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BETWEEN BRAINS AND BOTS: HOW GRADUATE STUDENTS EMPLOY ARTIFICIAL INTELLIGENCE IN CRITICAL READING

Lisa Marthalina Sadikin[1], Rahmila Murtiana[2]
UIN Antasari Banjarmasin
lisamarthalina@gmail.com

ABSTRAK

Artificial Intelligence (AI) semakin banyak digunakan oleh mahasiswa untuk mendukung proses pembelajaran di berbagai jenjang pendidikan. Penelitian fenomenologis ini mengeksplorasi bagaimana mahasiswa pascasarjana memanfaatkan AI, khususnya *ChatGPT*, dalam memahami artikel penelitian akademik serta bagaimana penggunaannya membentuk keterlibatan kognitif dan kemampuan berpikir kritis mereka. Penelitian ini dilakukan di Program Magister Pendidikan Bahasa Inggris yang menekankan kemampuan membaca kritis, dengan melibatkan enam partisipan yang dipilih secara purposif dan memiliki latar belakang akademik serta pengalaman mengajar yang beragam. Data dikumpulkan melalui wawancara semi-terstruktur, observasi kelas, dan *Focus Group Discussion* (FGD), kemudian dianalisis menggunakan *Interpretative Phenomenological Analysis* (IPA). Temuan penelitian menunjukkan adanya pola penggunaan AI dan keterlibatan kognitif yang berbeda antarpartisipan. Sebagian mahasiswa menunjukkan tingkat kemandirian tinggi dan keterlibatan kognitif pada level evaluasi dan kreasi, sementara sebagian lainnya memanfaatkan AI secara reflektif untuk membantu pemahaman bahasa akademik dan analisis teks. Sebaliknya, beberapa partisipan menunjukkan ketergantungan tinggi terhadap AI, dengan keterlibatan kognitif yang masih terbatas pada level mengingat dan memahami. Temuan ini, yang diinterpretasikan melalui Bloom's Revised Taxonomy, menunjukkan bahwa AI dapat berfungsi sebagai penopang *(cognitive scaffold)* maupun sebagai pembatas *(cognitive constraint*) berpikir kritis, tergantung pada cara penggunaannya. Penelitian ini menekankan pentingnya pengembangan literasi AI kritis untuk mendukung kemandirian, refleksi, dan kemampuan berpikir tingkat tinggi dalam pendidikan pascasarjana.

Kata kunci: *Artificial Intelligence, critical reading, Bloom's taxonomy, IPA*, pendidikan tinggi

ABSTRACT

Artificial Intelligence (AI) has been widely used by students to support learning across different levels of education. This phenomenological study explores how graduate students employ AI, particularly ChatGPT, in understanding academic research articles and how such use shapes their cognitive engagement and critical thinking. Conducted in a Master's Program in English Language Education emphasizing critical reading, the study involved six purposively selected participants with varied academic backgrounds and teaching experiences. Data were collected through semi-structured interviews, classroom observations, and focus group discussions (FGD), and analyzed using Interpretative Phenomenological Analysis (IPA). The findings reveal distinct patterns of AI use and cognitive engagement across participants. Some students demonstrated high autonomy and higher-order cognitive engagement at the evaluating and creating levels, while others used AI reflectively to support language comprehension and analysis. In contrast, certain participants showed strong dependency on AI, with cognitive engagement largely limited to remembering and understanding. Interpreted through Bloom's Revised Taxonomy, the findings indicate that AI may function either as a cognitive scaffold or a cognitive constraint depending on how it is used. This study highlights the importance of fostering critical AI literacy to support autonomy, reflection, and higher-order thinking in graduate education.

Keywords: *AI-assisted learning, critical reading, Bloom's taxonomy, interpretative phenomenological analysis, graduate students*

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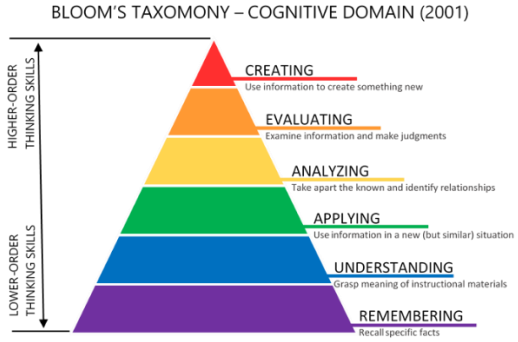
INTRODUCTION

Artificial Intelligence (AI) nowadays has deeply connected to many aspects of education, especially how students read, think, and learn during their studies. The integration of AI tools such as ChatGPT and other natural language processing systems has shifted academic reading from a purely human cognitive activity into a collaborative process between human intelligence and artificial intelligence. Within the field of psycholinguistics, which examines how language is processed in the human mind (Field, 2003), this interaction between human cognition and artificial intelligence introduces a new dimension of meaning-making. While language has traditionally been understood as a natural cognitive capacity of the human brain (Chomsky, 1965), AI now participates in language production through algorithmic processes (Halevy et al., 2009). This interaction between "brains and bots" raises critical questions regarding how technology supports or reshapes human understanding and cognitive engagement during critical reading.



Picture 1: Bloom's Taxonomy – Cognitive Domain (2001)

Critical reading expands more than surface-level comprehension and includes complex cognitive processes such as reasoning, evaluation, and reflection. Bloom's Revised Taxonomy (Anderson & Krathwohl, 2001) emphasizes critical reading within higher-order thinking levels, particularly analyzing, evaluating, and creating. Similarly, Paul and Elder (2008) mentioned that critical thinking as the ability to question assumptions, analyze arguments, and make reasoned judgments. From a psycholinguistic viewpoint, Goodman (1988) highlights reading as a "psycholinguistic guessing game," in which readers integrate bottom-up linguistic decoding with top-down background knowledge to construct meaning. However, the increasing use of AI tools in reading practices may shift these natural cognitive processes. While AI can facilitate comprehension and reduce linguistic difficulty, it may also reduce learners' cognitive effort to infer, evaluate, and reflect deeply on texts.

In higher education contexts, especially in postgraduate programs, academic reading forms the foundation of classroom discussion. In the Postgraduate Program of English Language Education, students are required to engage intensively with research articles, theoretical texts, and other academic texts. Academic reading at this level needs both linguistic competence and background knowledge to interpret and evaluate ideas critically (Grabe & Stoller, 2013). It also needs metacognitive skills, including planning, monitoring, and reflecting on one's thinking processes (Flavell, 1979). These needs place critical reading as a cognitively complex activity that relies heavily on higher-order thinking skills, as described in Facione's (1990) critical thinking framework. Consequently, many postgraduate students use AI tools to summarize, translate, or interpret research articles, which certainly influences how they engage cognitively with academic texts.

Previous studies have examined the impact of AI on students' critical thinking and learning processes. Melisa et al. (2025) reported that AI tools such as ChatGPT can support analytical and evaluative thinking by providing quick access to information and examples; however, they showed that over-reliance on AI may weaken independent reflection, a concern also highlighted in metacognitive research by Schraw and Dennison (1994). Similarly, Darwin et al. (2024), in their study of Indonesian EFL graduate students, found that AI facilitates research reading but may also encourage superficial processing, aligning with Craik and Lockhart's (1972) Levels of Processing Theory. Ahmed et al. (2025) further noted that although AI can support critical and creative thinking, it may reduce students' motivation for deep learning, which has connection with Piaget's (1970) view that intellectual growth appears through self-regulated learning.

From a psycholinguistic perspective, Hartley et al. (2025) examined the acceptability and validity of AI-generated linguistic stimuli and found that while AI can produce grammatically valid

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language, it often lacks contextual depth. This finding aligns with Halliday's (1978) Systemic Functional Linguistics, which emphasizes that meaning is constructed through social and contextual interaction. Collectively, these studies suggest that although AI is a powerful educational tool, human cognition remains still important to meaningful language understanding and critical engagement.

Despite these insights, research focusing on how AI gives impact to the psycholinguistic processes underlying critical academic reading is still limited. Most existing studies on AI in ELT focus on learners' perceptions, benefits, and ethical concerns rather than on how students cognitively engage with texts while using AI (Darwin et al., 2024). Moreover, few studies explicitly link AI-assisted learning with Bloom's cognitive levels or examine learners' lived experiences through qualitative approaches. To fill this gap, the present study explores how graduate students experience AI-assisted critical reading and how their cognitive engagement can be understood through Bloom's Revised Taxonomy.

Therefore, the present study aims to fill these gaps by exploring how graduate students experience reading and understanding academic research articles with the assistance of AI tools. Using Interpretative Phenomenological Analysis (IPA), this study investigates how AI mediates students' engagement with academic texts and shapes their critical reading processes across different levels of Bloom's Revised Taxonomy. By examining students' lived experiences, this research seeks to provide a deeper understanding of the balance between human cognition and artificial intelligence in postgraduate academic reading. Finally, this study aims to answer the following research question: Accordingly, this study is guided by the following research questions:

RQ 1: How do graduate students experience the use of AI in reading academic research articles?

RQ 2: How does AI shape students' cognitive engagement and critical thinking across Bloom's Revised Taxonomy?

METHOD

This study uses a qualitative phenomenological design to explore students' lived experiences in AI-assisted critical reading. Phenomenology is chosen to capture how participants made sense of their engagement with AI-supported reading tasks. (Moustakas, 1994). The analysis uses Interpretative Phenomenological Analysis (IPA) (Smith et al., 2009)

Participants

Six graduate students enrolled in a Master's Program in English Language Education participated in this study. Participants were selected purposively to represent variation in age and teaching experience. To avoid misinterpretation related to academic levels, participants are categorized based on their stage of study and teaching experience rather than formal academic ranking.

Table 1: Participant Categories

PARTICIPANT CODE	AGE RANGE (YEARS)	CATEGORY	TEACHING EXPERIENCE
P1	39	Advanced-stage graduate student	Experienced teacher
P2	38	Advanced-stage graduate student	Experienced teacher
P3	28	Mid-stage graduate student	Limited experience
P4	26	Mid-stage graduate student	Limited experience
P5	23	Early-stage graduate student	Very limited experience
P6	23	Early-stage graduate student	Very limited experience

Data Collection

Data were collected using three qualitative techniques: semi-structured interviews**,** classroom observations**,** and focus group discussions (FGD). This combination of methods enabled

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methodological triangulation and allowed for an in-depth exploration of participants' lived experiences in engaging with academic research articles using AI tools.

Semi-structured interviews were conducted to get the insight from participants' personal experiences, perceptions, and reflections related AI-assisted critical reading. This interview guidelines provided flexibility for participants to elaborate on their cognitive and affective responses while still allowing the researcher to explore predetermined themes related to AI use, comprehension strategies, and critical thinking. According to Moustakas (1994), such open-ended inquiry is essential in phenomenological research to uncover the meanings individuals assign to their experiences.

Classroom observations were also conducted during critical reading discussions to see how participants interacted with research articles in real time during teaching and learning process. Particular attention was given to students' reliance on AI tools, oral explanations, engagement with peers, and ability to connect theoretical concepts with real-life or professional contexts. Observational data helped capture cognitive processes that might not be fully articulated during interviews, supporting a more holistic understanding of participants' experiences (Smith, Flowers, & Larkin, 2009).

Additionally, Focus Group Discussions (FGDs) were conducted to explore shared experiences and collective meaning-making among participants. FGDs allowed participants to reflect collaboratively on their use of AI in academic reading, showing both focused and creative perspectives across different ages and experience groups. The use of multiple data sources strengthened the depth and credibility of the findings through triangulation.

Data Analysis

The data were analyzed using Interpretative Phenomenological Analysis (IPA) following the **six** analytical stages proposed by Smith, Flowers, and Larkin (2009). IPA was selected because it focuses on how individuals make sense of their lived experiences, emphasizing both participants' meaning-making and the researcher's interpretative role. This approach aligns with the purpose of the study to explore graduate students' cognitive and reflective engagement in AI-assisted critical reading.

Stage 1: Reading and Re-reading

The analysis began with repeated reading of interview transcripts, observation notes, and FGD notes to ensure the similarities in the data. This stage allowed the researcher to become familiar with each participant's narrative and maintain a phenomenological attitude by focusing closely on the participants' accounts of their experiences (Smith et al., 2009).

Stage 2: Initial Noting

Detailed initial notes were then produced, including descriptive comments (content and events), linguistic comments (word choice, pauses, emphasis), and conceptual comments (preliminary interpretations). This stage aimed to capture both explicit meanings and underlying cognitive and affective responses related to participants' use of AI during academic reading. Consistent with Moustakas (1994), this process facilitated the identification of significant statements that reflected participants' lived experiences.

Stage 3: Developing Emergent Themes

From the initial notes, emergent themes were developed by identifying patterns and key ideas that captured essential aspects of participants' experiences. These themes represented a transformation of participants' original expressions into more abstract psychological and educational concepts while remaining grounded in the data.

Stage 4: Searching for Connections Across Emergent Themes

The emergent themes were then clustered to identify conceptual connections and overarching patterns within each participant's data set. Techniques such as abstraction, subsumption, and polarization were used to organize themes into coherent structures (Smith et al., 2009). At this stage, themes related to AI reliance, confidence, critical engagement, and meaning-making became more clearly defined.

Stage 5: Moving to the Next Case

Each participant's data were analyzed individually, treating each case as unique before making cross-case comparisons. This idiographic

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focus ensured that individual experiences were not instantly generalized, preserving the depth and richness of each participant's narrative.

Stage 6: Looking for Patterns Across Cases

Finally, patterns were identified across all participants to examine similarities and differences in their experiences and cognitive engagement during AI-assisted academic reading. At this stage, Bloom's Revised Taxonomy (Anderson & Krathwohl, 2001) was employed as an analytical framework to interpret variations in cognitive engagement. Participants' reading behaviors, explanations, and reflections were mapped onto Bloom's cognitive levels—remembering, understanding, analyzing, evaluating, and creating—allowing for a systematic interpretation of how AI mediated different levels of critical thinking.

By integrating the six stages of IPA with Bloom's taxonomy, the analysis provided both an in-depth phenomenological understanding of students' lived experiences and a structured interpretation of their cognitive engagement during AI-assisted critical reading.

Trustworthiness

To ensure trustworthiness, this study used the criteria proposed by Lincoln and Guba (1985)**.** Credibility was enhanced through methodological triangulation by integrating data from interviews, classroom observations, and focus group discussions. Member checking was conducted by sharing preliminary interpretations with participants to confirm the accuracy of the findings. Dependability and confirmability were supported by maintaining reflective journals, analytic memos, and a clear audit trail documenting decisions made throughout the research process. This ensured transparency and minimized researcher bias (Miles, Huberman, & Saldaña, 2014). Although the study is context-specific, providing rich and detailed descriptions of the research context and analytical procedures enhances transferability, enabling readers to assess the applicability of the findings to similar EFL postgraduate settings.

FINDINGS AND DISCUSSION

Based on data obtained from semi-structured interviews, classroom observations, and focus group discussions analyzed through Interpretative Phenomenological Analysis (IPA), this study identified clear differences in patterns of AI use and levels of cognitive engagement among graduate students during critical reading of research articles. These differences were strongly associated with age range, teaching experience, and learners' dependence on AI, and were interpreted using Bloom's Revised Taxonomy

Table 2: Stage of Study and Purpose of AI Use

PARTICIPANT CODES	STAGE OF STUDY	PURPOSE OF AI USE
P1, P2	Advanced-stage graduate students	Rarely used AI; relied on personal reading and interpretation
P3, P4	Mid-stage graduate students	Simplifying academic language; summarizing key points; clarifying terminology
P5, P6	Early-stage graduate students	Generating summaries; explaining content; reducing reading difficulty

Table 3: Patterns of AI Use in Academic Reading

PARTICIPANT CODES	LEVEL OF RELIANCE	KEY OBSERVATIONS
P1, P2	Minimal	Demonstrated confidence in reading academic texts independently; avoided AI to maintain deep understanding and retention
P3, P4	Selective	Used AI strategically as a support tool while still engaging with original texts; maintained control over reading process
P5, P6	High	Depended heavily on AI-generated outputs; relied on AI as the primary

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	source of understanding

4.1 Students' Experiences in Using AI in Reading Academic Articles

This section explores students' lived experiences in using AI during the process of reading academic research articles. Rather than focusing on cognitive outcomes, this section highlights how AI was used, for what purposes, and how students perceived their reliance on AI while engaging with academic texts.

Analysis of data from semi-structured interviews, classroom observations, and focus group discussions revealed varied patterns of AI use among participants, ranging from minimal and selective use to high dependence. These patterns reflected differences in how students positioned AI within their reading practices. Some participants reported consciously limiting their use of AI and relying primarily on their own reading and interpretation. For these students, reading academic articles was perceived as a cognitive process that required personal effort and struggle to achieve meaningful understanding. AI was used only occasionally, mainly to translate unfamiliar words or phrases. One participant explained:

"I rarely use AI when reading research articles. Usually, I only use Google Translate to translate certain words that I don't know. I prefer to read and understand the article by myself." (P1)

Another participant expressed a similar view, emphasizing that excessive reliance on AI might reduce the depth of understanding:

"If I use AI too much, I feel like I don't really process the article. So, I only use it when I really need to check the meaning of a word." (P2)

Classroom observations supported these statements, as these participants were able to discuss research articles fluently without referring to AI-generated outputs. Their engagement suggested that AI played a minimal role and was not central to their reading process.

Other participants described using AI selectively as a supportive tool rather than as a replacement for reading. These students commonly employed AI to simplify academic language, summarize complex sections, or clarify difficult sentences, particularly when time constraints were present. One participant stated:

"Sometimes the language in journal articles is very heavy. I still read the article, but I ask AI to simplify the language so I can understand it faster." (P3)

Another participant emphasized that AI functioned as an aid rather than the main source of understanding:

"AI helps me to understand the text, but I don't just depend on it. I still read the article again after that." (P4)

During classroom discussions, these participants were generally able to explain key ideas independently, although occasional reference to AI-assisted notes was observed. In this experience, AI functioned as a cognitive scaffold that supported comprehension without fully substituting the reading process.

In contrast, some participants demonstrated a high level of dependence on AI during academic reading. These students reported uploading full research articles into ChatGPT and relying on AI-generated translations and summaries, often in Indonesian, as their primary source of understanding. One participant explained:

"Usually, I upload the research article to ChatGPT and ask it to translate and summarize it in Indonesian so it's easier for me to understand." (P5)

Another participant highlighted a strong sense of dependence on AI to gain confidence:

"Without ChatGPT, I feel confused and not confident. I usually depend on the summary from ChatGPT to understand the article." (P6)

Classroom observations further confirmed these experiences. These participants frequently read directly from AI-generated outputs during discussions and showed limited spontaneous elaboration, indicating that AI had become the dominant source of understanding rather than a supporting tool.

4.2 AI and Students' Cognitive Engagement and Critical Thinking

Table 4: Cognitive Engagement and Critical Thinking Based on Bloom's Revised Taxonomy

Participant Codes	Cognitive Level	Indicator
P1, P2	Advanced-stage graduate students	Able to assess arguments, connect theory with teaching experience, and

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		generate original interpretations without AI support
P3, P4	Mid-stage graduate students	Demonstrated analytical understanding of texts; used AI to support comprehension but maintained independent reasoning
P5, P6	Early-stage graduate students	Relied on AI-generated explanations; showed limited ability to elaborate, evaluate, or contextualize ideas

This section examines how AI use shaped students' cognitive engagement and critical thinking during academic reading. Interpreted through Bloom's Revised Taxonomy, the findings reveal patterns of cognitive engagement across participants that were associated with how AI was integrated into the reading process rather than with chronological age.

Higher-Order Cognitive Engagement: Evaluating and Creating

Some participants demonstrated higher-order cognitive engagement, particularly at the evaluating and creating levels of Bloom's Revised Taxonomy. These participants showed minimal reliance on AI tools and emphasized the importance of independent cognitive effort during critical reading. One participant explained a conscious avoidance of AI, expressing concern that instant access to AI-generated information might reduce retention and meaningful understanding:

"I do not really like using AI when reading research articles. When I get something instantly, I feel it is easier to forget. I prefer using my own brain to think, because when I struggle with the text, I remember it better." (P1)

Classroom observations supported this statement, as these participants were able to engage in fluent and spontaneous discussions without relying on digital devices or AI-generated outputs. They frequently connected theoretical concepts from research articles with their own teaching experiences, indicating evaluative judgment and knowledge creation:

"When I read the article, I always try to relate or link it to what happens in my classroom. From there, I can evaluate whether the theory really works in practice." (P1)

This pattern reflects cognitive engagement at the evaluating and creating levels, where participants not only assessed the validity of research arguments but also generated new interpretations grounded in professional and real-life contexts.

Analytical and Reflective Engagement: Analyzing and Evaluating

Other participants demonstrated cognitive engagement primarily at the analyzing and evaluating levels. These participants used AI selectively as a supportive tool to manage linguistic difficulty and time constraints, while maintaining engagement with the original research articles. One participant described using AI to simplify complex academic language:

"I still read the research article, but sometimes the language is too heavy. So I ask AI to simplify the language, especially when I have limited time and need to understand the article quickly." (P3)

Another participant emphasized that AI did not replace the reading process:

"AI helps me to get the main idea faster, but after that I still read the article again. I don't want to depend on AI completely." (P4)

Classroom observations showed that these participants were generally able to elaborate ideas independently, although occasional reference to AI-assisted notes was observed. AI functioned as a cognitive scaffold that facilitated analytical engagement, but participants' ability to

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consistently generate original interpretations or contextualized applications remained limited.

Surface-Level Cognitive Engagement: Remembering and Understanding

In contrast, some participants' cognitive engagement remained largely at the remembering and understanding levels of Bloom's Revised Taxonomy. These participants relied heavily on AI tools, particularly ChatGPT, by uploading full research articles and depending on AI-generated summaries and translations as their primary source of understanding:

"Usually, I just upload the article to ChatGPT and let it summarize everything. It feels too difficult to read it by myself." (P5)

A strong sense of reduced confidence without AI support was also evident:
"If I don't use ChatGPT, I feel like I don't understand anything. I don't feel confident to talk or explain the article without AI's help." (P6)

Classroom observations revealed that these participants often read directly from AI-generated outputs during discussions, with minimal spontaneous elaboration. Their engagement showed limited evidence of analytical processing, evaluative judgment, or the ability to connect research texts with pedagogical or real-life contexts, indicating surface-level cognitive engagement.

Discussion

The findings of this study demonstrate that Artificial Intelligence (AI) does not inherently enhance or hinder critical reading; rather, its impact depends on how learners cognitively engage with AI and regulate its use during academic reading. When interpreted through Bloom's Revised Taxonomy, AI may function either as a facilitator of higher-order thinking or as a constraint that limits learners to lower cognitive levels. This variation was consistently observed across interview data, classroom observations, and focus group discussions, highlighting differences in how participants experienced and made meaning of AI-assisted reading practices.

Across cases, participants who engaged minimally with AI or used it in a highly controlled manner demonstrated cognitive engagement at the evaluating and creating levels of Bloom's taxonomy. These participants were able to articulate ideas fluently, respond spontaneously during discussions, and connect theoretical arguments from research articles with pedagogical or real-life contexts without relying on AI-generated outputs. Classroom observations showed that their engagement was characterized by confidence, elaboration, and critical judgment, indicating deep internalization of meaning rather than dependence on external cognitive support. Such patterns align with Bloom's conceptualization of higher-order cognition as involving judgment, synthesis, and knowledge construction (Anderson & Krathwohl, 2001), as well as Piaget's (1970) notion of intellectual development through self-regulated cognitive activity. This form of engagement also reflects strong metacognitive awareness, as learners actively monitored and controlled their understanding without excessive reliance on technological assistance (Schraw & Dennison, 1994).

Other participants demonstrated a more strategic and reflective use of AI, primarily as a tool for linguistic clarification, simplification of complex academic language, or initial organization of ideas. While these participants still read the original research articles, AI functioned as a cognitive scaffold that supported access to meaning rather than replacing the reading process. Observational and FGD data indicated that they were generally able to analyze arguments and participate meaningfully in discussions, occasionally referring to AI-assisted notes. Their cognitive engagement predominantly aligned with the analyzing and evaluating levels of Bloom's taxonomy. This pattern supports previous studies suggesting that AI can enhance analytical and evaluative thinking when used critically and intentionally (Melisa et al., 2025; Darwin et al., 2024). However, evidence from classroom interactions suggests that this form of engagement did not consistently extend toward original synthesis or contextualized application, indicating limitations in reaching the creating level.

In contrast, a different pattern emerged among participants who relied heavily on AI as their primary source of understanding. These participants frequently depended on AI-generated

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summaries and explanations during both individual reading and classroom discussions. Observations revealed that their participation often involved reading directly from AI outputs, with limited spontaneous elaboration or critical response. Their cognitive engagement remained largely at the remembering and understanding levels of Bloom's taxonomy, reflecting surface-level processing of information. This finding is consistent with Craik and Lockhart's (1972) Levels of Processing Theory, which posits that shallow processing results in limited comprehension and retention. Excessive reliance on AI appears to reduce opportunities for deeper cognitive engagement and independent meaning-making, echoing concerns raised by Ahmed et al. (2025) regarding the potential of AI overuse to weaken motivation for deep learning and self-directed intellectual growth.

Furthermore, participants with high AI dependency showed difficulty contextualizing research findings beyond AI-generated interpretations. During focus group discussions, these participants acknowledged using AI to gain confidence in speaking, expressing uncertainty when required to explain ideas without technological support. From a systemic functional perspective, Halliday (1978) emphasizes that meaning is constructed through language-in-context. When AI substitutes the learner's interpretive effort, opportunities for contextualized and critical engagement with academic knowledge are diminished. As a result, AI-mediated reading may become an act of information consumption rather than knowledge construction.

Taken together, the findings underline the importance of critical AI literacy in graduate education. Critical AI literacy involves reflective, intentional, and ethical engagement with AI tools, ensuring that technology supports rather than substitutes human cognitive effort (Melisa et al., 2025; Darwin et al., 2024). By integrating Interpretative Phenomenological Analysis (IPA) with Bloom's Revised Taxonomy, this study extends existing research by illuminating not only students' perceptions of AI but also how they live through and cognitively experience AI-assisted critical reading. Within the Indonesian EFL postgraduate context where academic reading is closely linked to intellectual responsibility and reflective practice fostering balanced human–AI interaction is essential for sustaining higher-order thinking, learner autonomy, and meaningful engagement with academic knowledge.

CONCLUSION

This study demonstrates that the use of Artificial Intelligence (AI) in critical reading does not automatically enhance or diminish higher-order thinking. Rather, its impact is shaped by how learners regulate AI use and engage with it reflectively during academic reading. The findings indicate that AI may support higher-order cognitive engagement when used selectively and intentionally, particularly as a tool for clarification and analysis. Conversely, when AI becomes the primary source of understanding, cognitive engagement tends to remain at lower levels, such as remembering and understanding.

Interpreted through Bloom's Revised Taxonomy, the results suggest that AI can function either as a cognitive scaffold that facilitates analytical and evaluative thinking or as a cognitive constraint that limits opportunities for deeper meaning-making. These patterns underscore the importance of fostering critical AI literacy in graduate education. Educators are encouraged to guide students in developing autonomy, reflection, and ethical awareness in AI use, ensuring that AI supports rather than replaces critical thinking and meaningful engagement with academic texts.

LIMITATION

This study has some limitations. The participants came from only one graduate program in Indonesia, so the results may not apply to students from other programs or countries. There were only a few participants, and the data from interviews and observations depended on the researchers' interpretations. The study looked only at AI use in reading research articles and was done over a short time, so long-term effects on thinking skills were not explored.

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