ISSN 1798-4769
Journal of Language Teaching and Research, Vol. 15, No. 6, pp. 1931-1940, November 2024
DOI: https://doi.org/10.17507/jltr.1506.18

Assessing the Efficacy of Artificial Intelligence-Enabled EFL Learning and Teaching in Saudi Arabia: Perceptions, Perspectives, and Prospects

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***Abstract*—This study attempts to investigate Saudi EFL learners' perceptions, perspectives, and the prospects for AI-enabled learning and teaching in higher education in Saudi Arabia. As the study deals with how certain independent variables (levels of study, gender, and employment profile of learners' parents) shape the dependent variables (perceptions, perspectives, and prospects), a quantitative approach (descriptive quantitative design) was selected, and a questionnaire was prepared with partial adoption of modified items from existing studies. A simple random sampling method was used to collect responses from 258 Saudi EFL learners studying at different levels of the undergraduate programs at the College of Business Administration and College of Science and Humanities, Prince Sattam bin Abdulaziz University, KSA. The findings revealed that Saudi EFL learners were highly positive in their perceptions and perspectives toward AI-enabled learning, and they strongly favored the adoption of AI-powered tools for learning and teaching a language. It was also revealed that the Saudi higher education system offered great prospects for the integration of AI-powered technology into EFL classrooms. One-way ANOVA analysis revealed that there is no statistically significant difference among the study participants based on gender and parents' employment profile. However, a certain difference of statistical significance was found among them based on their study levels. The study holds implications as the findings will help the course instructors and administrators for effective integrations of AI-enabled technology to equip students with effective English skills.**

***Index Terms*—AI-enabled learning, effective English language skills, employment profile of learners' parents, Saudi EFL learners' perceptions**

I. Introduction

The unusual times of the pandemic and its aftermath saw an increasing and unprecedented adoption of technology in educational institutions and academic environments across the globe. The socially altered conditions brought about unexpected changes in all spheres of human life including education. As a result, the use of technology became an effective tool for continuing with educational activities and led to new experiences and significant improvements in education. Some technologies exclusively utilize artificial intelligence which has emerged as a driver for learning and teaching activities in the post-pandemic world (Hockly, 2023). AI integration in educational institutions has enhanced technology-based learning environments apps and learning experiences (Khan et al., 2023). The utilization of artificially intelligent powered technology for classroom instruction has increased in prominence in the last few years (Zawacki-Richter et al., 2019). As a result, it is becoming an increasingly common practice in the field of learning and teaching foreign languages. These AI-enabled resources offer innovative techniques and fresh perspectives on the task of acquiring language understanding as well as enhancing the different skills of ESL/EFL learners (Alotaibi, 2023).

In the years following the pandemic, as educational technology became more sophisticated, universities and academic institutions displayed interest in integrating artificial intelligence (AI) into education (Asthana & Hazela, 2020). In their attempts to conform to the changing tastes of the learners and meet their changing learning styles, teaching pedagogies and methodologies underwent tremendous changes. For example, from being teacher-centered, it

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became technology-driven learner-centered. With an increasing requirement for English language proficiency on a global level, technology-driven language learning and teaching occupy pivotal roles. Thus, English language teachers and students need to understand how AI could enhance learning and teaching (Alotaibi, 2023).

The last few decades have witnessed an increased use of computers and technology in educational institutions. However, computer-based training and computer-aided training lacked specialized and individualized attention to the specific problems and issues of students (Back et al., 1996). As an alternative, artificial intelligence is increasingly being touted as a strategic tool for education (Seldon & Abidoye, 2018). Today, the emergence of AI-powered learning and teaching bridged this gap and provided learners and teachers with specially designed Apps to address their specific needs and requirements. AI is an effective tool for learning as it can reduce teachers' and students' workloads and help instructors engage with students using new and innovative ways such as gamification, and individualized and tailored learning (Loeckx, 2016). We, now, have AI-powered apps for learning Grammar, improving pronunciation, and developing reading and writing skills, etc.

As Saudi Arabia embarks upon its 2030 ambitious mission of economic diversification and massive social transformation, developing digital infrastructure in Saudi Arabia's higher educational institutions draws the attention of policymakers and administrators. As a result, there is a greater push toward integrating AI-enabled learning and teaching into EFL classrooms. In addition, the tech-savvy young generation of Saudi Arabia actively responds to AI learning and teaching in EFL classrooms as it offers them novel opportunities to experiment with new and innovative learning and teaching pedagogies. While there are serious attempts to adopt AI-powered tools, there is a lack of substantive research focusing especially on Saudi EFL learners' perceptions and perspectives on the integration of AI-enabled learning and teaching into EFL classrooms.

A. Research Problem

Saudi Arabia emphasizes the integration of artificial intelligence (AI) across multiple domains. As a result, universities and educational institutions are equipped with state-of-the-art digital infrastructure. However, Alotaibi and Alshehri (2023) argue that AI-enabled learning and teaching is in its early stage in the kingdom. As a result, there is a lack of substantial literature dealing with students' perceptions and perspectives on how they respond to the integration of AI-enabled technology in EFL classrooms. This study is an attempt to bridge this gap and investigate Saudi EFL learners' perceptions and perspectives on the adoption of AI-powered tools in EFL classrooms.

B. Research Purpose Statement

The purpose of the research study is to investigate Saudi EFL learners' perceptions, perspectives, and prospects Saudi university education offers for the integration of AI-enabled powered technology into EFL classrooms. It also seeks to investigate how the differences in Saudi EFL learners' demography shape their perceptions and perspectives on AI-powered learning and teaching.

II. Literature Review

Aljohani (2021) examined Saudi EFL learner's and teachers' perspectives on using AI to enhance English language learning. A closed-ended questionnaire was designed and used to collect data from 5 teachers and 16 students. Qualitative analysis showed that both teachers and students believed that adopting artificial intelligence could enhance English language learning. Zheng et al. (2021) discussed how the AIEd has gained popularity as education adopts AI-based technologies. The study asserted that no quantitative meta-analysis had ever investigated AI's impact on perspective and comprehension. Artificial intelligence (AI) has a significant effect on learning achievement and an insignificant effect on learning perception, according to a meta-analysis of twenty-four studies involving 2908 participants from 2001 to 2020. Utami and Winarni (2023) examined perceptions, challenges, and recommendations for using AI in Indonesian academic writing instruction. It chose three central Java senior high schools, gathered data via Likert scale questionnaires and extensive mobile instant messaging talks, and utilized quantitative and qualitative approaches. The findings showed that AI-enabled applications assist learners in performing their academic research, especially in the planning phase of determining and creating topics. It also showed that learners prefer to use AI technology in the classroom to enhance learning. Du and Gao (2022) investigated determinants of teacher adoption with the help of technology acceptance theories. Based on previous investigations, the VAM framework was employed to develop a multi-criteria decision-making model with 10 sub-factors and four primary variables. The results showed that efficiency, effectiveness, and complexity were the primary variables guiding EFL teachers to accept AI-based applications. The study offers insights into teachers' perspectives on the adoption procedures of AI applications in addition to the component evaluations.

Hussain (2020) investigated university students' and teachers' perspectives on artificial intelligence (AI) powered learning and teaching. Two questionnaires were developed for collecting data from 323 university students and 196 teachers. Descriptive analysis showed favorable perspectives among university students and professors concerning AI and its pedagogical role. Limna et al. (2022) examined digital learning and education with AI-powered tools. With the help of systematic review and narrative analysis, the data was obtained from Scopus, Google Scholar, EBSCO, and Web of Science. The results revealed that AI has already entered academic spaces with both teachers and students

benefiting and getting material for various courses. However, it found certain challenges regarding implementation and observations among learners about safety, security, and privacy. The study holds immense implications as it could provide deeper insights into AI-powered learning and assist administrators, teachers, and students. AlZaabi et al. (2023) investigated medical specialists' and students' perspectives on AI in healthcare. An email with a link to an online survey was emailed to physicians and learners of medicine. The findings revealed that medical professionals and students demonstrated favorable perspectives and willingness to learn about the uses of artificial intelligence in healthcare.

Rawas (2023) argued how AI learning could revolutionize higher education teaching and learning. He stated how the Open AI developed language model gave specific guidance, improved interaction and collaboration, enhanced learning, and investigated both the pros and cons of ChatGPT in institutions of higher education. Celik et al. (2022) examined research on instructors' employment of artificial intelligence and machine learning and showed that AI could help teachers plan, implement, and assess their teaching by identifying the needs of the students and getting them familiar with those requirements. The results showed several challenges to using AI in teaching, which would contribute to future development. Hwang and Chang (2021) studied educational applications such as chatbots by reading relevant papers in SSCI-indexed journals and accessing the Web of Science (WoS) database. Taiwan, Hong Kong, and the US contributed most to the study, which used descriptive statistics, ANOVA, t-test, and correlation methods. The research suggested multiple ways in which AI-enabled learning education could improve learning processes and results. Okonkwo and Ade-Ibijola (2021) argued how Artificial Intelligence (AI) empowered chatbots to be employed in a variety of educational environments. It asserted how institutional employees and students could benefit from chatbot technology's rapid and tailored support. Chatbot research in education was explored and a systematic review method was employed for evaluating 53 publications from reliable digital databases. The study examined education chatbot research, including findings, benefits, drawbacks, and prospects for research. Sumakul et al. (2022) investigated how EFL teachers viewed the integration of artificial intelligence in their lecture rooms. Four EFL professors from Indonesian universities who used artificial intelligence in their lessons were interviewed for the data. The survey's results showed that all teachers felt positive about integrating artificial intelligence into their particular classrooms. The implications called for assessing students' motivation and teachers' technological and pedagogical ability while integrating AI into EFL classrooms.

A. Research Questions

1. What are the perceptions of EFL learners of Saudi Arabia towards AI-enabled learning and teaching?
2. What are the perspectives of EFL learners of Saudi Arabia towards AI-enabled learning and teaching?
3. What prospects does Saudi Arabia's higher education offer for AI-enabled teaching and learning?
4. Do EFL learners of Saudi Arabia differ in their perceptions/perspectives on AI-enabled learning and teaching based on differences in their demography?

B. Hypothesis

H01: There is no difference of any statistical significance in Saudi EFL learners' perceptions/perspectives towards AI-enabled learning and teaching based on gender.

H02: There is no difference of any statistical significance in Saudi EFL learners' perceptions/perspectives towards AI-enabled learning and teaching based on study level.

H03: There is no difference of any statistical significance in Saudi EFL learners' perceptions/perspectives towards AI-enabled learning and teaching based on parents' employment profiles.

III. Methodology

A. Design

As the study deals with numerical data and tests how certain independent variables (levels of study, gender, and employment profile of learners' parents) shape the dependent variables (perceptions, perspectives, and prospects), a quantitative approach (descriptive quantitative design) was selected. Creswell and Creswell (2017) recommend a quantitative approach when the research involves data comprising numerical and statistical findings.

B. Participants' Description

The study sample comprises students learning at several levels of Bachelor programs at the College of Business Administration and College of Science & Humanities, Prince Sattam bin Abdulaziz University, KSA. All respondents are Arabic native speakers and use English as a foreign language. They have had English as the mandatory course for the last seven or eight years. They are in the early years of their twenties. 258 students were randomly selected using a simple selection approach. Of the total population, 171 (66.30%) are male, 87 (33.8%) are female. And 3 participants did not specify their gender.

TABLE 1
DEMOGRAPHIC PROFILE

Description	Group	Frequency	Percentage
Gender	Male	171	66.30%
	Female	84	32.60%
	Neutral	3	1.20%
Year/Level of Study	Level 6th to 8th	46	17.80%
	Level 3rd to 5th	99	38.40%
	Level 1st to 2nd	113	43.80%
Parents' profession	Government job	185	71.70%
	Private job	24	9.30%
	Self-employment	23	8.90%
	No job/employment	26	10.10%

C. Data Collection Instrument

Before designing the questionnaire, an in-depth investigation of earlier studies was carried out. Thus, a questionnaire was developed. While some items were designed, other ones were adapted from existing studies (Alhalangy & AbdAlgane, 2023). The questionnaire's first component contains items on the participants' demographic profile. Of the next 14 items, 7 items each examine Saudi EFL learners' perceptions and perspectives on AI-powered learning and teaching. The next 7 items investigate the prospects for AI-enabled teaching and studying in Saudi Arabia university education. The study respondents were asked to express their opinions/preferences on a 5-point Likert scale (5 = strongly agree, 4 = agree, 3 = neutral, 2 = disagree, and 1 = strongly disagree).

D. Validity

As the study participants had low English proficiency, English questions were translated into Arabic. Language experts in English and Arabic validated this translation. For confirmation of the questionnaire and questions, a pilot study was undertaken. Expert comments and suggestions were incorporated into the questionnaire.

E. Method for Data Collection

A questionnaire was used to obtain data from the study participants. The course instructors and learners were sent a link to the questionnaire. The respondents were given the Arabic translation along with the English content to help them better express their opinions. They were asked to read the instructions for each section carefully. Since they were assured that their responses would be kept anonymous and utilized only for academic and research purposes, they felt safe expressing their choices.

F. Data Analysis and Interpretation

As sufficient responses were collected, a Google Form containing responses was downloaded and put into an Excel sheet. Once the numeric codes were assigned (5= strongly agree, 4= agree, 3= neutral, 2 disagree, and 1= strongly disagree), the data was moved to SPSS. As the questionnaire comprised only closed-ended questions, the data collected was tabulated and examined quantitatively. The latest SPSS version was utilized for statistical analysis. Descriptive statistics were utilized to calculate the means of the data, the frequency, and the standard deviation. One-way ANOVA was employed to identify differences between participants based on demographic characteristics. The following criteria were applied for interpreting and categorizing the degree/level of perception/perspective.

TABLE 2
PERCEPTION/PERSPECTIVE AND PROSPECTS LEVEL MEASURING SCALE

Mean Square	Level
3.01 – 4.50	High
1.51 – 3.00	Moderate
1.00 – 1.50	Low

IV. RESULTS

The study revealed that Saudi EFL students exhibited favorable attitudes toward the integration of AI-enabled learning and teaching in Saudi EFL classrooms. It also revealed that Saudi EFL learners strongly supported EFL learning and teaching and that the Saudi higher education system offered great prospects and opportunities for EFL-powered learning and teaching. In addition, the one-way analysis identified no statistically significant variations in the mean responses of participants based on gender and parental occupation. However, a statistically significant difference was found in the means of the responses of the respondents based on the year/level of study.

TABLE 3
REPRESENTING SAUD EFL LEARNERS' PERCEPTION OF USING AI-ENABLED TOOLS FOR LEARNING AND TEACHING ENGLISH

Questions/Items	SA	A	N	D	SD	Mean	Level
1	106 (41.1%)	98 (38%)	37(14.3%)	9 (3.5%)	8 (3.1%)	4.1	High
2	86 (33.3%)	66(25.6%)	61 (23.6%)	35(13.6%)	10 (3.9%)	3.7	High
3	93(36%)	106(41.1%)	46(17.8%)	10 (3.9%)	3 (1.2%)	4.06	High
4	90 (34.9%)	109(42.2%)	47 (18.2%)	8 (3.1%)	4 (1.6%)	4.05	High
5	90(34.9%)	101(39.1%)	47 (18.2%)	16(6.2%)	4 (1.6%)	3.99	High
6	52(20.2%)	56 (21.7%)	79 (36.6%)	58(22.5%)	13 (5%)	3.29	High
7	70 (27.1%)	76 (29.5%)	90 (34.9%)	19 (7.4%)	3 (1.2%)	3.74	High
Overall Mean						3.84	High

A. Analysis of Saud EFL Learners' Perception Regarding AI-Powered Learning and Teaching English

The items measured through items 1 to 7 represent the Saudi EFL learners' perceptions of AI-powered tools for EFL learning and teaching. In item no. 1, 79.1% (SA 41.1% & A 38%) of the participants agreed that artificial intelligence-based learning was an important means for enhancing personalized and self-learning. While 14.3% of the participants stayed neutral, 3.5% disagreed and 3.1% expressed a strong disagreement with the given opinion. The mean score is 4.1%, which is thought of as high. In the next item no. 2, 58.9% (SA 33.3% & A 25.6%) of the participants worried that AI-powered learning and teaching caused unemployment and led to the degradation of human talent. 23.6% chose to remain neutral, 13.6% disagreed and 3.9% strongly disagreed that AI-powered learning caused joblessness and devaluation of human intelligence. The mean is 3.7 which shows that a significant number of students are concerned about the adverse impacts of using artificial intelligence in educational settings. As far as item no. 3 is concerned, 77.1% (SA 36% & A 41.1%) of the participants believe that artificial intelligence-based learning helps EFL learners to develop their skills and acquire proficiency. While 17.8% did not express their opinion, 3.9% didn't agree and 1.2% completely disagreed. The mean score is 4.06, which is believed to be high. Regarding item no. 4, 77.1% (SA 34.9% & 42.2%) of the participants believed that the implementation of artificial intelligence (AI) in second-language classrooms increased EFL learners' self-confidence and learning efficacy. 18.2% of participants chose to stay neutral, 3.1% disagreed, and 1.6% of the participants did not believe that the use of artificial intelligence in EFL classrooms enhanced EFL learners' self-confidence and learning efficacy. The mean score is 4.05 which is thought of as high. Concerning item no. 5, 74% (SA 34.9% & A 39.1%) of the participants believed that artificial intelligence-based teaching made learning and teaching an active and engaging process. 18.2% of the participants remained neutral. While 6.2% disagreed, and 1.6% of participants strongly opposed the opinion that artificial intelligence-based teaching made learning and teaching an active and engaging process. The mean score is 3.99 which is thought of as high. Regarding item no. 6, 41.9% (SA 20.2% & A 21.7%) of the respondents believed that artificial intelligence-based learning damaged the relationship between the teacher and students. While 36.6% of participants remained neutral, 22.5% disapproved and 5% completely disagreed with the assertion. The mean score is 3.29 which is thought of as high. In the last item, 7, 56.6% (SA 27.1% & A 29.5%) of the participants believe that artificial intelligence-based learning turns emotional learning activity into a mechanical process. 34.9% of students remain neutral. 7.4% disagreed and 1.2% of the participants expressed strong disagreement with the statement. The mean is 3.74 which shows that a substantial number of students are apprehensive about the mechanical aspect of AI-powered language learning. The overall mean of all the items is 3.84, which falls within the higher range. The findings of the study address the first research question.

TABLE 4
REPRESENTING SAUDI EFL LEARNERS' PERSPECTIVES REGARDING USING AI-ENABLED TOOLS FOR LEARNING AND TEACHING ENGLISH

Questions/Items	SA	A	N	D	SD	Mean	Level
8	76(29.5%)	82(31.8%)	70(27.1%)	24(9.3%)	6(2.3%)	3.76	High
9	76(29.5%)	101(39.1%)	61(23.6%)	16(6.2%)	4(1.6%)	3.88	High
10	68(26.4%)	118(45.7%)	52(20.2%)	15(5.8%)	5(1.9%)	3.88	High
11	74(28.7%)	96(37.2%)	71(27.5%)	14(5.4%)	3(1.2%)	3.86	High
12	79(30.6%)	98(38%)	46(17.8%)	27(10.5%)	8 (3.1%)	3.82	High
13	75(29.1%)	101(39.1%)	60(23.3%)	20(7.8%)	2(0.8%)	3.87	High
14	79(30.6%)	111(43%)	48(18.6%)	17(6.6%)	3(1.2%)	3.95	High
Overall Mean						3.86	High

B. Analysis of Saudi EFL Learners' Perspectives Regarding AI-Enabled Learning and Teaching English

The items measured through items 8 to 14 represent the Saudi EFL learners' perspectives about using tools powered by AI to enhance EFL learning and instruction. In the first item of this category, 61.3% (SA 29.5% & A 31.8%) of the participants believed that artificial intelligence-enabled learning must be adopted in EFL classrooms. 27.1% of the participants were undecided. While 9.3% of the participants disagreed, and 2.3% strongly disapproved of the adoption of AI-powered tools in EFL classrooms. The mean is 3.76 which is thought of as high. In item no. 9, 68.6% (SA 29.5% & A 39.1%) of the respondents believed that employment of artificial intelligence improved English language instruction (ELT). 23.6% of the respondents were undecided. While 6.2% disagreed, a negligible 1.6% of the participants expressed a strong disagreement with the opinion. The mean score is 3.88 which is thought of as high. In

the next item no.10, 72% (SA 26.4% & A 45.7%) of the respondents thought that employing artificial intelligence in English classrooms raised challenges for both teachers and students. 20.2% of the participants preferred to stay silent. 5.8% disagreed and 1.9% strongly disapproved of the statement. The mean score is 3.88 which is thought of as high. Regarding item no. 11, 65.9% (SA 28.7% & A 37.2%) of the respondents believed that the use of artificial intelligence (AI) reduced the stressful process of learning via trial and error. 27.5% of respondents did not express their opinion. While 5.4% disagreed, 1.2% of the participants strongly disagreed with the opinion that AI-powered language learning minimized the stressful process of learning via trial and error. The mean score is 3.86 which is classed high. As far as item no. 12 is concerned, 68.6% (SA 30.6% & A 38%) of the study participants believed that artificial intelligence-enabled learning encouraged collaborative and interactive learning. 17.8% of the respondents were undecided. 10.5% disagreed, and 3.1% strongly disliked the statement. The mean score is 3.82 which is thought of as high. In the next item no. 13, 68.2% (SA 29.1% & A 39.1%) of the respondents believed that incorporating artificial intelligence was monotonous and demotivating for EFL learners. 23.3% of study participants remained neutral. While 7.8% disagreed, and 0.8% of the participants expressed strong disagreement with the assertion. The mean score is 3.87 which is thought of as high. In the last item no. 14, 73.6% (SA 30.6% & A 43%) of the respondents believed that artificial intelligence-enabled learning made students independent and self-learners. 18.6% of the study participants stayed silent. 6.6% disagreed, and 1.2% of the participants strongly opposed the statement that AI-powered learning made students independent and self-learners. The mean score is 3.95 which is classed high. The overall mean score of all the items under this category is 3.77. The findings of this analysis provide an answer to the second research question.

TABLE 5
REPRESENTING THE PROSPECTS FOR AI-ENABLED TOOLS FOR LEARNING AND TEACHING IN SAUDI ARABIAN EFL CONTEXTS

Questions/Items	SA	A	N	D	SD	Mean	Level
15	86(33.3%)	109(42.2%)	45(17.4%)	14(5.4%)	4(1.6%)	4	High
16	81(31.4%)	110(42.6%)	48(18.6%)	17(6.6%)	2(0.8%)	3.97	High
17	89(34.5%)	105(40.7%)	52(20.2%)	9(3.5%)	3(1.2%)	4.03	High
18	98(38%)	97(37.6%)	52(20.2%)	10(3.9%)	1(0.4%)	4.08	High
19	84(32.6%)	109(42.2%)	51(19.8%)	11(4.3%)	3(1.2%)	4	High
20	86(33.3%)	100(38.8%)	57(22.1%)	12(4.7%)	3(1.2%)	3.98	High
21	90(34.9%)	94(36.4%)	58(22.5%)	12(4.7%)	4(1.6%)	3.98	High
Overall Mean						4	High

C. Analysis of the Prospects for AI-Enabled Learning and Teaching in Saudi Arabian EFL Contexts

The items measured through items 15 to 21 represent prospects for AI-enabled tools for learning and teaching in Saudi Arabian EFL contexts. In the first item no. 15, 75.5% (SA 33.3% & A 42.2%) of the participants agreed that artificial Intelligence could enhance technology's ability to adapt to learners' demands and needs and help them improve their knowledge and skills. While 17.4% chose to stay neutral. 5.4% disagreed and 1.6% of the participants strongly opposed the assertion. The mean score is 4 which is thought of as high. In the next item, 16 74% (SA 31.4% & A 42.6%) of the respondents believed that artificial intelligence-based learning offered the opportunity to enhance comprehension, conversation, review grammar, and vocabulary. 18.6% remained undecided. While 6.6% disagreed, 0.8% completely rejected the opinion. The mean score is 3.97 which is thought of as high. Regarding item no. 17, 75.2% (SA 34.5% & A 40.7%) of the respondents believed that artificial intelligence-based educational apps might create customized interactive lessons, distribute them to learners, and quickly assess their advancement. 20.2% of the participants did not express their opinion. Only a tiny number of 3.5% of the participants disagreed and 1.2% of the respondents rejected the opinion. The mean score is 4.03 which is thought of as high. Concerning item no. 18, 75.6% (SA 38% % A .37.6%) of the respondents believed that artificial-enabled tools could be used to experiment with frequent speaking, improve language, and enhance pronunciation skills. 20.2% of the participants did not say anything. While 3.9% disagreed, 0.4% of the respondents disapproved of the opinion. The mean score is 4.08 which is thought of as high. In the next item no. 19, 74.8% (SA 32.6% & A 42.2%) of the respondents believed that AI-powered applications might be used to grade student essays, interact with them, and provide cost-effective, scalable, and personalized learning. 19.8% of the participants were undecided. 4.3% disagreed 1.2% of respondents completely disagreed with the assertion. The mean score is 4 which is thought of as high. About item no. 20, 72.1 (SA 33.3% & A 38.8%) of the respondents believed that artificial intelligence (AI) could aid in academic degree management, addressing specific problems, research experiences, and assessment for outcomes of learning. 22.1% of the respondents did not express their opinion. 4.7% disagreed and 1.2% of the participants completely disagreed with the opinion. The mean score is 3.98 which is thought of as high. In the last item no. 21, 71.3% (SA 34.9% & A 36.4%) of the participants believe that EFL learners could use artificial intelligence-powered tools to achieve their learning goals. While 22.5% of the respondents stayed neutral, 4.7% disagreed, and 1.6% of the participants strongly opposed the opinion. The mean score is 3.98 which is thought of as high. The overall mean score is 4, which is classed high. This analysis provides an answer to the third research question.

V. Difference in Saudi EFL Students' Perspectives on AI-Enabled Learning Based on Their Socioeconomic Background

A. Saudi EFL Students' Perceptions of AI-Enabled Learning and Gender

Table 6 given below shows the one-way ANOVA findings regarding Saudi EFL learners' perspective of AI-enabled learning. The calculated F value (2.791825) is smaller than the F critical value (5.192168), suggesting that no significant variance was noticed in the means of the responses of Saudi EFL students based on their gender differences. Hence, HO1 is accepted.

TABLE 6
REPRESENTING ONE-WAY ANOVA RESULT FOR EFL LEARNERS' PERCEPTION BASED ON GENDER

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	2349.6	4	587.4	2.791825	0.145041	5.192168
Within Groups	1052	5	210.4			
Total	3401.6	9				

B. Saudi EFL Learners' Perspective of AI-Powered Learning and Their Level of Study

Table 7 below represents the one-way ANOVA findings of Saudi EFL learners' perspectives toward AI-powered learning in Saudi Arabia. The calculated F value (6.918728) surpasses the crucial F value (3.47805), suggesting a statistically significant variation in the mean responses of Saudi EFL students based on their study levels. Hence, HO2 is rejected.

TABLE 7
REPRESENTING ONE-WAY ANOVA RESULT FOR EFL LEARNERS' PERSPECTIVE BASED ON LEVEL/YEAR OF STUDY

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	1566.4	4	391.6	6.918728	0.006156	3.47805
Within Groups	566	10	56.6			
Total	2132.4	14				

C. Prospects for AI-Powered Learning and Parents' Educational Level

Table no. 8 given below shows the one-way ANOVA result regarding Saudi EFL students' perspectives toward AI-powered learning in Saudi Arabia. The findings show that there is no statistically significant difference in the means of Saudi EFL learners' responses based on parental educational level. The calculated F value (0.831383) is smaller than the F critical value (3.055568), hence HO3 is accepted. This analysis addresses the fourth research question.

TABLE 8
REPRESENTING ONE-WAY ANOVA RESULT FOR AI-POWERED LEARNING PROSPECTS BASED ON PARENTS' EDUCATIONAL LEVEL

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	1174.8	4	293.7	0.831383	0.525848	3.055568
Within Groups	5299	15	353.2667			
Total	6473.8	19				

VI. Discussion and Analysis

The study investigated Saudi EFL learners' perceptions and perspectives and the prospects for AI-enabled learning and teaching in the Saudi Arabia system of higher education. The findings reveal that Saudi EFL learners have highly positive perceptions of AI-powered learning and teaching. This finding is in line with many studies (Syed & Basil, 2023; Mousavi Baigi et al., 2023; Buabbas et al., 2023; del Carmen Ramírez-Rueda et al., 2021). The findings of these studies show that despite a lack of awareness, people hold positive perceptions regarding AI and its utility for different purposes, particularly for EFL learning and teaching. There are also certain studies (Jimoyiannis & Komis, 2007) that are inconsistent with our findings and those that support it. The findings of our study also demonstrated that Saudi EFL learners have positive perspectives on AI-powered adoption in EFL classrooms. This finding aligns with many other existing studies (Ahmed et al., 2022; Abid et al., 2019). However, there are certain studies (Su & Yang, 2023; Tlili et al., 2023) that have noted some concerns regarding the habits of special learning and the erosion of students' critical and social thinking with particular reference to ChatGPT. The study also found great prospects and opportunities for AI-enabled learning and teaching in the Saudi Arabian system of higher education. Many studies (Gašević et al., 2023; Jabir Othman, 2023) confirm the findings of this study. However, certain studies contrast with our findings (Alotaibi & Alshehri, 2023). They deal with certain potential challenges regarding issues of the utilization of AI-powered instruction in the Saudi Arabian context. This discussion addresses the first three questions regarding Saudi EFL learners' perceptions, perspectives, and prospects for AI-enabled learning in Saudi Arabia's higher education. As far as research question 4 is concerned, our findings revealed that there is no difference of any statistical significance in Saudi EFL learners' perception towards AI-powered learning based on gender. This finding is consistent with one study

carried out by Jindal and Bansal (2020) as they found no difference of any statistical significance among the study participants based on gender. However, our study findings revealed that there is a difference of statistical significance in Saudi EFL learners' perception toward artificial intelligence-enabled learning and teaching based on their study levels. As the calculated *F value* (6.918728) is higher than *the F critical* value (3.47805), this leads to the rejection of HO2. The study also demonstrated that there is no difference of any statistical significance in Saudi EFL learners' perceptions towards AI-enabled English language instruction based on the difference in educational level of the study participants.

VII. Conclusion

The study was carried out to assess Saudi EFL learners' opinions, perspectives, and the prospects for AI-enabled learning and teaching in Saudi higher education institutions. The results revealed that Saudi EFL learners have a very high degree of positive perception toward artificial-enabled learning. It also revealed that they are very positive about the adoption and integration of artificial intelligence-enabled learning into EFL classrooms. The findings also showed that the university higher education system offers bright AI-enabled learning and teaching prospects. There is no significant difference among Saudi EFL learners based on gender. In addition, no difference of any significance was found among Saudi EFL learners based on the different professions of the parents of the study participants. However, a difference of statistical significance was found among Saudi EFL learners based on their level of study. The study holds implications as the high degree of positive perceptions, attitudes, and prospects can facilitate adopting AI-enabled learning into EFL classrooms for enhancing Saudi EFL learners' effective language skills.

***Recommendations*:** Based on the results of the study and the highly positive attitudes among Saudi EFL learners toward the use of AI-powered tools for learning and teaching in EFL classrooms, it is highly recommended that teachers make frequent use of AI-powered tools for teaching in EFL classrooms and encourage students to use AI-powered tools for developing their different skills of the language. As the young generation of Saudi Arabia is tech savvy, spends a larger part of their time using electronic devices, and responds more to technology-powered learning, AI-powered learning can help them develop excellent English skills.

Appendix

1. AI-enabled learning enhances individualized and self-learning.	SA	A	N	D	SD
2. AI-facilitated learning disregards human skills and causes unemployment.					
3. EFL learners gain skills and proficiency through AI-based learning.					
4. AI strengthens English students' self-confidence and learning efficacy.					
5. AI-based teaching makes learning and teaching interactive and dynamic processes.					
6. AI-based learning undermines teacher-student relationships.					
7. AI-based learning mechanicalizes emotional learning.					
8. English as a Foreign Language classes should include AI-based learning.					
9. Artificial intelligence enhances EFL learning and teaching.					
10. AI in English classes comes with challenges for teachers and students.					
11. I think AI reduces the stress of learning by making mistakes.					
12. I think AI-enabled learning promotes collaboration and interaction.					
13. Using AI can be monotonous and unpleasant for EFL students.					
14. I think AI-based learning helps students become independent learners.					
15. AI can help technology meet learners' needs and develop their skills.					
16. The use of AI can improve comprehension, conversation, grammar, and vocabulary.					
17. AI-driven educational apps quickly generate, distribute, and assess student progress.					
18. Audio, video, and AI-based pronunciation activities help EFL learners speak more.					
19. AI powered Apps could grade essays, interact with students, and offer personalized, cost-effective, and scalable learning.					
20. AI might manage degrees, solve problems, research experiences, and assess learning.					
21. EFL Learners can use artificial intelligence-powered tools to achieve learning goals.					

Acknowledgements

This study is supported via funding from Prince Sattam Bin Abdulaziz University project number (PSAU/2024/R/1446).

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