



Exploring Metacognitive Reading Strategies in Digital Academic Texts: A Study of Indonesian Postgraduate EFL Students

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Article Info	Abstract
Received: 2026-04-07 Revised: 2026-05-19 Accepted: 2026-08-23 Keywords: Metacognitive reading strategies; digital academic reading; EFL postgraduate students; digital literacy; reading comprehension DOI: 10.24256/ideas.v14i2.10316 Corresponding Author: Aulia Aziza Billah Auliaaziza.s22025@students.unm.ac.id Bahasa dan Sastra, Universitas Negeri Makassar, Makassar, Sulawesi Selatan	<i>This study investigates the metacognitive reading strategies employed by Indonesian postgraduate EFL students when engaging with digital academic texts. A qualitative case study design was employed to explore students' reading behaviors in a naturalistic context. Data were collected from ten postgraduate students from the English Language Education Program at Makassar State University who regularly accessed digital scholarly materials, including journal articles, e-books, and conference papers. Semi-structured interviews were used to gather information on students' preparation, reading purposes, navigation behaviors, use of digital tools, comprehension monitoring, and perceived challenges. The data were analyzed using thematic analysis to identify patterns and recurring strategies. The results indicate that students adopt goal-oriented and selective reading behaviors, prepare supportive physical and technological environments, and preview structural elements such as titles, abstracts, and conclusions. To cope with complex vocabulary and dense texts, students employ strategies including rereading, adjusting reading speed, highlighting, note-taking, and using digital tools such as online dictionaries, translation apps, search functions, and AI platforms. Challenges include navigational disorientation, distraction, eye fatigue, and information overload, which students mitigate through summarization, self-explanation, and keyword searches. The study concludes that digital academic reading is a dynamic and adaptive process requiring continuous metacognitive regulation and</i>

technological support. Its novelty lies in highlighting the interplay of cognitive, metacognitive, and digital strategies in enhancing postgraduate students' comprehension and reading effectiveness. race to improve postgraduate students' reading effectiveness and comprehension.

1. Introduction

Academic reading is a fundamental component of postgraduate study, particularly in English as a Foreign Language (EFL) context where access to scientific knowledge largely depends on English-medium scholarly publications. Postgraduate students are required to engage with empirical research articles, theoretical discussions, systematic reviews, and methodological reports that demand not only linguistic competence but also advanced cognitive processing. Unlike general reading, academic reading involves evaluating arguments, synthesizing information across multiple sources, identifying research gaps, and critically interpreting data. Therefore, successful comprehension requires strategic regulation of the reading process. Metacognitive reading strategies have long been recognized as essential in supporting such complex comprehension, particularly in EFL contexts where readers face linguistic and conceptual challenges simultaneously.

Recent studies have highlighted the significant contribution of metacognitive reading strategies to reading achievement. Sari (2016) found that highly successful EFL readers employed memory and problem-solving strategies more frequently. Similarly, Indriyani et al. (2021) reported that metacognitive strategies were the most frequently used among university students. Consistent findings were reported by Nisrina (2023) and Gazali and Baa (2023), both identifying positive correlations between metacognitive strategy use and reading comprehension. Harputra et al. (2023) further emphasized the importance of problem-solving strategies. However, Pahrizal et al. (2024) found that although students demonstrated high metacognitive awareness, its relationship with reading performance was relatively weak. In parallel, digitalization has transformed academic reading, as students increasingly access texts through digital platforms characterized by non-linear navigation and multimedia integration. Studies by Medjahed (2023) and Chen (2023) suggest that digital environments influence readers' regulatory behaviors, while Pratiwi & Yansyah (2024) highlight the growing importance of digital literacy in higher education.

Despite these developments, several gaps remain evident. Many previous studies have examined metacognitive strategies without distinguishing between printed and digital academic texts, even though digital texts present distinct cognitive demands. Research on digital reading often emphasizes learners' perceptions rather than deeper metacognitive regulation. In addition, inconsistencies in findings regarding the relationship between metacognitive

strategies and comprehension indicate the influence of contextual factors. Furthermore, most studies focus on undergraduate students, leaving postgraduate contexts underexplored. Empirical research on Indonesian postgraduate EFL students' metacognitive strategies in digital academic reading remains scarce.

To address these gaps, this study aims to explore the metacognitive reading strategies employed by Indonesian postgraduate EFL students when engaging with digital academic texts. Specifically, this study seeks to identify the types of strategies most frequently used and examine how these strategies function within digital environments. This research contributes by focusing on postgraduate learners, addressing inconsistencies in previous findings, and situating metacognitive strategy use within digital academic contexts. The findings are expected to advance theoretical understanding of metacognitive regulation and inform pedagogical practices in digital academic literacy.

2. Method

This study employed a qualitative case study design to explore metacognitive reading strategies used by EFL postgraduate students in digital academic reading. This design is suitable for examining cognitive processes in real-life contexts where the phenomenon and context are closely connected (Dematthews et al., 2026; Fahmi, 2024).

The study was conducted at the English Language Education Postgraduate Program, Universitas Negeri Makassar (UNM), involving 10 postgraduate students from the class of 2025. Participants were selected using purposive sampling based on their active use of digital academic texts and willingness to participate (Campbell et al., 2020; Palinkas et al., 2016).

Data were collected through semi-structured interviews with open-ended questions focusing on students' strategies, challenges, and the influence of digital features. Each interview lasted 15–30 minutes and was conducted online via voice notes, Zoom, or text. All interviews were recorded, transcribed verbatim, and verified through member checking to ensure accuracy.

Data analysis followed Creswell and Poth (2018) using thematic analysis. The process included data familiarization, coding, categorization, and theme development to identify patterns in students' planning, monitoring, evaluation, and use of digital tools in academic reading.

3. Result

This section presents the findings obtained from semi-structured interviews with 10 postgraduate EFL students regarding their experiences, behaviors, and strategies when engaging with digital academic texts. The findings are organized into several aspects reflecting participants' preparation, reading purposes, navigation behaviors, use of digital tools, comprehension monitoring, evaluation practices, and perceived challenges.

Reading Preparation and Physical Environment

The results showed that 8 out of 10 participants reported that they typically prepare for reading by finding a quiet or comfortable place. Participants such as NS, DMT, NAB, SNAS, SNI, NI, ANA, and NY emphasized that a quiet environment helps them maintain focus and reduce potential distractions while reading. For example, NS explained that she prefers to find a quiet place where she can fully concentrate and ensure her device and internet connection are ready before starting to read. Similarly, DMT stated that she prepares by finding a quiet place and reviewing article titles and abstracts to gain a preliminary understanding of the topic. NAB also mentioned that she cannot focus well when reading in noisy environments and therefore deliberately chooses a quiet place and prepares her smartphone, laptop, or tablet beforehand.

In line with this, several participants highlighted the importance of comfort and physical readiness as part of their reading preparation. SNI noted that she tries to make herself comfortable before reading by preparing her phone or laptop and sometimes opening a notes app to jot down important points. NY also reported that she ensures a quiet place and has a laptop and online dictionary ready to support her comprehension. This response indicates that students are aware of the relationship between physical condition and reading effectiveness, especially when interacting with demanding academic texts on a digital screen.

Furthermore, individual variation in environmental preferences was also evident. While most participants preferred quiet, two participants (MAR and AAB) expressed a different approach. MAR indicated that she did not require any special preparation and often read while listening to music because it created a more relaxing atmosphere for her. This reflects a more flexible reading habit where emotional comfort is prioritized over environmental silence. Similarly, AAB stated that a quiet place was not essential; instead, she focused on having a stable internet connection, enough time to read without rushing, and physical comforts such as having water and snacks nearby. She also mentioned skimming the topic beforehand to activate background knowledge. This response highlights that reading preparation strategies are influenced by individual preferences and reading goals.

In addition to the physical environment, digital preparedness emerged as a dominant theme in the findings. Approximately 7 out of 10 participants (NS, DMT, NAB, SNAS, SNI, NI, and NY) reported preparing or opening digital tools before reading. These tools included online dictionaries, highlighting features, search functions, and note-taking apps. For example, NS mentioned that she often opened an online dictionary or note-taking app first because she anticipated encountering unfamiliar vocabulary. Similarly, SNAS and SNI described preparing digital tools such as highlighting features and search functions to help them read more effectively. This preparation demonstrates students' awareness that digital academic texts often contain complex vocabulary and dense theoretical

explanations, which require additional technological support.

Another aspect related to preparation was time allocation and cognitive readiness. At least 3 participants (AAB, NI, and NS) explicitly mentioned the importance of setting aside sufficient time before reading. NI stated that she ensured she had enough time to focus because she was easily distracted, while AAB explained that she tried to avoid rushing by planning her reading time in advance. This suggests that preparation is not limited to physical or technological aspects but also involves mental readiness and planning. Furthermore, several participants demonstrated preparation strategies that involved prior orientation to the text's structure. For example, DMT and SNAS reported previewing the title, abstract, keywords, or conclusion before fully reading the article. While this relates to cognitive reading strategies, it also reflects preparatory behaviors that help students decide whether the article is relevant and how much effort they need to invest in reading it.

Reading Purpose and Goal Orientation

9 out of 10 participants stated that they typically set a specific goal before reading digital academic articles. Participants such as NS, DMT, ANA, NAB, SNAS, SNI, NI, AAB, and NY explained that they read with a clear academic goal, such as finding main ideas, theories, research gaps, methodological approaches, or supporting arguments relevant to their assignment or research topic. For example, NS mentioned that her primary goal when reading was to identify important theories and previous studies that could support her paper. Similarly, DMT reported that she read academic articles to find theoretical information and previous research that could strengthen her assignment.

In line with this, ANA and SNI emphasized that having a reading goal helped them stay focused and selective while reading. ANA explained that she did not try to read every section in detail but instead concentrated on arguments or theoretical points that were useful for her writing. Similarly, SNI stated that setting a goal allowed her to focus on supporting theories or ideas related to her topic, which helped maintain concentration while reading.

Furthermore, several participants indicated reading goals oriented toward research development. SNAS reported that she typically reads to identify theoretical frameworks or methodological approaches that could support her research. Similarly, AAB explained that when writing a literature review, she reads to identify research gaps, methods, and key findings relevant to her research focus. These responses demonstrate a more advanced level of academic reading purpose, where students engage in strategic reading to build a knowledge structure for research writing.

Another pattern found in the data was selective information retrieval. NAB stated that her goal was often simply to find information relevant to her assignment without attempting to understand every sentence in the article. NI and NY also reported that they focused on identifying key arguments or main ideas rather than

reading the entire article in depth. This suggests that students employ efficient reading strategies aligned with their academic goals and time constraints.

In contrast, 1 participant (MAR) demonstrated a more flexible and less structured reading purpose. She explained that she sometimes reads digital texts to broaden her horizons, fill her free time, or look up quotes or specific information when needed. This suggests that her reading orientation is not always driven by academic goals but can also be motivated by personal interests or situational needs. However, they still exhibit goal-oriented behavior when reading for information. Furthermore, findings suggest that setting a reading goal often influences how deeply students engage with the text. Several participants (NS, ANA, NAB, and NI) mentioned that they adjust their reading depth depending on whether the information is directly relevant to their assignment.

Previewing and Initial Text Exploration

10 out of 10 participants reported that they typically review certain sections of an article first, indicating that previewing is a common practice among participants. However, the specific sections they focused on and the reasons behind their choices varied.

A dominant pattern found in the data was that 9 out of 10 participants (NS, DMT, ANA, NAB, SNAS, SNI, NI, AAB, and NY) stated that they typically begin by reviewing the title, abstract, and keywords. These sections are considered to provide a brief overview of the topic and help them decide whether the article is relevant to their academic needs. For example, NS explained that she reviews the title, abstract, and keywords before moving on to the introduction and conclusion to understand the general idea of the article. Similarly, DMT reported that previewing these sections helps her determine whether the article is useful for her assignment or research.

In addition to these sections, several participants also emphasized the importance of exploring the conclusion and introduction during the preview stage. ANA, NAB, SNAS, and AAB mentioned that they often review the conclusion to quickly understand the study's main findings or arguments. SNAS further explained that she checked the introduction after reading the abstract to understand the main argument and decide whether she needed to read the article in detail. This suggests that students use previewing as a decision-making strategy to manage their reading time and cognitive effort.

Another variation in previewing behavior involves initial scanning of the article's structure. Participants such as SNI and NI stated that they use previewing to understand the overall organization of the article, including headings or main sections. This helps them plan their reading path and identify sections that require deeper attention. Similarly, AAB reported that she sometimes skims the topic first to activate her background knowledge before engaging in more focused reading.

In contrast, 1 participant (MAR) demonstrated a slightly different approach

to initial text exploration. Instead of focusing primarily on the heading or abstract, she reported paying attention to practical accessibility factors, such as whether the article is free or paid and whether there are many ads that might distract from her reading. This suggests that for some students, previewing is not only cognitive but also influenced by technological considerations and ease of use. Furthermore, the findings suggest that previewing is closely related to goal-oriented reading behavior. Several participants (NS, ANA, NAB, and NI) mentioned that previewing helped them decide which sections to read intensively and which sections to skim or skip. This suggests that initial exploration serves as a strategic filtering process, allowing students to focus on relevant information and avoid unnecessary cognitive load.

Strategies for Dealing with Difficult Vocabulary and Complex Sentences

10 out of 10 participants reported experiencing difficulties with unfamiliar vocabulary or complex sentences and demonstrated active efforts to overcome these challenges rather than ignoring them. The most dominant strategy identified in the data is the use of digital reference tools, particularly online dictionaries, translation tools, search engines, and artificial intelligence platforms. Specifically, 9 out of 10 participants (NS, DMT, ANA, NAB, SNAS, SNI, NI, AAB, and NY) stated that they usually use online dictionaries or translation tools to understand difficult words. For instance, NS explained that she immediately checks unfamiliar vocabulary using an online dictionary and rereads the sentence until she understands its meaning. Similarly, DMT and NY mentioned using Google or translation tools to clarify word meanings and improve sentence comprehension. ANA also reported using translation tools such as DeepL or Google Translate to help her break down complex sentences into smaller, more understandable parts.

In addition to dictionary use, 8 participants (NS, DMT, ANA, SNAS, SNI, NI, AAB, and NAB) described applying cognitive rereading strategies when encountering complex sentences. These include reading more slowly, rereading multiple times, or focusing on contextual clues to infer meaning. For example, SNAS stated that she often rereads sentences several times and breaks them into smaller units to better understand the underlying idea. Likewise, SNI emphasized reading slowly and attempting to interpret meaning from context before seeking external help.

Another important pattern is the use of note-taking and highlighting as comprehension support strategies. Around 6 participants (NS, ANA, SNAS, SNI, NI, and AAB) mentioned highlighting key sentences or writing short notes to simplify complex explanations and reinforce understanding. This suggests that students attempt to actively process difficult information rather than passively reading it.

Furthermore, some participants demonstrated technology-enhanced comprehension strategies involving artificial intelligence tools. MAR, NAB, and SNAS reported using AI platforms to obtain simplified explanations of difficult vocabulary or theoretical concepts. MAR, for instance, explained that he often asks

AI tools to clarify the meaning of sentences or summarize complex article content so that it becomes easier to understand. NAB also mentioned searching for alternative explanations from AI when dictionary definitions alone are insufficient. This indicates that students are increasingly integrating advanced digital tools into their academic reading processes. Despite these active strategies, the findings also reveal that difficulty with academic language remains a major challenge. Several participants (NAB, NY, and NI) acknowledged that they sometimes feel confused or overwhelmed by dense theoretical language and long sentence structures. In some cases, such as reported by NAB, students may skip particularly difficult sections or search for simpler sources explaining the same theory.

Reading Speed Adjustment and Time Management

10 out of 10 participants reported that they consciously change their reading speed depending on the difficulty level and importance of specific sections in the article. This suggests that reading speed adjustment is a common and essential metacognitive strategy among students in digital academic reading contexts.

A clear pattern found in the data is that all participants indicated that they tend to read faster when skimming or scanning for general ideas. Participants such as NS, DMT, ANA, SNI, NI, AAB, and NY explained that they usually apply faster reading when previewing sections like the abstract, introduction, or general background information. For example, NS mentioned that she reads quickly when trying to identify important parts of the article but slows down when the content becomes more difficult or contains key information. Similarly, DMT reported that she increases her reading speed when encountering general explanations but reduces it when focusing on crucial theoretical points.

9 out of 10 participants (NS, DMT, ANA, NAB, SNAS, SNI, NI, AAB, and NY) stated that they slow down their reading pace when dealing with dense theoretical explanations, unfamiliar terminology, or sections directly related to their assignments or research topics. SNAS emphasized that she reads theoretical frameworks and methodology sections more carefully because they require deeper understanding. Likewise, ANA noted that she reads slowly in sections that contain important arguments or methodological details. This indicates that students actively regulate reading speed to ensure comprehension when the cognitive demand of the text increases.

Another important finding relates to selective reading and prioritization of relevant information. Around 7 participants (NS, ANA, NAB, NI, AAB, SNAS, and NY) mentioned that they do not attempt to read every part of an article intensively. Instead, they allocate more time to sections that are directly useful for their academic tasks. NAB, for instance, explained that she often focuses only on the information related to her assignment without trying to understand all sentences in the article. This reflects a pragmatic approach to time management, particularly

when dealing with long digital academic texts.

In addition, the data show that time planning before reading also plays a role in effective reading management. At least 3 participants (AAB, NI, and NS) reported that they try to prepare sufficient time before starting to read so they can avoid rushing and maintain better concentration. NI stated that having enough time helps her stay focused because she is easily distracted, while AAB mentioned that she prefers to read when she can fully dedicate her attention to the article. This suggests that time management is not only applied during reading but also considered as part of preparatory behavior.

Meanwhile, 1 participant (MAR) demonstrated a different pattern in managing reading speed and time. He reported that he often reads academic articles more slowly than books because articles contain specialized vocabulary that requires additional effort to understand. He also stated that he usually stops reading once he has obtained the specific information he needs. This shows a task-oriented and efficiency-focused reading approach, where reading duration is determined by the achievement of immediate informational goals rather than complete comprehension.

Navigation Behaviors During Digital Reading

10 out of 10 participants stated that they have experienced feeling lost while strolling through digital academic articles. For example, NS explained that she sometimes feels lost when reading long articles and needs to scroll back to find the section title again. Similarly, DMT mentioned that she often becomes confused when the article is very long, so she returns to previous sections or checks the headings and subheadings to understand the structure of the text.

A common navigation strategy reported by 9 participants (NS, DMT, ANA, NAB, SNAS, SNI, NI, AAB, and NY) is going back to earlier sections, headings, or the abstract to regain understanding. ANA stated that she usually returns to headings or the table of contents to find her position again. NAB also explained that when she forgets what she has read, she goes back to the abstract or previous section to remind herself of the topic. Likewise, NI mentioned that she often goes back to the first section to rebuild her understanding of the main points. In addition, 5 participants (SNAS, SNI, NI, AAB, and DMT) reported using digital search features, such as the search function (Ctrl+F), to locate specific information quickly. SNI explained that she uses the search feature to find the part she needs without scrolling too much. AAB also stated that she uses keyword search to navigate long articles more efficiently. This indicates that students take advantage of technological features to manage navigation challenges.

Another navigation behavior found in the data is scrolling back and rereading to maintain comprehension. Around 7 participants (NS, ANA, NAB, SNAS, NI, NY, and SNI) reported that they sometimes forget what they have already read when scrolling continuously, especially in lengthy theoretical sections. As a result, they scroll up and reread certain parts to reconnect ideas and maintain

understanding. Meanwhile, 1 participant (MAR) demonstrated a slightly different navigation pattern. Instead of mainly relying on headings or search features, he sometimes uses external tools such as AI to help him understand confusing parts of the article. He also mentioned that advertisements or accessibility issues can interrupt his reading flow, which influences how he navigates digital texts.

Use of Digital Tools and Supporting Features

10 out of 10 participants stated that they use at least one type of digital tool while reading academic articles in digital format. A dominant pattern found in the data is the use of online dictionaries or translation tools, reported by 9 participants (NS, DMT, ANA, NAB, SNAS, SNI, NI, AAB, and NY). These participants explained that they rely on digital dictionaries to understand unfamiliar vocabulary or complex academic expressions. For example, NS mentioned that she often opens an online dictionary before reading because she expects to encounter difficult words. Similarly, ANA and DMT reported using translation tools such as Google Translate or DeepL to clarify meanings and improve sentence comprehension. NY also explained that checking word meanings through online tools helps her continue reading without losing too much time.

In addition, highlighting features and note-taking tools were commonly used by 8 participants (NS, DMT, ANA, SNAS, SNI, NI, AAB, and NAB). These tools were used to mark important sentences, identify key arguments, and store information for later review. For instance, SNAS stated that she highlights key concepts and sometimes writes notes in a separate document. SNI also mentioned preparing a notes application or notebook to record important points while reading. This suggests that digital annotation supports students' active engagement with the text.

Another frequently reported feature is the search function, used by 6 participants (DMT, ANA, SNI, NI, AAB, and NAB) to locate specific terms or topics quickly. Participants explained that keyword search helps them navigate long articles and saves reading time. AAB noted that using the search feature allows her to focus directly on relevant sections without reading the entire article. Furthermore, the findings reveal that some students use advanced digital platforms or academic tools. For example, NY mentioned using reference management and PDF reader applications such as Mendeley and Foxit Reader to organize and highlight journal articles. MAR also reported using platforms such as Google Scholar, Perplexity, DeepL, and AI tools like Gemini or Copilot to search for explanations or related sources. This indicates that students' digital reading practices extend beyond basic tools and include broader academic technologies.

Despite these benefits, several participants also noted that digital features can sometimes become sources of distraction. Around 6 participants (NS, DMT, ANA, NAB, SNAS, and NI) explained that hyperlinks may lead them to open multiple tabs, which can interrupt their reading focus. MAR additionally mentioned that

advertisements on some websites disrupt his concentration and affect his reading flow.

Evaluating Understanding After Reading

10 out of 10 participants stated that they have certain ways to check whether they understand the text, although the depth and consistency of these evaluation practices vary among individuals.

A dominant pattern identified in the data is that 9 participants (NS, DMT, ANA, NAB, SNAS, SNI, NI, AAB, and NY) reported that they usually know they understand the text when they can explain the main ideas in their own words. For example, NS explained that she feels confident about her understanding when she can restate the main idea and connect it with the topic she is studying. Similarly, SNAS mentioned that being able to summarize the argument of an article or relate it to her research topic indicates successful comprehension. NI and NY also stated that explaining the content to themselves or to others helps them confirm their understanding.

In addition to self-explanation, 8 participants (NS, DMT, ANA, NAB, SNAS, SNI, NI, and AAB) reported using summarizing or note-taking as a post-reading evaluation strategy. These participants explained that writing short summaries, key points, or reflections helps them review what they have read and identify whether they truly understood the material. For instance, ANA mentioned that she usually writes key points after reading important articles, while SNI stated that summarizing allows her to revisit the content later and strengthen memory. NAB also explained that making brief notes helps her check whether she has grasped the main information.

Another pattern found in the data is connecting the article content with assignments or research topics, reported by 6 participants (NS, DMT, ANA, SNAS, SNI, and AAB). These students evaluate their understanding by determining whether they can use the information for academic writing. AAB, for example, explained that she reflects on research problems, methods, and findings after reading to decide how the article contributes to her literature review. This indicates that comprehension evaluation is often task-oriented and related to academic goals.

Furthermore, rereading was mentioned by 3 participants (NS, DMT, and MAR) as a way to ensure understanding. They explained that when the meaning is still unclear, they return to certain sections and read them again. However, MAR showed a slightly different approach compared to other participants. He stated that he does not always try to fully understand the entire article; instead, he usually stops reading once he obtains the specific information he needs. He also mentioned that he rarely writes summaries and prefers to note only a few important points. This suggests a more selective and efficiency-focused evaluation strategy.

Challenges in Digital Academic Reading

10 out of 10 participants reported experiencing difficulties when engaging

with digital academic articles. A major challenge identified in the data is difficulty understanding unfamiliar vocabulary and complex sentence structures, reported by 9 participants (NS, DMT, ANA, NAB, SNAS, SNI, NI, AAB, and NY). These participants explained that academic articles often contain specialized terminology and dense language, which slows down their reading process. For instance, NAB stated that lack of vocabulary makes it difficult for her to understand some articles, while SNAS mentioned that complex academic language and unfamiliar terminology require extra effort to comprehend. Similarly, NY explained that long explanations and complex sentences often demand more reading time.

Another frequently mentioned challenge is maintaining concentration during screen reading, reported by 8 participants (NS, DMT, ANA, NAB, SNAS, SNI, NI, and AAB). Participants explained that digital reading environments include potential distractions such as notifications, multiple tabs, or the temptation to switch applications. NS noted that notifications can interrupt her focus, while ANA stated that switching between tabs reduces her concentration. NI also mentioned that digital devices make her easily distracted, which affects deep understanding.

In addition, physical discomfort and eye fatigue emerged as another difficulty. Around 5 participants (SNAS, SNI, NI, AAB, and NAB) reported that prolonged screen exposure can strain their eyes or make them feel tired, which negatively influences their reading endurance. SNI explained that her eyes feel tired more quickly when reading on screen compared to printed texts, while SNAS noted that long digital reading sessions can reduce sustained concentration.

Another challenge involves navigational difficulties and feeling overwhelmed by long articles, reported by 6 participants (NS, DMT, ANA, NAB, NI, and NY). These participants stated that they sometimes feel lost when scrolling through lengthy texts or forget previously read information. NAB also mentioned feeling overwhelmed when an article is too long, which can reduce motivation to continue reading.

Furthermore, technological and accessibility issues were mentioned by 2 participants (MAR and AAB). MAR explained that advertisements on websites and unstable internet connections can disrupt his reading flow. He also noted that reading on a mobile phone can be uncomfortable due to small text size. Similarly, AAB mentioned that fatigue from prolonged screen reading and difficulty maintaining focus can affect her comprehension.

4. Discussion

The findings of this study demonstrate that postgraduate EFL students employ a wide range of metacognitive, cognitive, and technological strategies when engaging with digital academic texts. These strategies are closely related to their reading preparation, goal orientation, navigation behaviors, tool usage, comprehension monitoring, and challenges encountered during screen-based reading. Overall, the results suggest that digital academic reading is a complex and

adaptive process that requires strategic regulation of attention, time, and comprehension.

One important finding relates to reading preparation and physical environment. Most participants (8 out of 10) reported deliberately selecting quiet or comfortable places to maintain concentration. This indicates that students are aware of the potential distractions associated with digital reading environments. Previous research has emphasized that screen-based reading often involves divided attention due to hyperlinks, notifications, and multitasking opportunities, which can reduce deep comprehension if not properly managed (Uri & Coiro, 2020). The participants' preference for quiet environments may therefore represent an intentional effort to minimize cognitive overload and sustain focus while interacting with demanding academic texts.

However, the findings also revealed individual variation in environmental preferences. Two participants reported that silence was not essential and instead prioritized emotional comfort, stable internet connection, or background music. This variation supports the argument that digital reading practices are shaped by personal habits and contextual factors rather than fixed strategies. According to Bruggink et al. (2025), digital reading is influenced by a dynamic interaction between reader characteristics, task demands, and technological affordances. Therefore, students' preparation behaviors can be interpreted as adaptive responses to their own reading needs and learning styles.

Another significant result concerns reading purpose and goal orientation. The majority of participants (9 out of 10) stated that they set specific academic goals before reading, such as identifying theoretical frameworks, research gaps, or methodological approaches. This goal-directed reading behavior indicates a high level of strategic awareness, particularly among postgraduate students who frequently engage in research-related tasks. Such findings align with Tan & Fajardo (2022), who found that readers of digital texts tend to employ selective reading strategies when guided by clear purposes. By focusing only on relevant sections, students are able to manage time constraints and cognitive demands more effectively.

The findings further show that goal orientation influences reading depth. Several participants reported adjusting their level of engagement depending on the relevance of the information to their assignments. This selective processing reflects efficient academic reading behavior, especially in digital contexts where large volumes of information are easily accessible. Similarly, Harputra et al. (2023) reported that students' digital reading habits are strongly associated with their academic achievement, particularly when they apply purposeful strategies such as skimming, scanning, and focused reading.

Previewing behavior emerged as a universal practice among participants, with all informants reporting that they review specific sections such as the title, abstract, keywords, or conclusion before reading the entire article. This suggests that previewing functions as a filtering strategy that helps students decide whether an

article is relevant and how much effort they should invest in reading it. Such behavior supports Uri & Coiro (2020) conceptualization of digital reading as a nonlinear and decision-making process that requires readers to navigate multiple pathways through text. By scanning structural elements first, students are able to construct an initial mental framework that guides subsequent comprehension.

Another crucial aspect highlighted in the findings is the strategy used to deal with difficult vocabulary and complex sentences. All participants acknowledged experiencing challenges related to academic language, and most relied heavily on digital tools such as online dictionaries, translation platforms, and artificial intelligence applications. This reliance reflects the technological affordances of digital reading environments, where immediate access to linguistic support tools can facilitate comprehension. At the same time, participants also reported applying cognitive strategies such as rereading, slowing down reading speed, and using contextual clues. These combined strategies demonstrate active meaning construction rather than passive reading behavior. Nevertheless, the persistent difficulty with dense academic language reported by several participants indicates that technological support does not fully eliminate comprehension challenges. Rahayu (2024) similarly found that unfamiliar vocabulary and complex sentence structures remain major obstacles in students' digital academic reading. This suggests that while digital tools enhance accessibility, they must be complemented by strong linguistic competence and critical reading skills.

The findings also reveal that reading speed adjustment is a common metacognitive strategy. All participants reported consciously reading faster when skimming general information and slowing down when encountering theoretical explanations or relevant arguments. This adaptive pacing reflects effective self-regulation of cognitive resources. According to Clinton (2019), reading comprehension outcomes may differ across media partly because digital environments encourage faster and more fragmented reading patterns. The participants deliberate slowing down in difficult sections may therefore represent an attempt to counteract the tendency toward superficial processing associated with screen reading. Furthermore, selective reading and time prioritization were frequently reported. Many participants stated that they did not attempt to read every part of an article intensively but instead allocated more time to relevant sections. This pragmatic approach to time management aligns with findings from (Delgado et al., 2018), who argued that comprehension differences between print and digital reading may be influenced by readers' tendency to adopt efficiency-oriented strategies in screen contexts. By focusing on task-related information, students demonstrate strategic engagement with digital academic texts.

Navigation behaviors constitute another key theme in the findings. All participants reported experiencing disorientation while scrolling through long articles, and most coped by returning to headings, abstracts, or previous sections. This indicates that nonlinear navigation is both a challenge and a defining feature

of digital reading. Uri & Coiro (2020) emphasized that digital readers must continuously monitor their position within a text and make navigational decisions that affect comprehension. The use of search functions such as keyword search also illustrates how students exploit technological features to manage information overload and locate relevant content efficiently.

In addition, scrolling back and rereading were common strategies used to maintain coherence when reading lengthy theoretical explanations. This behavior suggests that comprehension monitoring remains essential in digital reading environments. Bruggink et al. (2025) noted that digital reading requires integration of traditional comprehension processes with new navigational skills, highlighting the importance of flexible reading pathways. The use of digital tools and supporting features further illustrates the technologically mediated nature of academic reading today. All participants reported using at least one digital tool, including dictionaries, highlighting features, note-taking applications, search functions, and reference management software. These tools support active engagement with texts by facilitating annotation, organization, and retrieval of information. However, participants also acknowledged that certain digital features, such as hyperlinks or advertisements, can disrupt concentration. This dual role of technology as both a facilitator and a distractor reflects the complex ecology of digital reading practices.

Finally, the findings show that students employ various methods to evaluate their understanding after reading. Most participants reported summarizing, self-explaining, or connecting information to their academic tasks as indicators of comprehension. These practices demonstrate metacognitive awareness and align with effective reading strategies identified in previous research. At the same time, the presence of efficiency-focused evaluation behaviors, such as stopping reading once specific information is obtained, suggests that academic reading in digital contexts is often goal-driven rather than exhaustive.

Despite the strategic behaviors observed, participants consistently reported challenges including vocabulary difficulty, reduced concentration, eye fatigue, and navigational confusion. These findings reinforce the argument that digital academic reading demands higher levels of cognitive regulation compared to traditional print reading. Clinton (2019) and Delgado et al. (2018) both highlighted that screen reading may increase mental effort due to scrolling, reduced spatial cues, and fragmented attention. Therefore, the challenges identified in this study should be viewed not merely as individual weaknesses but as structural characteristics of digital reading environments.

Overall, the findings suggest that postgraduate EFL students demonstrate adaptive and strategic engagement with digital academic texts. Their reading practices involve continuous regulation of goals, speed, navigation, tool usage, and comprehension evaluation. However, persistent linguistic and attentional challenges indicate the need for explicit instruction in digital academic reading strategies. Future pedagogical interventions may focus on enhancing vocabulary

knowledge, critical navigation skills, and sustained attention to support deeper comprehension in screen-based academic contexts.

5. Conclusion

This study investigated the digital academic reading experiences of postgraduate EFL students, focusing on their preparation strategies, reading purposes, navigation behaviors, use of digital tools, comprehension monitoring, evaluation practices, and perceived challenges. The findings indicate that digital academic reading is a strategic and adaptive process shaped by students' academic goals, technological engagement, and cognitive regulation.

Most participants demonstrated goal-oriented reading behavior by setting clear purposes before engaging with digital academic texts, leading to selective and efficiency-driven reading strategies. Preparation also played an important role, as students created conducive environments and previewed text structures to manage cognitive load. However, navigational difficulties, such as losing track while scrolling, were commonly reported, requiring strategies like rereading and keyword searching. Digital tools were integral in supporting comprehension and organization, although they sometimes introduced distractions.

Despite employing various strategies, students still faced challenges related to unfamiliar vocabulary, complex language, reduced concentration, eye fatigue, and information overload. These findings suggest that while postgraduate students engage in purposeful and technology-supported reading, digital academic reading remains cognitively demanding. This study contributes to the understanding of how metacognitive strategies operate within digital environments, particularly in postgraduate EFL contexts. However, this study is limited by its small sample size and focus on a single institutional context, which may restrict the generalizability of the findings.

Based on these findings, it is recommended that future research involve a larger and more diverse sample across institutions to enhance generalizability. Further studies may also examine the relationship between metacognitive strategies and reading performance using mixed methods approaches. In addition, future research should explore instructional interventions that support digital academic reading and strengthen students' metacognitive regulation in technology-rich learning environments.

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