Use of AI Tools in Navigating Reading Difficulties of Adult EFL Learners

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Abstract

Reading is often a neglected skill in language pedagogy. Reading is a very significant skill since language learning depends a lot on reading skill, and moreover, adult learners' progress in higher education depends a lot on their reading habits. Fast reading with full comprehension is the target of developing reading skill. However, sometimes learners, particularly English as a Foreign Language (EFL) learners, find it difficult to achieve this objective. That results in the learners either developing painfully slow reading habits in English or low reading comprehension, if they try to be fast readers. Research studies have explored the common reading difficulties of such learners. However, research is still lacking in finding effective solutions to overcome the reading difficulties of adult EFL learners. Advanced AI applications used as educational aids have raised hopes in this regard. The present mixed-methods research with a quasi-experimental design, conducted over a three-month period with Saudi undergraduate EFL students, examined whether the AI tool 'Actively Learn' is effective in helping adult learners navigate their reading difficulties resulting in enhancement in their reading comprehension. The targeted aspects of reading activities to be improved in their reading course were speed of reading English texts, global comprehension, and grasping meanings of new words from their context. The results obtained show a gradual improvement in learners' reading skills as the monthly tests report significant differences in their reading achievement from test to test (Pretest vs. Test 1: t 5.164 p 0.0001; Test 1 vs. Test 2: t 6.967 p 0.000; Test 2 vs. Test 3: t 7.934 p 0.000; Pretest vs. Test 4: t 19.12 p 0.000). Findings of the study are very significant, as they lay the foundation for a strong belief in the capability of AI-powered tools to impact students' reading habits positively. In Saudi Arabian contexts, the study paves the way for further research in this significant academic area and adds to the body of existing research literature.

Keywords: artificial intelligence, reading difficulties, EFL, AI-enhanced learning, Applied linguistics, AI in education

1. Introduction

Reading is perhaps the most significant language skill for all learners (Elleman & Oslund, 2019). It bears special significance for EFL learners who study English only as one subject of study till secondary level but suddenly find them overwhelmed by the enormity of the task to deal with English texts for university studies since, in most non-English speaking countries too, like in Saudi Arabia, the medium of instruction for higher education is English (Alawfi, 2022; Alfares, 2024). So, it is required that students pick up good reading habits from the very beginning to be in-step with the requirements, and if they failed to do so at secondary level, they are encouraged to inculcate appropriate comprehension strategies in the early stages of higher education to avoid frustration at later stages (Elleman & Oslund, 2019; Habók & Magyar, 2019). However, there is hardly any help available from teachers to learners at the tertiary education stage to learn or improve their reading comprehension strategies since the teachers have to take care of so many other aspects of their learning. Despite a paradigm shift in language teaching from teacher-centred approach to learner-centred approaches (Benson, 2013; Little, 1991) teachers are supposed to facilitate and deliver a lot, and a large class size may complicate the matter further. Learner autonomy and self-directed learning (Lin, Huang, & Lu, 2023; Son, Ružić, & Philpott, 2025; Schunk & Ertmer, 2000) are essentially needed in such a scenario. But self-directed learning is also impractical in the absence of proper guidance. A good ray of hope in such a dismal environment is advancement in AI technology used as educational aid. AI tools employed as educational aids support learner centred learning approaches (Roll & Wylie, 2016) and guide self-directed learning. AI has brought in pedagogical innovations, personalized learning pathways, and learner empowerment and it offers opportunities to educators to harness these potentials and augment their own potentials to help learners (Godwin-Jones, 2024; Yu, 2024). AI driven tools can enhance learner motivation, engagement and overall performance as researchers note that learners who use AI tools are more motivated and engaged in comparison to those who do not (Warschauer & Meskill, 2000; Wei, 2023; Yuan & Liu, 2025). Thus, this background knowledge on AI tools inspired the present research to examine the effects of integrating AI tools with conventional pedagogical mode to enhance adult learners' reading comprehension in Saudi Arabia.

1.1 Research Background

Reading is a marginalized skill in Saudi EFL contexts (Alenezi, 2021; Al-Qahtani, 2016). For instance, despite there being a pedagogical paradigm shift in reading towards reading strategies instruction-oriented teaching, traditional methods of teaching reading using grammar-translation and other such methods are still prevalent in many Saudi Arabian classrooms (Alghonaim, 2020; Al Nooh &

McPherson, 2013). The result is that many Saudi learners join university with underdeveloped reading skills and very low reading frequency habits (Almjlad, 2024; Alsarawi, 2025; Alshammari, 2022; Alsharari, 2021). A preliminary, quick survey with students revealed that they had read only a limited number of books in English apart from their course books. Some of the students read only their English coursebooks and their library visits to read books in English were negligible. Their global comprehension of English texts was found to be very limited. The situation demanded a change since the students scored just average marks in reading comprehension, though the tested reading passages were very short while the time allowed for the test was comparatively long for the given task. So, the students urgently needed more than could be provided to them in a traditional classroom setting. They needed help in terms of enhanced reading frequency, i.e. reading more books; reading faster than they were accustomed to, and better global reading comprehension. Motivation to continue reading was yet another factor, though.

A study by Jose and Jose (2024) advocates for the integration of AI tools to enhance learners' reading aloud skills, particularly among EFL learners in a scenario like the one in Saudi Arabia. It is noteworthy that reading comprehension strategy intervention research is mostly confined to western, English-speaking countries (Peng, Wang, Filderman, Zhang, & Lin, 2024). Same is the case with research on the use of AI-powered tools integrated with conventional reading pedagogy and used as reading comprehension intervention, that is, there is not enough literature on the topic from non-native English-speaking countries, except for China where extensive research has been going on in the use of AI tools in education.

1.2 Research Problem

Although Saudi Arabia is one of the Asian countries leading in research on EFL reading instruction (Chen & Abdullah, 2024), low reading comprehension is still a persistent problem with many adult learners in Saudi Arabia (Alharbi, 2022; Al-Mohanna, 2024; Alotaibi, 2022). Some of the core reading difficulties of Saudi adult EFL learners reported in literature (e.g. Alotaibi, 2022) are: ill-developed reading comprehension skill, lack of preparedness, lack of practice with loud reading, difficulty understanding English vocabulary, and low reading volume (adult students read less than 250 words per minute, the minimum threshold limit for adult readers [Hasbrouck & Tindal, 2017]). In Saudi Arabia, most often there is no good transition between reading a good number of English books in senior secondary schools and university, although it is a global phenomenon too. For instance, a student from Sweden says, "Because my course is in Swedish, it seems strange that we need to read in English" (Eriksson, 2023, p. 150). Students in non-English countries prefer to read texts in their first language since it is easy and less time consuming, as notes the Swedish students: "I think it will take longer to get through than if it would have been in Swedish. I prioritize reading the course literature that is in Swedish first, which usually results in the English being read very sloppily or not at all" (Eriksson, 2023, p. 150). It has been noted that students in Saudi Arabia also commonly prioritize reading their course literature in Arabic. The habit complicates their reading difficulties, noted above, which needs timely intervention. It is claimed that AI tools are helpful in this regard, however, there is a general lack of research on the issue in Saudi contexts.

1.3 Literature Review

Global research on the academic impact of integrating AI-powered tools with conventional pedagogy methods shows an upward trend. Most research findings report a favourable impact of AI tools integration on learners' skills enhancement in various academic fields, including linguistic skills. So, there is no dearth of literature on the topic. However, the present literature review is largely focused on studies testing the effects of AI tools integration on EFL learners' reading comprehension. One such tool is Actively Learn, an AI reading assistance tool, part of McGraw Hill.

1.3.1 AI in reading: Actively Learn

Actively Learn, part of McGraw Hill, is a digital learning platform with a huge collection of reading materials, well over 10,000 ebooks. The standards-aligned platform provides users the option to collaborate, such as collaboration of students and teachers. Primarily a text-based site, it features a few videos as well. Once the teacher grants access, students can begin reading and interacting with the materials. The platform can be integrated with Google Classroom and Canvas to share specific reading tasks. There are helpful filters. So, the materials can be adjusted by age, Lexile level, subject, genres, and the likes. Students can engage with questions embedded in the text. If the students need texts or videos that aren't there, they can be uploaded. The program allows students to make notes with annotations and to interact with other students/the teacher. Student progress is also available to the students themselves.

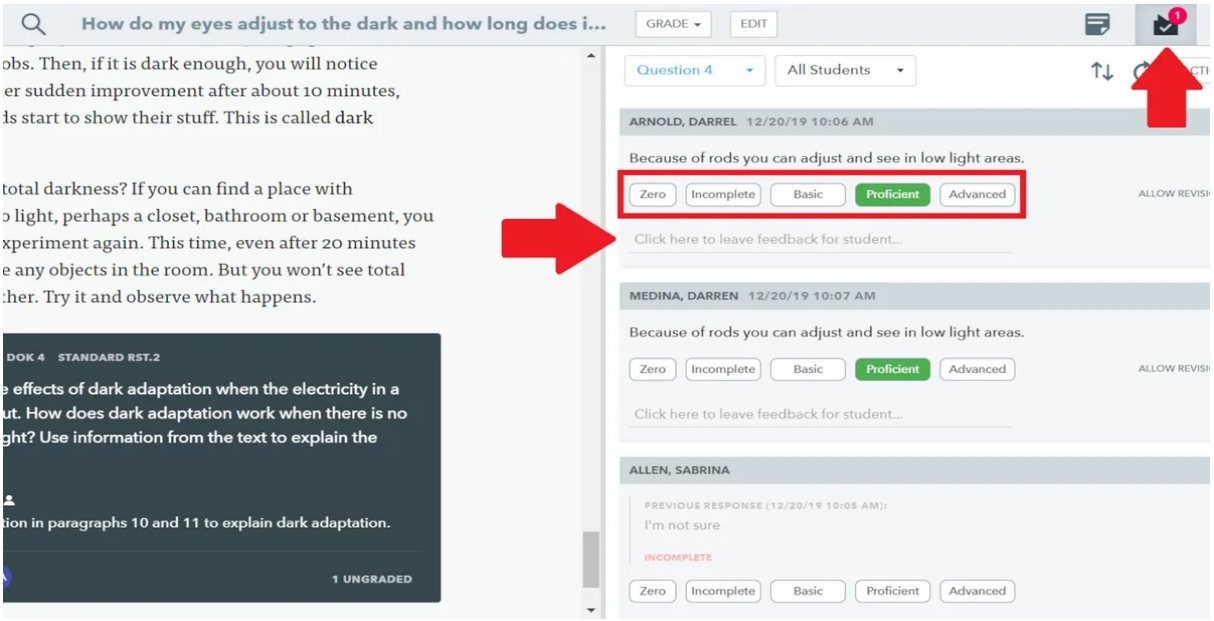

Figure 1. A screenshot of a page from Actively Learn

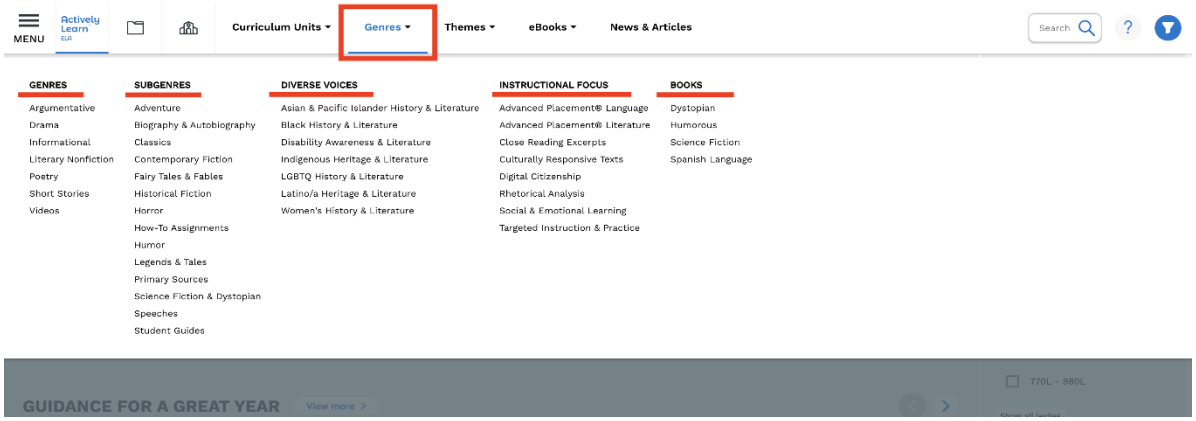

Figure 2. A screenshot of a page with Menu options from Actively Learn

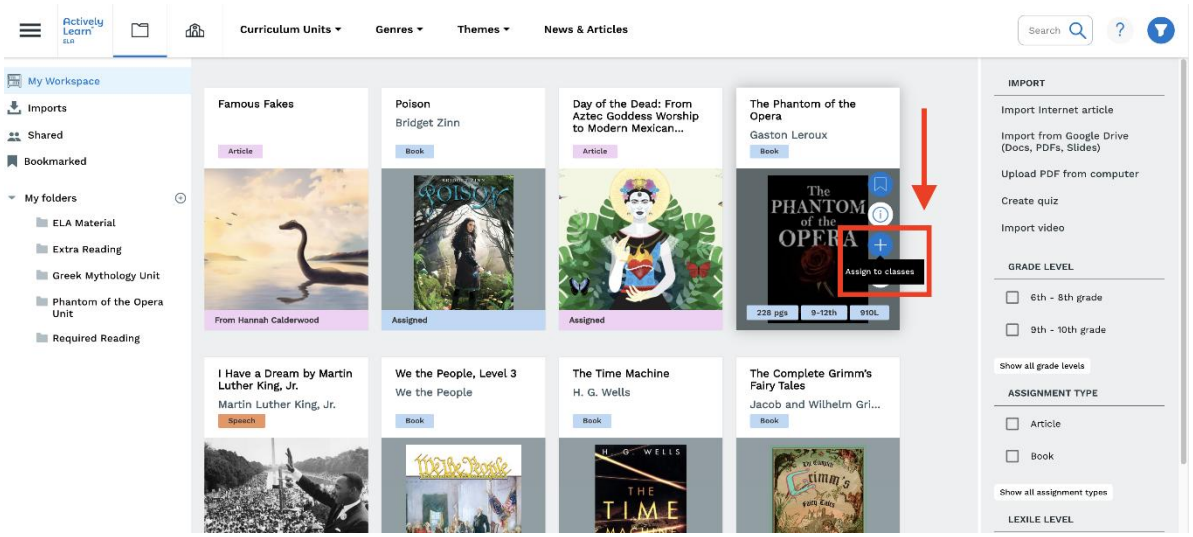

Figure 3. A screenshot of a page with Menu options from Actively Learn

In sum, this AI tool helps learners improve their academic reading by suggesting the following:

- To set a clear goal: Ensure students understand that the aim of instruction is transfer of learning.
- To use effective comprehension techniques: Provide explicit instruction and supported practice in these techniques.
- To discuss reading content: Increase the amount and quality of reading content discussions.
- To maintain high standards: Set high standards for text, conversation, questions, and vocabulary.
- To increase motivation: Encourage student motivation to read more effectively.

1.3.2 AI and Reading Comprehension Research

It is almost a decade ago that Roll and Wylie (2016) argued very strongly for technologies to be embedded within the everyday activities of students, not just in their educational activities since, according to them, that would revolutionize their learning process. Since then, the use of IT technology in education has made tremendous advancements. Son et al. (2025) suggest that AI-powered tools are going to stay in educational contexts as their integration with educational methodologies has proved to be very effective in bringing desired changes in [language] learning and teaching. Integration of AI into educational settings represents a transformative shift (Zhang, Shan, Lee, Che, & Kim, 2023). For instance, Almadhi and Alanazi (2024) report that in their study they found that e-books leave a positive impact on Saudi EFL learners' reading habits enhancing their overall reading comprehension and developed a positive attitude among learners towards reading books in English. Research findings from studies by Daweli and Mahyoub (2024) and Yuan and Liu (2025) also point out learner's positive outlook since learners' motivation to read more and confidence in reading comprehension were boosted by the use of AI tools in learning. The supportive and adaptive AI tools enhanced learners' skills as well. AI has led to proliferation of adaptive learning environment to offer personalized education experiences (Maity & Deroy, 2024) and AI driven platforms support the development of autonomous learning (Yekollu, Ghuge, Biradar, Haldikar, & Kader, 2024). Chatbots and conversational agents simulate real-life dialogue (Huang, Hew, & Fryer, 2022) For example, Duolingo can mimic the dynamics of a conversation with a native speaker (Vesselinov & Grego, 2012). Godwin-Jones (2024) strongly advocates for the integration of Generative AI tools with established language pedagogy as the tools provide a platform for foreign/second language practice, corrective feedback, relevant exercises, and they can be used to formulate an extended study plan, although the researcher also warns users of the limitations of AI systems and the associated ethical concerns.

Xin (2024) also lauds integration of AI tools in education, particularly for teachers for doing needs analysis, using teaching prompts and developing teaching materials, and like Godwin-Jones, the researcher warns the users of the limitations of the AI tools. A study by Jose and Jose (2024) finds the integration of AI tools to enhance learners' reading skills quite effective, particularly for ESL learners in non-native settings where learners are prone to read literature only in the vernacular. Lin et al. (2023), Maity and Deroy (2024), Pan, Guo, and Lai (2024), Pan, Lai, and Guo (2025), Warschauer and Meskill (2000), and Yekollu et al. (2024) advocate for AI systems in education because the systems provide learners with the much-desired personalized learning experience. The systems are helpful to teachers as well since they can easily monitor students' learning progress. The findings of the studies by Mohebbi (2024), and Wei (2023) also fall in similar category as they show that AI-powered tools promote learner engagement and facilitate personalized learning experience. Reading strategy use is very important for all language learners to develop satisfactory reading comprehension and research affirm this observation. Habók and Magyar (2019) report that learners whose reading practice was strategy-based scored higher in comprehension compared with the ones who did not use any particular strategy. The study by Huang et al. (2022) endorses the observation, supported by a systematic review of 25 empirical studies on the subject, that chatbots are very useful in language learning.

However, not all studies reviewed here are strongly in favour of AI integration with educational curricula, at least in the present state of chatbot conceptualization. For instance, Chang, Lin, Hajian, and Wang (2023) find that conceptualization of chatbots in education in its present state is inadequate. In their opinion, the essential educational principles concerning integration of chatbots in education must incorporate features like goal setting and feedback.

In sum, the studies reviewed here largely support AI tools integration with EFL curriculum, with a few reservations. What research on the impact of AI tools on reading development of adult EFL learners says is that AI tools provide them what they lack in conventional classrooms and in the general environment around them. The major arguments presented in the studies in support of AI-powered tools, with reference to reading comprehension is that they help students enhance their reading by,

- providing them with a greater number of books,
- providing more interesting books than they generally read,
- providing them lexis support wherever they need, and
- providing them instant feedback on reading comprehension.

However, as pointed out previously too, there are negligible research studies on the subject from the Arab region, so, there is very little literature existing on the effects of AI tools on the reading habits of adult EFL learners in the Middle East, particularly in Saudi Arabia. Therefore, the current research is a timely intervention.

1.4 Research Hypothesis

Integration of AI tools with the conventional mode of teaching reading comprehension enhances adult EFL learners' comprehension and reading practices.

1.4.1 Research questions

The current research was designed to find answers to the following questions:

RQ 1: Does integration of AI tools with the conventional mode of teaching reading enhance adult EFL learners' comprehension and reading practices?

RQ 2: What is the effect of integrating AI reading tool 'Actively Learn' with conventional mode of teaching reading skill on the reading habits of Saudi undergraduate EFL students?

1.5 Objectives of the Present Study

The present study was taken up with several objectives in mind. The first objective of the study was to measure the effects of integrating AI reading tool 'Actively Learn' with the undergraduate English reading course at a Saudi university [taught in conventional mode] on reading comprehension and reading habits of undergraduate EFL students. The second aim of the study was to identify the factors inhibiting English reading comprehension of students enrolled in the course and fix them with the help of AI tools. The third objective was to contribute to the upcoming, but scanty, literature on the effects of integrating AI tools in adult education, especially on the potential effects of the tools on reading comprehension and reading attitude of adult EFL learners in Saudi Arabia, and the wider Arab region.

1.6 Conceptual Framework

The design of the present research study was informed by the idea of a probable link between instantaneous availability of the meanings/synonyms of difficult lexical items and improvement in EFL learners' reading comprehension as well as reading pace. The idea also involved the impact of the availability of instant translation of unknown English words in learners' mother tongue. These ideas were set to be tested by integrating an AI-powered tool with conventional reading pedagogy. The selected tool was infused with the desired features, such as providing instant synonyms of difficult words, translating the selected lexical items, and providing instant feedback on learners' reading comprehension. In addition, the tool provides a huge selection of reading materials helping learners develop a wider reading habit.

2. Methodology

Mixed-methods research methodology was employed to conduct the present study. Quantitative method was adopted in collecting and interpreting the numerical data obtained from tests given to participants, whereas qualitative methodology was involved in making sense of the numerical data and presenting the findings using a qualitative, narrative format. There were also points in analysis and interpretation where the two methods were mixed to get a better, clearer perspective emerging from data analysis.

2.1 Participants

The study was conducted with undergraduate ELIS 120 students [majoring in the discipline of sciences] enrolled in the first semester of a year-long mandatory English course at a Saudi university. Learning English and earning a benchmark standard in the language is a prerequisite for university education in Saudi Arabia. The students' proficiency level in English was intermediate (B1) as they had studied English as a subject of study for 6 years. All the students recruited for the study were males, ranging in ages between 20 and 22. The class, randomly selected for the experiment, had 34 students. These students were aware of AI tools in various web applications and as guides on websites, yet they had never used AI chatbots for educational purposes, such as to learn English language or to enhance their reading skills. In general, they were not accustomed to reading English books online, especially as a hobby. Their active English vocabulary size was very limited and reading pace was slower than expected of them. Table 1, given below, presents the demographic data on research participants.

Table 1. Participants' demographic data

Data Collection Instrument	Test	Gender	N	Average Age	English Proficiency Level	Knowledge of AI Tools
Pre-Test		M	34	20-22	B1	Basic
	Test 1	M	34	20-22	B1	Basic
Post-Test	Test 2	M	34	20-22	B1	Basic
	Test 3	M	34	20-22	B1	Basic

2.2 Research Instruments

The research instrument employed for the experiment was "Actively Learn," an AI reading tool part of MacGraw Hill publications. The tool offers a huge catalogue of reading materials, i.e. eBooks on diverse subjects including ELA, science, social studies, and literature, news and articles, and videos. The tool is designed keeping education for both teachers and students in mind. The platform features customization tools that allow text to be added to selected folders and then the teacher can assign reading text to the class. The present researcher added the reading textbook in use to the platform and assigned reading tasks to participants. All the difficult and unknown lexical items were hyperlinked to their meanings/synonyms and possible usage. Its language translation as well as text-to-speech feature is useful for students as they can get the difficult English text translated into Arabic.

The data collection instruments were tests - one pre-test and three post-tests. The tests were comprised of reading passages followed by a

set of test questions focused on vocabulary, comprehension, summarizing, and decoding complex information. The test elements were assigned 5 marks each, thus making it a 20 marks test. The pretest was the usual test conducted just after a week of teaching reading conventionally. The three post-tests were conducted at the end of each month of the 3-month teaching reading using Actively Learn. The length and complexity of reading test passages were increased in each subsequent test.

2.3 Research Design

The study followed a quasi-experimental design. Quasi-experimental design was chosen because of the nature of the study as it involved conducting an experiment using an AI-powered tool and yet the participants were neither divided into, nor randomly assigned to, experimental and control groups (Creswell, 2018; Miller, Smith, & Pugatch, 2020; Shadish, Cook, & Campbell, 2002). The basic research design was to integrate an AI reading tool with students' reading materials for three months and then periodically test if there was any perceptible change in their comprehension capabilities. Any improvement in participants' scores, with increasing difficulty level, such as complexity of the text type (text with tables, charts, figures, footnotes and references) complexity of vocabulary, sentence length and structure, adding more information in the sentence (numbers, dates, symbols, signs, and figurative language), adding deductive and inductive reasoning in the sentence, adding complex information in the sentence, and reduction in time allowed in each subsequent test, was taken to be a positive change. A comparative study of participants' scores in pre-and post-tests indicated the effect of AI tool intervention.

2.3.1 Independent Variable

AI-powered tool intervention in reading pedagogy helping participants develop better reading comprehension and reading habits: Participants were taught to access and use the AI tool Actively Learn where the researcher assigned them reading tasks.

2.3.2 Dependent Variable

Development in reading comprehension: The development was measured in terms of vocabulary knowledge, comprehension, summarizing skill, and the ability to decode complex information, such as numbers, charts, tables, and figures.

2.4 Data Collection and Analysis: Procedure

The participants were briefed about the purpose of the research project. This was done to ensure their cooperation since participation in the research involved extra reading work, extra assignments, and extra tests for them. As the experimentation began, the participants were given a reading test, and the marks obtained by them were recorded for further analysis. Following this, the students were asked to download Actively Learn on their mobile phones. The researcher merged the program with the AI tool already in use to teach, i.e. Google Classroom. The teacher provided the participants with the access code for the class he created on the platform. The reading materials used in the class were added to the platform to create daily reading assignments for the students. They were encouraged to finish reading at least two units (Cambridge Unlock: Reading, Writing & Critical Thinking, 2nd edition) every week, followed by completing the exercises given in the book. The treatment lasted for a semester. At the end of each month the participants were given a comprehension test. At the end of the treatment session, participants were finally tested on passages selected from previous IELTS reading tests. The participants were also encouraged to practice loud reading at home, make notes, do the exercises, and check their progress themselves. Marks obtained by the participants in each test were compared for statistical analysis.

3. Results

The raw scores (out of a total of 20 marks) obtained from participants' pre- and post-tests are presented in Table 2, given below.

Table 2. Pre-test and post-test scores obtained by participants

Participant	Pre-test	Post-Test		
		Test 1	Test 2	Test 3 (Final)
1.	11	12	14	16
2.	13	13	15	18
3.	12	13	15	18
4.	14	14	16	18
5.	12	15	16	16
6.	13	14	16	18
7.	14	15	15	16
8.	10	11	14	18
9.	8	10	12	15
10.	15	14	16	19
11.	10	14	16	18
12.	12	13	14	16
13.	13	15	17	18
14.	12	12	15	16
15.	13	12	17	18
16.	12	12	14	16
17.	8	10	13	16
18.	12	16	17	18

19.	11	14	16	17
20.	12	14	16	16
21.	12	14	14	15
22.	8	10	13	18
23.	12	13	15	19
24.	10	15	16	18
25.	12	14	16	18
26.	12	13	14	16
27.	12	14	16	16
28.	6	8	12	15
29.	12	14	16	18
30.	9	15	16	18
31.	7	10	12	13
32.	12	14	16	16
33.	13	14	15	18
34.	12	14	17	18
	Mean: 11.35	Mean: 13.08	Mean: 15.05	Mean: 16.97
Descriptive	SD: 2.057	SD: 1.83	SD: 1.45	SD: 1.38
Statistics	SE: 0.352	SE: 0.318	SE: 0.248	SE: 0.236
	Variance: 4.110	Variance: 3.259	Variance: 2.055	Variance: 1.852

N = 34

To study the potential impact of AI tools on the cluster of reading skill elements, i.e. vocabulary knowledge, comprehension, summarizing skill, and the ability to decode complex information, the difference in participants' scores in pre-test and the final test were broken up. The break-up of the differences in scores is presented in table 3, given below.

Table 3. Break-up of scores of participants in Test 3 (Final) for elements of reading

No.	Differences in Test scores	Vocabulary	Comprehension	Info decoding	Summarizing skill
1.	5	2	1	1	1
2.	5	2	2	1	0
3.	6	2	2	1	1
4.	4	1	1	1	1
5.	4	1	1	1	1
6.	5	2	1	1	1
7.	2	1	0	1	0
8.	8	3	3	1	1
9.	7	3	2	1	1
10.	4	1	0	1	0
11.	8	3	2	2	1
12.	6	2	2	1	1
13.	5	2	1	1	1
14.	4	1	1	0	0
15.	5	2	2	1	0
16.	4	1	0	1	0
17.	8	3	2	2	1
18.	6	2	2	1	1
19.	6	2	2	1	1
20.	4	1	0	1	0
21.	3	1	1	0	1
22.	10	4	3	2	1
23.	7	2	2	2	1
24.	8	3	3	1	1
25.	6	2	1	2	1
26.	4	2	1	0	1
27.	4	2	1	1	0
28.	9	4	3	1	1
29.	6	2	2	1	1
30.	9	3	3	2	1
31.	6	2	2	1	1
32.	4	2	1	0	1
33.	5	2	2	1	0
34.	6	2	2	1	1
	Mean: 5.67	Mean: 2.05	Mean: 1.58	Mean: 1.05	Mean: .735
Descriptive Statistics	SD: 1.87	SD: 0.81	SD: .89	SD: .54	SD: .447
	SE: 0.320	SE: 0.138	SE: 0.152	SE: 0.092	SE: 0.076
	Var.: 3.395	Var.: .64	Var.: .77	Var.: .290	Var.: .194

N = 34

The raw scores obtained from participants' pre-test and post-tests were statistically analysed to calculate the means of marks obtained by participants in two groups. The obtained values (Mean, Standard Deviance, Variance, Standard Error) were used to calculate the t-test value to determine the significance of difference in the means of their marks. The Paired-Sample t-test values of Experimental and Control group participants are given in Table 4, below.

Table 4. Paired-Sample t-test for difference in participants' pre- and post-test scores

No	Test	N			t-test value	df (n-2)	p value
			$\Sigma (x_1 - x_2)$	SE			
1.	Pre-test vs. Test 1	34	1.73	0.335	5.164	32	0.0001*
2.	Test 1 vs. Test 2	34	1.97	0.283	6.967	32	0.0000**
3.	Test 2 vs. Test 3	34	1.92	0.242	7.934	32	0.0000†
4.	Pre-test vs. Test 3	34	5.62	0.294	19.12	32	0.0000‡

N = 34

*Significant at $p < 0.05$

**Significant at $p < 0.05$

† Significant at $p < 0.05$

‡ Significant at $p < 0.05$

4. Discussion

A closer look at the obtained results in Table 4, above, reveals that once the participants were introduced to Actively Learn, the AI-powered reading assistant, they were motivated to read books out of their course of study. This is evident from the way they improved their reading skills. All the participants made gradual progress from test to test, so, by the time they faced the final test in the experimentation session, they had acquired a good range of vocabulary, comprehension skills, and good reading fluency. The differences between the scores obtained by participants from one test to the other is statistically significant. For instance, the difference between their pre-test and test 1 mean scores is 1.73 points (t 5.164, p 0.0001, statistically significant at $p < 0.05$), whereas the difference between their pre-test and final test mean scores is 5.62 points (t 19.12, p 0.000, statistically significant at $p < 0.05$), which is quite a noteworthy jump. From a comparative perspective, the participants have made tremendous improvement in their performance over a period of three months, and in terms of navigating their reading difficulties, they appear to be quite confident. Their progress can be safely attributed to AI reading assistant intervention in their learning process since no other learning conditions were changed during the three months period which could have affected their reading skills development otherwise, except that the participants were using the AI assistant Actively Learn.

Table 3, above, presents the break-up of differences in pre-test/final scores obtained by participants, allotted to different elements of reading skill. The vocabulary learning skill receives the highest mean score (m 2.05), followed by comprehension (m 1.58), info decoding skill (m 1.05), and summarizing skill (m 0.735) respectively. The implication is that the participants have made the highest improvement in learning new lexical items, and least improvement in summarizing skills. This is a significant development, and proof that the AI reading assistant was helpful in their learning process. This observation supports the hypothesis that AI reading assistants, such as Actively Learn, can help adult EFL learners navigate the difficulties faced by them in reading and make them better readers.

The findings of the present research corroborate the findings from previous research on similar issues. For instance, findings of Almadhi and Alanazi's (2024) study fall in line with the findings reported from the present study, noting that e-books leave a positive impact on Saudi EFL learners' reading habits enhancing overall reading comprehension and a positive attitude towards reading books in English. Findings from the studies by Daweli and Mahyoub (2024) and Yuan and Liu (2025) also report learner's positive outlook highlighting learners' motivation to read more and their boosted confidence in reading comprehension using AI tools, as do the findings from the present research. Jose and Jose (2024) also find the integration of AI tool as an effective enhancer to learners' reading skills, especially for ESL learners in non-native settings. Similarly, the findings of the studies by Mohebbi (2024), and Wei (2023) also fall in similar category as the findings of the current research since they show that AI-powered tools promote learner engagement and facilitate personalized reading experience.

5. Conclusion

To conclude the study, the present research was aimed at investigating whether integration of AI tools with the conventional mode of teaching reading enhances adult EFL learners' reading comprehension, and particularly, what may be the effect of integrating AI reading tool 'Actively Learn' with conventional model of teaching reading skill on the reading habits of Saudi undergraduate EFL students. Findings from the research indicate that both these questions have been answered in the affirmative. AI-powered reading tool 'Actively Learn' is a helpful tool. The tool has helped adult Saudi EFL students get motivated to read more books, which in turn has helped them

enhance their lexical repertoire and reading comprehension. The data analysis also shows that the tool has been particularly good for enhancing their vocabulary knowledge, though the students did not derive much benefit from it in summarizing skill. The findings of the study bear significance, particularly in Saudi Arabian research contexts. Saudi Arabia suffers from low reading comprehension syndrome since, as reported by Alharbi (2022), Al-Mohanna (2024), and Alotaibi (2022), many adult Saudi learners face difficulties in reading long English texts. It is difficult for teachers to inculcate useful reading habits among adult learners for lack of time and the sheer volume of their own course, so, the problem gets ignored. Research on the potential effectiveness of AI reading tools is still lacking. Under the given circumstances, learners need to attain autonomy. Findings of the current research suggest that AI-powered reading tools can help them be autonomous, learning at their own place and pace. However, these findings have limited scope and may not be generalized without further research. Nevertheless, the present research is a modest contribution to the existing body of knowledge on reading research.

5.1 Limitations of the Present Study

The present research is not an exhaustive enquiry, only a beginning in the right direction, so, it has its own limitations. The first research limitation is that its findings cannot be generalized unless corroborated by further research on the topic on a wider scale and with a larger cohort of participants. The research is also limited by gender. Only male students participated in the study owing to lack of coeducation in Saudi Arabia. There exists a possibility that there are gender-related differences in the access, use, and benefits derived from AI-powered tools in learning. So, further research, including both genders, is required on the topic to make sense of the findings in an inclusive environment.

5.2 Further Recommendations

The researcher recommends that the limitations of the present study be used as opportunities for further research on the implications of AI reading tools in adult EFL learning, especially in Saudi Arabia. If there is a chance, researchers may conduct a similar type of study using both male and female students as participants. Second, future researchers should conduct such studies with larger cohorts of EFL students and over a longer duration of time to come up with generalizable findings.

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Authors' contributions

Dr. Abdullah Alshakhi was responsible for conceptualizing the study, designing the methodology, theoretical framework, data collection, data analysis, and drafting and revising the manuscript. The author read and approved the final manuscript.

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