ARTIFICIAL INTELLIGENCE IN LANGUAGE INSTRUCTION: IMPACT ON ENGLISH LEARNING ACHIEVEMENT, COLLABORATIVE, AND SELF-REGULATED LEARNING

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ABSTRACT

AI has become a source of many strategies of developmental enhancement to promote and enhance the learning of the English language. There is a need to improve learning achievement, collaborative learning, and the self-regulated skills of students in the university, this is the reason why one of the advents in AI is the AI-mediated learning instructions to EFL learners. The study sample investigates the impact of performance of the AI mediated learning instruction on three elements comprising learning achievement, collaborative learning, and self-regulated skills of learning among the university students undertaking their undergraduate programs in Saudia Arabia. Students were chosen by systematic random sampling technique and a total student number of 55 were sampled based on the sample size of 300 students in Saudia University. The respondents of the study were separated into the experiment group (n=30) and the control group (n=25). The instruction techniques that were given on AI-based learning were received by the experimental group and the Conventional teaching method was derived by the control group. Pre and post-test was also administered among the students of the two groups in an attempt to analyze the constructive results of the treatment intervention. The results of the study depicted that the English learning strategies used in the study have transformed the nature of learning of the students by improving their collaborative and self-regulated English learning abilities and their language attainments. The study results, both quantitative and qualitative, emphasized the beneficial effects of AI-based learning practice that the University of Saudia Arab has implemented. The study recommended that the AI should also focus on better the experience of personalized learning among the students to prepare self-motivating and self-regulated students which would not be dependent on their lecturers in any way.

Keywords: AI-mediated language instruction, English learning achievement, Collaborative learning, Self-regulated learning.

INTRODUCTION

The English language learning teachers transformed as a result of rapid change in technology and creation of digital learning programs. English language is a language that is spoken all around the world and it has greatly enhanced both the written and spoken environment of the learners and more specifically the students (Rajendran & Yunus, 2021). Furthermore, online technology is revolutionary in the sphere of education and the powerful influence of the Artificial Intelligence and its implementation develop learning outcomes. According to AI, exclusivity is the form of intelligence that is suggested by Machine Learning (ML) and other algorithms through the invigilance of humans (Ali et al., 2023; Campos, 2025). Some works state that artificial intelligence is a computer technology that allows one to discover and examine the growth stages of intelligent machines and applications (Divekar et al., 2021; Sarker, 2022; Xu et al., 2021). The use of AI in language learning and teaching has already elicited significant interest by learners and researchers alike in the same context. Also, to adopt the technology, language learners build virtual and creative English learning context amongst the students so that they develop their individual, collaborative, self-directed, and interactive learning processes (Wei, 2023; Yang, 2024). These language learning achievement objectives are intentionally met by language learning tools aided by AI. The study by Mena-Guacas et al. (2023) indicates that AI has largely exploited the dynamics of English Language learning and teaching and offers a significant literature resource that has been proposed by AI to augment learning outcomes.

Some empirical studies have postulated that English learning attainment has been enabled by AI because it is one of the tools that have refined various sub-divisions of English learning such as positively impacting the learning achievement of learners and making them more collaborative and self-regulated learners (Qazi et al., 2025). Wei (2023) study examined the results that the usage of AI-augmented English language learning resources has tremendously increased the general student performance of learning the subject. The study done by Hsu et al. (2023) and Hashemifardnia and Kooti (2025) operationally defined the personification of AI-assisted language learning tools to maximize collaborative and innovative talents in EFL learners by enhancing their abilities.

Self-regulated learning (SRL) enhances the idea of lifelong learning among students in order to facilitate them according to a formal learning environment to polish their learning achievements. According to Gambo & Shakir (2023), SRL explains the detailed process of students and their learning control towards their new learning practices and strategies that positively favour their learning outcome. In the same sense, collaborative learning (CL) can also be defined in the context of social interaction, verbal communication skills, and students' writing skills. The main framework of collaborative learning includes knowledgeable people, such as EFL teachers, and their interaction with the EFL learners, such as students of Saudia University. The prevalence of collaborative and self-regulated learning in the students allows them to incorporate exploring and understanding new concepts and profound vocabularies and introduces different perspectives that contrast with the traditional method of teaching (Van Der Graaf et al., 2022). However, the positive impact of AI in learning instructions relates to the English learning achievement of students (Yifan, 2024; Ali et al., 2025).

The present study significantly aims to explore and investigate the increasing influence of AI in higher education. The application of AI systems performs various tasks that significantly involve students' learning and teaching stances, such as speech understanding, increment in visual perceptions, language awareness, and interaction verbal communication (Nur Fitria, 2021; Shi et al., 2025). Within this direction, providing education to the next generation of Saudia Arabs with AI-powered educational technology and strategies is the main motive of the Saudia Government. Universities and educational institutions in Saudia Arab have faced lacking promoting English language learning because of their own native language, "Arabic" (Jamshed et al., 2024). Meanwhile, Saudi universities were mutually prepared to bring about the transition in English teaching and learning contexts. Due to the above-mentioned challenges and factors, the Saudia Arab English language learners did not see actual and effective outcomes in their learning achievement procedures, and they need to adopt and execute AI-based English learning instruction in the universities. Most of the universities have adopted AI-powered strategies, which impact the overall academic performances of students (Yifan, 2024). The present study would enhance the implementation of AI in language learning, which impacts the English learning achievements, along with the collaborative and self-regulated learning skills of students.

RESEARCH QUESTION

Q1. How do Saudia EFL teachers provide AI-enabled teaching and learning instructions in developing English learning achievement, collaborative, and self-regulated learning to University Students?

Q2. What are the challenges faced by EFL Learners in confronting AI-powered learning instructions in Saudia Arab?

Q3. What are the major perceptions of Learners towards the effect of AI-assisted language learning on their self-regulated and collaborative learning skills?

RESEARCH OBJECTIVES

1. To explore the learning dynamics of Saudia EFL teachers providing AI-enabled teaching and learning instructions in developing English learning achievement, collaborative, and self-regulated learning to University Students.
2. To investigate the challenges faced by EFL Learners in confronting AI-powered learning instructions in Saudia Arab.
3. To explore the major perceptions of Learners towards the effect of AI-assisted language learning on their self-regulated and collaborative learning skills.

RESEARCH HYPOTHESIS

1. AI-mediated language learning instructions positively impact on the English language achievement of Students of Saudia University.
2. AI-mediated language learning instructions positively impact on the Collaborative learning of Students of Saudia University.
3. AI-mediated language learning instructions positively impact on the Self-regulated learning skills of Students of Saudia University.

LITERATURE REVIEW

THEORETICAL FRAMEWORK

This study supports the behaviorism, cognitivism, and constructivism theories of learning proposed by Bednar et al. (1991), Duff y & Jonassen (1992), Jonjassen (1996), Winn (2001), etc. The two main types of learning theories are common at first, but the emphasis on constructivism in literature is reflected in the new focus on structured learning. These theories provide a brief description of how behaviour, cognitive skills, and constructive behaviour change with respect to instructional methods. However, the positive aspects also have influential contributions that emphasize the development of learning and understanding by implementing strategies and practices (Ma & Chen, 2024). Additionally, These theories bear basic fundamental concepts which are broken down into four categories namely view of knowledge, view of learning, view of motivation, and implications of teaching. According to the behaviorism theory represented by John B. Watson (1924), knowledge refers to a storehouse of responses to the stimuli in the environment in behavioral categories. Repetition and reinforces were generated by the positive behavioral responses. It is always recommended that acceptable behavioral responses channeled by the teachers are imbied by the students and learners. Besides, there is another theory in the study conducted by Jean Piaget (1968), which is Cognitive Constructivism, and this theory indicates that cognitive structures are constituted to enlarge the knowledge systems which actually were constituted by learners according to the existing cognitive structures.

In the context of this study, AI in language learning plays a fundamental role, especially in Saudi Arabia, because there are several shortcomings in the language context that have been faced by English language learners (AlAfnan, 2025; Butarbutar & Butarbutar, 2024; Lai, 2024). In the same way, the AI-assisted learners engaged in the social and cognitive constructivist approaches that have been provided by such theories (Ahmed et al., 2025). However, the theory of social constructivism by Lev Vygotsky in (1968) explains that knowledge and learning have also been constructed along with the social context because collaboration and interaction play a significant role in knowledge communities. In alignment with these three theories, this study incorporates fundamental aspects of AI and computer-based language learning that recognize transformative changes. Overall, the integration of behaviorism, cognitivism and constructivism theories of learning with the implementation of AI language learning achievement seeks for positive and effective results. The language learning achievements and collaborative and self-regulated learning between the students and AI technology have no doubt emerged as technological paradigms in the university education system of Saudi Arab countries.

IMPACT ON ENGLISH LEARNING ACHIEVEMENTS

The potential power held by AI technology is it has the intention to transform the traditional methods of learning and teaching. To fulfil the aim of this transformative change, AI has represented personalized learning experiences to encourage learners towards attractive and informative learning. Additionally, there is diversification in the individual needs of students, and they seek different assistance from AI-powered learning tools as per their needs and understandings. In the same sense, AI has designed and adopted the specifications per the requirements of students and learners in accordance with their diverse tasks. AI has connected the idea of intelligence tutoring systems, language learning achievement tools, and adaptive learning platforms to facilitate students. Several studies have examined the impact of AI-assisted learning tools on English language learning achievement in students or learners who are already exposed to AI learning strategies (Suryana et al., 2020; Divekar et al., 2022; Fitria, 2023). The implementation of AI-learning tools for language learning achievements has been introduced at the University of Saudia to benefit the students (Alqaed, 2024). However, Saudi Arabia has faced a lot of challenges in incorporating English as a language in their country. According to Ndiaye et al. (2024), there was a lack of ELT teachers and teachers in Saudia, and because of this, the positive results of English language learning could not be enhanced much in the past. This study has also discussed the gaps and their consequences among English language learners. For this purpose, the Saudia Vision 2030 aims to bring the EFL programs to facilitate the students and add value in their learning achievements. Additionally, Saudi Arabia Vision 2030 also aims to specifically target educational institutes for the betterment of education in private and public sector universities.

IMPACT ON STUDENTS COLLABORATIVE LEARNINGS

The emerging impact of AI in learning instruction facilitated the students through interdisciplinary learning techniques such as creative tasks, authentic problem-solving processe and collaborative performances in assessments (AlAfnan, 2025). Additionally, teachers and teachers also expressed their effective AI experiences in learning instruction as it enables the learners to achieve their long-term English language goals. However, AI suggested strategies and practices for enhancing English learning achievements in terms of collaborative learning explored in this research. According to Kim et al. (2022), AI-enabled technologies have captured several real-time experiences of students to elevate their language learning performances. In the same sense, the framework provided by AI to enhance their English language learning came into real exposure and experiences by implementing and optimising them (Qazi et al., 2025). The strategies and practices should be more focused towards listening and then learning effectiveness by setting rules of language and collaboration. On the other hand, collaborative learning allows students to work together as a team by incorporating with each other and representing their innovative ideas. Major (2020) explored that CL established a real-time social interaction and teamwork environment among students in which they have aimed to achieve common goals to increase their English language learning achievements (Mena-Guacas et al., 2023). There are particular ways for the development of collaborative skills among university students, for example, the incorporation of interactive learning and digital tools and interfaces in the educational curriculum. Similarly, ensure the engagement of students by behavioural skills training to evidence the consistent behaviours of students towards positive peer interaction, which contributes to students' achievement outcomes in terms of Collaborative learning powered by AI learning instructions.

IMPACT ON SELF-REGULATED LEARNING

Many researchers have explored that English language learning experiences are intrinsically connected with many technological resources, mainly AI-powered tools and techniques. Many Teachings English to Speakers of Other Languages (TESOL) researchers have recognized that the Kingdom of Saudia Arabia needs to focus on AI- learning instruction techniques to encourage English language learning (Gambo & Shakir, 2023). For this purpose, the self-regulated smart learning environment is implemented in the pedagogical processes. AI learning instructions have provided motivation and engagement to students, which allows them to communicate freely without feelings of hesitation. On the other hand, AI chatbots and learning tools have immensely contributed to the self-regulating learning of students, especially outside the classroom environment. Self-regulation in language communication, especially in English, requires different parameters to measure the learning goals (Chang et al., 2023). Subsequently, the self-reflection and examination of students in order to elevate their collaborative and self-regulated learning of English language learning is enhanced due to seeking help from AI-powered tools and techniques (Wei, 2023). The study

conducted by Ali et al. (2023) explored the impact of AI-powered language assistance tools (i.e., ChatGPT) for the advancement of English language learning (Alqaed, 2024). This study focused on determining how ChatGPT can be used to learn English. In addition, the outcomes of the work have shown that the learning and communicative abilities of the students proved to be helpful the students turned towards the AI language teaching site in order to get some assistance. Moreover, the improvement was observed in their reading and learning and had enormous contributions to speech and listening skills of students.

METHODOLOGY

The study intends to determine the role of AI in learning achievement in the domain of learning acquisition and English learning achievement as well as collaborative and self-regulated learning. The study was carried out by adopting experimental research design wherein two sets of groups were studied, a control group and an experimental group.

PARTICIPANTS

The present study was conducted in Saudi Arabia on population of 300 students (n=300). The study carefully selected two groups of students from the class, in which participants were randomly aligned. The participants of the study were allocated to experiment and control groups, and the data collection procedure was held without any external influence. One of the groups of students consisting of (n=30) was an experimental group, and the other group, the control group (n=25), was included in the study. However, the selected participants have intermediate English proficiency levels. The ethical considerations and consent of the participants have been taken from all the participants on participants. The study was more focused on taking informed consent from all the participants; either they were included in the quantitative phase of the study or the qualitative one.

INSTRUMENTS

QUANTITATIVE PHASE
i. English Achievement Test
The experimentation consisted of an administration of a complete English achievement test to both the experimental and control groups included in the study, at a pre-test assessment stage. The objectives and goals of the study were greatly adapted and embedded on to the English achievement test that was developed by good teachers of English language in the university. The test of the evaluation was composed of a set of questions that describe the utility of such AI-based tools, as Grammarly, ChatGPT, and AI-based chatbots. The test was at least of good quality and validity, owing to taking care of the assistance of domain experts, and their good feedback and vital critique were very much appreciated at the output of the test.
ii. Collaborative Learning Scale
The collaborative learning skills of Students were measured by using a five-point Likert scale, consisting of a "Strongly Disagree" to a "Strongly Agree" scale. The study has adopted an 18-item questionnaire to evaluate students' collaborative learning skills, which was developed by (Kitjaroonchai & Kitjaroonchai, 2012).
iii. Self-Regulated Questionnaire
To monitor the self-regulated learning skills of students, utilizing the Self-Regulation Questionnaire (SRQ), which was recently designed and developed by Shen & Wang (2024). The sample size of the questionnaire consisted of 23 items that were designed to access the 6 subprocesses. Additionally, each of the subscales consisted of three or four items, and the self-regulation learning ability of the students was estimated using the total sum of the participants' scores.

QUALITATIVE PHASE
Semi-structured Interviews
The study conducted semi-structured interviews with the 16 participants of the experimental group. A purposive and convenience sampling strategy was implemented while recruiting the participants for the interview. The specification in the demographics of the study was highlighted in the number of participants, as six of them were females, and ten participants were male students pursuing their undergraduate degrees. However, all the participants were between 20 and 25 years old. The interview questions designed for the study were comprised of several aspects that are related to AI learning instructions provided to the students powered by AI learning tools. According to Jeon (2022), the semi-structured interview has the ability to offer participants an open interface where they can express their positive or

negative insights and perceptions related to the AI- mediated language instructions. Prior consent has been obtained from all the student participants to maintain a comfortable and open interview environment.

Table 1. *Demographics Table for Interview Data Collection*

Demographics	Description
Students	N=16
Age (years)	20-25
Gender	Male: 10 Female: 6
Education	Undergraduate

DATA COLLECTION PROCEDURES

Pre-test

The study performed pre-test evaluation of the students of the experimental and the control group to evaluate the initial achievement of English learning by students. The pre-test included the easy to hard questions that responded to the English competence of the participants in terms of grammar, reading and writing skills as well as vocabulary. In addition, once the pre-test was done, the participants were categorized into two groups i.e. experiment and the control group. This selection was not balanced because the experiment group was provisioned with thirty students and the control group was made with twenty-five students so that the results of the experiment become more reliable.

Treatment Procedures

The study incorporated AI-mediated learning instructions for the students of the experimental group. AI has supported language learning instructions by representing strategies such as reading comprehension, practicing repetitive language skills through AI chatbots, and correcting English pronunciation through language assistance AI-powered software. The time period for the interventions was 10 weeks, which included all selected interactive and personalized lessons. In parallel, traditional language learning instructions were provided to the control group for the same 10-week time domain. The traditional teaching method comprises conventional teaching practices, including textbook material, textbooks, lectures, and classroom activities.

Post-test

After 10 weeks of evaluation and implementation of teaching strategies, both AI- AI-mediated and traditional learning language practices. The post-test was conducted on the students to compare the results of the English achievement test, collaborative learning scale, and self-regulated questionnaire from the two groups.

Quantitative Data collection

The quantitative part utilized statistics and inferential analyses to plug into the effect of AI-mediated learning instructions on English learning achievement, collaborative and self-regulated learning. Statistics Package the Social Sciences (SPSS) was used to analyze the data; the results were checked in descriptive statistical tests (pre- and post-tests). In order to determine the favourable effects of treatment interventions, a mixed analysis of variance (ANOVA) was conducted. To test the major effects of time (pre-test versus post-test), group (experimental versus control) and the group and time interaction on English learning achievement, Collaborative and self-regulation learning.

Qualitative data collection

For the qualitative phase of the study, the study conducted semi-structured interviews with the students of the experiment group to analyze their perceptions and impacts of AI-mediated learning instructions. The codes were generated from thematic analysis in order to reflect meaningful patterns of interview outcomes. The intervention of AI- AI-instructed learning assessed by qualitative findings with the results of quantitative findings provides a comprehensive understanding of AI's impact on students and their performances

DATA ANALYSIS

QUANTITATIVE ANALYSIS

Table 2. *Paired Samples Test of Variables*

Paired Samples Test							
	Paired Differences				t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference			

					Lower	Upper			
Pair 1	EG Post LL – CG Post LL	7.720	10.139	2.028	3.535	11.905	3.807	24	.001
Pair 2	EG Post CL – CG Post CL	17.920	8.005	1.601	14.616	21.224	11.193	24	.000
Pair 3	EG Post SRL – CG Post SRL	22.760	11.963	2.393	17.822	27.698	9.513	24	.000

Table 2. Depicts the three pairs of data sets of pre-and post-tests for variables such as learning achievement, collaborative learning, and self-regulated learning skills. The following tests are compared in the table using a paired sample test of descriptive statistics analysis. The Mean difference (M=7.720) between the pre and post-test for Learning Achievement has showcased the significance value of (0.001). However, the post-test average score is significantly higher than the pre-test, with a t-value of 3.807. For pair 2, collaborative learning has a Mean difference of (M=17.920), confirming the significance of treatment intervention. Additionally, the Mean score of the experiment group for self-regulated learning was found to be (M=22.760). The significant value is 9.513, which is the higher difference in results, which means that the treatment intervention has a more substantial effect than the pre-test outcomes.

Table 3. *ANOVA table for Learning Achievement Post tests of Experiment and Control Group*.

ANOVA					
Learning Achievement Post-Test					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1232.410	1	1232.410	141.006	.000
Within Groups	463.227	53	8.740		
Total	1695.636	54			

According to Table 3, the total sum of squares was (1695.636), representing the total variability, the sum of between-group and within-group means. The one-way ANOVA test revealed significant results regarding the main effect of the group, indicating that the AI-mediated language instructions effectively enhanced the language learning achievement of university students. Additionally, the ratio of the variation between the groups to the variance within the groups indicated (41.006) that a greater F-value is a substantial difference between the group means.

Table 4. *ANOVA table for Collaborative Learning Post tests of Experiment and Control Group.*

ANOVA					
Collaborative Learning Post-Test					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	4227.201	1	4227.201	93.245	.000
Within Groups	2402.727	53	45.334		
Total	6629.927	54			

Table 4. shows that the F value (93.245) is relatively high, representing that the variance value between the two groups is significantly higher than the variance within the two groups. Additionally, a highly significant result ($p < 0.05$) is indicated by a p-value (Sig.) = 0.000. This implies that the group means for the collaborative learning variable differ in a way that is statistically significant.

Table 5. *ANOVA table for Self-Regulated Learning Post tests of Experiment and Control Group*

ANOVA					
Self- Regulated Learning Post Test					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	7828.385	1	7828.385	86.027	.000
Within Groups	4822.960	53	90.999		
Total	12651.345	54			

Table 5. recommended a significantly higher value of F (86.027) along with p-value = 0.000, which is (p<0.05) as there is a statistically significant difference between the Mean of the experiment and control group within the Self-regulated learning post-tests. Additionally, the total variability in the data, which combines both within-group and between-group variability, is represented by the Total Sum of Squares (12651.345).

QUALITATIVE DATA ANALYSIS

The main purpose of conducting semi-structured interviews in the study was to gain students' perceptions who participated in the experiment group and received AI-mediated language instructions. The outcomes of the interviews aimed to deliver a deeper understanding of student engagement and increment in their English learning achievements. Additionally, thematic analyses were employed to identify the learner's perceptions after the positive outcome's treatment procedure. The following themes emerged from the interviews conducted by the students to reveal the profound impact of AI-mediated English language learning instructions.

Student Engagement and Learning Motivations
The study participants notably discussed their enlarged learning English motivation, which directly affects their learning and understanding outcomes. However, participants also conveyed their perceptions through a degree of engagement towards English learning, thinking, and collaborative skills that align them towards achieving their goals. AI has provided them with interactive and engaging platforms to effectively exercise their needs to learn and understand complex terminologies of the English language. One of the respondents shared their views: AI enhances the learning experiences from conventional methods of teaching to interactive and engaging teachings and learning processes. I actively participated in all English language learning sessions that were based on premium AI-based learning procedures. I have experienced significant changes in my English learning skills regarding speaking skills.

Improvement in English Learning Achievements
AI has transformed the language learning achievements of students by undertaking comprehensive language learning tools in classroom settings. According to the study participants, AI-assisted language learning tools have enhanced the knowledge of students irrespective of their weaknesses and English proficiency level. Each and every individual has got benefits from AI-mediated language learning instructions.

The personalized experience powered by AI has offered customized learning approaches to the students who got the opportunity to experience AI-personalised treatment interventions. Students feel extensive and elevated support in their study curriculum through effective learning environments and learning styles. One of the participants responded that I really enjoyed AI-powered language learning tools as they enhanced my speaking performance, and I was able to overcome my language anxiety.

AI- Empowered convenient and flexible English Language Learning.
Students are experiencing convenient and flexible AI-featured learning activities that provide them with easy access to the technological use of AI in higher education settings. Students have practiced appropriate and diverse learning content, which is easy to understand and incorporate in their academics. The constructive context of flexibility in English learning is described in the form of freedom to learn and explain as per the understanding. The participants highlighted the convenience and flexibility powered by AI in practicing the English language at its own pace encouraging students towards better learning practices. According to the participant, these interactive learning sessions focused on flexible ways to incorporate collaborative and self-regulated learning skills, which help students achieve higher retention rates.

Emerging collaborative learning Opportunities
Students attributed that their collaborative skills emerge significantly from the influence of practical AI-based language tools incorporated in the context of higher education. The learners have recognized the value of listening, expressing ideas, and social interaction with other peers in classroom settings. These emerging opportunities have constructively complimented them toward better direction by enlightening self-confidence and communication skills in their learning styles.

Learners Empowered by Self-Regulated Learning
Learners enthusiastically reported improvement in their capacities to take charge of their academic performance without relying on their teachers. The learners are influenced by the factors that empower self-regulated learning among university students. According to the respondents of the study, the ability to set objectives for their own progress is the key towards positive behaviour towards learning. Students face many challenges to achieve their goals with suitable strategies. For students pursuing their undergraduate degrees, internal motivation and interest in learning exclusive content that provides an elicit learning experience are the fundamental steps to empowered self-regulated

learning among students. The concept of self-regulated learning comprises stages such as the use of the cognitive process and the use of the metacognitive process. It regulates these affective stages in English language learning settings.

DISCUSSION

The current study has discussed the AI-based learning structure of Saudia Arabia offered by the EFL learners in creation of the English language learning accomplishment, and the mutual working and independent regulation skills of the students. The theoretical framework in the study supported the theory of behaviourism, cognitivism and constructivism on learning. Also, mixed method approach (through a use of experimental-based approach) was utilized in terms of collecting both quantitative and qualitative data. The quantitative results of the study pointed to the fact that the instructions to language learning based on AI contribute positively to the results of the learning achievement of Student and his collaborative and self-regulated learning abilities. The purpose of the research was to investigate certain dimensions of the processes of learning that are pursued by EFL teachers of Saudia Arabia. Various interventions of the treatment were well elaborated with the help of AI-driven instructions in language learning so that the best outcomes could be obtained. Artificial intelligence has assisted teaching language learning by displaying methods such as reading comprehension, repeat language skills with the use of AI chatbots or enhancing the pronunciation of the English language through language aid AI-powered programs.

The quantitative findings of the study reported the Mean and standard deviation of Post-test of Learning achievement (M=46.08, SD= 8.621), collaborative learning (M=88.08, SD=4.873), and self-regulated learning skills (M=103.80, SD=10.634) of the experiment group respectively. The efficient AI system has empowered students to learn effectively even without external support from their teachers by using AI techniques such as chatbots and software. The quantitative findings of the study also align with the results of this previously conducted study by (Yuan & Liu, 2024). The findings of the study revealed that university students have captured multiple techniques in their learning activities to keep their academic progress high. The self-guided learners accomplished their objectives by regulating their goals using diverse strategies and assistance from AI- mediated platforms. In the same way, self-monitoring also covers metacognitive factor that understands the true importance of self-monitoring to address their success goals. According to the study of Gambo & Shakir (2023), self-regulation and monitoring provide an extent of internal feedback to learners to track their own success. Therefore, learning English while keeping track of new experiences and learning elevates students' performance. This study also highlighted that the customized nature of the AI platform facilitates students in keeping track of their tailored learning content accompanied by real-time feedback for self-assessment. This exclusive feature of AI learning instructions catered to students and learners of all ages and educational experiences. Collectively, the integration of AI-mediated instructions proved to be an effective instrument in transforming the self-regulated learning patterns of learners.

Regarding Learning Achievement, the post-test results of the Mean and Standard Deviation of the experiment group (M=46.08, SD= 8.621) were significantly higher than the post-test results of the control group (M=38.36, SD=3.200) after the treatment intervention. The results indicated the overall improvement in language learning instruction of students as their abilities were enhanced over time. The findings revealed that in self-regulated learning, the positive outcomes are highlighted in terms of students' efficiency and interest regarding their self-monitoring learnings and cognitive behaviour towards all the assigned tasks. According to the study by Gambo & Shakir (2023), self-regulated learning incorporated by AI-mediated learning instructions in university students positively affected their self-learning, understanding skills, and academic achievements. These findings of another study have aligned with the present study. However, findings in terms of (M=103.80, SD=10.634) of the experiment group for self-regulated learning skills elaborated the improved structure for self-initiation, monitoring, and motivational skills of students.

The collaborative learning skills powered by AI-mediated language instructions enabled students to engage in diverse English language learning experiences. In the same sense, the integration of collaborative skills enhanced the individual strengths of students by generating interactive and personalized skills. The findings of the study also discussed that AI-based learning techniques are a valuable resource for EFL learners, especially for students with English as L2 in their countries. In the context of Saudia Arab, the students have fewer opportunities to learn and practice English as a foreign language. For this purpose, AI particularly benefits students by promoting their English language communication skills. According to the study of Haristiani (2019), the advent of AI chatbots has improved the flow and novelty of both speaking and listening skills. The study also conducted a comparison between the users who used AI chatbot technology with the non-AI chatbot users. The results of the comparison revealed that the students utilizing AI chatbots improved their academic performance because they received assistance from AI learning

instructions. On the other hand, the study's qualitative findings also aligned with these results. The perception of students by qualitative findings also converges with the quantitative findings to illuminate the positive impact of AI-assisted instructions on Saudia Arab learners. However, students showed enthusiastic behavior towards the overwhelming use of AI by observing higher scores in their learning dynamics. Collectively, the emergent themes generated by qualitative findings also supported previous literature results. This study also emphasized the potential impact of AI-powered learning tools incorporated into higher education curricula in Saudia Arab universities. The consistent findings of the study were aligned with multiple studies in which a large percentage of university students expressed their opinions regarding the efficacy of AI-based learning language instruction (Alotaibi & Alshehri, 2023; Syed & Al-Rawi, 2023; Jamshed et al., 2024).

IMPLICATIONS OF RESEARCH

This study plays a vital role by providing a framework for future researchers to gain in-depth knowledge and understanding of AI-mediated learning tools for English language learning in university education. Additionally, this study also demonstrates the value of English proficiency levels among the students. Future developmental strategies can further empower students' speaking and learning skills through the positive utilization of AI tools. For the account of teachers associated with the students also experienced transformation in their language achievement outcomes. However, the study also provides exclusive support to the collaborative learning skills of students by revealing strategies to enhance their social interactions with other peers. The study also highlights the importance of training programs for teachers for more focused integration of AI in English language instruction tools. This is to ensure that before delivering AI-mediated language instructions in treatment interventions to the students, The associated instructors and educators should be well equipped with the best understanding and demonstration of tools.

CONCLUSION

The advent of AI in the field of English Language learning has transformed the dynamics of the pedagogy process, perceptions, and opportunities for university students. This mixed method experimental-based study followed three learning theories, behaviorism, cognitivism, and constructivism, to acknowledge the ideas of AI-mediated learning instructions. The data collection procedure of the study was comprised of both quantitative and qualitative phases in order to investigate conceptually and analytically. All the research objectives were accurately answered by conducting qualitative interviews with the students who experienced AI-mediated learning instructions for 10 weeks in their classroom practices. However, both the questionnaires for collaborative learning and self-regulated learning skills showcased positive results in their post-test analyses, as the mean and standard deviation values were found to be statistically significant compared to the results of pre-test analyses. Furthermore, the perceptions and constructive behavior of students represented a positive impact of AI-powered learning tools in their treatment. On the other hand, the findings also revealed that English learning achievements, collaborative learning, and self-regulated learning skills were significantly enhanced as compared to the students who received conventional teaching practices. However, the study found that a vast number of EFL teachers also benefit from AI-enabled teaching techniques in order to facilitate the students. Moreover, the findings relate to the effectiveness of AI tools in providing students with learning ease, which also supports the results of several previous studies. Additionally, this study contributed to enhancing the valuable insights of AI incorporation in the higher education curriculum of university students. The study also contributed to providing educational assistance to educators who faced challenges and limitations when encountering students' difficulties in language learning. The outcomes of the study explained that the mixed method study design was accurately employed to yield valuable insights for EFL learners. The quantitative findings of the study comprehensively represented the significant change in the results of pre-test and post-tests in the form of assessment for learning achievement and survey questionnaires for collaborative and self-regulated learning outcomes.

RECOMMENDATIONS

The scope of the study centered around the EFL learner's facilitation by the advent of AI-powered language learning instructions in the educational curriculum. The attenuation of AI learning tools still faced several challenges while incorporating them into the learning dynamics of students. For the better and more accurate implementation of AI learning tools in universities to target specific learning skills of students through a detailed process. The study also

represents some recommendations to enhance the impact of AI-mediated tools in English language learning instructions.

1. It is recommended that future studies should be more precise in investigating the impact of AI-driven platforms such as ChatGPT, Mango languages, and Duolingo.
2. For the validation of positive outcomes and expressions of more particular perceptions of students and learners, it is recommended that a huge sample size of the quantitative sampling data accompanying positive results be selected.
3. AI in the field of English language learning is considered a broad spectrum. It is recommended that the obstacles that create hindrances be focused on in the implementation of more focused AI-powered learning strategies.
4. Future studies should emphasize exploring the effect of short teaching hours, limited Intelligence technology, and lack of adequate teachers on English language learning powered by AI learning tools.

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Appendix A
Demographics Questions for Survey Questionnaire
1. What is your gender identity?
A. Female
B. Male
2. How old are you?
A. Under18
B. 18-24 years old
3. What is your level of education?
A. Less than High School
B. High school
C. Bachelor's degree (4-year)
Survey Questionnaire for Quantitative Questionnaire

	1 Strongly Disagree	2 Disagree	3 Neither Disagree nor Agree	4 Agree	5 Strongly Agree
Collaborative Learning Questionnaire					
Q1. Studying English is important to me so that I can participate in collaborative learning activities.					
Q2. I feel comfortable working collaboratively with my friends while communicating in English.					
Q3. I can easily participate more freely in activities among other groups who speak English.					
Q4. Studying English helps me to better understand the ways of life of native English speakers.					
Q5. Studying English can improve my collaborative learning and speaking skills.					
Q6. Studying English helps me to associate with foreigners and learn about their values and beliefs.					
Q7. Studying English helps me to be an open-minded and friendly person like native English speakers.					
Q8. I can enjoy conversations in English with my teachers and other peers outside the classroom settings.					
Q9. AI-based learning can promote English learning, which is essential by enhancing students' skills.					
Q10. AI-based learning increases the reading of English books, articles, newspapers, and magazines among university students.					
Q11. Studying English can be important for me because it will help me to get an ideal job in the future.					
Q12. Studying English can be important for me because I will need it for my future career.					

Q13 Studying English can be important for me because it will make me a more knowledgeable person.										
Q14. Studying English can be important for me because other people will respect me more if I know a foreign language.										
Q15 Studying English can be important for me because it will help me to further my studies.										
Q16. Studying English can be important for me because it will help me search for information and materials in English on the Internet.										
Q17. Studying English is important to me because it will help me to achieve good results in university.										
Q18. I study English diligently because it is an important tool for communication.										
Self-Regulated Learning Questionnaire										
Self-initiation 1. I try to find out how to write good English essays. 2. I write English essays at home to improve my writing. 3. I study good English essays in order to write well. 4. I ask others about how they think about my writing and why.										
Monitoring and evaluation 1. I read my essay aloud to look for mistakes. 2. When writing, I pay attention to spelling and grammar. 3. After writing, I check whether my essay meets the teacher's requirements.										
Text-generating 1. During writing, I read other people's writings for language to use in my essay. 2. During writing, I read other people's writings for ideas to write down in my essay. 3. During writing, I recall ideas read elsewhere for use in my essay. 4. During writing, I recall language from sources for use in my essay. Social assistance or collaboration 1. I ask the teacher for help when having difficulty in writing. 2. I ask classmates for help when having difficulty in writing.										

3. I go to writing tutors/writing centers/writing workshops for help when having difficulty in writing. 4. I brainstorm with my peers to help me write. 5. I discuss with my peers to have more ideas to write with. 6. I work with my peers to complete a writing task.										
Acting on feedback 1. I try to improve my English writing based on teacher feedback. 2. I try to remember or write down other people's suggestions for future use. 3. I think carefully about other people's suggestions for my compositions.										
Interest Enhancement (IE) 1. I choose interesting topics to practice writing. 2. I connect the writing task with my real life to intrigue me. 3. I try to connect the writing task with my personal interest.										