



Using artificial intelligence for English language learning: Saudi EFL learners' opinions, attitudes and challenges

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Abstract

The study investigates EFL (English as a Foreign Language) learners' opinions, attitudes and the challenges of incorporating AI-powered teaching and learning. It also examines how their ideas and attitudes are affected by demographic variables. 258 students were selected using a random sampling method from a population comprising students studying in different levels of programs at the College of Science and College of Business Administration, Prince Sattam bin Abdul-Aziz University, KSA. A questionnaire was self-developed using some modified items from prior studies as the study looks at how certain independent variables (e.g., study level, residential background and parents' educational level) affect the dependent variable (e.g., learners' opinions, attitudes and challenges for AI-powered learning and teaching). The quantitative approach (descriptive quantitative design) revealed that Saudi EFL students held a high level of positive opinions and attitudes towards AI-powered learning. However, the analysis found that many students thought implementing AI-powered learning was challenging. A one-way ANOVA showed no significant difference based on respondents' residential background and parental education. However, respondents differed significantly based on their level or year of study. The study findings will assist administrators and course teachers in using AI-powered technologies to overcome challenges and prepare students for achievement in the English language.

Keywords: AI-powered technologies, Demographic profile, Level/year of study, Parents' educational level, Positive opinions and attitudes, Residential background.

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Contribution of this paper to the literature

This paper investigates the attitudes, opinions and challenges of AI-powered learning and teaching in EFL classrooms. It contributes to the existing literature by providing students' perspectives and their insight into how AI-powered tools could be used for language learning and teaching in Saudi Arabia.

1. Introduction

One of the most adversely affected aspects of life in the pandemic upheavals and their aftermath was educational and academic institutions of learning and teaching (Atmojo & Nugroho, 2020; Kaqinari et al., 2021). Technology has become a means of not only survival but also an important means of carrying out our daily activities. As the lockdown was imposed, technology-powered learning and teaching assumed a pivotal role in educational institutions. The aforementioned exceptional circumstances compelled academic establishments to investigate previously unexplored and undiscovered possibilities for incorporating technology into their daily activities. Various types of technology are still influencing our lives in the post-pandemic world. Consequently, technology plays a significant role in the process of exchanging data and information using the medium of words, pictures and audio. One of the latest technological advances raising interest in these areas is artificial intelligence (AI).

The post-pandemic world witnessed an increasing adoption of AI-powered tools for instructional purposes in educational institutions across the globe. English language learning and instruction are now more accessible than ever due to the rapid advancement of technology and the development of digital media. According to Ribeiro (2020), the most useful use of artificial intelligence for English language teachers would be in ELT (English Language Teaching). English is a globally spoken language with an organized grammar. Thus, EFL students have traditionally struggled to learn English. The use of artificial intelligence, machine learning, intelligent search and natural language processing can significantly contribute to an improvement in English learning and teaching (Wang, 2019).

Saudi Arabia aims to educate the next generation of Saudis to be productive workers in a market-driven economy as it advances its major goal of economic diversification and significant social change. Universities and other educational institutions are using AI-powered learning and teaching to achieve this purpose as Saudi Arabia's tech-savvy generation supports technology-enabled learning and teaching.

1.1. Problem Statement

AI-powered learning and teaching are becoming increasingly important in higher education as the technology gains popularity in both domestic and international educational institutions. There are many studies on AI integration in EFL classrooms. However, there is apparently a lack of studies dealing with how Saudi EFL learners view AI-powered learning in EFL classrooms. Therefore, the purpose of this study is to learn more about their beliefs, attitudes and perceived obstacles to the incorporation of AI in English language instruction and study.

1.2. Research Purpose Statement

This study aims to examine Saudi EFL learners' opinions, attitudes and the challenges to the adoption of AI-powered learning and teaching in EFL classrooms in Saudi Arabia.

2. Literature Review

Zou, Liviero, Hao, and Wei (2020) investigated the opinion of university students on the application of AI-assisted mobile applications for enhancing their language skills in EAP (English for academic purposes) courses. The study used a mixed-methods approach including semi-structured interviews and a questionnaire for students. The results of the qualitative analysis were used to interpret and explain the questionnaire findings. Due to certain limitations such as teacher feedback, students held positive attitudes and preferred AI-enabled tools for language learning. Alhalangy and AbdAlgane (2023) examined previous research to get an improved understanding of how AI is employed in EFL instruction. A questionnaire was employed to gather data which was then evaluated and discussed to identify the results. The findings show that AI increases English language instruction but it must be appropriately adopted in educational environments. The course instructors and learners must know about new AI applications and tools. Baigi et al. (2023) investigated the perspectives, comprehension and competencies of medical students about artificial intelligence (AI). During a thorough examination of databases comprising Scopus, Embase, PubMed and Web of Science, a review of systematic reviews and study meta-analyses was carried out in accordance with the necessary reporting requirements. The findings revealed that medical students were positive about the use of AI in healthcare but lacked significant knowledge and abilities in working with AI.

Syed and Al-Rawi (2023) investigated the levels of knowledge, attitudes and perspectives regarding artificial intelligence (AI) among undergraduate pharmacy students at King Saud University. A cross-sectional and online questionnaire survey was undertaken from December 2022 to January 2023 using sampling methods to acquire data from senior pharmacy students at King Saud University College of Pharmacy. A large majority of the students expressed positive opinions on artificial intelligence concepts, benefits and implementation. Buabbas et al. (2023) examined the opinions of students towards applications of artificial intelligence in healthcare education. A cross-sectional study of medical students enrolled at Kuwait University's Faculty of Medicine between June 2021 and November 2021 was conducted using an online questionnaire to collect data. The results showed that most students held positive opinions about the application of artificial intelligence for language instruction. The study holds important implications for how AI will surely shape the medical future and improve healthcare services.

Crompton, Jones, and Burke (2022) undertook a thorough investigation of K-12 AIED (Artificial Intelligence in Education) covering 169 works from 2011 to 2021 and examined the dramatic rise in AIED in the past decade. The grounded coding revealed that challenges included negative experiences, students' and teachers' poor technical skills and issues related to AI tool efficiency and design. AlZaabi, AlMaskari, and AalAbdulsalam (2023) undertook an examination of the opinions of doctors and learners regarding the implementation of AI in medical care. An email with a link to an online survey was sent to students and medical professionals. The study found that one of

the most common challenges with AI was that it could not offer opinions in unanticipated circumstances. The study holds implications that including AI objectives for learning or brief medical curriculum courses could provide physicians with skills for ML-enhanced (machine language) healthcare.

2.1. Research Questions

- Q.1. How do Saudi EFL learners perceive AI-enabled teaching and learning?
 Q.2. How do Saudi EFL students consider AI-enabled education?
 Q.3. What are the challenges confronting AI-powered learning and teaching in Saudi Arabia?
 Q.4. Does Saudi EFL learners' demography affect their perspectives on AI-enabled learning and teaching?

2.2. Hypothesis

H_0^1 : Saudi EFL learners' attitudes towards AI-enabled learning and teaching are not statistically different based on their study levels.

H_0^2 : Saudi EFL learners' attitudes towards AI-enabled learning and teaching are not statistically different based on their parents' educational level.

H_0^3 : Saudi EFL learners' attitudes towards AI-enabled learning and teaching are not statistically different by their residential background.

3. Methodology

3.1. Design

The present study uses a descriptive-quantitative design which is considered appropriate as the study deals with numerical data and how certain variables (study levels, residential background and parents' educational level) affect dependent variables (opinions, attitudes and challenges). Creswell and Creswell (2017) argue that it is advisable to employ quantitative methodology while undertaking research that involves the incorporation of statistical and numerical assessments in the data analysis process.

3.2. Participants' Description

Table 1 presents the demographic profile of the study participants studying at different levels of bachelor programs at the College of Science and College of Business Administration, Prince Sattam bin Abdulaziz University, Al-Kharj Governorate, Saudi Arabia. They learn and use English as a foreign language for both academic and non-academic purposes because Arabic is their native language. English has been one of their subjects for the past seven or eight years. They are in their early twenties currently. Out of 258 students randomly selected through a simple selection approach for the study, 171 (66.30%) are male and 87 (33.8%) are female. In addition, 3 participants stayed neutral regarding their gender.

Table 1. Demographic profile.

Variables	Frequency	Percentage
Level of study		
Level 6 th to 8 th	46	17.80%
Level 3 rd to 5 th	99	38.40%
Level 1 st to 2 nd	113	43.80%
Parents' education		
postgraduate and above	66	25.60%
Intermediate+	146	56.60%
Middle school+	35	13.60%
No education	11	4.30%
Residential background		
Urban	210	81.4
Semi-urban	48	18.7

3.3. Data Collection Instrument

A questionnaire was designed that included select items from prior studies following an in-depth study of the current studies (Alhalangy & AbdAlgane, 2023). The first part of the questionnaire seeks to collect information related to the demographic profile of study respondents. In the questionnaire's second part, the first 14 questions or items seek to understand Saudi EFL learners' opinions and attitudes respectively. The last seven items investigate the challenges to the adoption of AI-powered instruction and learning in Saudi EFL classrooms. The study respondents were advised to rate their opinions on a 5-point Likert scale (5 = strongly agree, 4 = agree, 3 = neutral, 2 = disagree and 1 = strongly disagree).

3.4. Validity

A bilingual (English and Arabic) questionnaire was distributed to the study participants taking into account their English competency. People who were fluent in both English and Arabic checked the bilingual questionnaire. A pilot study was carried out to ensure that the questionnaire and its items were valid. Comments and suggestions from experts were included in the questionnaire.

3.5. Method for Data Collection

The researcher employed a questionnaire to collect data from research participants. The course teachers and students received a questionnaire link through email and WhatsApp. The respondents received both the English and Arabic translations to help them articulate their opinions. The directions and instructions for each location were provided. The study participants felt comfortable expressing their choices since they were assured that their responses would be kept safeguarded and used just for scholarly and research objectives.

3.6. Data Analysis and Interpretation

The results of a Google Form were downloaded into an Excel sheet file after sufficient responses were collected. The data was imported into SPSS after assigning numerical codes (5 = strongly agree, 4 = agree, 3 = neutral, 2 = disagree, and 1 = strongly disagree). The data was tabulated and analyzed quantitatively because the questionnaire only included closed-ended questions. The latest SPSS was employed for statistical analysis. Data frequency, standard deviation and means were calculated using descriptive statistics. A one-way ANOVA was used for contrasting demographic profiles.

4. Results and Findings

The study found that Saudi EFL students had positive views of AI-powered learning. However, many students believe that integrating AI-powered learning into EFL courses is a difficult and challenging task due to many factors. It did not find any statistically significant difference in the means of the responses of the research participants based on the residential background and educational level of their parents. However, the mean of their responses differed significantly across the study participants based on their level and year of study.

Table 2. Representing Saud EFL learners' opinions regarding AI-powered learning and teaching English.

Questions/Items	SA	A	N	D	SD	Mean
1. AI-powered learning is an important means of enhancing personalized and self-learning.	41.1%	38%	14.3%	3.5%	3.1%	4.1
2. Artificial intelligence (AI) enabled learning creates unemployment and degrades the value of human talent.	33.3%	25.6%	23.6%	13.6%	3.9%	3.7
3. Artificial intelligence-based learning helps EFL learners develop their skills and acquire proficiency.	36%	41.1%	17.8%	3.9%	1.2%	4.06
4. The use of artificial intelligence in EFL classrooms increases EFL learners' self-confidence and learning efficacy.	34.9%	42.2%	18.2%	3.1%	1.6%	4.05
5. Artificial intelligence-based teaching makes learning and teaching an active and engaging process.	34.9%	139.1%	18.2%	6.2%	1.6%	3.99
6. Artificial intelligence-based learning damages the relationship between the teacher and students.	20.2%	21.7%	36.6%	22.5%	5%	3.29
7. Artificial intelligence-based learning turns emotional learning activity into a mechanical process.	27.1%	29.5%	34.9%	7.4%	1.2%	3.74
Overall mean						3.85

4.1. Analysis of Saudi EFL Learners' Opinions about AI-Powered Learning and Teaching

Table 2 represents the Saudi EFL learners' perceptions of AI-enabled learning and teaching. In question no. 1, out of the total 258 participants, 204 (79.1%) agreed that AI-powered technology is a valuable means for promoting individual and self-learning while 37(14.3%) stayed undecided, 9 (3.5%) disagreed and 8 (3.1%) expressed strong disagreement with the given statement. The mean is 4.1 which is considered high. In the next question no. 2, 152 (58.9%) of the participants agreed that AI degrades talent and leads to unemployment. 61 (23.6%) of the participants stayed neutral while 35(13.6%) and 10 (3.9%) expressed disagreement and strong disagreement respectively. The mean is 3.7 which is high as per the assumed criteria. As far as question no. 3 is concerned, 199 (77.1%) of respondents believed that artificial intelligence improves EFL students' skill development and competence while 46(17.8%) of the participants did not express their opinion, 10 (3.9%) expressed disagreement and 3 (1.2%) expressed strong disagreement with the statement. The mean is 4.06 which fall within the range of high. Concerning next item no. 4, 199 (77.1) of the participants believed that the utilization of artificial intelligence enhances the effectiveness of the learning process and promotes self-assurance among learners. 47 (18.2%) of the participants stayed neutral, 8 (3.1%) disagreed and 4 (1.6%) strongly disapproved of the statement. The mean is 4.05 which is high. In the next item no. 5, 191 (74%) of the study participants agreed that the application of artificial intelligence in educational settings enhances the excitement and engagement levels of teaching and learning. 47 (18.2%) of the respondents stayed undecided while 16 (6.2%) disagreed, 4 (1.6%) strongly disapproved of the statement. The mean is 3.99 which are also high per the assumed criteria. Regarding item no. 6, 108 (41.9%) of the participants agreed with the statement that artificial intelligence-based learning hurts teacher-student relationships while 79 (36.6%) of the participants stayed undecided, 58 (22.5%) disagreed and 13 (5%) strongly disliked the statement. The mean is 3.29 which is also high.

Table 3. Representing Saud EFL learners' attitudes AI-powered for learning and teaching English.

Questions/Items	SA	A	N	D	SD	Mean
8. I believe that artificial intelligence-enabled learning must be adopted in EFL classrooms.	29.5%	31.8%	27.1%	9.3%	2.3%	3.76
9. The integration of artificial intelligence into EFL classrooms enhances the English language teaching (ELT) process.	29.5%	39.1%	23.6%	6.2%	1.6%	3.88
10. I believe employing artificial intelligence in English classrooms raises challenges for both teachers and students.	26.4%	45.7%	20.2%	5.8%	1.9%	3.88
11. I think the use of artificial intelligence (AI) reduces the stressful process of learning through trial and error.	28.7%	37.2%	27.5%	5.4%	1.2%	3.86
12. I believe artificial intelligence-enabled learning encourages collaborative and interactive learning.	30.6%	38%	17.8%	10%	3.1%	3.82
13. Artificial intelligence (AI) can become boring and demotivating for EFL learners when they use this automated technology.	29.1%	39.1%	23.3%	7.8%	0.8%	3.87
14. I believe artificial intelligence-enabled learning makes students independent and self-learners.	30.6	43%	18.6%	6.6%	1.2%	3.95
Overall mean						3.86

In the last item no. 7, 146 (56.6%) of the study participants agreed that emotional learning becomes mechanical when artificial intelligence is used in the learning process. 90 (34.9%) of the participants chose to stay neutral while 19 (7.4%) disagreed and 3 (1.2%) expressed strong disagreement with the statement. The mean is 3.74 which also fall within the high range. The overall mean of all the items is 3.85 which also fall within the category of high. This analysis provides an answer to the first research question.

4.2. Analysis of Saudi EFL Learners’ Attitudes about AI-Enabled Teaching and Learning

Table 3 represents Saudi EFL learners’ attitudes towards AI-enabled learning and teaching. In question no. 8, 158 (61.3%) of the respondents support the adoption and integration of AI-powered learning into EFL classrooms. 70 (27.1%) of the participants stayed neutral while 24(9.3%) opposed the statement and 6 (2.3%) strongly opposed the integration of AI-powered instructions into EFL classrooms. The mean is 3.76 which fall within the category of high as per the assumed criteria. In the next question no. 9, 177 (68.6%) of the participants agree that the implementation of artificial intelligence in EFL classes promotes the process of English language teaching (ELT). 61(23.6%) of the participants did not say anything while 16 (6.2%) disagreed and 4 (1.6%) expressed strong opposition to the statement. The mean is 3.88 which is considered high. As far as question no. 10 is concerned, 186 (72.1%) of the participants agree with the statement that using AI in English schools presents new issues for students and teachers equally while 52 (20.2%) of the respondents stayed neutral, 15 (5.8%) disagreed and only a negligible number of 5(1.9%) expressed strong opposition to the statement. The mean is 3.88 which is accepted to be high. In question no. 11, 170 (65.9%) of the participants believed that AI made learning through trial and error much easier and attainable. 71(27.5%) of the participants did not express their opinion while 14(5.4%) disagreed and 3(1.2%) expressed strong opposition to the statement. The mean is 3.86 which is considered high. Regarding question no.12, 177 (74.6%) of the respondents agreed that AI-assisted learning promoted a teaching style that stresses collaboration and engagement. 46 (17.8%) of the participants were undecided. 27 (10.5%) disagreed and 8 (3.1%) expressed strong disapproval of the statement. The mean is 3.82 which again fall within the range of high. As far as item no. 13 is concerned, 176 (68.2%) of the respondents agreed that using this automated technology can be tedious and demotivating for EFL learners. 60 (23.3%) participants stayed silent. 20 (7.8%) participants disagreed and 2(0.8%) strongly disagreed with the statement. The mean is 3.87 which is accepted to be high. In the last question no. 14, 190 (73.6%) participants agreed that AI-facilitated learning encouraged personal growth and autonomy among students while 48 (18.6%) did not express themselves. 17(6.6%) disagreed and 3(1.2%) participants expressed strong disagreement with the statement. The mean is 3.95 which is high. The overall mean of 3.86 also falls within the high range. This analysis addresses the second research question.

Table 4. Representing challenges for AI-enabled learning and teaching English.

Questions/Items	SA	A	N	D	SD	Mean
15. Integrating AI-enabled system is a significant problem with significant privacy concerns.	31%	34%	24.4%	8.5%	1.9%	3.83
16. The high cost and crude nature of technology could hinder the application of AI in higher educational institutions.	27.5%	35.7%	29.1%	6.2%	1.6%	3.81
17. The lack of digital literacy among Saudi EFL learners and teachers can be a big challenge for AI-enabled learning.	30.6%	35.7%	27.1%	5.8%	0.8%	3.89
18. There may be many challenges related to logistics when it comes to implementing artificial intelligence-enabled learning.	28.3%	34.9%	31.4%	5%	0.4%	3.85
19. The lack or shortage of experts can create obstacles to AI-enabled learning.	29.8%	32.6%	29.1%	7.4%	1.2	3.82
20. Artificial intelligence-enabled learning will produce tech-addicted, socially non-adjustable and unadjusted graduates.	30.6%	33.3%	29.1%	15.8%	1.2%	3.86
21. Artificial intelligence-enabled learning lacks alternative teaching methods to address the specific issues of different sets of students.	32.9%	36%	25.2%	5%	0.8%	3.95
Overall mean						3.86

4.3. Analysis of Challenges for AI-Powered Learning and Teaching in Saudi Arabian High Education

Table 4 represents the challenges and concerns about AI-powered technology in EFL classrooms. In question and item 15, 168 (65%) of the respondents agreed that integrating AI-powered systems presents an enormous challenge and raises significant privacy concerns. 63 (24.4%) participants stayed neutral. 22(8.5%) and 5(1.9%) disagreed and strongly disagreed respectively. The mean is 3.83 which is considered high. In the next item no. 16, 163 (63.2%) of the participants agreed that the costly expenses and crude nature of technology could hinder AI in higher educational institutions while 75(29.1%) of the respondents stayed undecided, 16 (6.2%) disagreed and 4(1.6%) strongly disagreed with the statement. The mean is 3.81 which is considered high as per the assumed criteria. About item no. 17, 171 (66.3%) of the study participants agreed that the lack of digital literacy among Saudi EFL learners and teachers could be a big challenge for AI-enabled learning. 70 (27.1%) were undecided. 15(5.8%) disagreed and 2(0.8%) expressed strong disagreement with the statement. The mean is 3.89 which also fall within the high range. As far as question and item no. 18 is concerned, 163(63.2%) of the respondents agreed that there were many challenges related to logistics when it came to implementing artificial intelligence-enabled learning while 81(31.4%) did not express their opinion, 13(5%) disagreed and 1(0.4%) expressed strong disagreement with the statement. The mean is 3.85 which is accepted to be high. In the next question and item, no. 19, 161 (62.4%) of the respondents agreed that the lack and inadequacy of experts might pose challenges for AI-facilitated learning. 75 (29.1%) were unclear. 19 (7.4%) of the participants disagreed and 3(1.2) strongly disagreed with the statement. The mean is 3.82 which is high. About question and item no. 20, 165 (63.9% of the participants agreed that AI-enabled education would generate graduates who are uneasy with others and addicted to technology. 75(29.1%) of the respondents stayed neutral, 15(5.8%) disagreed and 3(1.2) expressed strong disagreement with the statement. The mean is 3.86 which is accepted to be high. In the last item no. 21 of this category, 178(68.9%) of the study participants agreed that artificial intelligence-enabled teaching lacked alternative

teaching methods to address the specific issues of a different set of students. 65(25.2%) of the respondents were neutral. 13(5%) disagreed and 2(0.8%) of the participants expressed strong disagreement with the statement. The mean is 3.95 which is considered high. The overall mean of the items in this category is 3.86 which is considered high as per the assumed criteria for research methodology. This shows that the number of those who think that AI integration entails several challenges is overwhelmingly high. The analysis of EFL learners' thoughts and attitudes reveals that Saudi EFL learners are conscious of the obstacles associated with AI-powered learning. This analysis addressed the third research question of this research.

5. Saudi EFL Learners' Attitudes to AI-Powered Learning Based on Demographic Profile

5.1. Saudi EFL Learners' Attitudes towards AI-Powered Learning and Parents' Educational Level

The findings of the one-way ANOVA about the attitudes of Saudi EFL learners towards AI-enabled learning are presented in Table 5. The calculated F value (2.012277) is lower than the F critical value (3.055568) which demonstrates that there is no significant difference in the means of the responses of Saudi EFL students based on parents' educational level. Hence, HO1 is accepted.

Table 5. One-way ANOVA result for attitude towards AI-powered learning and parents' educational level.

Source of variation	SS	Df	MS	F	P-value	F crit
Between groups	1688.3	4	422.075	2.012	0.1443	3.056
Within groups	3146.25	15	209.75			
Total	4834.55	19				

5.2. Saudi EFL Learners' Attitudes towards AI-Powered Learning and Participants' Educational Level

The findings of the one-way ANOVA carried out about Saudi EFL learners' attitudes regarding AI-powered learning in Saudi Arabia are presented in the table below (see Table 6). The calculated F value (7.910171) is greater than the F critical value (3.47805) so it is clear that there is a difference in statistical significance in the means of the responses of Saudi EFL learners based on their levels of study. Hence, HO2 is rejected.

Table 6. One-way ANOVA result for attitude towards AI-powered learning and participants' educational level.

Source of variation	SS	df	MS	F	P-value	F crit
Between groups	2219.067	4	554.767	7.910	0.004	3.478
Within groups	701.3333	10	70.133			
Total	2920.4	14				

5.3. Saudi EFL Learners' Attitudes towards AI-Powered Learning and Participants' Residential Background

The one-way ANOVA result regarding Saudi EFL students' attitudes towards AI-powered learning in Saudi Arabia is shown in Table 7. The findings make it clear that there is no difference of any statistical significance in the means of the responses of Saudi EFL as the calculated F value (0.779897) is lower than the F critical value (3.47805). Hence, HO3 is accepted. This one-way ANOVA analysis addressed the fourth research question.

Table 7. One-way ANOVA result for attitude towards AI-powered learning and participants' residential background.

Source of variation	SS	df	MS	F	P-value	F crit
Between groups	2219.067	4	554.767	0.780	0.563	3.478
Within groups	7113.333	10	711.333			
Total	9332.4	14				

6. Discussion and Analysis

The purpose of this study was to investigate Saudi EFL learners' opinions, attitudes and challenges for AI-powered instruction and learning in Saudi Arabia's higher education system. The result revealed that Saudi EFL learners appeared to hold positive opinions about AI incorporation in EFL classrooms. This finding aligns with several studies (Al-Badi & Khan, 2022; Sumakul, Hamied, & Sukyadi, 2022; Syed & Al-Rawi, 2023). However, a study carried out by Hussein (2010) contrasts with this finding of the study. The study also found that Saudi EFL learners hold a high level of positive attitudes towards the adoption of AI-enabled learning in EFL classrooms. Baigi et al. (2023) and Ooi et al. (2021) support this finding as their findings also show a high level of positive attitudes towards AI-enabled learning and teaching. However, Limna et al. (2023) found certain concerns regarding academic integrity and overreliance on AI, particularly chatbots-powered learning. The findings from a one-way ANOVA further showed that there is no statistically important difference in the means of Saudi EFL students' responses based on their parents' educational levels and residential backgrounds. However, the study found a difference in statistical significance in the means of responses of Saudi EFL learners based on their level and years of study.

Saudi EFL learners hold good opinions and positive views regarding the efficacy of AI-powered instruction. However, the study found some serious concerns related to privacy, technology's crude nature, lack of digital literacy among teachers and students, implementation logistics, expert shortage, the addictive nature of technology and its inability to address the specific issues of different sets of students. A large percentage of individuals think that incorporating AI will be challenging. Saudi EFL learners are cognizant of the obstacles associated with AI-powered learning despite holding positive attitudes and opinions. The finding is consistent with multiple studies (Abalkheel, 2022; Alotaibi & Alshehri, 2023; Gašević, Siemens, & Sadiq, 2023; Limna, Jakwatanatham, Siripipattanakul, Kaewpuang, & Sriboonruang, 2022). However, Swed et al. (2022) contrast with

this conclusion and assert that the efficiency of AI-powered learning and teaching and the opportunities provided by it outweigh the challenges.

7. Conclusion

This research examined Saudi EFL learners' opinions, attitudes and the challenges the incorporation of AI faces in Saudi university education. It revealed that EFL learners in Saudi Arabia possess a high level of good opinions and positive attitudes towards AI-enabled learning and teaching. However, the study also found that a vast number of Saudi EFL learners believe that incorporating AI-enabled learning and teaching entails many challenges including privacy, teachers' and students' lack of digital competency, the lack of logistics in implementation, a shortage of experts, the addictive nature of technology, and its failure to meet the particular requirements of different student groups. The study also found that there is no difference in statistical significance in the means of the responses of EFL learners in Saudi Arabia based on their parents' educational level and residential background. However, a difference in statistical significance was found in the means of the responses of Saudi EFL learners based on their level and year of study.

7.1. Implications

The study has significant instructional consequences because it deals with students' attitudes, opinions and challenges of AI-enabled learning in EFL classrooms. As the study views the problems and challenges of AI-powered learning and teaching from EFL learners' perspectives, it will help teachers and administrators address these issues and frame policies accordingly.

References

- Abalkheel, A. (2022). Amalgamating Bloom's taxonomy and artificial intelligence to face the challenges of online EFL learning amid post-COVID-19 in Saudi Arabia. *International Journal of English Language and Literature Studies*, 11(1), 16-30. <https://doi.org/10.18488/5019.v11i1.4409>
- Al-Badi, A., & Khan, A. (2022). Perceptions of learners and instructors towards artificial intelligence in personalized learning. *Procedia Computer Science*, 201, 445-451. <https://doi.org/10.1016/j.procs.2022.03.058>
- Alhalangy, A. G. I., & AbdAlgane, M. (2023). Exploring the impact of AI on the EFL context: A case study of Saudi universities. *Journal of Intercultural Communication*, 23(2), 41-49. <https://doi.org/10.36923/jicc.v23i2.125>
- Alotaibi, N. S., & Alshehri, A. H. (2023). Prospers and obstacles in using artificial intelligence in Saudi Arabia higher education institutions—the potential of ai-based learning outcomes. *Sustainability*, 15(13), 10723. <https://doi.org/10.3390/su151310723>
- AlZaabi, A., AlMaskari, S., & AalAbdulsalam, A. (2023). Are physicians and medical students ready for artificial intelligence applications in healthcare? *Digital Health*, 9, 1-11. <https://doi.org/10.1177/20552076231152167>
- Atmojo, A. E. P., & Nugroho, A. (2020). EFL classes must go online! Teaching activities and challenges during COVID-19 pandemic in Indonesia. *Register Journal*, 13(1), 49-76. <https://doi.org/10.18326/rgt.v13i1.49-76>
- Baigi, M. S. F., Sarbaz, M., Ghaddaripouri, K., Ghaddaripouri, M., Mousavi, A. S., & Kimiafar, K. (2023). Attitudes, knowledge, and skills towards artificial intelligence among healthcare students: A systematic review. *Health Science Reports*, 6(3), e1138. <https://doi.org/10.1002/hsr2.1138>
- Buabbas, A. J., Miskin, B., Alnaqi, A. A., Ayed, A. K., Shehab, A. A., Syed-Abdul, S., & Uddin, M. (2023). Investigating students' perceptions towards artificial intelligence in medical education. In *Healthcare*. In (Vol. 11, pp. 1298): MDPI. <https://doi.org/10.3390/healthcare11091298>.
- Creswell, J. W., & Creswell, J. D. (2017). *Research design: Qualitative, quantitative, and mixed methods approaches*. Newbury Park: Sage Publications.
- Crompton, H., Jones, M. V., & Burke, D. (2022). Affordances and challenges of artificial intelligence in K-12 education: A systematic review. *Journal of Research on Technology in Education*, 1-21. <https://doi.org/10.1080/15391523.2022.2121344>
- Gašević, D., Siemens, G., & Sadiq, S. (2023). Empowering learners for the age of artificial intelligence. *Computers and Education: Artificial Intelligence*, 4, 100130. <https://doi.org/10.1016/j.caeai.2023.100130>
- Hussein, G. (2010). The attitudes of undergraduate students towards motivation and technology in a foreign language classroom. *International Journal of Learning and Teaching*, 2(2), 14-24.
- Kaqinari, T., Makarova, E., Audran, J., Döring, A. K., Göbel, K., & Kern, D. (2021). The switch to online teaching during the first COVID-19 lockdown: A comparative study at four European universities. *Journal of University Teaching & Learning Practice*, 18(5), 10. <https://doi.org/10.53761/1.18.5.10>
- Limna, P., Jakwatanatham, S., Siripipattanakul, S., Kaewpuang, P., & Sriboonruang, P. (2022). A review of artificial intelligence (AI) in education during the digital era. *Advance Knowledge for Executives*, 1(1), 1-9.
- Limna, P., Kraiwanit, T., Jangjarat, K., Klayklung, P., & Chocksathaporn, P. (2023). The use of ChatGPT in the digital era: Perspectives on chatbot implementation. *Journal of Applied Learning and Teaching*, 6(1), 64-74. <https://doi.org/10.37074/jalt.2023.6.1.32>
- Ooi, S. K. G., Makmur, A., Soon, A. Y. Q., Fook-Chong, S., Liew, C., Sia, S. Y., . . . Lim, C. Y. (2021). Attitudes toward artificial intelligence in radiology with learner needs assessment within radiology residency programmes: A national multi-programme survey. *Singapore Medical Journal*, 62(3), 126. <https://doi.org/10.11622/smedj.2019141>
- Ribeiro, R. (2020). *Artificial intelligence in English language learning*. Cambridge.Org. Retrieved from <https://www.cambridge.org//elt/blog/2020/03/09/artificial-intelligence-english-language-learning/>
- Sumakul, D. T. Y., Hamied, F. A., & Sukyadi, D. (2022). Artificial intelligence in EFL classrooms: Friend or foe? *LEARN Journal: Language Education and Acquisition Research Network*, 15(1), 232-256.
- Swed, S., Alibrahim, H., Elkalagi, N. K. H., Nasif, M. N., Rais, M. A., Nashwan, A. J., . . . Albuni, M. K. (2022). Knowledge, attitude, and practice of artificial intelligence among doctors and medical students in Syria: A cross-sectional online survey. *Frontiers in Artificial Intelligence*, 5, 1011524. <https://doi.org/10.3389/frai.2022.1011524>
- Syed, W., & Al-Rawi, B. A. M. (2023). Assessment of awareness, perceptions, and opinions towards artificial intelligence among healthcare students in Riyadh, Saudi Arabia. *Medicina*, 59(5), 828. <https://doi.org/10.3390/medicina59050828>
- Wang, R. (2019). *Research on artificial intelligence promoting English learning change*. Paper presented at the 3rd International Conference on Economics and Management, Education, Humanities and Social Sciences (EMEHSS 2019). Atlantis Press.
- Zou, B., Liviero, S., Hao, M., & Wei, C. (2020). Artificial intelligence technology for EAP speaking skills: Student perceptions of opportunities and challenges. In *Technology and the Psychology of Second Language Learners and Users* In (pp. 433-463). Cham: Palgrave Macmillan.