International Journal of Basic and Applied Sciences, 14 (4) (2025) 748-755

International Journal of Basic and Applied Sciences

Website: www.sciencepubco.com/index.php/IJBAS
https://doi.org/10.14419/mtajpj58
Research paper

Saudi EFL Learners' Perceptions and Usage of AI Applications in Enhancing English Speaking Skills

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Received: August 8, 2025, Accepted: August 14, 2025, Published: August 27, 2025

Abstract

This study explores Saudi EFL students' familiarity with, perceptions of, and usage patterns of AI applications to enhance their speaking skills, considering gender and academic track differences. A structured questionnaire has been created to capture the participants' perceptions, attitudes, and practices related to using AI applications in developing their English-speaking skills. The results indicate a high level of familiarity and positive perceptions of AI tools among students, yet their actual usage remains moderate. This discrepancy suggests the existence of barriers that impede the full integration of AI applications into language learning practices.
Gender-based analysis reveals that female students exhibit higher familiarity, perception, and usage of AI applications compared to their male counterparts. Furthermore, differences among academic tracks indicate that health students adopt AI applications at a higher rate than engineering students. The study underscores the potential of AI applications in enhancing EFL students' speaking proficiency while identifying challenges that limit their widespread adoption.

Keywords: *AI Applications; EFL Students; English-Speaking Skills; Speaking Proficiency.*

1. Introduction

As the world gets more interconnected, the demand for English as a Foreign Language (EFL) proficiency has increased recently. This demand encourages educators and students to look for creative ways to narrow the language gap. Artificial Intelligence (AI) is increasingly transformative in language learning. AI applications are becoming essential resources for improving English language learning due to their complex algorithms and capacity for adaptive learning. With the widespread usage of Artificial Intelligence applications in modern society, exploring their potential as educational tools for language learning is essential. Language learning stands out as an area where AI holds immense potential for innovation and enhancement.
AI applications in EFL learning span a variety of tools and platforms, each is designed to enhance different aspects of language acquisition. These include conversational AI tools, intelligent tutoring systems, and automated language assessment platforms. Conversational AI tools, such as chatbots and virtual language partners which replicate real-life conversations, enabling learners to practice speaking and comprehension skills in a structured setting. These tools leverage advanced natural language processing algorithms to interpret user inputs and offer immediate feedback and corrections.
The features of AI are strongly connected to how it is employed in education; it offers a number of advantages, and it transforms typical learning environments into ones that are more effective, flexible, and easily accessible. Recent studies in this area indicate that artificial intelligence (AI) technologies can enhance a variety of teaching and learning activities [1]. Automated language assessment platforms employ AI to evaluate learners' speaking, writing, and comprehension skills. These platforms employ speech recognition technology to assess pronunciation, fluency, and grammatical accuracy, providing detailed feedback that would be time-consuming and challenging for human evaluators to deliver. Such systems not only streamline the assessment process but also offer learners continuous opportunities for practice and improvement.
Moreover, there is a need for more investigation to understand Saudi learners' perspectives on these technologies in English language education. The use of AI applications in language learning represents a paradigm shift in traditional pedagogical approaches, offering personalized and interactive learning experiences. For Saudi EFL learners, who often face challenges in accessing immersive English-speaking environments, AI-powered platforms present an opportunity to bridge this gap and enhance their speaking skills. By exploring their perceptions, this study seeks to uncover the extent to which Saudi learners embrace AI technologies as aids for English language acquisition and communication. Therefore, through a comprehensive examination of Saudi EFL learners' perceptions, this study aims to contribute to the growing body of research on the intersection of AI and language learning, offering valuable insights into the opportunities associated with the use of AI applications in enhancing speaking proficiency among EFL learners in Saudi Arabia.

2. Literature review

2.1. AI applications' role in EFL speaking skills development

Artificial Intelligence (AI) applications have drawn attention among their use of technology in language learning because of their efficacy to enhance learners' skills, especially speaking abilities, in countries like Saudi Arabia, where English is a crucial language for success in both academic and professional lives. Applications like Duolingo, Elsa Speak, Speechling, and Rosetta Stone leverage AI to offer personalized learning experiences, including real-time feedback on pronunciation, conversational practice, and grammar correction.

Speaking is one of the most challenging yet essential skills for EFL learners, as effective communication often requires confidence and accuracy. Research shows that EFL students frequently struggle with oral communication, making it imperative to provide them with additional support [2]. AI speaking applications can evaluate students' strengths and weaknesses, which allows them to modify their talk and level of instruction to meet their individual needs. One more benefit of these applications powered by AI is that they provide instant feedback. Therefore, they allow quick adjustments and suggestions, helping students develop their speaking skills in real time.

Moreover, researchers have shown that the use of technology could improve L2 proficiency, particularly in terms of pronunciation development [3]. In addition, AI speaking applications could improve many aspects. For instance, they offer a chance to practice English with a native speaker, helping learners build confidence in their speaking skills. Such communication could solve a variety of difficulties, such as shyness, insufficient time for interactions, inadequate feedback, or limited exposure to the target language [4].

No doubt, these voice recognition technologies are leading advancements in AI language learning applications [5]. They facilitate learners' participation in spoken language practices by precisely transcribing and analyzing their speech, offering immediate feedback on intonation, pronunciation, and fluency [6]. This engaging method enhances the enjoyment of learning while simultaneously equipping students with practical language skills vital for effective everyday interaction. AI-powered applications enhance the learning experience by monitoring progress and offering customized recommendations, enabling students to concentrate on areas for improvement, and thus improving efficiency and effectiveness [7].

Beyond linguistic gains, AI technologies foster learner motivation and engagement. Features such as real-time feedback, interactive dialogues, and immersive simulations create enjoyable and adaptive learning experiences. These interactive elements not only sustain motivation but also promote active participation, both of which are critical for successful language acquisition. Moreover, AI applications support learner autonomy by enabling students to track their progress, practice without fear of judgment, and receive tailored feedback. This supportive environment strengthens self-confidence, reduces speaking anxiety, and ultimately enhances overall language proficiency [7].

Recent research has increasingly emphasized AI's role in supporting English-speaking skills. For instance, studies reveal that AI-driven applications provide frequent opportunities for learners to engage in authentic English conversations, thereby simulating real-life interactions with native speakers. Such environments are crucial for overcoming challenges linked to shyness, restricted opportunities for oral communication, and insufficient teacher feedback. By providing consistent, immediate feedback and a non-judgmental practice environment, AI helps learners build confidence and overcome barriers to effective language use [4]. Furthermore, a study examined the perspectives of Chinese university students on the effectiveness of AI-driven mobile apps in developing English speaking skills for academic purposes (EAP) in higher education. The results indicated that students favoured using AI applications to improve their speaking proficiency. AI-supported feedback was particularly appreciated, as it provided students with timely, personalized insights that encouraged them to improve their speaking skills, boosting their confidence and language proficiency [8].

Furthermore, a study investigated the impact of a speaking assistant driven by AI on Chinese EFL learners' Foreign Language Enjoyment (FLE), Foreign Language Anxiety (FLA), and Willingness to Communicate (WTC) in English. The findings indicate that the AI-speaking assistant significantly supported learners in their speaking practice, offering them greater control and autonomy over their English learning process. This beneficial effect resulted in greater Foreign Language Enjoyment (FLE), an increased Willingness to Communicate (WTC), and a significant decrease in Foreign Language Anxiety (FLA), highlighting the effectiveness of AI tools in improving language learning experiences [9].

Among existing AI applications, ELSA Speak has been widely studied for its role in pronunciation training and accent reduction. The application uses AI-powered feedback to provide learners with detailed, real-time assessments of pronunciation, intonation, fluency, and grammar through its speech analyzer, helping users identify specific pronunciation challenges. These features align with global English proficiency benchmarks, making ELSA particularly beneficial for learners preparing for standardized tests such as IELTS and TOEFL. It has been positively reviewed that ELSA supports language autonomy and practice frequency, which is especially helpful in overcoming speaking barriers outside the classroom [10].

In the Saudi context, empirical evidence is emerging. A study at Albaha University investigated the effectiveness of the ELSA Speak app in enhancing Saudi students' oral proficiency. Using a pre-test-post-test design, the study reported significant improvements in speaking skills, with post-test results demonstrating substantial gains compared to baseline performance, indicating AI's effectiveness in providing interactive and personalized language practice. These findings underscore AI's potential to enhance speaking proficiency, support learner motivation, and broaden language practice opportunities in contexts where English exposure outside the classroom is limited [2].

Despite these positive findings, the effectiveness of AI-powered speaking applications in Saudi Arabia requires a critical examination of their limitations. A key challenge lies in the mismatch between AI pronunciation models and the phonological features of Arabic. For example, English phonemes such as /p/, /v/, and diphthongs like /aɪ/ and /eɪ/ are absent in Arabic and are often substituted with phonetically similar sounds, leading to fossilized pronunciation errors. Many AI tools, designed for a global learner base, do not always address these specific challenges. Although ELSA Speak provides detailed segmental and suprasegmental feedback, its corrective algorithms may fail to detect or adequately correct patterns typical among Arabic speakers. Similarly, speech recognition accuracy can drop when learners' pronunciation diverges significantly from the model's norms, potentially causing frustration.

A comparison of ELSA Speak and Duolingo further highlights the diversity in AI language learning tools. ELSA Speak specializes in pronunciation and accent refinement, delivering precise, phoneme-level analysis and targeted correction. This makes it particularly effective for learners focused on oral accuracy and exam preparation. Duolingo, in contrast, offers a gamified learning experience that integrates vocabulary, grammar, listening, and speaking in short, engaging tasks. While it lacks ELSA's granular phonetic feedback, its game-based rewards system sustains motivation and encourages consistent practice. For Saudi learners, Duolingo's low-pressure, entertaining format may be more attractive for casual, sustained engagement, whereas ELSA's focused feedback benefits those seeking intensive pronunciation improvement.

However, both tools have limitations in the Saudi context. ELSA Speak's success depends on sustained, targeted use, which may be less appealing to learners who prefer more varied and interactive content. Duolingo's limited pronunciation feedback may not sufficiently address deeply ingrained phonological challenges arising from Arabic–English differences. Additionally, both require stable internet connectivity and regular access to devices—conditions not always guaranteed in all regions of Saudi Arabia.

Research indicates that Saudi students often rely on traditional learning methods, resulting in few opportunities to practice speaking beyond the classroom [11]. AI offers a promising solution by expanding learners' access to authentic and adaptive speaking opportunities, both inside and outside formal educational settings. However, its full potential can only be realized if tools are adapted to local linguistic realities and learning preferences. This study seeks to explore how AI can improve the speaking skills of EFL students, offering more engaging and effective language practice opportunities. It also aims to adopt technologies like AI as a tool that could enhance students' language learning experience inside and outside classrooms.

Although previous studies highlight the general effectiveness of AI applications, the literature points to several gaps. More research is needed on how AI can be customized to accommodate learner differences, such as proficiency levels, learning styles, strategies, and motivation [12]. Moreover, research on the adoption and effectiveness of AI in EFL contexts remains scarce in the Arab world, particularly in Saudi Arabia. Crucially, little is known about how gender and academic track influence learners' perceptions and use of AI-speaking applications. Addressing these gaps, the current study investigates Preparatory Year Program (PYP) students in Saudi Arabia, exploring how AI applications contribute to the development of their speaking skills while considering the impact of gender and academic track. This study seeks to explore the role of AI applications in developing the speaking skills of EFL students by addressing the following key research questions:

1) How familiar are EFL students with AI applications designed to improve their speaking skills
2) To what extent do EFL students utilize AI applications to enhance their speaking skills?
3) Is there a notable difference in AI application usage for enhancing speaking skills among EFL students, depending on gender?
4) Is there a notable difference in AI application usage for enhancing speaking skills among EFL students depending on their academic track?

3. Methodology

This study explores the perceptions and utilization of Artificial Intelligence (AI) applications among Saudi EFL learners to enhance their English-speaking skills. The participants, enrolled in the Preparatory Year Program (PYP) at Najran University, are categorized into distinct academic tracks. This section provides an overview of the research design, participant details, data collection methods, and procedural framework.

3.1. Research design

This study employs a quantitative descriptive research design to collect and analyze data on learners' perceptions and usage patterns of AI applications. A structured questionnaire served as the primary data collection instrument.

3.2. Participants

The participants comprised 217 (Male=149, Female=68) EFL learners enrolled in the PYP at Najran University in the first semester of the academic year 2024/2025. These students were divided into four academic tracks based on their future specializations:

Health Track: Students aiming for careers in healthcare fields.

Engineering Track: Students specializing in engineering disciplines.

Computer Track: Students focusing on computer science and information technology.

Nursing Track: Students pursuing careers in nursing and related fields.

The division by tracks facilitated a comparative analysis of students' perceptions and usage of AI applications across different academic disciplines. Participants' English proficiency levels ranged from beginner to intermediate, reflecting a range of experiences in using AI tools for language learning. Convenience sampling was employed to ensure accessibility and representation across all tracks. However, the reason for the small sample size in the nursing track (16 students) is the low number of students admitted to that track in the year the questionnaire was distributed. Table 1 presents the distribution of the study sample according to the research variables.

Table 1: Distribution of the Study Sample Based on Gender and Academic Track

Variable	Category	Frequency	%
Gender	Male	149	68.7
	Female	68	31.3
Academic Track	Health	40	18.4
	Nursing	16	7.4
	Computer	57	26.3
	Engineering	104	47.9
Total		217	100

3.3. Data collection instrument

A structured questionnaire was developed to assess participants' perceptions, attitudes, and practices regarding the use of AI applications in enhancing their English-speaking skills. The questionnaire consisted of four sections:

Demographic Information, Knowledge of AI applications, Perceptions of AI applications, and EFL speaking Usage Patterns of AI Applications. It encompasses 13 questions. The students' answers vary according to the nature of each question, ranging from 1 (strongly disagree) to 5 (strongly agree) on a Likert scale.

3.4. Validity and reliability

The questionnaire was distributed electronically through Google Forms to PYP students across all academic tracks at Najran University. Participants were informed about the study's objectives and assured of both confidentiality and anonymity. They were given one week to complete the survey. The questionnaire was translated into Arabic and back-translated to ensure equivalence, with cultural adaptations based on expert feedback. It was evaluated for semantic and syntactic meanings, and was examined in both Arabic and English by specialists from the English Department College (N=3). Participants' feedback reflected satisfaction with the questionnaire's effectiveness in measuring the intended variables in line with the study's objectives. Based on their input, refinements were made to improve language and clarity. Several items were revised, while others were reorganized. The final version of the questionnaire comprised 13 items.

Table 2: Pearson Correlation Coefficients Between the Items of English Language Learners' Perceptions and Their Use of AI Applications to Enhance English-Speaking Skills and the Overall Score of the Corresponding Dimension

No	Item	Pearson Correlation	p-value
Knowledge domain			
1.	I know the concept of "Artificial Intelligence", AI	.688**	.001
2.	I use AI applications for language learning.	.890**	.000
3.	Can I recognize AI applications that are used in language learning? (e.g., ChatGPT, Duolingo, Elsa Speak, others)	.645**	.002
4.	I use AI tools for learning English	.520*	.019
Perceptions of AI Applications			
5.	I believe AI applications help to improve my English-speaking skills	.762**	.000
6.	I find AI applications effective compared to traditional methods for practicing speaking	.844**	.000
7.	I feel more confident speaking English after using AI applications	.844**	.000
8.	I find that AI applications address challenges such as pronunciation and fluency adequately	.681**	.001
9.	I believe using AI applications makes EFL learning much easier	.895**	.000
Usage Patterns of AI Applications			
1	I use AI applications to practice English speaking, such as ChatGPT, Duolingo, and Elsa Speak.	.895**	.000
2	I believe AI applications are beneficial for speaking English aspects, such as providing instant feedback, flexibility, and real-time interaction	.831**	.000
3	I can perform different English speaking activities using AI applications, such as pronunciation practice, conversation simulation, and feedback on spoken errors.	.790**	.000
4	Can I combine AI applications with other resources for learning English? (e.g., textbooks, language classes, online courses	.898**	.000

*. Correlation is significant at the 0.05 **. Correlation is significant at the 0.01.

Table 2) demonstrates that the Pearson correlation coefficients between the items and their corresponding dimension are statistically significant at the 0.01 or 0.05 significance level, confirming the consistency validity.
Additionally, the reliability coefficients for the questionnaire domains and the overall instrument score were calculated using Cronbach's alpha, as presented in Table 3.

Table 3: Cronbach's Alpha Reliability Coefficients for the Dimensions of the Questionnaire on English Language Learners' Perceptions and Their Use of AI Applications to Enhance English Speaking Skills, As Well as for the Overall Score of the Instrument

N	Domain	Categories Num.	Cronbach's Alpha
1	Knowledge domain	4	0.87
2	Perceptions of AI Applications	5	0.89
3	Usage Patterns of AI Applications	4	0.91
5	Total	13	0.93

Table (3) shows that the overall Cronbach's alpha reliability coefficient was 0.93, and the reliability coefficients for the dimensions ranged between 0.87 – 0.91, which are high reliability coefficients. This indicates that the study instrument is reliable.

3.5. Statistical processing

This study examined English language learners' perceptions and usage of AI applications to improve their English-speaking skills. It also explored the relationship between their responses, gender, and academic track. To address the research questions, various analyses were conducted using SPSS. The Pearson correlation coefficient was applied to evaluate reliability and consistency, while Cronbach's alpha was used to assess the stability of the study instrument. Additionally, descriptive statistics, including means, standard deviations, ranks, and percentages, were utilized to analyze the data and answer the first and second research questions. Lastly, a grading scale was established to assess the extent to which the items were fulfilled and to determine the level of approval, based on the range equation.

Table 4: Criteria for Interpreting the Mean Values According to the Five-Point Likert Scale

Approval Degree	Very Low	Low	Medium	High	Very High
Mean Value	From 1 to 1.80	Greater than 1.80 to 2.60	Greater than 2.60 to 3.40	Greater than 3.40 to 4.20	Greater than 4.20 to 5.00

The independent samples t-test was employed to address the third question, while one-way ANOVA was used to examine the fourth research question.

3.6. Procedures of the study

The following are the study's procedures that are followed to achieve the objectives:
Data Collection: Data were collected from students enrolled in the Pre-University Program (PYP) at Najran University. A structured questionnaire was administered to gather information on learners' perceptions and usage of AI applications to enhance their English-speaking skills.

Descriptive Statistical Analysis: The collected data were analyzed using descriptive statistics to offer a comprehensive overview of the learners' perceptions and behaviors. Key measures included:
Frequencies and Percentages: These were calculated to identify the distribution of responses across various questions.
Means and Standard Deviations: These were computed to determine the average responses and the variability within the data, providing insights into trends and patterns in the students' perceptions and usage of AI applications.
Comparative Analysis: Comparisons were made across the four academic tracks to determine if there were any significant differences in students' attitudes and behaviors based on their academic specialization. This analysis helped assess whether students from different fields of study have varied perceptions and usage of AI tools for EFL speaking learning.

4. Results

a) EFL students' familiarity with AI applications for improving their speaking skills
An analysis of the means, ranks, and standard deviations of the study sample's responses regarding EFL students' familiarity with AI applications for enhancing their speaking skills was conducted. The results are displayed in Table 5.

Table 5: The Means and Standard Deviations of EFL Students' Knowledge of AI Applications for Improving Their Speaking Skills

	Items	Mean	Std. Deviation	Level
	Knowledge domain	3.56	.904	Large
1	I know the concept of "Artificial Intelligence", AI	3.55	1.053	Large
2	I use AI applications for language learning.	3.56	1.092	Large
3	Can I recognize AI applications that are used in language learning? (e.g., ChatGPT, Duolingo, Elsa Speak, others)	3.69	1.072	Large
4	I use AI tools for learning English	3.44	1.154	Large
	Perceptions of AI Applications	3.54	.977	Large
5	I believe AI applications help to improve my English-speaking skills	3.69	1.028	Large
6	I find AI applications effective compared to traditional methods for practicing speaking	3.49	1.131	Large
7	I feel more confident speaking English after using AI applications	3.41	1.164	Large
8	I find that AI applications address challenges such as pronunciation and fluency adequately	3.48	1.183	Large
9	I believe using AI applications makes EFL learning much easier	3.65	1.122	Large
	The extent of EFL students' knowledge of AI applications to improve their speaking skills"	3.55	.885	Large

Table 5 shows that the extent of EFL students' knowledge of AI applications to improve their speaking skills was high, with a mean score of 3.55 and a standard deviation of 0.885. Also, the cognitive domain achieved a mean score of (3.56) with a standard deviation of (0.904) rated as high, with mean scores for the items ranging between (3.44–3.69). Meanwhile, the perceptions domain of AI applications achieved a mean score of (3.54) with a standard deviation of (0.977), also rated as high, with mean scores for the perception statements ranging between (3.41–3.69).
b) EFL students' usage of AI applications to enhance their speaking skills?
The means and standard deviations were calculated to assess the extent to which EFL students use AI applications to improve their speaking skills. The results are presented in Table 6.

Table 6: The Means and Standard Deviations of the Extent to Which EFL Students Use AI Applications to Enhance Their Speaking Skills

	Item	Mean	Std. Deviation	Level
1	I use AI applications to practice English speaking, such as ChatGPT, Duolingo, and Elsa Speak.	3.38	.814	Medium
2	I believe AI applications are beneficial for speaking English aspects, such as providing instant feedback, flexibility, and real-time interaction	3.33	.827	Medium
3	I can perform different English speaking activities using AI applications, such as pronunciation practice, conversation simulation, and feedback on spoken errors.	3.39	.844	Medium
4	I combine AI applications with other resources for learning English? (e.g., textbooks, language classes, online courses	3.35	.797	Medium
	Usage Patterns of AI Applications	3.36	.734	Medium

Table 6 shows that the overall extent to which EFL students use AI applications to enhance their speaking skills was moderate, with a mean score of 3.36 and a standard deviation of 0.734. The mean scores for the items ranged between 3.33–3.39, all of which were at a moderate level.
c) Gender-based students' use of AI applications to enhance their speaking skills
The independent samples t-test was applied to assess the significance of differences in the mean scores of the study sample's responses regarding the use of AI applications to improve speaking skills among EFL students, based on gender. The results are shown in Table 7.

Table 7: T-Test Regarding the Use of Artificial Intelligence Applications to Enhance Speaking Skills Among EFL Students, Based on the Gender Variable

Domain	gender	N	Mean	Std. Deviation	t	df	Sig. (2-tailed)
Knowledge domain	male	149	3.41	.971	-3.740	215	.000
	female	68	3.89	.624			
Perceptions of AI Applications	male	149	3.37	1.017	-3.921	215	.000
	female	68	3.92	.767			
(EFL) students' awareness of artificial intelligence applications to improve their speaking skills	male	149	3.39	.935	-4.120	215	.000
	female	68	3.91	.642			
Usage Patterns of AI Applications	male	149	3.23	.789	-4.071	215	.000
	female	68	3.65	.487			

Table 7) shows statistically significant differences at the 0.05 level in the mean scores of the study sample's responses regarding the use of AI applications to improve speaking skills among EFL students, based on gender. The effect size (Cohen's d = 0.62) for gender differences in usage patterns indicates a moderate practical significance. The differences favored female students, with the mean scores ranging between (3.23–3.41) for males and (3.65–3.92) for females.

d) Academic track- based students' use of AI applications to enhance their speaking skills

The mean scores of the study sample's responses regarding the use of artificial intelligence applications to enhance speaking skills among EFL students were calculated based on their academic track. Table 8 shows this.

Table 8: Mean Scores of the Study Sample's Responses Regarding the Use of Artificial Intelligence Applications to Enhance Speaking Skills Among EFL Students Based on Their Academic Track

Domain	Track	N	Mean	Std. Deviation
Knowledge domain	Health	40	3.91	.678
	Nursing	16	3.84	1.040
	Computer	57	3.63	.698
	Engineering	104	3.34	1.003
	Total	217	3.56	.904
Perceptions of AI Applications	Health	40	4.01	.811
	Nursing	16	3.94	1.009
	Computer	57	3.61	.870
	Engineering	104	3.27	1.006
	Total	217	3.54	.977
(EFL) students' awareness of artificial intelligence applications to improve their speaking skills	Health	40	3.96	.683
	Nursing	16	3.90	.972
	Computer	57	3.62	.716
	Engineering	104	3.30	.950
	Total	217	3.55	.885
Usage Patterns of AI Applications	Health	40	3.69	.499
	Nursing	16	3.34	.953
	Computer	57	3.48	.573
	Engineering	104	3.17	.801
	Total	217	3.36	.734

A one-way ANOVA was conducted to assess the significance of differences in the mean scores of the study sample's responses regarding the use of AI applications to enhance speaking skills among EFL students, based on their academic track. Table 9) illustrates this.

Table 9: ANOVA Test of the Use of AI Applications to Enhance EFL Students' Speaking Skills Based on Their Academic Track

Domain	scores	Sum of Squares	df	Mean Square	F	Sig.
Knowledge domain	Between Groups	11.379	3	3.793	4.898	.003
	Within Groups	164.967	213	.774		
	Total	176.346	216			
Perceptions of AI Applications	Between Groups	18.973	3	6.324	7.188	.000
	Within Groups	187.404	213	.880		
	Total	206.376	216			
(EFL) students' awareness of artificial intelligence applications to improve their speaking skills	Between Groups	15.352	3	5.117	7.078	.000
	Within Groups	154.003	213	.723		
	Total	169.354	216			
Usage Patterns of AI Applications	Between Groups	8.723	3	2.908	5.748	.001
	Within Groups	107.748	213	.506		
	Total	116.471	216			

Table 9) reveals statistically significant differences at the 0.05 level in the mean scores of the study sample's responses regarding the use of AI applications to improve speaking skills among EFL students, based on their academic track.

Therefore, to determine the significance of differences, post-hoc comparisons using Scheffe's test were conducted. Table 10 shows the results:

Table 10: Scheffe's Test Regarding the Use of AI Applications to Enhance Speaking Skills Among EFL Students Based on Their Academic Track

Domain	Track		Mean Difference (I-J)	Sig.
Knowledge domain	Health	Engineering	.569*	.008
Perceptions of AI Applications	Health	Engineering	.734*	.001
(EFL) students' awareness of artificial intelligence applications to improve their speaking skills	Health	Engineering	.660*	.001
Usage Patterns of AI Applications	Health	Engineering	.514*	.002

*. The mean difference is significant at the 0.05 level.

Table 10 shows statistically significant differences at the 0.05 level between the health track and the engineering track, in favor of the health track

5. Discussion

This study investigated EFL students' familiarity, perceptions, and usage patterns of AI applications to enhance their speaking skills, considering gender and academic track as key variables. The findings reveal notable insights that contribute to understanding how AI tools are integrated into language learning and highlight areas for further research and application.

5.1. Familiarity with AI applications

The results indicated a high level of familiarity among EFL students with AI applications for improving speaking skills, as reflected in a mean score of 3.55. Students demonstrated considerable awareness of AI tools and applications like ChatGPT, Duolingo, and Elsa Speak. In addition, they showed their potential for enhancing language learning. This result is consistent with that of [13] and [14], which indicated that the majority of EFL students are familiar with AI applications and showed positive attitudes toward them in learning English.
This suggests that AI applications have gained significant recognition among Saudi EFL learners, potentially due to their accessibility and growing prevalence in education. AI tools, such as ChatGPT, Duolingo, and Elsa Speak, are increasingly available across various platforms, including mobile devices, making them easy to access for students in diverse settings. The intuitive interfaces of these applications, along with their capacity to offer immediate feedback, real-time interaction, and tailored learning experiences, play a key role in their broad popularity.
Moreover, the growing integration of technology in education, particularly in language learning, has normalized the use of AI applications as essential tools for skill development. Many students are introduced to these tools through academic programs, online courses, or peer recommendations, further driving their adoption. The adaptability of AI applications to cater to individual learning needs, such as pronunciation practice, fluency improvement, and conversation simulation, positions them as valuable resources that complement traditional language learning methods.
Additionally, the increasing prominence of digital tools in education during and after the COVID-19 pandemic has accelerated the adoption of AI technologies. As remote learning became a necessity, students and educators alike turned to AI-powered platforms to fill gaps in language instruction, fostering familiarity and reliance on these tools. This combination of accessibility, effectiveness, and the demand for innovative learning solutions explains the high recognition of AI applications among EFL learners.

5.2. Perceptions and effectiveness of AI applications

Saudi EFL students expressed positive perceptions of AI applications, with a mean score of 3.54 in this domain. Many acknowledged the benefits of AI tools in addressing challenges such as pronunciation, fluency, and confidence-building, suggesting their potential as effective alternatives to traditional methods. However, despite the positive perceptions, the results suggest room for enhancing the alignment between student expectations and the actual capabilities of AI tools. This result agrees with [15]In which they imply that AI technology adoption in EFL environments is still not activated.

5.3. Usage of AI applications

While familiarity and perceptions were high, the extent of AI application usage among EFL students was moderate, with a mean score of 3.36. This discrepancy suggests that while students recognize the benefits of AI tools, practical or contextual barriers may hinder their frequent use. These barriers might include limited access, lack of integration into formal learning environments, or insufficient training on how to effectively use these applications. This result agrees with [15], in which they imply that AI technology adoption in EFL environments is still not activated.

5.4. Gender differences

The analysis revealed statistically significant gender differences in familiarity, perceptions, and usage of AI applications, with female students consistently scoring higher than males across all domains. This suggests that female students may perceive AI tools as more effective or accessible for improving their speaking skills. Possible reasons could include differences in learning preferences, attitudes toward technology, or prior exposure to similar applications. This aligns with previous research such as [16] , suggesting that females may engage more with language learning tools, possibly due to higher levels of motivation or perceived relevance. These findings highlight the importance of implementing targeted interventions to address gender-related disparities and promote greater engagement among male students.

5.5. Academic track differences

Significant differences were also found based on academic track, particularly between health and engineering students, favouring the health track. Health students scored higher in familiarity, perceptions, and usage of AI tools, suggesting that the nature of their academic programs, which often emphasize communication and soft skills, may drive greater adoption of AI applications. Conversely, engineering students may prioritize technical skills over language acquisition, resulting in lower engagement with these tools.

5.6. Implications and recommendations

These findings highlight the significance of incorporating AI applications into EFL learning environments while also addressing the obstacles to their use. Educators and policymakers should consider:

1) Gender-Specific Strategies: Develop initiatives to engage male students more effectively with AI tools.
2) Academic Track Customization: Tailor AI integration strategies to align with the specific needs of various academic disciplines, particularly in tracks with lower usage rates like engineering.
3) Awareness and Training: Provide comprehensive training on AI tools to bridge the gap between familiarity and practical usage.
4) Research on Barriers: Investigate the challenges students face in adopting AI applications, such as access, usability, and integration into formal curricula.

6. Conclusion

This study examined Saudi EFL students' familiarity with, perceptions of, and usage patterns of AI applications to enhance their speaking skills, considering gender and academic track differences. The findings indicate that while students demonstrate a high level of familiarity

and positive perceptions of AI tools, their actual usage remains moderate. This gap suggests the presence of barriers that hinder the full integration of AI applications into language learning practices.

The study highlights significant gender-based differences, with female students exhibiting higher levels of familiarity, perception, and usage of AI applications compared to their male counterparts. This suggests a need for targeted strategies to encourage greater engagement among male students. Additionally, differences across academic tracks were evident, particularly with health students showing higher adoption rates than engineering students. These variations may reflect differing academic demands and priorities, emphasizing the necessity for tailored AI integration approaches that align with the specific learning needs of each discipline.

Overall, the findings underscore the growing importance of AI applications in language learning and the potential benefits they offer in improving speaking skills. However, to maximize their impact, educators and policymakers should focus on enhancing awareness, providing structured training, and addressing the practical barriers to AI adoption. Future research could incorporate qualitative interviews to identify specific barriers to using AI tools—such as limited technological access or insufficient training—and to develop targeted interventions that bridge the gap between awareness and effective implementation. Investigating how AI tools can be customized to address Arabic-specific pronunciation challenges, such as vowel distinctions, would also be valuable. By fostering a more inclusive, tailored, and structured approach to AI integration, EFL learners could fully leverage these technologies to enhance their speaking proficiency and overall language competence.

Acknowledgement

The authors are thankful to the Deanship of Graduate Studies and Scientific Research at Najran University for funding this work under the Scholars Funding Program grant code: (NU/FSP/SEHRC/13/493-1).

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