



Exploring ChatGPT's role in EFL learning through the technology acceptance model: Perspectives from Saudi students

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ABSTRACT

This study employed the technology acceptance model to explore Saudi undergraduates' perspectives on using ChatGPT for English as a foreign language learning. It also aimed to explore the impact of gender, academic level, and experience with ChatGPT on their perceptions. A descriptive quantitative approach was used, using a web-based questionnaire for data collection. The results indicated that students perceived ChatGPT as useful and easy to use, and they demonstrated strong behavioral intentions to use it. However, they expressed concerns about potential overreliance and academic dishonesty. The analysis showed no significant gender differences in perceived usefulness (PU), negative attitudes, or behavioral intention; however, females reported slightly higher positive attitudes and greater ease of use compared to males. The results also indicated that students' perceptions varied based on their academic level, but there were no differences in perceived ease of use and behavioral intention. This suggests a consistent recognition of ChatGPT's usability and intention to use across different academic levels. The findings also revealed that students' familiarity and experience with ChatGPT significantly enhanced its PU, ease of use, and overall acceptance. The detailed findings and their implications for both practical applications and policymaking are discussed.

Keywords: technology acceptance model, ChatGPT, artificial intelligence, Saudi students, higher education

INTRODUCTION

Artificial intelligence (AI) has revolutionized many sectors, including education. It provides solutions to numerous learning and teaching challenges (Supianto et al., 2024). AI refers to the ability of machines to mimic human intelligence by performing tasks that humans are capable of, including problem-solving and language comprehension (Saville, 2023). AI has experienced significant advancements, primarily due to the progress of the generative pre-trained transformer (GPT) series, particularly ChatGPT. ChatGPT has been revolutionizing education in general and language learning in particular. It provides plenty of resources for English learners to develop fundamental language skills such as writing, reading, speaking, and listening (Fattah et al., 2023; Madhavi, 2023; Pratama & Hastuti, 2024).

In Saudi Arabia (SA), the context of the current study, technological integration is emphasized in all sectors, including education. The digital transformation is central to the Saudi vision 2030, highlighting the significance of providing high-quality education (Alnasser et al., 2024). Recently, SA announced a \$100 billion investment in an AI initiative named "project transcendence," highlighting the country's vision 2030 dedication to diversifying its economy away from oil and its goal to be recognized as a global technology leader in the coming decade (Benito, 2024). Therefore, students' digital proficiency and technological acceptance are crucial for keeping pace with rapid advancements and accomplishing national goals. Research studies have

investigated the perceptions of Saudi students regarding the adoption and acceptance of technology; however, no study to date has jointly examined the combined influence of gender, academic level, and prior experience with ChatGPT within a single model, particularly in the English as a foreign language (EFL) context. Sobaih et al. (2024) emphasized the need to examine how Saudi learner characteristics, including gender, study year, and experience with the AI tool, impact technology adoption. Therefore, this study addresses this critical gap by examining the perceptions of Saudi EFL students regarding ChatGPT use in language learning, employing the technology acceptance model (TAM) as the theoretical framework.

LITERATURE REVIEW

AI and ChatGPT in Education

AI is a domain within computer science dedicated to resolving cognitive challenges that are broadly like those encountered by humans, including pattern recognition, learning, and problem-solving (Fitria, 2023). One of the most popular AI models is ChatGPT, developed by OpenAI. OpenAI initially released ChatGPT in late 2022 and subsequently updated it to ChatGPT-4 during the study period. According to Saville (2023), the number of ChatGPT's users has exceeded 100 million, and terminology like generative AI, large language models (LLMs), and other related terms have become well known among people. Thormundson (2024a) stated that 70% of ChatGPT users worldwide used it at least once a month, and over 35% used it weekly. The highest proportion of users is within the age range of 25–34, with the group under 24 constituting the second largest group. Users aged 34 and younger constitute over 60% of the entire user base. This observation aligns with the trend that younger individuals generally engage with technology more frequently than older ones. In 2023, male users represented more than 65% in comparison to female users (Thormundson, 2024b).

ChatGPT is a very effective AI model since it makes use of LLMs that predict word sequences in context using large datasets (Dwivedi et al., 2023). The system can generate both written and spoken responses that closely resemble human language, facilitating seemingly genuine interactions with users based on their input. Learners can use ChatGPT to ask questions, express their ideas, and participate in real discussions on many topics. These capacities allow for genuine dialogues that promote significant interactions (Bansal et al., 2024). Additionally, it can carry out various tasks that may be customized by users to suit their individual requirements (Saville, 2023). In the field of EFL learning, research studies have demonstrated that ChatGPT holds promise for enhancing EFL students' learning experiences inside and outside the classroom despite its acknowledged limitations (Alsaedi, 2024; Shaikh et al., 2023).

ChatGPT in EFL Learning

Research in language learning has indicated that ChatGPT has the capacity to enhance experience and practices in EFL learning and teaching (Sarrion, 2023). According to Yang (2020), the integration of AI in language learning has significantly transformed teaching and learning methods. This transformation has led to an elevation in the quality of EFL instruction and has facilitated the advancement of both learning experiences and teaching practices. Several research studies have identified the advantages, challenges, and threats associated with incorporating ChatGPT into language learning.

For the advantages, ChatGPT has been found to be a valuable tool for language learning and teaching as it has the capacity to provide prompt feedback, personalized learning experiences, increased motivation, and reduced instructor workload (Ali et al., 2023; Alqasham, 2023; Alshahrani, 2023; Wei, 2023; Xiao & Zhi, 2023). Xiao and Zhi (2023) demonstrated that ChatGPT serves as a language assistant, aiding learners in achieving effective completion of language-related tasks. It also enhances learners' autonomy and their language proficiency by facilitating practice in simulated real-world contexts, which makes the learning experience engaging and practical. Additionally, Solak (2024) pointed out that ChatGPT not only improves the learning experience but also enhances communication, particularly for introverted learners, by enabling them to engage in real-life conversations and thus providing them a chance to practice English. It also provides ongoing translation services and is particularly engaging for learners who have grown up with technology (Solak, 2024). Similarly, Alqasham (2023) highlighted the significance of digital literacy as essential for achieving the desired learning goals through the use of ChatGPT. Therefore, maximizing the advantages of ChatGPT depends mostly on the learners' capacity to efficiently use the AI tool.

On the other hand, ChatGPT presents several challenges, such as complex feedback that may be difficult for students to comprehend, the potential for bias, instances of plagiarism, and issues related to academic integrity (Alsaedi, 2024). Furthermore, many studies have raised concerns about students' excessive dependence on AI, which may diminish their motivation to learn and hinder their creativity and critical thinking skills, ultimately compromising educational outcomes (Basha, 2024; Murtiningsih et al, 2024). In short, although ChatGPT demonstrates potential in EFL learning and teaching, ethical issues and effective implementation are essential. According to Li (2024), ChatGPT presents considerable promise for language instruction; however, continuous research and enhancements are essential to fully leverage its benefits and mitigate related challenges.

TAM and ChatGPT

The TAM has been used to explore the acceptance and use of ChatGPT as well as the factors that might affect learners' attitudes and actual use of ChatGPT in formal and informal educational contexts.

Perceived usefulness and ease of use

Liu and Ma (2023) explored Chinese EFL learners' perceptions of using ChatGPT beyond the classroom, employing TAM as a framework. The quantitative analysis indicated that learners who exhibit positive attitudes towards the usefulness of ChatGPT are likely to show a higher level of behavioral intention, which greatly anticipates their actual use of ChatGPT outside the classroom. However, the study focused only on usage in non-classroom settings and did not explore variables such as gender or academic level. Similarly, Shaikh et al. (2024) evaluated the usability of ChatGPT among ten multilingual students at a Norwegian university studying English in a formal context. A questionnaire was used to collect their perceptions after performing language tasks related to writing, vocabulary, and conversation with ChatGPT. The findings demonstrated that ChatGPT is an effective tool for language tasks, especially for writing, with an average performance rating of 4.10, reflecting high levels of satisfaction, ease of use, and perceived usefulness (PU). However, this study had a small, tech-focused sample, which may not represent broader EFL learners.

In a similar vein, Ajlouni et al. (2023) examined quantitatively the perspectives of university students regarding the utilization of ChatGPT as a learning tool at the University of Jordan. The study involved 623 students, and the results reveal that the participants held positive attitudes toward the usability of ChatGPT. They perceived ChatGPT as highly useful and beneficial for their learning, demonstrating strong positive perceptions of its utility. They demonstrated a clear intention to utilize ChatGPT and integrate it into their learning. Although they had positive attitudes, a small percentage reported their concerns regarding the accuracy of ChatGPT's content and reported feeling uncomfortable using it. Obenza et al. (2023) reported similar findings in their survey on university students' perceptions and usage of ChatGPT in the Philippines. Despite concerns about ChatGPT's accuracy, the students generally maintained a positive view of its utility. The findings revealed that students possessed a high level of understanding and awareness of its advantages and disadvantages. The participants positively perceived ChatGPT in enhancing their language learning skills, as demonstrated by a mean of 3.67. They also were aware of their limitations and showed a significant level of concern with a mean score of 3.57. They also had a strong positive attitude toward employing it in their language learning, as they found it easy and convenient to use with a mean of 3.96.

In more recent research, Solak (2024) qualitatively investigated the perceptions of both EFL learners and teachers and found that they had positive opinions regarding the utility and ease of use of ChatGPT. The participants indicated that ChatGPT is beneficial because it is capable of providing personalized learning, prompt feedback, and 24/7 accessibility. They also found it easy to answer questions and generate learning materials and resources. This convenience has resulted in high acceptance and significantly influenced their readiness to incorporate it into their learning. Simultaneously, the participants observed some challenges related to occasional inaccuracies and emphasized the need for human oversight. Nonetheless, these studies did not explore demographic variables that may affect technology adoption, emphasizing the necessity for further research considering variables such as gender, academic level, or prior experience.

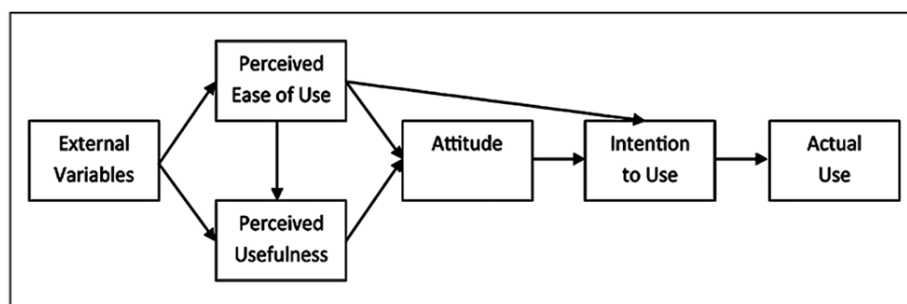


Figure 1. TAM adapted from Davis (1989)

Gender and academic level effects

Few research studies have investigated the influence of gender and academic level on ChatGPT acceptance employing TAM as a framework. In the EFL learning context, Vo and Nguyen (2024) investigated the role of gender and academic level on students' perceptions of ChatGPT in Vietnam. Although students reported generally positive attitudes, there was no significant difference in gender effect; however, academic level influenced students' perceptions. Despite its relevance, the study's results were neutral regarding ChatGPT's usefulness and did not explore the effect of prior experience with ChatGPT.

Saudi-Based Research on TAM and ChatGPT

Although TAM has been employed in many contexts, its application to ChatGPT adaptation in language learning in SA remains limited. Aljabr (2023) quantitatively examined the awareness and attitudes of 30 Saudi EFL students regarding the utilization of ChatGPT in their language learning. The study found a high level of awareness and reported a strong correlation between digital literacy and positive perceptions of ChatGPT. However, the study is constrained by its small sample size and absence of gender analysis. Jamshed et al. (2024) conducted a quantitative analysis of the perspectives, attitudes, and challenges faced by Saudi EFL learners, as well as the influence of academic level, residential origin, and parental education on their perspectives. Although positive attitudes were observed in general, the study revealed notable variations by academic level; however, it did not include gender as a variable of investigation. Sobaih et al. (2024) investigated Saudi students' acceptance and utilization of ChatGPT, highlighting ease of use and usefulness as major drivers of behavioral intention. The study recommended further research focusing on the influence of various characteristics of Saudi learners, such as gender, study year, and experience with ChatGPT.

To this end, although prior studies in SA have investigated TAM variables, none have jointly examined the combined influence of gender, academic level, and prior experience with ChatGPT within a single model in the EFL learning context. Therefore, this study addresses this gap by applying the TAM framework to examine the influence of these demographic and experiential variables on ChatGPT acceptance among Saudi EFL learners.

Theoretical Framework

This study employed the TAM to explore the extent to which Saudi EFL undergraduates accept and use ChatGPT in their EFL learning. The original TAM is used due to its parsimony and empirical strength, acknowledging that while models such as TAM2 and UTAUT provide broader explanatory power, their additional complexity is beyond the scope of the present investigation. TAM has been influential in various fields, such as education, and has been used in several research studies, such as Solak (2024), Vo and Nguyen (2024), Abdalla (2024), Dahri et al. (2024), and Lai et al. (2023). Davis (1989) developed TAM (Figure 1), which starts with external variables that impact users' perceptions of technology. It primarily focuses on two factors that impact users' acceptance and use of technology: perceived ease of use (PEOU) and perceived usefulness (PU) (Davis, 1989). PEOU refers to an individual's belief in the ease of utilizing technology. The more someone perceives technology as easy to use, the more likely they are to use it. On the other hand, PU refers to an individual's belief in the effectiveness of technology in doing tasks efficiently. Therefore, if a type of technology is perceived as beneficial, it is more probable to be approved and accepted. PEOU and PU impact the overall attitude toward utilizing technology. This attitude—positive or negative—affects the behavioral intention to use

Table 1. Socio-demographic characteristics of the study participants

Socio-demographic		Frequency (n)	Percentage (%)
Academic level	First year (freshman)	31	19.7
	Second year (sophomore)	50	31.8
	Third year (junior)	34	21.7
	Fourth year (senior)	42	26.8
GPA	Excellent	79	50.3
	Very Good	47	29.9
	Good	27	17.2
	Pass	4	2.5
Age	18–23	85	54.1
	24 –29	41	26.1
	30–35	22	14.0
	36–41	9	5.7
Gender	Male	49	31.2
	Female	108	68.8
Experience with ChatGPT	Beginner	75	47.8
	Intermediate	59	37.6
	Advanced	20	12.7
	Expert	3	1.9

ChatGPT (BIU) and adopt it. BIU then leads to the actual use of technology. Thus, if students perceive ChatGPT as both easy to use and useful, they have a positive attitude toward it, resulting in increased acceptance and use in their language learning.

Research Questions

This study aimed at answering the following research questions:

- RQ1:** What are Saudi undergraduate students' perceptions of the acceptability and use of ChatGPT in their EFL learning?
- RQ2:** To what extent do gender, academic level, and experience with ChatGPT impact Saudi university students' perceptions of ChatGPT in EFL learning?

METHODOLOGY

Research Design

This study adopted a descriptive quantitative research design to systematically investigate the variables. A web-based questionnaire served as the primary data collection tool, ensuring broad accessibility and efficient data gathering. The questionnaire items were adapted from the validated measures used in Vo and Nguyen's (2024) study to measure students' perceptions of ChatGPT in language learning, which was originally grounded on TAM. The original questionnaire was preserved; however, some items were paraphrased to improve clarity. No significant changes were made to constructs or dimensions assessed. This adaptation ensures content validity while maintaining consistency with the original instrument's reliability measures.

Participants

The participants were 157 Saudi undergraduates learning English at a university in SA. The majority of participants were in their second year (31.8%), followed by fourth-year students (26.8%). Regarding GPA, most students achieved an "excellent" grade (50.3%), while the lowest percentage had a "pass" grade (2.5%). The predominant age group was 18–23 years (54.1%), whereas the least represented group was 36–41 years (5.7%). In terms of gender, female students constituted a significantly higher proportion (68.8%) compared to male students (31.2%). Concerning experience with ChatGPT, most participants were categorized as "beginners" (47.8%), while only 1.9% were classified as "experts." **Table 1** displays the demographic information of the participants.

Furthermore, it is crucial to note that the study employed a medium effect size ($f = 0.30$) based on empirical evidence from comparable educational technology research (Vo & Nguyen, 2024) and Cohen's (1988) conventions for behavioral studies. A priori power analysis using G*Power 3.1.9.7 ($\alpha = 0.05$, power = 0.80, 4

Table 2. Descriptive statistics of technology acceptance model constructs

	Mean	Standard deviation
PU	3.54	0.76
PEOU	3.84	0.62
Negative attitudes	3.02	0.87
Positive attitudes	3.81	0.65
BIU	3.66	0.75
Overall	3.58	0.54

groups) indicated a required sample size of 128 participants to detect significant effects. The actual study recruited 157 participants, exceeding this threshold to account for potential attrition and enhance statistical power (actual power = 0.81). This approach ensured robust detection of meaningful pedagogical differences while maintaining methodological rigor, with the expanded sample providing additional protection against Type II errors. The design parameters ($\lambda = 11.52$, critical $F = 2.678$, $df = 3/124$) were carefully calibrated to balance practical constraints with scientific validity in investigating ChatGPT's educational impacts across multiple learner groups.

Data Collection

The data were collected at the Saudi Electronic University in accordance with the ethical standards set by the university's Ethics Committee, which granted approval (approval no. SEUREC-4530). All participants provided informed consent before completing the survey.

Data Analysis

The collected data were examined, coded, and analyzed using IBM SPSS statistics version 25. Descriptive statistics were computed to summarize the sample characteristics and the distribution of study variables. Before conducting inferential analyses, data were assessed for normality, homogeneity, and the absence of outliers to ensure the validity of statistical tests. Based on the research questions, appropriate statistical procedures were applied, including the independent samples t-test and one-way analysis of variance (ANOVA). Tukey's post-hoc test was used to identify specific group differences where significant ANOVA results were found. All analyses were conducted at a significance level of 0.05. This rigorous analytical approach ensures the reliability and validity of the study findings.

The reliability of the measurement instrument was assessed using Cronbach's alpha, which demonstrated acceptable to excellent internal consistency across all constructs. Specifically, PU recorded $\alpha = 0.827$, PEOU $\alpha = 0.758$, negative attitudes $\alpha = 0.791$, positive attitudes $\alpha = 0.788$, and BIU $\alpha = 0.787$. The overall reliability of the instrument was excellent ($\alpha = 0.901$), indicating a high degree of internal consistency (Taber, 2018).

RESULTS

Analysis of the First Research Question

The first research question investigated Saudi undergraduate students' perceptions of the acceptability and use of ChatGPT in EFL learning. **Table 2** provides the descriptive statistics for the key constructs of the TAM regarding students' perceptions of ChatGPT in EFL learning.

Table 2 provides the descriptive statistics for the measured constructs, indicating generally high mean scores for PEOU (mean [M] = 3.84) and positive attitudes (M = 3.81), which reflect relatively favorable perceptions. PU (M = 3.54) and BIU (M = 3.66) also exhibit positive tendencies, whereas negative attitudes present a more neutral stance (M = 3.02). These findings suggest a generally favorable perception of ChatGPT, with participants showing high ease of use, positive attitudes, and strong behavioral intentions.

Table 3 presents a detailed overview of the descriptive statistics for the first construct, PU. The average scores vary from 3.87 to 3.13. The participants rated ChatGPT highest for improving writing skills, with a mean score of 3.87, followed by reading at 3.67. However, they rate its impact on speaking at 3.27 and listening at 3.13. These results indicate that learners regard ChatGPT as particularly effective for writing and subsequently reading, while its impact on speaking and listening is less effective.

Table 3. Descriptive statistics of PU

	Mean	Standard deviation
ChatGPT helps me get better at English	3.77	0.90
ChatGPT helps me improve my speaking abilities	3.27	1.00
ChatGPT helps me improve my writing abilities	3.87	1.00
ChatGPT helps me improve my reading abilities	3.67	1.03
ChatGPT helps me improve my listening abilities	3.13	1.01
Overall	3.54	0.76

Table 4. Descriptive statistics of PEOU

	Mean	Standard deviation
I find it easy to learn English using ChatGPT	3.78	0.81
ChatGPT provides clear and understandable explanations	4.14	0.80
ChatGPT can produce real language content help me in learning English	3.88	0.88
I find ChatGPT to be consistent and accurate in its responses	3.51	0.94
If I make a mistake while using ChatGPT, I can correct it easily	3.89	0.89
Overall	3.84	0.62

Table 5. Descriptive statistics of negative attitudes

	Mean	Standard deviation
I think ChatGPT negatively affects learning as it easily provides answers and solutions	2.96	1.29
I think ChatGPT's answers can be confusing	3.18	1.07
I believe ChatGPT may generate biased or improper content	2.87	1.14
I believe ChatGPT makes academic cheating easier	3.27	1.28
I believe using ChatGPT might limit my interactions with others as I learn English	2.83	1.10
Overall	3.02	0.87

Table 4 displays the descriptive statistics for the second construct, PEOU. The participants perceived ChatGPT as user-friendly and easy to use, with an overall score of 3.84. They perceived ChatGPT as easy in providing clear and understandable explanations, with a mean score of 4.14, and in fixing any errors made by them to modify the input, with a mean score of 3.89. They also appreciate its capacity to produce real language content that helps them in learning English, with a mean score of 3.88. However, they found it challenging due to its inconsistent responses, receiving a mean score of 3.51.

Table 5 shows the descriptive statistics for the third construct, negative attitudes. The participants revealed some concerns regarding ChatGPT. The highest concern was related to making academic cheating easier, with a mean score of 3.27. The participants also expressed some worries about facilitating overreliance on it by simply providing answers (2.96), generating biased content (2.87), and giving confusing and hard-to-understand responses (3.18). The least concern was about ChatGPT possibly limiting their interaction and hindering their interpersonal communication, with a mean score of 2.83. The overall mean score for negative attitudes is 3.02, which suggests that participants had a moderate level of concern about the potential disadvantages of using ChatGPT in language learning.

Table 6 presents the descriptive statistics for the fourth construct, positive attitudes. The results revealed that participants perceived ChatGPT as a beneficial AI tool in language learning, with a mean score of 3.81. They found ChatGPT to be highly positive in terms of providing immediate feedback ($M = 3.99$) and finding learning English to be interesting ($M = 3.96$). This suggests that the interactive features significantly enhance the learning experience. They also perceived it positively as an effective EFL learning tool and showed confidence in using it with mean scores of 3.80 and 3.71, respectively. The participants also believed it promoted their autonomy in language learning, with a mean score of 3.61.

Table 7 displays the descriptive statistics for the final construct, BIU. The participants showed strong intentions to use ChatGPT more often ($M = 3.84$) and felt comfortable using it to learn English ($M = 3.83$). They also strongly believed that learners should learn how to use ChatGPT to improve their English language proficiency. The findings indicated a notable disparity in the intentions to use it both within and outside the classroom. Learners planned to utilize it outside the classroom ($M = 3.76$) rather than within class ($M = 3.01$). This indicates that learners intend to use ChatGPT for language learning; nevertheless, they expressed reservations about incorporating it into the classroom.

Table 6. Descriptive statistics of positive attitudes

	Mean	Standard deviation
ChatGPT is a useful and effective EFL learning tool	3.80	0.84
ChatGPT enables and promotes autonomous EFL learning	3.61	0.81
ChatGPT provides immediate feedback, allowing me to improve its quality by asking follow-up questions	3.99	0.93
I find learning English with ChatGPT interesting	3.96	0.84
I feel confident using ChatGPT	3.71	0.99
Overall	3.81	0.65

Table 7. Descriptive statistics of BIU

	Mean	Standard deviation
I am comfortable using ChatGPT to learn	3.83	0.99
I plan to use ChatGPT more often	3.84	0.95
I believe students must learn how to use ChatGPT to learn English	3.88	1.08
I intend to practice English with ChatGPT in the classroom	3.01	1.10
I intend to practice English with ChatGPT outside the classroom	3.76	0.95
Overall	3.66	0.75

Table 8. TAM variables based on gender

Gender		Mean	Standard Deviation	t	p	η^2	Cohen's d
PU	Male	3.43	0.86	-1.282	0.202	0.010	0.221
	Female	3.60	0.71				
PEOU	Male	3.63	0.77	-2.877	0.005	0.051	0.496
	Female	3.93	0.51				
Negative attitudes	Male	2.96	0.81	-0.590	0.556	0.002	0.102
	Female	3.05	0.90				
Positive attitudes	Male	3.64	0.83	-2.279	0.024	0.032	0.393
	Female	3.89	0.53				
BIU	Male	3.58	0.87	-0.964	0.336	0.006	0.166
	Female	3.70	0.68				
Overall	Male	3.45	0.76	-2.022	0.045	0.026	0.348
	Female	3.64	0.40				

Analysis of the Second Research Question

Analysis of students' perceptions based on gender

Table 8 shows the results of the independent samples t-test for TAM variables according to the gender of the participants.

It presents the independent samples t-test results indicate gender differences in some TAM variables when using ChatGPT. No significant differences were found in PU, negative attitudes, or BIU, suggesting similar perceptions between genders in these aspects.

However, females reported significantly higher PEOU ($p = 0.005$) and positive attitudes ($p = 0.024$) compared to males, indicating that they find ChatGPT easier to use and have a more favorable perception of it. Additionally, the overall mean score for females was significantly higher than for males ($p = 0.045$), suggesting a generally more positive evaluation of ChatGPT among females.

The values of η^2 and Cohen's (1988) d reflect practical differences between males and females in some TAM variables, with a moderate effect observed in PEOU and positive attitudes, and a small effect in the overall score, indicating a moderate gender influence on the evaluation of ChatGPT usage.

Analysis of students' perceptions based on academic level

Table 9 displays the results of the ANOVA for TAM variables based on students' academic level.

The ANOVA and Tukey HSD test results indicate significant differences among academic levels in certain TAM variables. Significant variations were found in PU ($p = 0.002$), negative attitudes ($p = 0.004$), positive attitudes ($p = 0.042$), and overall scores ($p = 0.013$), suggesting that students' perceptions of technology's

Table 9. TAM variables based on academic level

	F	P	η^2
PU	5.347	0.002	0.095
PEOU	1.909	0.130	0.036
Negative attitudes	4.627	0.004	0.083
Positive attitudes	2.808	0.042	0.052
BIU	0.557	0.644	0.011
Overall	3.698	0.013	0.068

Table 10. TAM variables based on experience with ChatGPT

	F	P	η^2
PU	9.581	0.000	0.158
PEOU	10.062	0.000	0.165
Negative attitudes	2.604	0.054	0.049
Positive attitudes	6.680	0.000	0.116
BIU	10.650	0.000	0.173
Overall	7.781	0.000	0.132

usefulness and their attitudes toward it vary across academic levels. Specifically, first-year students rated PU significantly higher than second- and fourth-year students, and their overall acceptance of technology was also higher than that of second-year students ($p = 0.009$). Additionally, fourth-year students exhibited significantly higher negative attitudes compared to second-year students ($p = 0.008$). Conversely, no significant differences were found in PEOU and BIU, indicating general consistency in these perceptions regardless of academic level. These findings highlight the importance of considering academic-level differences in technology acceptance research, emphasizing the need for further studies to explore the underlying factors influencing these discrepancies and their implications for technology use in education.

The effect size results (η^2) indicate small to moderate impacts of students' academic level on the TAM variables. The largest effect was found for PU ($\eta^2 = 0.095$), followed by negative attitudes ($\eta^2 = 0.083$) and the overall score ($\eta^2 = 0.068$). This suggests that academic level has a noticeable influence, particularly on how students perceive the usefulness of ChatGPT and form attitudes toward its use.

Analysis of students' perceptions based on experience with ChatGPT

Table 10 presents the results of the ANOVA of TAM variables according to students' experience with ChatGPT.

The ANOVA and Tukey HSD results indicate that experience significantly impacts students' ChatGPT acceptance. Beginners rated PU, PEOU, positive attitudes, and BIU significantly lower than intermediate and advanced users ($p < 0.05$), with overall acceptance following the same pattern. No significant differences were found in negative attitudes across experience levels. Notably, the largest perception shifts occur between beginners and intermediate/advanced users, suggesting that increased exposure to ChatGPT enhances PU, ease of use, and overall acceptance.

The effect sizes (η^2) indicate that variables such as PU, PEOU, and BIU have a large and strong impact on behavior, while positive attitudes show a moderate effect and negative attitudes have a relatively small effect. This highlights the greater influence of positive factors in explaining the behavior compared to negative ones.

DISCUSSION

This section explains the current study's findings in light of the relevant existing literature. Regarding the first research question, the present study found that generally Saudi students hold a positive perception of ChatGPT as a valuable AI tool in learning English, even though 47.8% of them considered themselves beginners in using it. The results indicated that PU and PEOU significantly contribute to students' willingness to integrate ChatGPT into their learning practices. This result aligns with the findings of Vo and Nguyen (2024), Ajlouni et al. (2023), Shaikh et al. (2023), and Obenza et al. (2023). These studies found that ChatGPT is a beneficial tool for learning English, as the participants perceived it as easy and friendly to use to practice and complete language tasks. Although the findings of the current study indicated a high level of acceptability,

participants expressed concerns regarding its potential to hinder learning, facilitate plagiarism and cheating, and limit the development of interpersonal skills in language learning. The results are consistent with those of Ajlouni et al. (2023) and Obenza et al. (2023), who reported that participants expressed concerns about using ChatGPT in their EFL learning; nonetheless, they also demonstrated a strong level of acceptance and maintained positive attitudes toward its integration in their learning. In this regard, Murtiningsih et al. (2024) and Alsaedi (2024) highlighted these concerns and acknowledged that they may reduce the quality of educational outcomes. This underscores the importance of thoughtful integration. Saudi educators and policymakers should provide training programs to help students improve their digital literacy, ultimately leading to an outstanding level of education.

The present study also found that students perceived ChatGPT as a useful AI tool for improving English language skills. The participants rated its usefulness highest for writing skills, followed by reading, speaking, and lastly listening. The results indicated that ChatGPT is very helpful for improving writing skills, possibly because of its capacity to provide immediate feedback and correct structural and grammatical errors, as supported by previous research (Alsaedi, 2024; Shaikh et al., 2023; Solak, 2024; Wei, 2023). Nonetheless, its low efficacy in speaking and listening may stem from students' restricted access to only the free versions, which offer limited functions. These findings align with those of Vo and Nguyen (2024), indicating that students' preference for using ChatGPT for writing and reading may arise from their exclusive access to the free versions. Thus, due to the high degree of acceptance among Saudi students, universities and academic institutions are encouraged to invest in technology and may consider establishing partnerships or subscription agreements to ensure that students have full access to ChatGPT to leverage its benefits and promote autonomous learning.

Regarding the second research question, the current study revealed that gender, academic level, and ChatGPT experience impact students' perceptions of ChatGPT's usefulness and ease of use in EFL learning. In terms of gender, both males and females perceived ChatGPT as useful and showed BIU, aligning with the TAM, which asserts that PU is a significant predictor of behavioral intention. These findings are consistent with Vo and Nguyen (2024), who reported no significant gender differences in overall perceptions. However, the current study indicated that females reported slightly higher PEOU than males, suggesting that females found ChatGPT easier and more user-friendly. PEOU reflects users' confidence and self-efficacy in utilizing technology, which can vary across demographic factors such as gender. This is further supported by Alenezi et al. (2023), who found that females were more likely than males to intend to use ChatGPT in the future. Nevertheless, further research is necessary to gain deeper insights into the factors contributing to these gender differences, particularly regarding PEOU.

Regarding academic level, the results indicated notable variations in students' perceptions of PU across various academic levels. It is noteworthy that, despite variations in PU, both PEOU and BIU exhibited stability, indicating that students consistently perceived ChatGPT as user-friendly and expressed a clear intention to adopt it, regardless of their academic levels. The results are consistent with studies from Jamshed et al. (2024) and Vo and Nguyen (2024), which demonstrated that respondents' perceptions differed notably according to their academic levels; however, they generally perceived it as a valuable AI tool for language learning. The observed discrepancy in PU may indicate variations in students' understanding of how to effectively use ChatGPT. This emphasizes the necessity for instructors to scaffold learning by modeling, guided practice, and designing effective prompts to get better responses from ChatGPT to enable students to optimize ChatGPT's advantages in EFL learning.

The findings also revealed that the experience with ChatGPT significantly influenced students' perceptions of its acceptance and use. Students with prior experience perceived ChatGPT more positively, suggesting that they are better equipped to fully use its capabilities for their advantage. These results align with Alqasham (2023) and Aljabr (2023), who emphasized that the effective use of ChatGPT depends on learners' digital skills and their ability to interact with the AI tool to achieve their language learning goals. Thus, learners' proficiency in using ChatGPT significantly shapes their perceptions of acceptance and its effective use in language learning. These findings underscore the necessity for coordinated efforts among Saudi policymakers, academic institutions, and educators to effectively integrate ChatGPT in EFL learning. Policymakers should ensure equal access to digital tools, allocate funds for training programs, and advance AI literacy initiatives. Academic institutions should enhance faculty AI literacy by offering specialized training programs in prompt

engineering, ethical integration, and best practices. Thus, instructors will be equipped with the needed knowledge to enhance students' digital competence and support effective integration of ChatGPT.

CONCLUSION

In conclusion, ChatGPT is perceived positively by Saudi undergraduates. The findings revealed a high level of acceptance among Saudi learners for using ChatGPT in their language learning. They indicated that it is a valuable AI learning tool, especially for writing and reading skills. They also demonstrated awareness of its limitations and challenges, as reflected in negative attitudes. Therefore, instead of banning ChatGPT and perceiving it as a threat to education, it is essential for educators to integrate it into the curriculum to build familiarity and boost students' confidence. Based on TAM, PU and PEOU shape students' behavioral intentions. Accordingly, instructors should provide clear guidance on how to use ChatGPT effectively and help students recognize it as a valuable resource to enhance their language learning. Thus, students' digital proficiency will be enhanced, enabling them to keep pace with rapid technological advancements and contribute to achieving the Saudi national goals of vision 2030.

This study has limitations that should be considered. First, it was conducted at a single university; thus, involving participants from multiple universities would provide a broader understanding of Saudi university students' perceptions of ChatGPT acceptance and use in EFL learning. Second, the study employed a quantitative approach using a survey as the primary data collection tool. Future studies could employ mixed methods, integrating quantitative and qualitative approaches, such as observations and interviews, to gain deeper insights. Additionally, future studies may consider using a latent profile analysis to identify learner subgroups, such as enthusiastic adopters or cautious users, which could enrich both theoretical understanding and practical applications. Finally, future studies should investigate the impact of ChatGPT on the teaching and learning of specific language skills, including writing, grammar, listening, speaking, reading, and translation, to provide a more comprehensive understanding.

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