

Beyond AI Tools: Digital Literacy and Critical Engagement in EFL Reading Comprehension

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ABSTRACT

In today's digitally mediated learning environment, reading comprehension is no longer confined to printed texts. For English as a Foreign Language (EFL) learners, reading now requires the ability to navigate digital platforms, interpret multimodal information, evaluate online content, and use artificial intelligence (AI) tools critically. This study explores how AI-supported tools, digital literacy, and critical engagement contribute to EFL students' reading comprehension. Rather than viewing AI as a substitute for human thinking, the study emphasizes learners' reflective judgment, strategic reading behavior, and ability to construct meaning beyond surface-level understanding. This research employed a descriptive approach, integrating literature-based analysis with questionnaire data from university-level EFL learners experienced with digital and AI-assisted reading tools. The questionnaire examined vocabulary strategies, grammatical awareness, inferential comprehension, evaluation of textual credibility, use of digital tools, and engagement with visual or multimodal materials. The findings show that students frequently use digital dictionaries, translation tools, and AI-based applications to support vocabulary understanding and reading efficiency. They also demonstrate awareness of sentence structure and implied meaning, indicating analytical and critical reading practices. Overall, the study suggests that effective EFL reading instruction should move beyond AI tools alone by integrating technological support with digital literacy, critical reflection, and human interpretation.

Keywords: AI-supported reading, digital literacy, critical

engagement, EFL learners, reading comprehension, multimodal literacy

INTRODUCTION

Reading comprehension in the twenty-first century has moved beyond the traditional practice of understanding printed texts. In English as a Foreign Language (EFL) contexts, reading is no longer limited to recognizing vocabulary, identifying grammatical structures, or finding main ideas. Learners are now required to engage with texts that appear across digital platforms, artificial intelligence (AI)-supported applications, online learning environments, and multimodal materials. This shift has transformed reading into a more complex literacy practice that involves linguistic competence, digital awareness, critical evaluation, and the ability to interpret meaning across texts, images, and technologies. Recent studies indicate that EFL learners still experience challenges in understanding unfamiliar vocabulary, implicit meanings, complex grammatical structures, and lengthy academic texts, which makes reading comprehension an essential area for pedagogical innovation (Al-Jarf, 2026; Allehyani, 2025; Kasim & Raisha, 2017).

The increasing integration of AI into language education has created new opportunities for supporting EFL learners' reading development. AI-assisted reading tools, including ChatGPT-based reading assistants, digital dictionaries, translation applications, grammar checkers, adaptive platforms, and automated summarizers, can help learners decode unfamiliar words, clarify difficult passages, and receive immediate support during reading activities. Riyani (2025) found that AI-assisted reading tools can improve EFL students' reading comprehension and engagement when they are integrated into instruction. Similarly, Ibrahim et al. (2025) reported that AI-supported tasks can encourage students to move from passive answer-seeking toward more active inquiry, especially when reading activities are designed to develop higher-order skills such as recognizing bias, evaluating arguments, synthesizing ideas, and generating counterarguments. These findings suggest that AI can function as useful scaffolding in EFL reading instruction.

However, the use of AI tools alone does not automatically guarantee meaningful comprehension. The title of this study, "Beyond AI Tools," emphasizes that technology should not be treated merely as a shortcut for understanding texts. Although AI can assist learners in accessing information more quickly, students still need the ability to judge whether AI-generated explanations are accurate, relevant, and contextually appropriate. Labibah et al. (2025) highlight that AI-

generated reading materials may vary in linguistic and pedagogical quality, indicating the need for human evaluation and teacher guidance. Therefore, AI in reading instruction should be understood as a supportive resource rather than a replacement for learners' critical thinking, reflective judgment, and independent interpretation.

Digital literacy is central to this discussion because EFL learners increasingly read through online platforms and digital tools (Anggeraini et al., 2019; Mudra, 2020; Nguyen & Habók, 2022). Digital literacy involves more than the technical ability to operate devices; it includes the capacity to select appropriate tools, evaluate the credibility of information, understand digital texts, and use technology responsibly. Sagita et al. (2025) emphasize that technology use and socio-technical factors influence reading comprehension, showing that students' access, digital experience, and learning environment can shape their interactions with texts. In EFL reading contexts, digital literacy helps learners avoid overreliance on AI outputs and encourages them to question, compare, and verify information from multiple sources.

Critical engagement is also an essential component of reading comprehension in the digital age. Rasmin et al., (2026) argue that critical reading enables students to go beyond literal understanding by analyzing ideas, connecting information with prior knowledge, and interpreting meanings between and beyond the lines. This is particularly important for university-level EFL learners, who are expected to read academic texts, research articles, argumentative essays, and digital materials that require inferential reasoning and evaluative judgment. Suarcaya & Prasasti (2023) also note that critical reading and literacy remain important areas in EFL classrooms because they support students' ability to evaluate discourse, develop critical thinking, and respond to reading challenges. Thus, critical engagement allows learners to become active meaning-makers rather than passive users of technology.

In addition to AI and digital literacy, multimodal literacy plays an important role in contemporary reading practices. Many students encounter English not only through academic texts but also through Webtoon, digital comics, interactive e-books, infographics, and online stories. These materials combine written language with visual elements that can support comprehension, motivation, and vocabulary learning. As Erya & Pustika (2021) found, Webtoon can support students' reading skills, motivation, and self-directed learning. Similarly, a systematic review by Br Kembaren et al. (2026) shows that digital comics can improve EFL students' reading comprehension, particularly in understanding main ideas, identifying

details, learning vocabulary, and interpreting texts. These findings indicate that multimodal materials can enrich reading instruction when they are used with clear pedagogical purposes.

Based on these considerations, this study explores how AI-supported tools, digital literacy, and critical engagement contribute to EFL students' reading comprehension. It focuses on university-level EFL learners who have experience using digital and AI-assisted reading tools. The study examines students' reading practices across several dimensions, including vocabulary strategies, grammatical awareness, inferential comprehension, evaluation of textual credibility, use of digital tools, and engagement with visual or multimodal materials. By integrating literature-based analysis with questionnaire data, this research aims to provide a balanced understanding of reading comprehension in digitally mediated EFL learning environments. Rather than positioning AI as either a threat or a complete solution, this study argues that effective EFL reading instruction should combine technological support with digital literacy, critical reflection, and human interpretation.

METHOD

This study employed a descriptive mixed-methods approach to explore how AI-supported tools, digital literacy, and critical engagement contribute to EFL students' reading comprehension. This design was considered appropriate because the study aimed not only to describe students' reading behaviors through questionnaire data, but also to interpret the findings in relation to recent literature on AI-assisted reading, digital literacy, critical reading, and multimodal literacy. Descriptive analysis was used to identify patterns in students' responses, while literature-based interpretation was applied to explain how these patterns reflect broader issues in digitally mediated EFL reading (Cresswell & Plano, 2018). This approach is relevant to the study's focus, as reading comprehension in contemporary EFL contexts involves not only linguistic understanding but also critical evaluation, technology use, and multimodal engagement (Al Roomy, 2022; Rico-Juan et al., 2024).

The participants in this study were 17 university-level EFL learners with prior experience using digital tools and AI-assisted applications for reading activities. They were selected through purposive sampling because the study required respondents who were familiar with online reading practices, digital dictionaries, translation tools, grammar applications, or AI-supported reading platforms. This selection allowed the research to focus on learners who could provide relevant responses regarding the role of technology in reading comprehension.

The main instrument used in this study was a structured questionnaire distributed through Google Forms. The questionnaire consisted of 20 Likert-scale items ranging from Strongly Disagree to Strongly Agree. The items were developed based on several dimensions of EFL reading comprehension, including identification of main ideas, inferential reading, connection with prior knowledge, evaluation of textual credibility, critical reflection, AI-assisted reading support, motivation, grammatical awareness, use of digital tools, recognition of AI-generated language, multimodal engagement, access to technology, and supervised technology use. The questionnaire items were adapted conceptually from recent studies on critical reading, AI-supported reading platforms, AI-generated reading materials, digital literacy, and multimodal reading practices (Afandi et al., 2025; Br Kembaren et al., 2026; Tang et al., 2026).

The questionnaire sources were organized into five main dimensions. Items related to main idea identification, implied meaning, prior knowledge, credibility evaluation, and critical reflection were informed by Al Roomy's (2022) study on critical reading skills and reading comprehension. Items related to AI-based reading platforms, AI motivation, AI feedback, and personalized reading support were adapted from Ibrahim et al.'s (2025) discussion of AI-based personalized reading platforms. Items concerning grammatical awareness and the recognition of unnatural or incorrect AI-generated language were informed by QI et al. (2025) evaluation of AI-generated reading comprehension materials. Items related to digital tools, internet access, and technology-supported reading were informed by Rico-Juan et al. (2024), who examined the relationship between reading comprehension, technology, and socio-technical factors. Finally, items related to visual media, Webtoon, digital storytelling, and multimodal engagement were adapted from Afandi et al. (2025) study on digital comics for EFL reading comprehension.

Data collection was conducted online to provide flexibility and accessibility for the respondents. Before completing the questionnaire, participants were informed of the study's purpose and assured that their responses would be used only for academic purposes. Their participation was voluntary, and no personal identities were disclosed in the analysis. This procedure was applied to maintain confidentiality and ethical responsibility throughout the research process.

The data were analyzed descriptively by calculating the frequency and percentage of responses for each questionnaire item (Cohen et al., 2007; Cresswell & Plano, 2018). The results were then interpreted thematically based on the study's main focus areas:

AI-supported reading, digital literacy, critical engagement, grammatical and inferential comprehension, and multimodal reading. The analysis did not aim to measure causal relationships, but rather to identify patterns in students' reading practices and explain how these patterns reflect the current needs of EFL learners in digitally mediated reading environments. By connecting questionnaire findings with relevant literature, the study provides pedagogical insights into how AI tools can support reading comprehension when combined with digital literacy, critical reflection, and guided classroom instruction.

FINDINGS AND DISCUSSION

The findings of this study reveal that university-level EFL learners approach reading comprehension through an integrated use of critical reading strategies, AI-supported tools, digital literacy practices, grammatical awareness, and multimodal engagement. Based on the descriptive analysis of 20 Likert-scale questionnaire items, students' responses indicate that reading in digitally mediated environments is not limited to vocabulary comprehension or sentence translation. Rather, it involves the ability to interpret meaning, evaluate information, use digital tools strategically, and engage with visual or multimodal materials. These findings support the methodological focus of this study, which interprets students' reading behaviors through five main dimensions: critical reading, AI-supported reading, digital literacy, grammatical and inferential comprehension, and multimodal reading.

The first-dimension concerns students' critical reading practices. The data show that 70.6% of respondents agreed or strongly agreed that they tried to identify the main ideas when reading English texts. This indicates that most students are aware of the importance of global comprehension and do not merely focus on word-by-word translation. In addition, 52.9% agreed or strongly agreed that they analyzed implied meanings rather than relying only on literal information, while 70.6% stated that they reflected critically on what the author wanted to communicate beyond the lines. These results suggest that students are developing the ability to move from surface-level comprehension to deeper interpretation. This finding is consistent with Al Roomy (2022), who explains that critical reading strengthens comprehension by encouraging learners to analyze ideas, question meanings, and evaluate textual messages. In EFL contexts, this skill is especially important because students often encounter unfamiliar language, implicit meanings, and culturally embedded expressions.

However, the findings also show that students' critical evaluation is still developing. Although 53% of respondents agreed or strongly agreed that they evaluated whether the ideas in the text were logical and credible, 35.3% selected "neutral". This suggests that some students may still feel uncertain when assessing the credibility of textual information. In digital reading environments, this uncertainty is significant because students often encounter AI-generated explanations, online sources, and multimodal texts whose reliability may vary. Therefore, critical reading should be strengthened as part of digital literacy instruction rather than treated as a separate skill.

The second dimension relates to AI-supported reading. The data indicate that students use AI and digital tools, but their perceptions of AI are not entirely uniform. A total of 47% of respondents agreed or strongly agreed that AI-based reading platforms helped them understand texts better, and 47% also agreed or strongly agreed that personalized reading levels in AI applications made reading easier. These findings suggest that AI tools can provide useful scaffolding for EFL learners, particularly in vocabulary support, comprehension assistance, and reading efficiency. This aligns with Ibrahim et al. (2025), who argue that AI-based personalized reading platforms can support learners by adjusting reading experiences to their needs. Nevertheless, only 35.3% of respondents agreed or strongly agreed that AI tools provided useful feedback to improve reading comprehension, and the same percentage agreed or strongly agreed that AI-based tools were more effective than traditional reading methods. These mixed responses suggest that students may recognize AI's usefulness, but they do not necessarily view it as a complete replacement for conventional reading instruction.

The third dimension involves grammatical awareness and the ability to evaluate AI-generated language. The questionnaire results show that 52.9% of respondents agreed or strongly agreed that they paid attention to sentence structure when reading complex English texts. This indicates that grammatical awareness remains an important part of EFL reading comprehension. Students still rely on sentence structure to understand relationships between ideas, interpret academic texts, and make accurate inferences. In addition, 47.1% of respondents agreed or strongly agreed that they could identify unnatural or incorrect language in AI-generated texts, while 35.3% remained neutral. This finding suggests that some students have begun to develop awareness of AI language limitations, but others still need guidance in evaluating AI outputs. QI et al. (2025) emphasize that AI-generated materials require careful evaluation because their linguistic quality and contextual appropriateness may

vary. Therefore, teacher guidance remains necessary to help students compare AI-generated explanations with original texts and evaluate whether the output is accurate.

The fourth-dimension concerns digital literacy and technology-supported reading. The findings show that 70.6% of respondents agreed or strongly agreed that they used digital tools such as dictionaries and translators to clarify unfamiliar words. This suggests that digital tools have become a common part of students' reading habits. Moreover, 58.8% of respondents agreed or strongly agreed that digital literacy skills were essential for improving reading comprehension, and 64.7% stated that access to digital devices and the internet supported their reading development. These findings confirm that digital literacy is not only about operating technology, but also about using digital resources meaningfully to support comprehension. Rico-Juan et al. (2024) highlights that reading comprehension is shaped by technological access, socioeconomic conditions, and learners' digital experiences. Therefore, students' ability to benefit from AI and digital tools depends not only on the availability of tools but also on how critically and strategically they use them.

The fifth-dimension highlights multimodal reading engagement. The data show that students responded positively to visual and digital storytelling materials. A total of 58.8% agreed or strongly agreed that visual media such as Webtoon made English reading more enjoyable, 64.7% stated that Webtoon helped them understand English vocabulary and expressions more easily, and 82.4% felt more motivated when reading materials included images or digital storytelling. These findings indicate that multimodal texts can increase motivation and provide contextual support for comprehension. Visual elements may help learners infer meaning, understand expressions, and connect language with narrative situations. This supports Afandi et al., (2025) and Br Kembaren et al. (2026), who suggest that digital comics and multimodal reading materials can support EFL reading comprehension by increasing engagement and helping learners interpret meaning through both text and visuals.

Overall, the findings suggest that EFL reading comprehension in the digital age should be understood as a human-centered and technology-supported process. AI tools can assist students in vocabulary learning, feedback, and personalized reading support, but they cannot replace critical judgment, grammatical awareness, and reflective interpretation. The varied responses toward AI also indicate that students need structured guidance to use technology responsibly

and effectively. Therefore, EFL reading instruction should move beyond simply introducing AI tools. It should integrate AI-supported reading with digital literacy, critical engagement, grammatical awareness, and multimodal reading tasks to help students become more autonomous, ethical, and critically engaged readers.

CONCLUSION

The study also reveals that AI-supported tools can assist students in understanding English texts, especially by helping them clarify unfamiliar vocabulary, receive reading support, and access personalized learning resources. However, students' responses toward AI were varied, suggesting that AI should not be viewed as a complete replacement for traditional reading instruction or teacher guidance. Instead, AI is more effective when used as a supportive tool that encourages learners to read more independently while still developing their own judgment and interpretation.

Furthermore, the findings highlight the importance of critical engagement and multimodal literacy. Students showed awareness of implied meanings, sentence structure, and authorial intention, while visual media such as Webtoon and digital storytelling increased their motivation and supported their understanding of vocabulary. This suggests that EFL reading instruction should integrate critical reading tasks, digital literacy training, and multimodal materials to make reading more meaningful and relevant to students' learning experiences.

Overall, this study emphasizes the need for a balanced and human-centered approach to AI in EFL reading instruction. Teachers are encouraged to guide students in using AI ethically, critically, and reflectively. Future studies may involve a larger number of participants, use interviews or classroom observations, and examine how AI-supported reading practices influence students' long-term comprehension development.

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