Perceptions and Challenges of Artificial Intelligence in the EFL Context: A Quantitative Study of Saudi Learners

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Abstract

This study closely examines the perceptions of Saudi EFL learners regarding the inclusion of AI tools in language classrooms. The study included 123 EFL learners from diverse backgrounds, including gender, age, educational level, experience using AI, and region. A questionnaire was used to gather the data which indicated that with the exception of years of exposure to higher education, the participants' perception show commonality across all other variables. The study gathered data on four constructs (Perceived Usefulness of AI in English Learning, Learner Attitudes and Acceptance Toward AI Use, Technical and pedagogical challenges, and Psychological and Ethical concerns). Responses were analyzed for statistical significance, which indicated that Saudi EFL learners generally possess positive views about the efficacy and use of AI in language learning, particularly in improving grammar, vocabulary, pronunciation, and providing written feedback. In addition, they shared the view that AI is a constructive agent in helping them not only improve their language proficiency but it also accelerates the learning process thus providing better learning opportunities irrespective of individual differences. At the same time, they have reservations about the outcomes when human agency is replaced by AI, indeed they firmly believe that AI can at best complement rather than replace the teacher in classrooms. The study concludes with pertinent recommendations.

Keywords: Artificial Intelligence, English Language Learning, Saudi Arabia, Arab-speaking L2, Learners, Technology Acceptance, Educational Technology

1. Introduction

The education sector in contemporary Saudi Arabia exhibits a healthy confluence of technology and education as equal partners. There is, perhaps, no domain or curriculum that has remained untouched by AI (Alotaibi et al., 2025). Integration of AI applications into language learning has facilitated personalization of learning given its adaptive nature, thus aligning learning with national developmental goals as well as equipping learners with the necessary skills to compete with their global counterparts (Banafi, 2025).

The Saudi EFL learners differ from their counterparts in a foreign context in terms of the difficulties they face, research in Saudi context, and the pedagogical strategies that are most suitable to their needs (Alqaed, 2024).

The linguistic differences between Arabic and English cause particular learning challenges that the conventional teaching approaches fail to address (Alotaibi, 2018, 2021, 2022). Artificial intelligence (AI) technology is developing at an astonishing pace. It is highlighting challenges that were previously intractable. Intelligent teaching systems, chatbots, and adaptive assessment tools offer tremendous opportunities to improve the skills of EFL learners in the Saudi Arabian higher education system.

The implications of investigating Saudi language learners' perceptions of difficulties with AI-assisted English learning are not limited to immediate pedagogical considerations. The use of the findings will inform broader inquiries into the areas of technology adoption and the implementation of global computer-based educational innovations to local environments using specific linguistic frameworks.

The results from this research on Saudi students' perceptions and interactions with AI technologies contribute to the development of more effective and beneficial instructional tools for L2. This study is intended to provide insight into how AI technologies may be applied optimally to develop English language skills of Saudi EFL students.

The number of research projects related to language instruction and AI has grown significantly over the past few years. Nevertheless, there is a lack of empirical studies (including all relevant aspects) that focus on both educational and technical/psychological/ethical viewpoints, as well as studies that examine EFL learners from all over Saudi Arabia. Most previous research has examined specific schools and/or AI tools with little to no consideration for the national level. Therefore, the primary goal of this research is to address these limitations through quantitative data analysis of EFL learners' perspectives toward the integration of AI into their EFL education across Saudi Arabia.

This investigation has four main goals. The first is to find out how students studying English as a foreign language (EFL) in Saudi Arabia view and assess the value of artificial intelligence (AI)-based technologies for teaching them English. The second goal is to learn about

the perspectives that EFL students have towards AI-based technologies and how they accept or reject them. The third is to identify the technological, pedagogical, psychological and, ethical issues involved in developing and employing AI-based systems for EFL instruction. Finally, the fourth objective is to see how various demographic variables (such as student's gender, age, level of education; prior experience with AI; geographical location) impact the learner's perspective on AI in EFL instruction. Therefore, this investigation will address the following research questions.

1. How do Saudi students view the application of AI-based English language learning technologies?

2. What challenges do Saudi students face in the use of AI-based English language learning systems?

2. Literature Review

The early years of computer-aided language learning (CALL) utilized artificial intelligence (AI) based on rules to develop linguistic representations by providing explicit grammatical and lexical information (Dodigovic, 2005). Heift and Schulze (2007) indicated that these systems were relatively simple when compared to those developed later; however, they established the basis for integrating computers as instructional tools into second/foreign language classrooms and illustrated that CALL had the ability to offer students both individualized instruction and creative ways to learn. This paradigmatic shift from the rule-based models of the past to today's machine learning-based models has revolutionized language teaching. Today, AI tools have made language acquisition easier and more effective.

Natural Language Processing (NLP) technologies have since made important contributions to advancing AI applications in language learning, affording a higher degree of interaction between learners and intelligent systems (Meurers, 2021). Progress in statistical and neural language models has opened doors for AI systems to comprehend and produce natural language more accurately and fluently, thereby making them more effective as language learning aids (Koehn, 2020).

Technological developments such as chatbots and Intelligent Tutoring Systems are fundamentally important for Arabic-speaking EFL learners as they struggle with unique differences between their native language, Arabic, and English (Alotaibi, 2013, 2018, 2021, 2022). In other words, technology can serve as a tool to directly resolve the challenges caused by the differences between English and Arabic. Grammarly, as an AI-assisted tool, is one of the best examples and options to be used for correcting any mistake and error in grammar or structure for learners whose mother tongue is Arabic. Additionally, the tool can clarify and give sufficiently detailed bilingual (English and Arabic) feedback that aids in meaningful sentence formation. Further, developments like Natural Language Processing (NLP) help to analyze learner input, deliver feedback on grammar and lexical use, and filter specific learning tasks depending upon perceived areas of development (Ahmed et al., 2023; Alotaibi, 2021; Alotaibi, 2022; Alghamdi et al., 2021; Aljabr et al., 2023; Luckin et al., 2016).

Conversational AI applications like chatbots and virtual assistants have stood out as good sources of authentic language practice in lower-stakes settings for learners. Using chatbots can help improve learners' speaking confidence, reduce the stress related to language utterance, and offer a useful practice environment outside the classroom (Huang et al., 2022). In recent years, the rapid advances in conversational AI systems have made possible more natural and richer interactions that can mimic real communicative situations (Belda-Medina & Calvo-Ferrer, 2022). What is more, high-quality listening during conversations can be useful to individuals who are processing social hurts and rejections.

As a supplementary tool for second language pronunciation training, the role of AI-assisted English-speaking applications seems to be promising. These tools often apply Automatic Speech Recognition (ASR) technology to learners' speech. Furthermore, they offer feedback on several features such as consonant and vowel sounds, stress patterns, and intonation. The advancement of AI-based pronunciation tools is especially critical for English learners whose first language is Arabic encounter difficult English phonemes that do not exist in the Arabic language (Alotaibi, 2022).

Recent studies have started to investigate Saudi learners' perceptions and experiences with learning English through AI, as it highlights the potential and obstacles of technology integration in this context (Alharthi, 2024). In particular, a study conducted by Alqaed (2024) with 68 university English students revealed positive attitudes towards AI applications in learning English. Learners valued the instantaneous feedback and real-time functionality of AI tools. But the research also revealed worries about overdependence on AI technology, as well as whether content made by AI can be reliable.

Similar results were also highlighted by Alotaibi et al. (2025) in an extensive examination of acceptance of ChatGPT by the EFL learners in Saudi Arabia using the Technology Acceptance Model (TAM) to discover adoption factors. The purported usefulness and ease of use are reported as factors in individuals' adoption of ChatGPT. Female students showed higher levels of acceptance of the tool than male students. The level of education and duration of use was found to influence perceptions regarding ease of use, indicating familiarity with AI applications might contribute to acceptance.

Further, Aljohani (2021) provided rich information on instructors' and learners' perceptions of AI use in English language classrooms. It revealed that both groups shared a positive perception of the efficacy of AI-related technologies in teaching English and their ability to overcome the weaknesses in existing pedagogies. In addition, the study demonstrated the need for adequate training and technical assistance to ensure the successful use of AI tools in education.

In summary, it is clear from the literature review that there were very positive responses to language learning with the use of AI. However, the majority of these studies have been limited to specific tools or to very small populations. Therefore, research that integrates the findings of a variety of uses of AI with an overall picture of the experiences and environments of English as a Foreign Language

(EFL) learners in Saudi Arabia is also extremely limited. There are still too few understandings about how regions, generations, and other demographic characteristics differ. This is what this study will address.

3. Method

3.1 Design

The researchers adopted a quantitative research design to gather information regarding the views and barriers faced by Saudi EFL students when learning English through AI. The researchers used an appropriate quantitative survey methodology for this study to obtain the largest number of participants (sample) in order to obtain an accurate assessment of the degree of awareness of students and to determine whether there were differences between different groups. The use of a large number of participants allowed the results to be more generalizable and therefore more compelling. The researchers obtained approval to conduct this study from the institutional ethics committee. Participation was voluntary, and all participants provided informed consent. Strict confidentiality and anonymity were maintained throughout the data collection and analysis process.

3.2 Participants

The study participants were 123 Saudi EFL students randomly selected from national universities located in four regions. At the time of the study, all participants were enrolled in undergraduate English language courses and had basic familiarity with digital technologies. Table 1 gives details about the participants' demographic information.

Table 1. Participants' Demographic Information

Demographic Variable	Category	Frequency (n)	Percentage (%)
Gender	Male	69	56.1%
	Female	54	43.9%
Age	18-20 years	53	43.1%
	21-23 years	43	35.0%
	23+ years	27	22.0%
Educational Level	First Year	38	30.9%
	Second Year	50	40.7%
	Third Year	20	16.3%
	Fourth Year	15	12.2%
English Proficiency	Beginner	53	43.1%
	Intermediate	47	38.2%
	Advanced	23	18.7%
AI Experience	No Experience	40	32.5%
	Limited Experience	44	35.8%
	Moderate Experience	17	13.8%
	Extensive Experience	22	17.9%
University Region	Central Region	45	36.6%
	Eastern Region	42	34.1%
	Western Region	16	13.0%
	Northern Region	20	16.3%

As is evident from the data, though the dataset included a diverse sample, most of the participants were in the age group of 18 to 20 years, young entrants to the university education. However, based on the number of years of exposure to higher education, the largest number was enrolled in the sophomore year, while according to language proficiency, the smallest percentage had advanced skills and the largest number was beginners. Finally, since AI awareness is the focus of this study, only 32.5% of students had no experience of using the tools while the remaining were either extensive or moderate users. Geographically, the largest group at 36.6% belonged to the Central region of KSA, followed by the Eastern region at 34.1%, the West and North were less represented at 13.0% and 16.3%, respectively. This geographical distribution ensures relatively good representation of the Kingdom's various regions, which is important for a comprehensive and in-depth study.

3.3 Instrument

A structured 5-point Likert Scale questionnaire in relation to the research question(s) was used to collect data. Following pilot testing, the online survey using Google Forms was implemented and three items were modified. To ensure that the constructs have acceptable levels of internal consistency, the Cronbach's Alpha statistic was computed as shown in Table 2, where reliability statistics (Cronbach's Alpha) for each construct were listed.

Table 2. Reliability Statistics

Constructs	Cronbach's Alpha	N of Items
Perceived Usefulness of AI in English Learning	0.762	8
Learner Attitudes and Acceptance Toward AI Use	0.609	6
Technical and Pedagogical Challenges	0.752	7
Psychological and Ethical Concerns	0.660	5

As indicated in Table 2, data were collected on four scales. The "Perception of the Usefulness of AI in Learning English" construct shows

satisfactory reliability of 0.762. For "Learner Attitudes and Acceptance of Using AI" had 0.609, which is acceptable. Additionally, the "Technical and Educational Challenges" had 0.752, indicating sufficient reliability to measure the obstacles learners face in using AI, and finally, for "Psychological and Ethical Concerns" the score was 0.660. These values show that the scales are reliable enough to be used to assess the obstacles that students experience when using AI for their own learning needs. Therefore, the reliability of the survey supports its validity to study the views and obstacles of Saudi learners of English language concerning AI-supported ELT.

4. Data Analysis and Results

The collected data were evaluated by calculating descriptive statistics in order to identify the frequency and mean values of each participant's answers. The use of inferential statistics (one-sample t-test and one-way ANOVA) allowed for the evaluation of whether statistically significant differences exist in the responses of the participants with regard to their demographic characteristics (e.g., age, gender, etc.). Table 3 provides an overview of the participants' opinions regarding how useful they perceive the application of Artificial Intelligence in the context of English language acquisition.

Table 3. Perceived Usefulness of AI in English Learning

No	Statement	SD	D	N	A	SA	Std. D.	Mean
1	AI-powered tools help me improve my overall English proficiency.	0	0	25.2%	31.7%	43.1%	0.81011	4.1789
2	I find AI useful for learning correct grammar.	0	0	51.2%	28.5%	20.3%	0.79062	3.6911
3	AI-based platforms help me expand my English vocabulary.	0	25.2%	18.7%	4.9%	51.2%	1.29964	3.8211
4	AI tools enhance my pronunciation fluency.	0.8%	26.0%	0.8%	26.0%	46.3%	1.26107	3.9106
5	I gain better writing feedback through AI-assisted corrections.	0.8%	2.4%	35.8%	29.3%	31.7%	0.91619	3.8862
6	AI applications make learning more interactive and enjoyable.	0	1.6%	45.5%	18.7%	34.1%	0.92047	3.8537
7	I feel that AI tools promote independent and self-paced learning.	0.8%	23.6%	11.4%	15.4%	48.8%	1.27128	3.878
8	I believe AI contributes to faster progress in my English learning.	0.8%	1.6%	9.8%	49.6%	38.2%	0.75545	4.2276

Student perception data from Table 3 show that students see AI as being an effective tool for improving their overall English proficiency, as it was ranked as a construct with a mean score of 4.18. The specific item "I believe AI helps me learn English at a faster pace" was also ranked with the highest mean score of 4.23 with a standard deviation of 0.76; this suggests that students have a high level of positivity regarding the ability of AI to help accelerate their learning process. At the same time, some statements received diverse responses with lower mean values and moderate SD, reflecting the absence of unanimity.

Table 4. Learner Attitudes and Acceptance toward AI use

No	Statement	SD	D	N	A	SA	Std. D.	Mean
1	I trust the feedback provided by AI-powered applications.	0	0.8%	13.8%	47.2%	38.2%	0.7107	4.227
2	I believe AI will become an essential part of English education in Saudi Arabia.	0.8%	0.8%	15.4%	18.7%	64.2%	0.8415	4.447
3	I am motivated to explore new AI applications for improving my English.	23.6%	3.3%	6.5%	13.0%	53.7%	1.6690	3.699
4	I believe that AI is a complement of traditional classroom teaching.	4.1%	2.4%	9.8%	41.5%	42.3%	0.9837	4.154
5	I am confident that AI can help me achieve higher grades in English courses.	1.6%	1.6%	17.1%	46.3%	33.3%	0.8453	4.081
6	I enjoy experimenting with different AI tools to enhance my English skills.	0.8%	4.1%	37.4%	13.0%	44.7%	1.0317	3.967

In Table 4, data indicate that participants are positive about the expanding role of AI in language education in KSA as reflected in a high mean value of 4.45 and a standard deviation of 0.84 (statement 2). Moreover, as many as 53.7% of the participants appear motivated to explore new AI applications, though a moderate 23.6% expressed reservations, thus showing diversity in perceptions. It is notable that in line with many previous studies, a large section of the participants perceives AI as a complementary tool in education, the mean value is 4.15. Further, a mean perceived value of 4.08 is in favor of AI as an educational tool that can help the learners achieve better grades, in addition to enjoyment of learning with AI tools (M = 3.97).

Table 5 summarizes the technical and pedagogical challenges that the Saudi language learners encounter in AI integration in the learning process.

Table 5.Technical and Pedagogical Challenges

No	Statement	SD	D	N	A	SA	Std. D.	Mean
1	I face technical difficulties when using AI tools.	61.0%	0	31.7%	0	7.3%	1.262	1.926
2	Some AI platforms are not fully compatible with my devices.	8.9%	7.3%	13.0%	12.2%	58.5%	1.351	4.040
3	AI feedback is inaccurate.	17.9%	6.5%	19.5%	6.5%	49.6%	1.564	3.634
4	I find it hard to determine which AI suggestions are most useful.	12.2%	9.8%	8.1%	4.9%	65.0%	1.495	4.008
5	AI tools lack contextual understanding of English usage.	12.2%	4.1%	16.3%	13.0%	54.5%	1.406	3.935
6	I struggle to use AI effectively without teacher guidance.	3.3%	35.0%	13.8%	10.6%	37.4%	1.379	3.439
7	Frequent updates or changes in AI tools make them difficult to keep up with.	13.0%	8.1%	14.6%	35.0%	29.3%	1.335	3.5935

The biggest hurdle as perceived by the participants while using AI platforms in learning lies in the ability to use the suggestions made by AI chatbots and interfaces (65% of the participants). This shows the need for training and education in their use. A slightly smaller number (64.3%) of responses indicate that the changes in tools are faster than they are able to cope with as they are constantly upgraded. 54.5% reported that the current AI tools fall short for Arabic users as they lacked contextual understanding. Feedback mechanisms, too received some negative responses as 49.6% reported inaccurate feedback as a concern.

Table 6 summarizes the responses for the construct of psychological and ethical concerns in the use of AI in language classrooms.

Table 6. Psychological and Ethical Concerns

No	Statement	SD	D	N	A	SA	Std. D.	Mean
1	I am concerned that overreliance on AI may reduce my critical thinking.	1.6%	0	19.5%	48.0%	30.9%	0.80714	4.065
2	I feel worried about data privacy when using AI tools.	1.6%	1.6%	39.8%	12.2%	44.7%	1.03175	3.9675
3	I worry that using AI might make my learning less authentic.	0	1.6%	8.1%	25.2%	65.0%	0.71624	4.5366
4	AI feedback can lack empathy and cultural awareness.	0	0.8%	44.7%	23.6%	30.9%	0.87808	3.8455
5	I find AI-generated content unsuitable for Saudi cultural contexts.	0.8%	3.3%	21.1%	5.7%	69.1%	0.98042	4.3902

Data privacy remains a dominant reservation in the use of AI with a mean value of 3.97, reflecting a high degree of sensitivity to this issue. Moreover, they also reported (64%) that learning may become less authentic with overdependence on AI not only in the learning component but also in the feedback being bereft of empathy (54.5%) with a mean score of 3.85. Many believed that AI-generated content may not be fully suitable for the Saudi culture (mean = 4.39; SD = .70) as 69.1% agreed.

Table 6 summarizes that the Saudi students have a legitimate and increasing fear about the use of AI in education on both the psychological and ethical sides of the issue. This is something that requires serious consideration by the researchers and developers who create educational software, specifically with regards to the inclusion of cultural and ethical concerns into the design and implementation of the technology.

Table 7 provides an overview of how men and women differ based on their perceptions and challenges of AI.

Table 7. Differences in Means of Perceptions and Challenges of AI based on Gender Variable

Gender		N	Mean	Std. Deviation	sig
Perceived Usefulness of AI in English Learning	Male	69	3.8460	0.7476	0.140
	Female	54	4.0394	0.6733	0.135
Learner Attitudes and Acceptance Toward AI Use	Male	69	4.0435	0.4797	0.210
	Female	54	4.1636	0.5760	0.220
Technical and Pedagogical Challenges	Male	69	3.5052	0.6658	0.912
	Female	54	3.5185	0.6598	0.912
Psychological and Ethical Concerns	Male	69	4.1536	0.5043	0.834
	Female	54	4.1704	0.3351	0.826

Regarding the perception of the usefulness of AI, the mean value for females was 4.04, which was slightly higher than that of males (M = 3.85), with a relatively low standard deviation for both, reflecting a general agreement across the gender variable on the usefulness of AI. Similarly, "learner attitudes and acceptance of AI use" had nearly identical values for females and males, which demonstrated no statistical significance with regard to learner acceptance of AI based on gender. For technical and educational challenges construct, the average values were also very close, 3.51 and 3.52, and thus indicated that there is a similar perception of both technical and educational barriers by each gender group. In relation to "psychological and ethical concerns," the average score was 4.17 for female participants and 4.15 for male participants, which indicates statistically insignificant differences between the two genders. The participants' responses can be interpreted to indicate that gender was not a significant factor influencing perceptions of AI and the challenges encountered in English language learning, thus supporting the study's generalization across genders.

Table 8 presents the results pertaining to the differences in means of the participants' perceptions and challenges of AI according to the age variable.

Table 8. Comparison of differences in means of perceptions and challenges of AI according to the age variable

Construct		N	Mean	Std. Deviation	Sig
Perceived Usefulness of AI in English Learning	18-20	53	3.6981	0.77616	0.005
	21-23	43	4.1599	0.55254	
	+23	27	4.0231	0.72477	
Learner Attitudes and Acceptance Toward AI Use	18-20	53	4.0535	0.56403	0.736
	21-23	43	4.1318	0.54984	
	+23	27	4.1235	0.40455	
Technical and Pedagogical Challenges	18-20	53	3.5337	0.63156	0.674
	21-23	43	3.4419	0.69973	
	+23	27	3.5767	0.66710	
Psychological and Ethical Concerns	18-20	53	4.1849	0.33478	0.287
	21-23	43	4.2047	0.51545	
	+23	27	4.0444	0.47177	

Regarding the construct of learner attitudes and acceptance of AI, it was found that there were no statistically significant differences due to age. Similarly, the constructs pertaining to technical and educational challenges and psychological and ethical concerns elicited similar responses across age groups. The mean values varied but only negligibly with no statistical significance, showing that the participants had similar challenges irrespective of age.

Regarding the effect of educational level on the participants' perceptions of the role of Al in language learning, Table 9 presents a statistical analysis of their responses.

Table 9. Comparison of differences in means of perceptions and challenges of AI according to the level of education variable

Construct		First Year	Second Year	Third Year	Fourth Year	sig
Perceived Usefulness of AI in English Learning	Means	3.7566	4.0650	4.0375	3.7833	
	Std. Deviation	0.7683	0.6838	0.67388	0.71568	0.1690
Learner Attitudes and Acceptance Toward AI Use	Means	4.0351	4.1233	4.2000	4.0222	
	Std. Deviation	0.5371	0.5396	0.50610	0.49146	0.6363
Technical and Pedagogical Challenges	Means	3.5977	3.4171	3.3143	3.8667	
	Std. Deviation	0.62390	0.59907	0.90422	0.40574	0.0484
Psychological and Ethical Concerns	Means	4.1947	4.1960	3.9500	4.2400	
	Std. Deviation	0.2808	0.3440	0.78907	0.33975	0.1255

Data for the construct of Technical and Educational Challenges indicated a statistically significant difference for Participants' level of enrolment or education at the university. The highest mean (3.87) was recorded for the fourth year participants while the other years were concentrated between 3.31 and 3.60. This can indicate heightened awareness of technical and educational challenges as the students advance in higher education. As for the construct of "Psychological and Ethical Concerns", no significant differences were found for the variable of academic levels (mean values between 3.95 and 4.24). These analyses can indicate an increase in awareness of technical and educational challenges as students progress in their education, perhaps due to their increased use of AI technologies and their exposure to more practical difficulties.

Analysis of the participants' responses regarding their perception of the role of AI in language learning based on their levels of proficiency is reported in Table 10.

Table 10. Comparison of differences in means of perceptions and challenges of AI according to the English proficiency variable

Construct		N	Mean	Std. Deviation	Sig
Perceived Usefulness of AI in English Learning	Beginner	53	3.6533	0.83228	0.001
	Intermediate	47	4.1383	0.55855	
	Advanced	23	4.1467	0.50516	
Learner Attitudes and Acceptance Toward AI Use	Beginner	53	3.9686	0.51996	0.010
	Intermediate	47	4.1099	0.53192	
	Advanced	23	4.3623	0.43127	
Technical and Pedagogical Challenges	Beginner	53	3.6334	0.52602	0.183
	Intermediate	47	3.4438	0.74958	
	Advanced	23	3.3665	0.72310	
Psychological and Ethical Concerns	Beginner	53	4.1509	0.26863	0.540
	Intermediate	47	4.2085	0.49687	
	Advanced	23	4.0870	0.59947	

In the "Perception of the Benefits of AI" construct, it was found that there was a statistically significant difference among the participants as the beginners scored a mean value of 3.65, intermediate learners scored 4.14, and advanced learners scored 4.15, indicating a growing awareness of the benefits of AI as language proficiency increases. Similarly, in the "Learner Attitudes and Acceptance" construct, the mean value was 3.97 for beginners, 4.11 for intermediate learners, and 4.36 for advanced learners, reflecting increased acceptance and motivation with improved English proficiency.

However, in the "Technical and Educational Challenges" construct, no statistically significant differences were found between the different levels of English proficiency, with means ranging from 3.37 to 3.63. The same was also the case in the "Psychological and Ethical Concerns" construct, with similar means ranging from 4.09 to 4.21, showing no statistically significant differences.

Following is a statistical analysis of the participants' responses regarding their perceptions of the role of AI in language based on their AI-related experience. Table 11 summarizes the results.

Table 11. Comparison of differences in means of perceptions and challenges encountered according to experience in the use of AI

Construct		N	Mean	Std. Deviation	Sig
Perceived Usefulness of AI in English Learning	No Experience	40	3.3219	0.78236	0.000
	Limited Experience	44	4.2045	0.52071	
	Moderate Experience	17	4.0662	0.43553	
	Extensive Experience	22	4.3864	0.27524	
Learner Attitudes and Acceptance Toward AI Use	No Experience	40	3.7708	0.46484	0.000
	Limited Experience	44	4.1591	0.50700	
	Moderate Experience	17	4.2647	0.34890	
	Extensive Experience	22	4.4318	0.48156	
Technical and Pedagogical Challenges	No Experience	40	3.6750	0.53841	0.286
	Limited Experience	44	3.4578	0.68517	
	Moderate Experience	17	3.4118	0.83740	
	Extensive Experience	22	3.3961	0.64934	
Psychological and Ethical Concerns	No Experience	40	4.0850	0.42701	0.571
	Limited Experience	44	4.2045	0.48702	
	Moderate Experience	17	4.1529	0.41551	
	Extensive Experience	22	4.2182	0.36467	

Regarding the "Technical and Educational Challenges" construct, no statistically significant differences were found according to differences in experience levels, with mean scores ranging from 3.40 to 3.68. Similarly, the "Psychological and Ethical Concerns" construct showed comparable mean scores which, ranged between 4.09 and 4.22, with no statistically significant differences. In other words, experience level does not clearly affect the perception of technical challenges or the psychological and ethical concerns associated with using AI in English language learning**.**

Finally, Table 12 presents a statistical analysis of the participants' responses regarding their perceptions of the role of AI in language learning based on the location of the university where they are enrolled. The analysis revealed regional differences in perceptions of the usefulness of AI tools ($p < 0.05$). The perception of AI was significantly greater for learners from the north and east compared to those from the central and west regions. This indicates that geographical variations, including technology infrastructure, institutional support, and learners' experience with AI tools, can impact their perceptions of AI.

Table 12. Comparison of differences in means of perceptions and challenges encountered according to the university location

Construct		N	Mean	Std. Deviation	Sig
Perceived Usefulness of AI in English Learning	Central Region	45	3.6917	0.79129	0.005
	Eastern Region	42	4.1518	0.53071	
	Western Region	16	3.7266	0.79349	
	Northern Region	20	4.1688	0.65679	
Learner Attitudes and Acceptance Toward AI Use	Central Region	45	4.0407	0.50895	0.240
	Eastern Region	42	4.1190	0.49971	
	Western Region	16	3.9583	0.58531	
	Northern Region	20	4.2833	0.54906	
Technical and Pedagogical Challenges	Central Region	45	3.5429	0.64724	0.635
	Eastern Region	42	3.5238	0.70317	
	Western Region	16	3.3125	0.75632	
	Northern Region	20	3.5714	0.52233	
Psychological and Ethical Concerns	Central Region	45	4.1378	0.44276	0.940
	Eastern Region	42	4.1952	0.50652	
	Western Region	16	4.1500	0.36148	
	Northern Region	20	4.1500	0.33007	

Regarding the construct, learner attitudes and acceptance of AI use, the mean scores ranged from 3.96 to 4.28, which showed that there were no significant differences according to the location of the university, with the highest being in the northern region. Similarly, no significant differences were recorded between regions for technical and educational challenges and psychological and ethical concerns, with similar mean scores ranging from 3.31 to 3.57 and 4.13 to 4.20, respectively.

These results suggest that the location of the university or the geographical region may not significantly influence the perceived benefits of AI, and its impact on attitudes, challenges, and concerns related to the use of AI in English language teaching remains limited. No regional differences were observed in some items. However, geographical location appears to influence participants' perceptions of the usefulness of AI, and the location of universities and educational institutions cannot be ignored.

5. Discussion

This study was conducted with a diverse participant group to make the results applicable to other Saudi contexts. The aim was to answer two research questions by gathering the perceptions of Saudi language learners regarding the use of AI-powered tools in English language learning, and the challenges they encounter when using AI-assisted English language learning technologies. The study used a questionnaire

to collect the data and the sample comprised a total of 123 EFL learners.

The findings indicate that Saudi EFL learners generally possess positive views about the efficacy and use of AI in language learning, particularly in improving grammar, vocabulary, pronunciation, and providing written feedback. In addition, they share the perception that AI is a constructive agent in helping them not only improve their language proficiency but also the learning process, thus providing better learning opportunities irrespective of individual differences. At the same time, there are reservations about the outcomes when the human agency is replaced by AI. The participants firmly believe that AI can at best complement rather than replace the teacher in their classrooms. Among the direct challenges, most Saudi learners feel that the interface is not yet well equipped for the Arabic speakers as they find it difficult to understand and choose from the language options that the AI tools offer them seem to be bad contextual fits.

There are also certain psychological and ethical concerns in the use of AI, primarily focused on data privacy to which they are sensitive given the recent disclosures in media about how AI may be using data that users feed into it. These are legitimate concerns, but the researcher feels that they can be tackled with adequate training in the best use of AI as an educational tool, this can be taken up at the university level. The study also tested the perceptions against variables of age, gender, educational level, AI familiarity, and geographical location. It can be concluded from the data that most of these variables did not affect the perceptions in a statistically significant manner. At the same time, there is the need for appropriate technical and human support if AI is to be effectively integrated in Saudi EFL classrooms.

The findings of this study closely align with earlier studies in similar contexts (An et al., 2025; Alotaibi et al., 2025; Alharthi, 2024). The positive role of AI in enhancing EFL learners' general language skills has been established by previous studies (e.g., Widyasari & Maghfiroh, 2023; Rohmiyati, 2025) which also found a correlation between learners' attitudes and perception of benefits as the deciding factors in their technology adoption.

Kumar et al. (2021), like this study, concluded that students are more comfortable with a mix of the traditional with the technological in the non-native speaker context. Gradual integration of technology in the EFL classrooms is the right approach (Alamri et al., 2021). Moreover, human intervention is mandated to tackle issues concerning device compatibility, feedback accuracy, and human presence (Dimitriadou & Lanitis, 2023; Mehdaoui, 2024). Data privacy and cultural appropriacy were the other leading issues under psychological and ethical concerns reported by participants in this study as much as the potential impact on learners' critical thinking (Ghaith, 2024). These drawbacks need to be carefully examined and managed at institutional and educational levels.

Among the variables considered, age, proficiency level, experience, and geographic location were found to have no impact on the perceptions. However, academic advancement showed that as learners spent more time at the university, they felt more comfortable with technology adoption. This study's results are consistent with Alotaibi and Alzu'bi (2025); Vidarshika et al. (2025), Aljabr and Al-Ahdal (2024), and Alqasham and Al-Ahdal (2022).

More generally, this research demonstrated that the successful incorporation of AI in language instruction and student learning is based on a combination of the technology used, as well as instructional methods that account for individual differences, the technical limitations, and the educational and ethical support required.

The results from this research also suggest that teachers should be using AI as an add-on resource, while educating the students to use these tools effectively; schools need to provide their faculty and students with professional development in digital literacy as well as the ethical concerns of using AI in education and policymakers should be aware of the disparities in access to technology across regions when encouraging the use of AI in education.

6. Conclusion

The study demonstrates the expanding applications of AI in language classrooms, particularly in the context of second or foreign language learners. Learners demonstrated a very positive perception regarding the advantages of AI and its potential to develop their language competencies (grammar, vocabulary, pronunciation, writing) in addition to developing motivation and autonomy. The results of the study identify three factors (language proficiency level, prior technical experience, and age) that affect learners' perceptions of AI and their use of AI. The study's results also demonstrate the need for educators to design and implement customized education programs that account for these differences so that all students have equal access to maximize the benefits of AI. In the current context, the necessity of providing both technical and human support was identified to improve the effectiveness of technology and reduce the number of technical issues. As a result, the study provides empirical evidence that the integration of AI into the English language teaching environments of Saudi Arabia is an actual opportunity to increase the quality and efficiency of education; however, the integration of AI into the English language teaching environments of Saudi Arabia requires an integrated approach that incorporates the technical, pedagogical, and ethical components required to provide an effective long-term positive influence on the future of education. Therefore, the study contributes new knowledge to the area of AI-assisted language learning with empirical data collected from several regions within Saudi Arabia. The next steps of the research will include longitudinal studies and obtaining feedback from teachers to assess which of the AI tools are most likely to contribute to improving learning outcomes.

7. Recommendations

Based on the findings, the following recommendations are relevant:

1- Every learning environment is unique, therefore, AI integrated learning -that satisfy the needs of Saudi EFL learners should be developed and updated periodically to stay tuned with the latest in the industry.

2- Learners should be educated in the safe and optimal use of AI as a learning aid to allay their fears and make them competent users.

3- The effects of technology on learning outcomes should be assessed periodically to ensure course correction if need be.

4- Establishing clear policies that protect data privacy and respect local cultural values such as identity and religious ethics.

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Authors' contributions

Dr. Abdullah Alotaibi is responsible for the conceptualization and design of the study, data collection, data analysis, and manuscript drafting. The author also revised and approved the final version of the manuscript.

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Competing interests

The author declares that there are no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Informed consent

Obtained.

Ethical approval statement

This study follows all ethical guidelines as mandated by the university concerning participant rights, data privacy, and ethical use of information gathered.

Provenance and peer review

Not commissioned; externally double-blind peer reviewed.

Data availability statement

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

Data sharing statement

No additional data are available.

References

Ahmed, H., Kausar, S., & Mohammed, O. (2023). Social networking sites mediated course reflections on instructional technology: A case study of female students at women's university. *TESOL and Technology Studies, 4*(2), 36-48. https://doi.org/10.48185/tts.v4i2.836

Alamri, H. A., Watson, S., & Watson, W. (2021). Learning technology models that support personalization within blended learning environments in higher education. *TechTrends, 65*(1), 62-78. https://doi.org/10.1007/s11528-020-00530-3

Alghamdi, A. K., El-Hassan, W. S., Al-Ahdal, A. A. M. H., & Hassan, A. A. (2021). Distance education in higher education in Saudi Arabia in the post-COVID-19 era. *World Journal on Educational Technology: Current Issues, 13*(3), 485-501. https://doi.org/10.18844/wjet.v13i3.5956

Alharthi, S. M. (2024). Beyond traditional language learning: EFL student views on ChatGPT in Saudi Arabia. *Arab World English Journal (AWEJ) Special Issue on CALL, 10*, 15-35. https://doi.org/10.24093/awej/call10.2

Aljabr, F. S., & Al-Ahdal, A. A. M. H. (2024). Ethical and pedagogical implications of AI in language education: An empirical study at Ha'il University. *Acta Psychologica, 251*, Article 104605. https://doi.org/10.1016/j.actpsy.2024.104605

Aljabr, F., Al-Ahdal, A. A. M. H., & Daghamin, H. (2023). Influence of social networking sites on undergraduate Saudi EFL learners: A study at Ha'il University. *Theory and Practice in Language Studies, 13*(11), 3030-3038. https://doi.org/10.17507/tpls.1311.33

Aljohani, R. A. (2021). Teachers and students' perceptions on the impact of artificial intelligence on English language learning in Saudi Arabia. *Journal of Applied Linguistics and Language Research, 8*(1), 1-15.

Alotaibi, A. (2018). *The role of native language dialect on the perception of L2 English vowels* [Unpublished doctoral dissertation]. Indiana University Bloomington.

Alotaibi, A. (2022). Voicing contrast of L2 final stops: A case study on ESL learners from Saudi Arabia. *Journal of Language and Linguistic Studies, 18*(2), 1194-1207.

Alotaibi, A. N. (2021). Phonological constraints on the utterance of L2 clusters by Saudi ESL learners. *Arab World English Journal, 12*(4), 551-559. https://doi.org/10.24093/awej/vol12no4.36

Alotaibi, A. N., & Alzu'bi, M. (2025). EFL students' attitudes towards blended learning-based instruction in Saudi and Jordanian EFL classrooms. *Journal of Language Teaching and Research, 16*(2), 549-555. https://doi.org/10.17507/jltr.1602.20

Alotaibi, H. M., Sonbul, S. S., & El-Dakhs, D. A. (2025). Factors influencing the acceptance and use of ChatGPT among English as a foreign language learners in Saudi Arabia. *Humanities and Social Sciences Communications, 12*(1), 1-13. https://doi.org/10.1057/s41599-025-04945-2

Alqaed, M. A. (2024). AI in English language learning: Saudi learners' perspectives and usage. *Advanced Education, 25*, 125-138. https://doi.org/10.20535/2410-8286.318972

Alqasham, F. H., & Al-Ahdal, A. A. M. H. (2022). Effectiveness of mind-mapping as a digital brainstorming technique in enhancing attitudes of Saudi EFL learners to writing skills. *Journal of Language and Linguistic Studies, 17*(2), 1141-1156.

An, X., Chai, C. S., Li, Y., Zhou, Y., & Yang, B. (2025). Modeling students' perceptions of artificial intelligence-assisted language learning. *Computer Assisted Language Learning, 38*(5), 987-1008. https://doi.org/10.1080/09588221.2023.2246519

Banafi, N. (2025). Status of the English language program considering Saudi Vision 2030 from students' perspectives. *Studies in Foreign Language Education, 39*, 1-24. https://doi.org/10.1186/s40862-024-00311-y

Belda-Medina, J., & Calvo-Ferrer, J. R. (2022). Using chatbots as AI conversational partners in language learning. *Applied Sciences, 12*(8), Article 8427. https://doi.org/10.3390/app12084287

Dimitriadou, E., & Lanitis, A. (2023). A critical evaluation, challenges, and future perspectives of using artificial intelligence and emerging technologies in smart classrooms. *Smart Learning Environments, 10*(12), 1-26. https://doi.org/10.1186/s40561-023-00231-3

Dodigovic, M. (2005). *Artificial intelligence in second language learning: Raising error awareness*. Multilingual Matters. https://doi.org/10.2307/jj.27710964

Ghaith, K. (2024). AI integration in cultural heritage conservation—Ethical considerations and the human imperative. *International Journal of Emerging and Disruptive Innovation in Education: Visionarium, 2*(1), 1-10. https://doi.org/10.62608/2831-3550.1022

Heift, T., & Schulze, M. (2007). *Errors and intelligence in computer-assisted language learning: Parsers and pedagogues*. Routledge. https://doi.org/10.4324/9780203012215

Huang, W., Hew, K. F., & Fryer, L. K. (2022). Chatbots for language learning—Are they really useful? A systematic review of chatbot-supported language learning. *Journal of Computer Assisted Learning, 38*(1), 237-257. https://doi.org/10.1111/jcal.12610

Koehn, P. (2020). *Neural machine translation*. Cambridge University Press. https://doi.org/10.1017/9781108608480

Kumar, A., Krishnamurthi, R., Bhatia, S., Kaushik, K., Ahuja, N. J., Nayyar, A., & Masud, M. (2021). Blended learning tools and practices: A comprehensive analysis. *IEEE Access, 9*, 85151-85197. https://doi.org/10.1109/ACCESS.2021.3085844

Luckin, R., Holmes, W., Griffiths, M., & Forcier, L. B. (2016). *Intelligence unleashed: An argument for AI in education*. Pearson.

Mehdaoui, A. (2024). Unveiling barriers and challenges of AI technology integration in education: Assessing teachers' perceptions, readiness and anticipated resistance. *Futurity Education, 4*(4), 95-108. https://doi.org/10.57125/FED.2024.12.25.06

Meurers, D. (2021). Natural language processing and language learning. In N. Ziegler & M. Gonz âez-Lloret (Eds.), *The Routledge handbook of second language acquisition and technology* (pp. 15-29). Routledge. https://doi.org/10.1002/9781405198431.wbeal0858.pub2

Rohmiyati, Y. (2025). Enhancing English language learning through artificial intelligence: Opportunities, challenges and the future. *DIAJAR: Jurnal Pendidikan dan Pembelajaran, 4*(1), 8-16. https://doi.org/10.54259/diajar.v4i1.3344

Vidarshika, W., Dayapathirana, N., & Ranasinghe, A. (2025, April). Understanding AI chatbot adoption in education: The role of perceived usefulness, ease of use, and anthropomorphic tendencies. In *2025 International Research Conference on Smart Computing and Systems Engineering (SCSE)* (pp. 1-6). IEEE. https://doi.org/10.1109/SCSE65633.2025.11031020

Widyasari, P., & Maghfiroh, A. (2023). The advantages of artificial intelligence ELSA Speak application for speaking English learners in improving pronunciation skills. In *Proceedings of the 9th English Language Teaching, Literature, and Translation International Conference (ELTT 2023)* (pp. 286-292). Universitas Nusantara PGRI Kediri.