.3	Gamma	1.31	1.58
12.4	Rest	1.06	1.44
12.5	MagicSchool AI	1.10	1.47
12.6	Quillbot	1.23	1.54
12.7	Doulingo MAX	1.18	1.50
12.8	Twee	1.09	1.49
12.9	Canva AI	1.71	1.73
12.10	ChatPD	1.22	1.58
12.11	Humata AI	1.08	1.47
12.12	Research Rabbit	1.10	1.50
12.13	Speechify	1.07	1.48
12.14	PerPlexity	1.04	1.47
12.15	Grammarly AI	1.43	1.62
12.16	Elicit	1.07	1.48
12.17	Content at Scale	1.00	1.42
12.18	ByPass GPT	1.14	1.53
12.19	ChatDOC	1.08	1.47
12.20	GPTZero	1.10	1.49

Positive Attitudes towards Using GenAI Tools

Overall, Table 8 shows that Saudi students have a high positive attitude towards using GenAI tools in EFL education. They believe GenAI can improve their English skills, boost confidence and motivation, and reduce language anxiety barriers.

Table 8

The Attitude towards the Positive Effects of GenAI Tools in Learning English

No	Questionnaire Items	M	SD
13.1	GenAI helps me learn English	3.79	0.99
13.2	GenAI helps me improve my English	3.86	0.94
13.3	GenAI helps me develop my English writing	3.76	0.97
13.4	GenAI helps me develop my English grammar	3.69	0.99
13.5	GenAI helps me develop English-speaking	3.63	1.02
13.6	GenAI helps me develop my English vocabulary	3.78	0.96

13.7	GenAI fosters my self-confidence in learning English	3.59	1.04
13.8	GenAI fosters my desire and motivation to study English	3.67	1.05
13.9	GenAI reduces my anxiety in learning English	3.56	1.06
13.10	GenAI helps me overcome English learning problems	3.67	1.02

Negative Attitudes towards Using GenAI Tools

Table 9 shows that Saudi students exhibit limited concerns or reservations toward using GenAI tools in EFL education. They believe GenAI may undermine skills and effort, feel guilt and dissatisfaction, and some are apprehensive, hesitating to endorse AI in language learning.

Table 9

The Attitude towards the Negative Effects of AI Apps in Learning English

No	Questionnaire Items	M	SD
13.11	GenAI will negatively affect my English learning.	2.77	1.22
13.12	GenAI will prevent me from relying on myself to learn English.	2.79	1.21
13.13	GenAI will weaken my ability to develop English language skills.	2.67	1.20
13.15	I feel dissatisfied with myself when I use GenAI to learn English.	2.72	1.26
13.18	I feel guilty about using GenAI to learn English.	2.61	1.26

These negative feelings indicate that Saudi students have some reservations about GenAI tools, even though they generally hold a positive attitude towards their use in EFL education contexts.

Anxiety towards Using GenAI Tools

Table 10 shows that students have moderate anxiety about using GenAI tools in EFL learning, mainly due to negative perceptions that increase their worries about the English learning process.

Table 10

Students' Anxiety towards Using GenAI Tools in English Education

No	Questionnaire Items	M	SD
13.14	I am hesitant to rely on GenAI for learning English.	2.52	1.20
13.16	I do not suggest using GenAI to learn English.	2.49	1.24
13.17	GenAI is scary for my future in English learning.	2.56	1.25

The study also examined the overall means of the questionnaire's scales to identify data variances and understand Saudi EFL students' attitudes and GenAI usage rates.

Table 11

Total Means of the Questionnaire's Scales

Scale	The Total Means of the Questionnaire's Scales.	M	SD
1	Importance of GenAI for English learning.	3.47	0.80
2	Usage of GenAI in English subjects.	2.97	0.92
3	Usage of GenAI in English activities.	2.90	1.07
4	Usage of GenAI tools.	1.29	1.29
5	Positive attitudes towards GenAI.	3.74	0.84

6	Negative attitudes towards GenAI.	2.74	1.11
7	Anxiety about using GenAI.	2.53	1.14

Saudi students value GenAI tools for English learning (M=3.47, SD=0.80) and have a high positive attitude (M=3.74, SD=0.84) towards their use in EFL education. AI usage is moderate (M=2.97, SD=0.92; M=2.90, SD=1.07), with frequent activity use but lower ratings in AI use (M=1.29, SD=1.29) due to unfamiliarity, especially compared to ChatGPT in Table 7. Despite positive attitudes, they hold some reservations and negative views (M=2.74, SD=1.11), likely over concerns of over-reliance and language limits. Students also experience moderate anxiety (M=2.53, SD=1.14), possibly linked to negative GenAI perceptions of technology.

Effect of Gender

The study used the Mann-Whitney U test and found no significant differences ($p > .05$) in students' attitudes, GenAI usage in English, or perceptions across genders, as shown in Table 12. No differences were detected between males' and females' beliefs, attitudes, and usage levels regarding GenAI tools.

Table 12

Effect of Gender on Students' Attitudes and GenAI Usage

AI Usage & Attitude	Gender	N	Mean rank	Sum of ranks	U	Z	Asymp. Sig. level (2-tailed)
Importance of AI for English learning.	Male Female	217 184	198.71 203.70	43120.07 37480.8	19467.500	-.433	.665
Usage of AI in English subjects.	Male Female	217 184	200.97 201.03	43610.49 36989.52	19958.500	-.005	.996
Usage of AI in English activities.	Male Female	217 184	195.91 207.47	42512.47 38174.48	18773.500	-1.030	.303
Usage of GenAI tools.	Male Female	217 184	194.73 208.40	42256.41 38345.6	18603.000	-1.177	.239
Positive attitudes towards AI.	Male Female	217 184	202.47 199.26	43935.99 36663.84	20284.000	.279	.780
Negative attitudes towards AI.	Male Female	217 184	207.32 193.54	44988.44 35611.36	21336.000	1.198	.231

No significant gender differences were found in anxiety levels towards using GenAI tools (Z = 0.408, p = 0.778), indicating gender did not influence attitudes, GenAI usage, or anxiety in EFL students' education.

Impact of Academic Level

Following the Independent-Samples Kruskal-Wallis test, significant differences (p < .01) were found among students' responses. Significant differences in perceptions of GenAI in EFL education emerged between student groups (H = 14.865, df = 3, p = .002). Doctorate students valued GenAI tools more for learning English (Z = -2.673, p = .008, r = .44) than did master's students, likely because GenAI supports academic tasks such as essay writing and research requirements.

Table 13

Comparing the Importance of GenAI across Educational Levels

Groups	N	Mean rank	Z	Sig.	*Effect size (*r*)
Master Bachelor	25 282	149.24 194.27	1.878	.60	-**
Master Diploma	25 83	149.24 231.59	3.142	.002	.30
Master Doctorate	25 11	149.24 260.36	-2.673	.008	.44
Bachelor Diploma	282 83	194.27 231.59	-2.673	.009	.13
Bachelor Doctorate	282 11	194.27 260.36	-1.872	.061	-
Diploma Doctorate	82 11	231.59 260.36	-.781	.435	-

*Effect size (Pearson's r) is classified as small (0.10 to <0.30), moderate (0.30 to <0.50), or large (r ≥0.50) according to Cohen (1992). **Only the effect sizes of significant statistical tests (at $p \leq 0.05$) were reported.

Similarly, Diploma students prioritized GenAI tools more for English learning (Z = -2.601, p = .009, r = .13) than Bachelor students. Master's students also saw GenAI tools as more crucial for their EFL learning (Z = 3.142, p = .002, r = .30) than Diploma students.

Significant differences in GenAI use for English tasks were found among respondents (H = 12.598, df = 3, p = .006). Bachelor students used GenAI tools more often than Master's students (Z = 3.415, p < .001, r = .57) and Diploma students more than Master's students (Z = 3.153, p = .002, r = .30), as shown in Table 14. This suggests that Bachelor's and Diploma students may have put more effort into using GenAI tools in their English learning activities.

Table 14

Comparing GenAI Usage in English Activities across Educational Levels

Groups	N	Mean rank	Z	Sig.	*Effect size (*r*)
Master Doctorate	25 11	124.38 172.95	-1.159	.246	-
Master Bachelor	25 282	124.38 206.91	3.415	<.001	.57
Master Diploma	25 83	124.38 207.70	3.153	.002	.30
Doctorate Bachelor	11 282	172.95 206.91	.954	.340	-
Doctorate Diploma	11 83	172.95 207.70	.935	.350	-
Bachelor Diploma	282 83	206.91 207.70	-.054	.957	-

*As classified in Table 13.

However, when analyzing GenAI tool usage in English courses, no significant differences ($H = 6.805$, $df = 3$, $p = .078$) were found among students at different educational levels. This suggests that no differences were detected between students' GenAI tool usage in their English classes.

Furthermore, no significant differences ($H = 7.004$, $df = 3$, $p = .072$) were found in GenAI tool usage rates among students at different educational levels. No differences were detected between students when using various GenAI tools in English courses.

Table 15

Comparing Positive Attitudes towards GenAI across Educational Levels

Groups	N	Mean rank	Z	Sig.	Effect size (*r*)*
Master Diploma	25 83	172.60 174.57	.075	.940	-
Master Bachelor	25 282	172.60 210.79	1.593	.111	-
Master Doctorate	25 11	172.60 214.05	-.997	.319	-
Diploma Bachelor	83 282	174.57 210.79	2.526	.012	.13
Diploma Doctorate	83 11	174.57 214.05	-1.071	.284	-
Bachelor	282	210.79	-.092	.926	-

Doctorate	11	214.05

*As classified in Table 13.

Regarding positive attitudes towards GenAI tools in English education, significant differences were found ($H = 8.116$, $df = 3$, $p = .044$). Bachelor's students showed more positive attitudes ($Z = 2.526$, $p = .012$, $r = .13$) than Diploma students, as shown in Table 15. Bachelor's students see GenAI tools as important for their English learning, fostering a favorable view of GenAI usage.

No significant differences were found among students at different educational levels regarding negative attitudes toward GenAI tools ($H = 8.116$, $df = 3$, $p = .918$), suggesting no differences were detected between students' negative views toward GenAI in EFL education. Likewise, no differences in anxiety about using GenAI tools were observed across academic levels ($H = 1.94$, $df = 3$, $p = .585$), indicating that no significant differences were detected between students' anxiety levels regardless of academic standing.

Effect of AI Literacy

The study examined students' attitudes and use of GenAI tools across different AI literacy levels to find differences. It found significant differences ($H = 9.232$, $df = 2$, $p = .010$) in perceptions of GenAI's importance in their EFL learning.

Table 16

Comparing the Importance of Using GenAI across AI Literacy Levels

Groups	N	Mean rank	Z	Sig.	*Effect size (*r*)
Intermediate Low	112 129	186.12 187.40	.086	.932	-
Intermediate Advanced	112 160	186.12 222.38	-2.562	.010	.15
Low Advanced	129 160	187.40 222.38	-2.574	.010	.15

*As classified in Table 13.

Students with high AI literacy saw GenAI tools as more important for English learning than those with low or intermediate levels ($Z = -2.562$, $p = .010$, $r = .15$), as shown in Table 16.

Table 17

Comparing GenAI Usage in English Subjects across AI Literacy Levels

Groups	N	Mean rank	Z	Sig.	Effect size (*r*)*
Low Intermediate	129 112	168.41 182.04	-.911	.362	-
Low Advanced	129 160	168.41 240.55	-5.264	<.001	.30

Intermediate Advanced	112 160	182.04 240.55	-4.101	<.001	.25

*As classified in Table 13.

The study found significant differences in GenAI usage in English subjects across AI literacy levels ($H = 31.873$, $df = 2$, $p < .001$). Students with advanced AI literacy used GenAI tools more in their EFL subjects than those with low or intermediate levels ($Z = -5.264$, $p < .001$, $r = .30$; $Z = -4.101$, $p < .001$, $r = .25$), as shown in Table 17.

Table 18

Comparing GenAI Usage in English Activities across AI Literacy Levels

Groups	N	Mean rank	Z	Sig.	*Effect size (*r*)
Low Intermediate	129 112	178.83 189.29	-.700	.484	-
Low Advanced	129 160	178.83 227.07	-3.520	<.001	.20
Intermediate Advanced	112 160	189.29 227.07	-2.647	.008	.16

*As classified in Table 13.

Significant differences in GenAI tool use were found across AI literacy levels ($H = 13.979$, $df = 2$, $p < .001$). Students with high AI literacy used these tools more often in English activities than those with intermediate ($Z = -2.647$, $p < .008$, $r = .16$) and low literacy ($Z = -3.520$, $p < .001$, $r = .20$), as shown in Table 18. Higher AI proficiency is associated with greater use of GenAI tools in English activities.

Table 19

Comparing GenAI Usage of GenAI Tools across AI Literacy Levels

Groups	N	Mean rank	Z	Sig.	*Effect size (*r*)
Low Intermediate	129 112	183.59 192.84	-.619	.536	-
Low Advanced	129 160	183.59 220.75	-2.711	.007	.16
Intermediate Advanced	112 160	192.84 220.75	-1.955	.051	-

*As classified in Table 13.

The study found significant differences ($H = 8.122$, $df = 2$, $p = .017$) in GenAI tool use in English education across students' AI literacy levels. High-literacy students used GenAI tools more frequently ($Z = -2.711$, $p = .007$, $r = .16$) than lower-literacy peers, as shown in Table 19. This suggests that greater AI proficiency correlates with increased GenAI tool use in English learning education.

Students' positive attitudes vary significantly across AI literacy levels ($H = 13.149$, $df = 2$, $p = .001$). Those with high AI literacy tend to have more positive attitudes towards GenAI tools than those with low ($Z = -3.239$, $p = .001$, $r = .20$) or intermediate ($Z = -2.862$, $p = .004$, $r = .20$) literacy levels, as presented in Table 20.

Table 20

Comparing Positive Attitudes towards GenAI Tools across AI Literacy Levels

Groups	N	Mean rank	Z	Sig.	*Effect size (*r*)
Low	129	182.45	-.238	.812	-
Intermediate	112	185.98			
Low	129	182.45	-3.239	.001	.20
Advanced	160	226.47			
Intermediate	112	185.98	-2.862	.004	.20
Advanced	160	226.47			

*As classified in Table 13.

The study found no significant differences in students' negative attitudes toward using GenAI tools in English education across AI literacy levels ($H = 1.676$, $df = 2$, $p = .433$). This indicates that no differences were detected between students' negative attitudes across all groups. Likewise, there were no significant differences in anxiety levels across AI literacy groups ($H = 5.64$, $df = 2$, $p = .060$), showing no differences were detected between students' anxiety regardless of AI knowledge.

Discussion

Students' Positive Attitudes towards Using GenAI Tools in their EFL Education

The first research question explored Saudi students' perceptions of GenAI tools in EFL education. Quantitative data indicate that students hold a highly positive view and favorably assess GenAI, considering it vital for enhancing their English skills, increasing motivation, and boosting self-confidence, while also alleviating learning anxiety. Students' positive attitudes are likely influenced by the unique features these tools offer for language acquisition. This aligns with multiple L2 studies (Atakuziev et al., 2024; Creely et al., 2025; Ghaleb & Bilal, 2024; Mahfouz & AbdelMohsen, 2025; Nguyen et al., 2025; Van Horn, 2024; Vo & Nguyen, 2024; Wu & Dong, 2025; Yang et al., 2025) and specifically with Saudi EFL research (Alarifi et al., 2025; Allehyani et al., 2025; Alotaibi et al., 2025; Alsalem, 2024; Jamshed, Allehyani, et al., 2024; Jamshed, Almashy, et al., 2024; Ozfidan et al., 2024), suggesting that EFL learners find GenAI to be a valuable tool for learning English. However, while this study reports a largely positive attitude towards GenAI tools, some Saudi EFL studies have found perceptions to be more moderate (Alharthi, 2024; Alzubi et al., 2025).

Furthermore, significant disparities were observed regarding the perceptions and attitudes of Saudi EFL students towards GenAI tools. At the academic level, diploma students considered the use of GenAI tools to be more significant for language learning compared to master's and bachelor's students. Bachelor's students exhibited more positive attitudes towards GenAI tools compared to diploma students.

Students with higher AI literacy levels valued GenAI tools more and held a more positive attitude towards them compared to those with lower literacy. AI literacy not only promotes the adoption of GenAI tools but also influences learners' perceptions of their usefulness in language learning support. This supports the conclusion that AI literacy is a key predictor of students' attitudes and willingness to engage with GenAI tools (Wu & Dong, 2025).

However, no significant differences were observed between male and female students in their positive attitudes and perceptions toward using GenAI tools in English learning. This finding contrasts with those of Alotaibi et al. (2025) and Alzubi et al. (2025), who reported that Saudi EFL female students valued GenAI tools more favorably than their male counterparts.

Students' Negative Views towards GenAI Tools in EFL Education

Saudi EFL students express reservations about GenAI tools, concerned that they may impede their English learning by decreasing independence and encouraging over-reliance. They often feel guilty and dissatisfied when using GenAI, as they depend on AI-generated language rather than their own. These feelings indicate that, despite generally viewing their use positively in EFL education, Saudi students are cautious about GenAI tools. While they

acknowledge the educational advantages of GenAI, they are also aware of potential risks from overuse. Similar research in EFL settings shows that Vietnamese students have a lower prevalence of negative attitudes and favor GenAI more positively (Vo & Nguyen, 2024). However, the average negative attitude in that study (M=3.34, SD=.66, N=369) was higher than in the present study (M=2.74, SD=1.11, N=401), suggesting Vietnamese learners view GenAI in EFL education more negatively than Saudi learners.

Additionally, Saudi students report moderate anxiety about using GenAI tools in their EFL learning, likely due to negative feelings and concerns about GenAI use. This finding aligns with Zare et al. (2025), who suggest that EFL students may experience anxiety about the reliability of language generated by GenAI tools.

There were no significant differences in negative attitudes toward GenAI tools based on academic level or AI literacy, suggesting that Saudi students' negative perceptions are consistent regardless of their educational background or familiarity with GenAI. Similarly, no significant gender differences were found in students' negative perceptions of using GenAI tools for English learning. These results indicate that concerns such as overdependence, diminished critical thinking, and issues with authenticity are common across various learner groups. Additionally, simply increasing AI literacy may not be enough to address students' reservations.

Furthermore, Saudi students expressed concerns about integrating GenAI tools into their EFL education, citing issues such as overreliance, discomfort, dissatisfaction with GenAI, diminished cognitive skills, and limited language development. This aligns with extensive EFL research, which consistently notes that learners have concerns potentially impacting their perceptions and language growth when using GenAI tools in their studies (Alshammari, 2024; Alzubi et al., 2025; Atakuziev et al., 2024; Creely et al., 2025; Yang et al., 2025; Zaim et al., 2025).

Usage Rates of GenAI Tools in EFL Education

The second research question investigated how extensively Saudi EFL students incorporate GenAI tools into their English studies. Students tend to use these tools more often for developing English skills, translation, research methods, and projects compared to other English subjects. Moreover, GenAI tools are mainly employed in productive activities that involve generating the target language, such as writing essays, research proposals, projects, translating, and summarizing lessons. This indicates that such tasks often demand considerable linguistic input and immediate feedback, making them well-suited for AI assistance. In terms of usage frequency, students primarily turn to ChatGPT, Google Gemini, Canva AI, and Grammarly AI, respectively, likely because these are the most recognized GenAI tools among users. Nonetheless, ChatGPT remains the most popular GenAI tool among Saudi EFL students.

Significant differences were observed among Saudi EFL students in their use of GenAI tools at various levels. Undergraduate and diploma students use these tools more often in their EFL activities than master's students, probably because their programs have higher academic demands or they need to improve their target language skills.

There were no significant differences in the rates of GenAI usage among students at various educational levels for English courses. Likewise, students across all levels used similar types of GenAI tools in their EFL learning. This indicates that students at different stages of education are equally familiar with the GenAI tools employed in their English education.

At the AI literacy level, students with high AI literacy utilized GenAI and engaged with it more frequently in their English courses and activities than those with lower AI literacy. Regarding attitudes, highly AI-literate students exhibited more positive perceptions and attitudes toward using GenAI tools in their EFL learning compared to students with lower AI literacy. This suggests that familiarity with GenAI technologies may boost learners' confidence in incorporating these tools into their academic practices. However, no significant differences were found among students at different AI literacy levels concerning negative attitudes toward GenAI tools. Additionally, gender did not significantly influence how students from various AI literacy levels used GenAI tools.

Factors Influencing Students' Perceptions and their Use of GenAI

The third research question explores the influence of gender, academic level, and AI literacy on Saudi EFL students' attitudes and use of GenAI tools. It is clear that gender does not significantly affect students' perceptions, attitudes, or frequency of using GenAI tools. This aligns with previous studies on L2 learners, where gender was either not a determining factor in perceptions or did not predict students' attitudes toward employing GenAI tools in EFL education (Jomaa et al., 2024; Luu & Doan, 2025; Vo & Nguyen, 2024; Wu & Dong, 2025; Zaim et al., 2025). However, this finding contrasts with the results of Alzubi et al. (2025) and Alotaibi et al. (2025), which suggested that gender influences perceptions and attitudes toward ChatGPT use among Saudi students. Their research showed that female students generally have more positive perceptions of ChatGPT than males, possibly because they have been more actively adopting and integrating GenAI technology into their language learning over time (Alzubi et al., 2025).

Secondly, the academic level was found to influence both the attitudes of Saudi students and their rates of GenAI utilization. Higher education levels are linked to more positive perceptions of GenAI tools in EFL education, as students at these levels recognize the benefits this technology provides for language learning. Additionally, these favorable perceptions are significantly associated with increased use of GenAI for English language activities. This aligns with Alotaibi et al. (2025), who reported that postgraduate students viewed GenAI more favorably and found it easier to use than those with lower education levels. However, the academic level did not affect students' negative perceptions of GenAI tools or their frequency of using various tools such as ChatGPT, Gemini, and Grammarly AI in their English studies.

Regarding AI literacy, the attitudes and usage frequency of GenAI among Saudi EFL students were influenced by their level of understanding of AI. A higher degree of AI literacy positively affected students' perceptions of GenAI tools and their engagement with these tools. Compared to students with lower AI literacy, those with more advanced knowledge showed greater appreciation for GenAI, held more positive attitudes, and used the tools more often in their EFL learning. This supports Wu and Dong's (2025) finding that AI literacy is the most significant predictor of EFL learners' readiness and positive attitude toward adopting GenAI tools. However, the level of AI literacy among Saudi students did not seem to impact their

negative perceptions of using GenAI in English education, suggesting that reservations about GenAI are present across all literacy levels.

These findings show that educational and technological factors influence students' perceptions and use of GenAI more than demographics such as gender. AI literacy is crucial, affecting attitudes and usage, as understanding AI impacts adoption. Differences across academic levels may reflect varying demands, with more advanced students seeing greater benefits from AI support.

Conclusion

This study examined Saudi EFL students' perceptions, attitudes, and use of GenAI tools across various educational levels, considering factors such as academic level, gender, and AI literacy. Results show that students generally view GenAI positively, supporting language learning, motivation, confidence, and reducing anxiety. They also worry about overreliance, the reliability of AI content, and negative effects on independent learning and language development. Findings suggest that learners view GenAI as helpful but recognize its limitations and risks. The study shows GenAI tools are increasingly used for writing, translation, research, and content creation, with ChatGPT being most popular, highlighting its role in language education. AI literacy influences attitudes and usage; higher literacy correlates with more engagement. Gender has no significant impact. These insights contribute to AI-supported language learning research, emphasizing AI literacy as key for successful adoption. The study's findings have several implications for Saudi EFL educators and policymakers. First, students' positive attitudes suggest that GenAI tools can support language development in writing, translation, research, and productive activities. Instead of banning GenAI, colleges should develop pedagogical frameworks guiding purposeful and beneficial use. Second, understanding and evaluating GenAI technologies may be more important than demographics. Educators should encourage viewing GenAI as a learning aid, not a substitute for independent thought. In addition, increasing students' AI literacy is crucial, enabling informed decisions on GenAI use and maximizing benefits. Universities should offer training on AI capabilities, limitations, ethics, and prompting. Furthermore, students worry about overreliance, reduced independence, diminished critical thinking, and negative effects on language. EFL teachers should encourage the use of GenAI as a supplementary resource, not a substitute for independent learning and critical reflection.

Based on these findings, several recommendations can be made. Educational institutions should integrate AI literacy into language programs and provide professional development to help instructors incorporate GenAI effectively. They should also establish clear ethical guidelines and design assessment practices that encourage students to use GenAI as a learning aid while maintaining academic integrity and independent language development. Future studies may benefit from using models such as the Technology Acceptance Model (TAM) and the Theory of Planned Behavior (TPB) to better understand learners' attitudes and adoption of GenAI.

This study has some limitations. First, participants were recruited from 11 Saudi public universities via a convenience sample, which may have introduced bias and limited the generalizability. Recruitment via platforms like Blackboard and social channels might have attracted more digitally engaged students, potentially underrepresenting those with less digital access, affecting reported AI awareness, literacy, attitudes, and usage. Future studies should use more diverse, representative sampling. Second, AI literacy was assessed by a single self-report item, which may not capture its full complexity; validated multi-item scales are recommended. Third, the cross-sectional design reflects attitudes at a single point in time, not changes over time; longitudinal studies are recommended. Fourth, the study only measured self-reported knowledge of GenAI tools, not actual exposure, which could bias the results. Lastly, only students' views were considered; including educators' perspectives would provide more insight into AI adoption in language education.

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