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EFL Students' Perceptions on Using Artificial Intelligence (AI) as a Tool in Developing Reading Comprehension

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Abstract

The integration of artificial intelligence (AI) has reshaped English as a Foreign Language (EFL) education, yet its role in reading comprehension within Saudi higher education remains under-researched. This study investigated Saudi EFL learners' perceptions and acceptance of AI tools for reading development through a dual theoretical lens combining the Technology Acceptance Model (TAM) and Cognitive Load Theory (CLT). A quantitative approach was employed, using an online questionnaire administered to 120 preparatory-year students at King Abdulaziz University. Data were analyzed using descriptive statistics and Pearson correlations. The findings revealed highly positive perceptions, indicated by high mean scores for Perceived Usefulness ($M = 4.23$), Reading Strategy Support ($M = 4.18$), Perceived Ease of Use ($M = 4.14$), and Affective-Behavioral Intention ($M = 4.11$). Strong, statistically significant positive correlations emerged among all variables ($p < .001$), with Reading Strategy Support correlating strongest with Perceived Usefulness ($r = .818$), which heavily drove behavioral intentions ($r = .797$). Results validate the joint application of TAM and CLT, demonstrating that AI tools reduce extraneous and intrinsic cognitive loads. Educators are recommended to integrate AI tools to support core reading strategies, thereby preventing cognitive overload.

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Introduction

Artificial intelligence (AI) has increasingly been integrated into English as a Foreign Language (EFL) education to enhance learning experiences. The rapid expansion of technology-based learning, particularly during the COVID-19 pandemic, accelerated the use of digital platforms such as Zoom and Blackboard, paving the way for AI-supported tools in language instruction (Layali & Al-Shlowiy, 2020; Zitouni, 2022). Consequently, AI applications have been widely adopted across various language domains, including grammar, vocabulary, writing, speaking, and reading, offering features such as automated feedback, personalized support, and immediate assistance that promote learner autonomy (Persson & Nouri, 2018). In reading contexts, AI tools can facilitate comprehension through summarization, vocabulary support, and guided interpretation (Bailey et al., 2021).

In Saudi Arabia, AI has gained significant attention as part of national development initiatives under Vision 2030, with efforts focused on enhancing digital infrastructure and integrating emerging technologies into higher education (Elhajji et al., 2020; Nuseir et al., 2020). However, the rapid deployment of these tools introduces a complex interplay of pedagogical advantages and systemic anxieties. Understanding how student psychological acceptance forms amidst these competing factors is an essential prerequisite to widespread, structured implementation in institutional curricula.

Reading comprehension is a fundamental skill for EFL learners, particularly in higher education where academic success depends on the ability to understand complex texts (Pressley, 2000; Anderson, 2003). However, it remains one of the most challenging skills due to linguistic and cognitive barriers, such as limited vocabulary and insufficient language exposure (Kasim & Raisha, 2017; Van, 2021). In the Saudi context, additional challenges include low motivation, instructional limitations, and difficulties in processing academic texts (Qrquez & Ab Rashid, 2019; Hezam et al., 2022).

From a cognitive perspective, reading in a foreign language is an incredibly demanding mental task. Learners must allocate limited working memory resources to simultaneous lower-level decoding (such as parsing syntax and unfamiliar vocabulary) and higher-level semantic processing (such as inference-making and tracking text structure). Given that effective reading relies on strategic engagement with texts, AI tools may offer valuable support by acting as external cognitive stabilizers that facilitate comprehension and strategy use.

Despite the increasing accessibility of AI tools, limited research has examined Saudi EFL learners' perceptions and intentions regarding their use for reading development through an integrated lens of technology adoption and cognitive processing. To address this gap, this study investigates Saudi EFL students' acceptance of AI tools for enhancing reading skills by synthesizing the Technology Acceptance Model (TAM) (Davis, 1989) with Cognitive Load Theory (Sweller, 1988).

This study addresses the following research questions:

1. What are Saudi EFL students' perceptions of using AI tools to enhance reading skills?
2. What is their intention to use AI tools for improving reading skills?

Artificial Intelligence in Language Education

Artificial intelligence (AI) has emerged as a major technological advancement influencing education, including language learning (Yeruva, 2023). AI refers to systems capable of processing data, identifying patterns, and performing tasks associated with human cognition. In educational contexts, AI supports learning through automated feedback, intelligent tutoring systems, and language-processing tools, enabling personalized learning experiences aligned with learners' needs and pace (Alneyadi et al., 2023; Shrivastava, 2025). In addition, AI can assist teachers by reducing workload through automated assessment and feedback (Moradi, 2025).

In Saudi Arabia, AI has gained increasing attention under Vision 2030, with initiatives promoting digital transformation in higher education (Elhajji et al., 2020; Nuseir et al., 2020). Recent studies indicate positive learner perceptions of AI, particularly in writing and language support (Alyami et al., 2025; Alhalangy & AbdAlgane, 2023). However, research on AI's role in supporting other language skills, particularly reading, remains limited (Alenezi et al., 2023).

AI Tools in EFL Classrooms

While the theoretical benefits of AI in language learning are clear, its empirical integration into EFL classrooms reveals a critical tension between operational utility and systemic risks. Early computer-assisted language learning research heavily questioned the capacity of automated systems to foster meaningful communicative competence (Last, 1989; Salaberry, 1996). Modern iterations of AI continue to yield mixed outcomes, often generating contextually inappropriate or unnatural linguistic outputs that can disrupt the learning process (Steenbergen-Hu & Cooper, 2014; Pace-Sigge & Sumakul, 2021; Wilson et al., 2021).

Beyond performance inconsistencies, literature consistently identifies a cluster of ethical, technical, and pedagogical hindrances. These encompass severe anxieties regarding data privacy, security, algorithmic bias, and academic integrity (Bai & Hu, 2017; Gao, 2021; Jarrah et al., 2023). From an instructional standpoint, these risks are compounded when educators lack the dual technological and pedagogical competence required to seamlessly align AI functionalities with curriculum objectives (Kukulska-Hulme & Lee, 2020). Consequently, sheer exposure to AI does not automatically translate to classroom adoption; if learners perceive a tool as conceptually opaque, secure-deficient, or lacking overt academic value, they actively avoid engagement (Alqaed, 2024).

Reading Strategies in EFL Context

Reading comprehension is an active, complex cognitive process through which learners interact with texts to construct meaning (Block et al., 2004; Meniado, 2016; Pressley, 2000). In academic English as a Foreign Language (EFL) context, this multidimensional process depends on both linguistic competence and metacognitive control (Nergis, 2012). To navigate lengthy or cognitively demanding texts, academic success hinges on the purposeful deployment of reading strategies (Hsiao & Oxford, 2002). While proficient readers utilize a diverse repertoire of strategies to regulate their understanding, less proficient readers often remain restrained by slow,

word-by-word decoding (Gan et al., 2004). Core academic text-processing strategies serve distinct cognitive functions: skimming captures global main ideas, scanning facilitates the efficient retrieval of granular facts (Brown, 2003), inference-making uncovers implied textual meanings (Nassaji, 2007), and summarization enables the coherent reconstruction of text (Brown & Day, 1983). In modern digital classrooms, artificial intelligence tools can actively scaffold these specific mechanics through features like text-simplification, syntactic parsing, and automated summarization. Consequently, examining how EFL learners perceive and adopt these AI features is critical to understanding their role in modern reading development.

Learners' Perceptions of AI in EFL Context

Empirical research exploring how learners subjectively experience AI in language education is still emergent (Maulida & Prasetyarini, 2024), yet existing literature reveals a generally optimistic landscape. Learners consistently praise AI tools for their flexibility, operational speed, and capacity for individualized pacing (Ahn & Chung, 2020; Chon et al., 2021). Within general EFL applications, these tools are predominantly embraced to streamline writing-related workflows, such as text paraphrasing and brainstorming, which heavily contributes to minimized affective barriers like writing anxiety (Le Phan, 2023). This trend aligns with regional insights in Saudi Arabian higher education, where AI adoption correlates with elevated learner motivation and engagement (Althobaiti, 2025), particularly when examined through the lens of perceived usefulness and ease of use within the TAM framework (Mousavi Baigi et al., 2023; Buabbas et al., 2023).

However, this positive perception is bounded by significant learner skepticism. A critical counter-current in the literature notes that students experience distinct dissatisfaction regarding the lack of organic human interaction and authentic emotional resonance in AI-generated feedback (Moybeka et al., 2023). Furthermore, concerns persist that an uncritical overreliance on these systems could stall long-term, independent language development and lead to misinterpretations due to AI's localized semantic limitations (Dai & Liu, 2024). This polarization in user experience underscores that technology adoption is not a guaranteed outcome of technological availability. Because learners weigh these immediate operational benefits against systemic pedagogical anxieties, a direct investigation into the core determinants of Saudi EFL learners' behavioral intentions is essential to predict the trajectory of institutional AI integration.

Theoretical Framework

Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM) explains how individuals adopt new technologies (Davis, 1989). Based on the Theory of Reasoned Action (Fishbein & Ajzen, 1977), TAM suggests that behavior is influenced by intention, which is shaped by attitudes and beliefs. The model identifies perceived usefulness (PU) and perceived ease of use (PEOU) as key determinants of technology adoption.

Perceived usefulness refers to the extent to which a tool enhances performance, while perceived ease of use relates to how effortless it is to use. These factors influence attitudes and behavioral intention, which ultimately predict

actual use. TAM has been widely applied in educational technology research to explain learner engagement and technology adoption.

In the context of AI-supported reading, TAM provides a relevant framework for examining learners' acceptance. Students are more likely to adopt AI tools when they perceive them as useful for supporting comprehension and easy to use. Despite growing research on AI in language learning, limited studies have applied TAM to investigate Saudi EFL learners' acceptance of AI specifically for reading development. Given that AI use is voluntary and learner-driven, understanding perceptions of usefulness and ease of use is essential. Therefore, this study applies TAM to examine how these factors influence learners' intention to adopt AI tools for reading improvement.

Cognitive load Theory (CLT)

To thoroughly address the pedagogical mechanisms underlying user acceptance, this study pairs TAM with Cognitive Load Theory (CLT), formulated by John Sweller (1988). CLT focuses on the inherent structural limitations of human working memory during complex tasks and emphasizes the necessity of managing mental effort to facilitate long-term schema acquisition (see Figure 1).

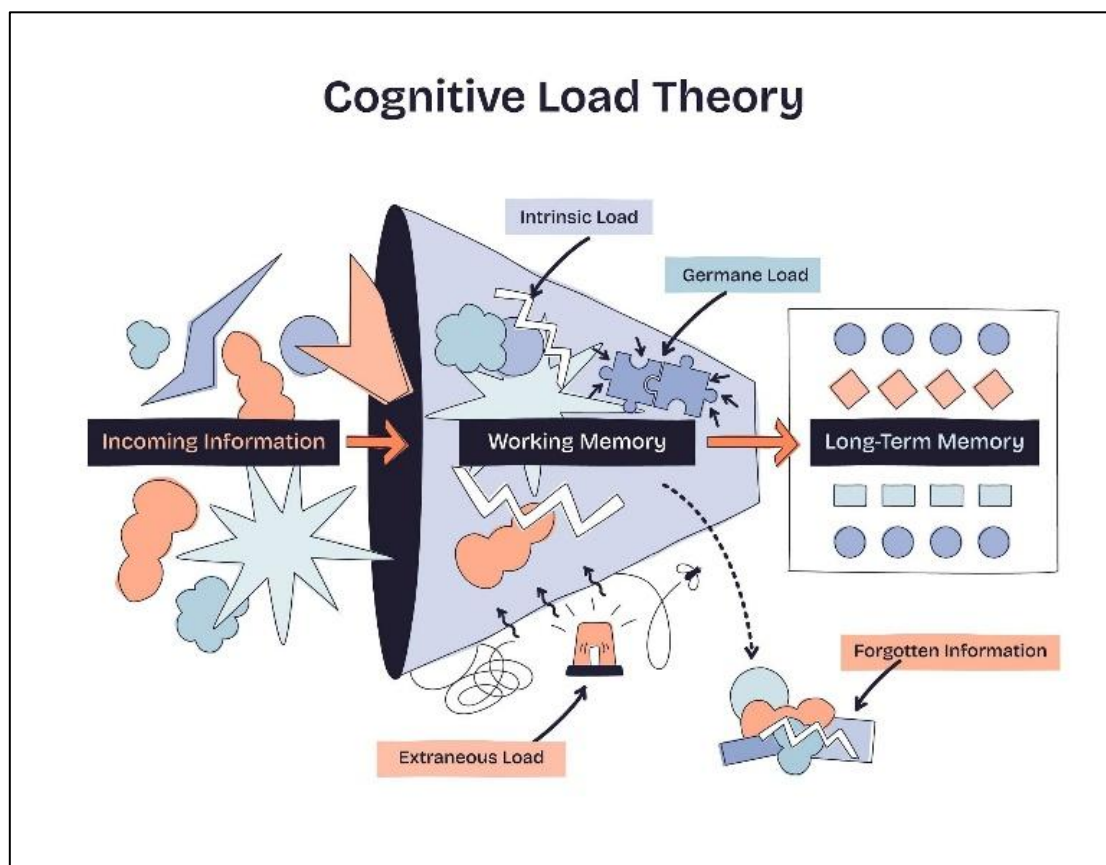


Figure 1. The Cognitive Architecture of Cognitive Load Theory

As illustrated in the cognitive architecture diagram above, working memory acts as a narrow bottleneck for incoming information, processing three distinct types of mental load simultaneously:

1. **Intrinsic Cognitive Load:** The inherent difficulty of the instructional material itself. For an EFL reader, this translates to the baseline complexity of syntax, grammar, and unfamiliar vocabulary within an English text.
2. **Extraneous Cognitive Load:** The unnecessary mental effort generated by the format or delivery method of the instruction (e.g., a confusing software interface, poor formatting, or clunky technology navigation).
3. **Germane Cognitive Load:** The productive, beneficial mental effort dedicated to constructing cognitive "schemas"; the deep structures where real reading comprehension, inference-making, and long-term language retention take place.

When foreign language readers encounter dense academic texts, their limited working memory capacity is often instantly overwhelmed by the intrinsic load of vocabulary decoding, leaving zero room for germane load (schema building). Consequently, cognitive overload occurs, and reading comprehension fails.

Recent empirical research in educational technology demonstrates that generative AI tools can fundamentally alter this cognitive equation by functioning as dynamic digital scaffolds. Studies investigating AI-mediated literacy tasks indicate that when learners leverage AI, they experience a significant reduction in perceived intrinsic and extraneous loads because the technology offloads surface-level mechanics and linguistic constraints (Zaib, 2026). This offloading frees up critical working memory capacity, allowing EFL learners to reallocate their limited mental bandwidth away from frustrating word-decoding and toward higher-order synthesis and strategic reading comprehension (Bahari et al., 2023; Long et al., 2026).

By integrating TAM and CLT, this study establishes a comprehensive model: Perceived Ease of Use directly corresponds to the reduction of extraneous cognitive load caused by technology design, while Perceived Usefulness reflects how effectively an AI tool minimizes intrinsic load (by clarifying words or text structures) and clears the path for germane load allocation (macro-level strategy support).

Method

Research Design

This study adopted a quantitative research design to examine Saudi EFL learners' perceptions and acceptance of AI tools for reading development. A cross-sectional survey approach was employed, with data collected at a single point in time using a structured questionnaire. Quantitative methods enable efficient data collection from a large sample while ensuring anonymity and reducing bias (Sadan, 2017). This design was appropriate as the study aimed to examine learners' perceptions without manipulating instructional variables. The analysis focused on relationships among constructs derived from the Technology Acceptance Model (TAM) and Cognitive Load Theory (CLT), using standardized Likert-scale items to ensure consistency and support statistical analysis.

Research Context

The study was conducted at the English Language Institute (ELI) at King Abdulaziz University in Jeddah, Saudi

Arabia. The institute offers the Preparatory Year Program (PYP), an intensive English program designed to develop students' academic language proficiency prior to undergraduate study. This context was suitable because preparatory-year students regularly engage in academic reading tasks, making reading development a central component of their coursework. Additionally, although AI tools are widely accessible, their structured integration into reading instruction remains limited in this setting. Institutional access also facilitated data collection while ensuring adherence to ethical standards.

Research Instrument

Data were collected using a structured questionnaire adapted from Wu et al. (2025) and aligned with the Technology Acceptance Model (TAM) (Davis, 1989). The instrument examined learners' perceptions of AI use in reading and their intention to continue using such tools (see Appendix A). The questionnaire consisted of two sections. Section A collected background information on participants' prior experience with AI tools.

Section B included 18 Likert-scale items measuring Perceived Ease of Use (PEOU), Perceived Usefulness (PU), Attitude Toward Use (ATU), and Behavioral Intention (BI). Due to strong conceptual and empirical overlap and to ensure a streamlined analysis of core TAM relationships, ATU and BI were combined into a single affective-behavioral construct based on reliability analysis and high inter-construct correlation. This decision aligns with evolutionary developments of the TAM framework (e.g., TAM2; Venkatesh & Davis, 2000), which omit or merge the attitude mediator due to its high empirical overlap and conceptual redundancy with behavioral intention in technology adoption contexts.

In addition, four items were developed to assess perceived improvement in key reading strategies: skimming, scanning, inference-making, and summarization. All items were measured using a five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). The questionnaire was administered online to ensure accessibility and efficiency.

Data Analysis

The collected data were compiled in Excel and analyzed using IBM SPSS Statistics. The dataset was screened for completeness, and no significant missing data were identified. Descriptive statistics, including means and standard deviations, were calculated for each construct: Perceived Ease of Use, Perceived Usefulness, Attitude Toward Use, Behavioral Intention, and reading strategy support. These measures were used to assess learners' overall perceptions and intentions.

Additionally, Pearson's correlation analysis was conducted to examine relationships among the study variables in accordance with the integrated TAM-CLT framework. Given the exploratory and cross-sectional nature of this study, which aims to map baseline relationships rather than predict causal pathways or variance percentages in a setting where structured AI instruction is still emergent, Pearson correlation was selected as the most robust and direct method to address the research objectives.

Reliability and Validity

The reliability of the adapted questionnaire was assessed using Cronbach's alpha. Values above 0.70 were considered acceptable (Dörnyei, 2007). The overall reliability of the instrument was excellent ($\alpha = 0.96$).

Subscale reliability was also high:

- Usefulness (9 items): $\alpha = 0.92$
- Intention to Use (3 items): $\alpha = 0.90$
- Attitude/Enjoyment (3 items): $\alpha = 0.87$
- Ease of Use (3 items): $\alpha = 0.80$

Item-level analysis confirmed that removing any item would not significantly improve reliability; therefore, all items were retained. Content validity was established by aligning the instrument with TAM and the study objectives. The questionnaire was reviewed by the researcher's supervisor to ensure clarity, relevance, and appropriateness for the target population.

Results

Participants' Prior Experience Using AI

A total of 120 participants completed the survey. The majority reported prior experience using AI tools for reading. Daily users represented the largest group (28.3%, $n = 34$), followed by occasional users (26.7%, $n = 32$) and weekly users (25.8%, $n = 31$). A smaller proportion reported rare use (15.8%, $n = 19$), while only 3.3% ($n = 4$) had never used AI tools. These findings indicate that most participants were familiar with AI tools, supporting the relevance of their responses (see Table 1).

Table 1. Participants' Prior Experience with AI Tools

Experience Level	Frequency (n)	Percentage (%)
Daily	34	28.33
Weekly	31	25.83
Occasionally	32	26.67
Rarely	19	15.83
Never	4	3.33

Descriptive Analysis of Students' Perceptions

Perceived Ease of Use

The overall mean for Perceived Ease of Use was high ($M = 4.14$), indicating that students found AI tools easy to use. The highest-rated item was clarity of instructions ($M = 4.27$), while interaction effort received slightly lower but still positive ratings ($M = 4.03$). The low standard deviations suggest consistent responses across participants (see Table 2).

Table 2. Perceived Ease of Use

Item	Mean	SD
AI tools are easy to use	4.23	0.74
Instructions are easy to understand	4.27	0.73
Interaction requires little effort	4.03	0.89
Can use AI without teacher assistance	4.03	1.05
Overall Mean	4.14	—

Perceived Usefulness

Perceived Usefulness recorded the highest overall mean ($M = 4.23$). Students strongly agreed that AI tools helped them understand difficult parts of texts ($M = 4.33$), indicating that AI was perceived as academically beneficial rather than merely convenient (see Table 2).

Table 3. Perceived Usefulness

Item	Mean	SD
Improves understanding of passages	4.20	0.81
Helps comprehend difficult parts	4.33	0.71
Enhances overall reading understanding	4.23	0.77
Helps complete reading tasks	4.17	0.76
Overall Mean	4.23	—

Reading Strategy Support

Students reported high agreement regarding AI support for reading strategies ($M = 4.18$). The highest-rated function was locating specific information ($M = 4.26$), followed by identifying main ideas ($M = 4.23$). Even higher-order skills such as inference-making showed strong agreement ($M = 4.08$), indicating that AI tools support both basic and advanced reading processes (see Table 4).

Table 4. Reading Strategy Support

Item	Mean	SD
Identify main idea	4.23	0.89
Find specific information	4.26	0.82
Understand implied meanings	4.08	0.96
Summarize accurately	4.17	0.85
Overall Mean	4.18	—

Attitude and Behavioral Intention

Students demonstrated positive attitudes toward AI use ($M = 4.11$). While one item showed a slightly lower mean

($M = 3.96$), overall responses remained strongly positive. Participants expressed a clear willingness to continue using AI tools and to recommend them in future learning contexts (see Table 5).

Table 5. Attitudes and Behavioral Intention

Item	Mean	SD
Enjoy using AI	4.18	0.87
Feel positive about AI	3.96	0.88
AI makes reading engaging	4.13	0.85
Willing to continue using AI	4.10	0.91
Would use AI in future courses	4.12	0.90
Would recommend AI to others	4.15	0.94
Overall Mean	4.11	—

Pearson Correlation Analysis

Pearson correlation analysis revealed positive and statistically significant relationships among all variables ($p < .001$). Perceived Ease of Use was strongly correlated with Perceived Usefulness ($r = .75$), indicating that ease of use contributes to perceived value. Perceived Usefulness showed a strong association with Attitude and Behavioral Intention ($r = .80$), suggesting its central role in technology acceptance (see Table 6).

Table 6. Correlation of TAM Variables

Construct	PEOU	PU	RSS	ABI
Perceived Ease of Use (PEOU)	1.000	0.750***	0.766***	0.750***
Perceived Usefulness (PU)	0.750***	1.000	0.818***	0.797***
Reading Strategy Support (RSS)	0.766***	0.818***	1.000	0.783***
Attitude & Behavioral Intention (ABI)	0.750***	0.797***	0.783***	1.000

Reading Strategy Support was also strongly correlated with Perceived Usefulness ($r = .82$) and Attitude and Behavioral Intention ($r = .78$), highlighting the importance of pedagogical value in shaping learners' perceptions. Overall, the findings align with the assumptions of the Technology Acceptance Model.

Discussion

This study examined Saudi EFL learners' perceptions and acceptance of AI tools for enhancing reading skills through the integrated lenses of the Technology Acceptance Model (TAM) and Cognitive Load Theory (CLT). The findings provide clear evidence that learners evaluate AI tools positively and demonstrate a strong intention to continue using them in academic contexts because these systems effectively optimize their limited working memory capacity.

Cognitive Load Optimization and Learner Perceptions

The results indicate that Saudi EFL students hold highly positive perceptions of AI tools for reading development. Consistently high mean scores across perceived ease of use ($M = 4.14$), perceived usefulness ($M = 4.23$), and reading strategy support ($M = 4.18$) suggest that learners view AI as an accessible and pedagogically beneficial academic resource. These outcomes align with TAM, which posits that perceived usefulness and ease of use serve as primary drivers of technology acceptance (Davis, 1989).

The robust relationship between ease of use and usefulness underscores that technical interface simplicity directly influences value evaluation. In the framework of CLT, a seamless, user-friendly AI interface directly minimizes extraneous cognitive load; the non-instructional mental effort wasted on navigating complex or counter-intuitive technology (Sweller, 1988). When technology-induced friction is eliminated, students can reallocate their attention toward recognizing the broader academic utility of the tool.

A major contribution of this study is highlighting AI's role in scaffolding specific reading strategies. Participants reported that AI tools directly support skimming for main ideas, scanning for granular details, inference-making, and summarization, which are critical for academic literacy (Brown, 2003; Nassaji, 2007). From a cognitive perspective, these results validate the mechanism of cognitive offloading. When foreign language readers encounter dense texts, their working memory is frequently blocked by the high intrinsic cognitive load of word-by-word decoding and syntactic parsing. By utilizing AI to clarify complex linguistic mechanics, compress text, and parse abstract vocabulary, learners experience a sharp reduction in processing exhaustion (Zaib, 2026). This offloading frees vital working memory bandwidth, allowing EFL learners to reallocate mental resources away from low-level decoding and toward higher-order germane cognitive load, where macro-level strategic schema building and deep text comprehension occur (Bahari et al., 2023; Long et al., 2026).

These results are consistent with previous research indicating that AI tools are perceived positively due to their personalization, adaptability, and immediate feedback (Maulida & Prasetyarini, 2024). While earlier literature reported mixed outcomes regarding AI's efficacy in language acquisition (Steenbergen-Hu & Cooper, 2014), the optimized cognitive experiences observed here may stem from the participants' prior familiarity with AI, which mitigates the extraneous load of technological novelty. Furthermore, although challenges like overreliance, ethical concerns, and passive consumption are frequently highlighted in alternative literature (Jose, 2026), they were not strongly reflected in the current dataset. This indicates that Saudi EFL learners prioritize immediate, scaffolding-driven relief from cognitive overload when evaluating utility.

Behavioral Intention and Technology Acceptance

The findings indicate that students maintain a strong behavioral intention to continue using AI tools in future academic contexts ($M = 4.11$). Within TAM, behavioral intention is heavily driven by perceived usefulness. The current results support this relationship, as perceived usefulness emerged as the most critical determinant of students' long-term adoption intentions ($r = .797, p < .001$). When evaluated through the unified TAM-CLT

framework, behavioral intention is ultimately driven by a desire for cognitive equilibrium. When students realize that a digital tool reliably shields them from working memory overload while magnifying their strategy execution, their intention to permanently adopt that tool increases. Within the Saudi higher education context, where digital transformation is expanding under Vision 2030 (Elhajji et al., 2020), these findings indicate robust student receptivity and an institutional readiness for systematic, pedagogically sound AI integration in reading classrooms.

Implications

Theoretical Implications

The findings reinforce the applicability of the Technology Acceptance Model (TAM) in explaining AI adoption in EFL contexts. The strong relationships among perceived ease of use, perceived usefulness, reading strategy support, and behavioral intention confirm the model's relevance in technology-enhanced language learning. Importantly, this study theoretically extends TAM by integrating the mechanics of Cognitive Load Theory (CLT). It demonstrates that in an educational context, "Perceived Usefulness" is not just a vague metric of efficiency, but is directly linked to an AI tool's capacity to minimize intrinsic cognitive load and free up working memory for germane load allocation (macro-level reading strategy support). Conversely, "Perceived Ease of Use" maps onto the systematic reduction of extraneous cognitive load. This dual-model integration suggests that technology acceptance in higher education is fundamentally governed by an alignment between tool usability, task-specific pedagogical scaffolding, and human cognitive architecture limitations.

Practical Implications

From a practical perspective, the findings indicate that AI tools are most effective when integrated in ways that explicitly support strategic, higher-order reading processes rather than basic passive answer-retrieval. Educators should actively guide students in using AI tools to offload low-level linguistic barriers (such as vocabulary parsing) while encouraging them to expend their newly cleared mental bandwidth on active comprehension, critical analysis, and schema construction. The positive perceptions and strong behavioral intentions observed suggest that learners are already highly receptive to AI-supported learning. Therefore, Saudi universities and institutions should consider developing structured frameworks for integrating AI into language instruction, particularly within digital curriculums aligned with Vision 2030. Providing clear guidance on effective AI use may help maximize its cognitive scaffolding benefits while minimizing long-term risks such as overreliance or the erosion of independent decoding skills. AI tools must be strategically positioned as complementary cognitive resources that support and elevate human learning rather than replacing traditional instruction.

Conclusion

This study investigated Saudi EFL learners' perceptions and acceptance of AI tools for enhancing reading comprehension using the Technology Acceptance Model (TAM). The findings revealed high levels of perceived usefulness, ease of use, reading strategy support, and behavioral intention, with strong correlations among these constructs. Perceived usefulness emerged as a key factor influencing learners' intention to use AI tools.

Importantly, learners' evaluations were closely linked to the extent to which AI supported specific reading strategies, highlighting the importance of pedagogical value in technology acceptance. Overall, the findings suggest that Saudi EFL learners are ready to adopt AI tools for reading development, particularly when these tools are accessible and aligned with instructional goals. This study contributes to understanding AI integration in language education and highlights the importance of aligning technological tools with pedagogical needs.

Recommendations

For Future Research: Researchers should expand sample sizes to include more diverse regional populations and institutional contexts across Saudi Arabia to enhance generalizability. Additionally, future longitudinal, experimental, or mixed-method designs should be launched to measure the long-term impact of AI offloading on actual reading performance, checking to ensure that long-term independent schema retention is sustained over time.

For Educational Institutions: Higher education institutions should design and enforce explicit, structured guidelines for integrating generative AI tools into the language learning classroom.

For Professional Development: Targeted training programs for both educators and students should be established to foster AI literacy. These programs should train instructors on how to design AI-prompts that function as dynamic scaffolds (reducing extraneous load) rather than answers-engines, ensuring that AI tools are tightly aligned with specific reading strategy objectives to maximize their true pedagogical and cognitive value.

Statements and Declarations

Acknowledgments/Notes: This paper is derived from the author's master's thesis.

During the preparation of this article, the author used artificial intelligence tools to assist with language refinement, structural organization, and clarity of expression. All research design, data collection, statistical analysis, interpretation of findings, and scholarly arguments were conducted by the author. The author reviewed and edited all AI-assisted content and takes full responsibility for the accuracy and integrity of the work.

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Author Contributions: The author solely conducted all aspects of the study and approved the final version of the manuscript.

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Data Availability: Data are available from the author upon reasonable request.

Ethics Approval: The study was approved by the Ethics Committee of the English Language Institute center at King Abdulaziz University (see Appendix B). All methods were performed in accordance with the study protocol and ethical guidelines and regulations.

Informed Consent: Informed consent was obtained from all participants involved in the study.

Conflicts of Interest: Not applicable

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Appendix A. Questionnaire

AI-Assisted Reading Questionnaire (TAM-Based, RQ-Aligned)

5-Point Likert Scale: Strongly Disagree - Strongly Agree

SECTION A — Demographic Information

- Prior experience using AI tools for reading comprehension.
 - o Daily / Weekly / Occasionally / Rarely / Never

SECTION B — Perceived Ease of Use (PEOU)

CODE ITEM

PEOU1	AI reading tools are easy for me to use.
PEOU2	It is easy to understand the instructions and explanations provided by AI tools.
PEOU3	Interacting with AI tools during reading tasks does not require much effort.
PEOU4	I can use AI reading tools effectively even without teacher assistance.

SECTION B — Perceived Usefulness (PU)

CODE ITEM

PU1	AI tools improve my understanding of English reading passages.
PU2	AI explanations help me comprehend difficult parts of a text.
PU3	Using AI tools enhances my overall reading comprehension performance.
PU4	AI tools help me complete reading tasks more effectively and efficiently.

SECTION B — Perceived Impact on Reading Strategies

Skimming

CODE ITEM

RS1	AI tools help me identify the main idea of a text quickly.
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Scanning

CODE ITEM

RS2	AI tools help me find specific information in a text more easily.
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Making Inferences

CODE ITEM

RS3	AI explanations help me understand implied or unstated meanings in a text.
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Summarizing

CODE ITEM

RS4	AI tools help me summarize text accurately and clearly.
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SECTION B — Attitude Toward Using AI (ATU)**CODE ITEM**

AT1	I enjoy using AI tools to support my reading comprehension.
AT2	I feel positive about using AI during English reading lessons.
AT3	Using AI tools makes reading tasks more engaging for me.

SECTION B — Behavioral Intention to Use AI (BI)**CODE ITEM**

BI1	I am willing to continue using AI tools to improve my reading comprehension.
BI2	I would use AI tools again in future English courses.
BI3	I would recommend using AI reading tools to other students.

Appendix B. Ethics Consideration



Declaration

I certify that the information contained in this application is accurate. I have attempted to identify the risks that may arise in conducting this research and acknowledge my obligations and the rights of the participants. I confirm that the research will be conducted in line with the KAU ethical code, will avoid conflict of interest, and will preserve the confidentiality and dignity of the participants.

Name of primary applicant: Thikra Faisal WaselAllah Alhazmi

Signature: Thikra F. Alhazmi

Date: 26 – 5 – 2025

Approval

The ELI Ethics Committee has considered the ethical aspects of this application. The committee recommends that the project be:

Approved deferred (for reasons attached) not approved

The researcher must strictly adhere to the guidelines for data collection as stipulated by King Abdulaziz University (KAU).

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Dr Ghadeer Alghahtani
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 26/5/2025
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