THE IMPACT OF METACOGNITIVE STRATEGY INSTRUCTION ON ENGLISH READING COMPREHENSION AMONG NON-ENGLISH MAJORS AT DONG A UNIVERSITY

TÁC ĐỘNG CỦA VIỆC GIẢNG DẠY CHIẾN LƯỢC SIÊU NHẬN THỨC ĐỐI VỚI NĂNG LỰC ĐỌC HIỂU TIẾNG ANH CỦA SINH VIÊN KHÔNG CHUYÊN NGỮ TẠI TRƯỜNG ĐẠI HỌC ĐÔNG Á

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Abstract - Reading comprehension is a fundamental component of English language learning; however, many non-English-major EFL students still encounter difficulties in regulating their reading processes, and empirical evidence in Vietnamese university contexts is still scarce. This study investigates the effects of explicit metacognitive strategy instruction (MSI) on the reading comprehension performance and metacognitive awareness (MCA) of non-English majors at Dong A University. Using a quasi-experimental design, the study involved 80 students assigned to control and experimental groups. Data were collected through the Survey of Reading Strategies (SORS), reading pre- and post-tests, and semi-structured interviews. The findings reveal significantly enhanced MCA, higher comprehension test scores, and improved overall performance among the experimental group, which highlights the pedagogical value of integrating MSI into tertiary EFL reading comprehension instruction.

Key words - Metacognitive strategy; reading comprehension; metacognitive awareness; EFL learners; quasi-experimental design

Tóm tắt - Đọc hiểu là một thành tố cốt lõi của việc học tiếng Anh, nhưng nhiều sinh viên không chuyên học tiếng Anh như một ngoại ngữ vẫn gặp khó khăn khi kiểm soát quá trình đọc, và các bằng chứng thực nghiệm trong bối cảnh giáo dục đại học Việt Nam vẫn còn khiêm tốn. Nghiên cứu này khảo sát tác động của việc dạy chiến lược siêu nhận thức đến năng lực đọc hiểu và mức độ nhận thức siêu nhận thức của sinh viên tiếng Anh không chuyên ngữ tại Trường Đại học Đông Á. Nghiên cứu được thiết kế bán thực nghiệm với 80 sinh viên được chia vào nhóm đối chứng và nhóm thực nghiệm. Dữ liệu được thu thập qua bảng khảo sát SORS, bài kiểm tra đọc hiểu trước-sau can thiệp, và phỏng vấn bán cấu trúc. Kết quả cho thấy, nhóm thực nghiệm có cải thiện đáng kể về nhận thức MCA, kết quả bài kiểm tra đọc, và năng lực đọc nói chung, từ đó cho thấy ý nghĩa sư phạm của việc tích hợp chiến lược siêu nhận thức vào việc giảng dạy đọc hiểu tiếng Anh ở bậc đại học.

Từ khóa - Chiến lược siêu nhận thức; đọc hiểu; nhận thức siêu nhận thức; người học tiếng Anh; thiết kế bán thực nghiệm

1. Introduction

Reading has long been regarded as a prerequisite for foreign language acquisition [1] as it provides readers with a necessary source of input knowledge for the remaining language skills [2], especially in contexts where people learn English as a Foreign Language (EFL). Among the various cognitive and affective factors influencing reading comprehension, metacognitive awareness (MCA) – also known as one's knowledge about one's own cognitive processes [3] – is considered not only a critically important foundation for skilled reading comprehension, but also a key differentiator between skilled and unskilled readers [4]. While skilled readers tend to employ metacognitive strategies like planning, monitoring, and evaluating to construct meaning from texts, less proficient readers are often less likely to use these strategies effectively [5].

In the Vietnamese EFL context, university undergraduates, especially non-English majors, often struggle with reading academic texts, which is often due to their limited lexical and grammatical resources as well as their insufficient strategic competence [2]. At Dong A University, in particular, these difficulties are especially salient because non-English-major students are frequently required to engage with English materials related to their disciplinary fields, workplace communication contexts, and test-oriented reading passages. Such texts often contain specialised vocabulary, highly dense information, unfamiliar discourse structures, and time-pressure demands, which can hinder comprehension when learners rely mainly on word-by-word processing. Although research on metacognition in language learning in Vietnam has gained momentum in recent years, the majority of these studies have focused on high school students [6] or English major university students [7] - [9]. Put it differently, there remains a significant gap concerning non-English-major undergraduates, who are widely regarded as facing greater challenges when engaging with English academic materials. Addressing this gap is therefore important for expanding the literature on language learning strategies in underexplored tertiary contexts and for informing pedagogical practices in EFL instruction.

The present study thus aims to investigate the MCA experienced by non-English-major students at Dong A University, a private multidisciplinary institution located in

Da Nang City, Vietnam. It also seeks to examine the effects of explicit metacognitive strategy instruction (MSI) on these students' reading comprehension and then explores how they perceive the role of such strategies in facilitating their reading processes. To achieve these objectives, the study seeks to answer the following research questions (RQs):

RQ1: How does MSI affect the awareness of non-English-major students at Dong A University towards metacognitive strategies when reading English academic texts?

RQ2: How does MSI affect these students' reading comprehension?

RQ3: How do the students perceive the impact of using metacognitive strategies on their reading performance?

By addressing these RQs, the study is hoped to provide insights into how MSI can be effectively integrated into EFL reading instruction to enhance the text comprehension and strategic awareness amongst the EFL students while reading academic materials in broader tertiary contexts.

2. Literature Review

A substantial body of research has examined the relationship between EFL learners' MCA and their reading comprehension. Early studies demonstrated that learners with higher levels of MCA tend to achieve better reading comprehension outcomes than those with lower awareness [10]. Subsequent research in Asian EFL contexts has largely reinforced this relationship. For example, a mixed-methods study of Indonesian high school students reported that cognitive and metacognitive reading strategies significantly predicted reading comprehension performance, accounting for approximately 44% of the variance in test scores [11]. These findings support the theoretical proposition that MCA and strategy use are positively associated with reading comprehension among EFL learners. Despite these promising trends, the empirical landscape is to some extent unsatisfactory because of several significant gaps. One notable limitation lies in research design. While many studies adopt pre- and post-test measures, they often do so without control groups, making it difficult to attribute improvements solely to the intervention [11].

Another important gap emerging from the Vietnamese research context is the limited attention given to non-English-major university students. Most existing studies have focused either on high school students [6] or on English-major undergraduates [8], whose learning conditions and academic demands may differ considerably from those of non-English majors. For example, [8] examined metacognitive strategy use among English-major students using the SORS. The findings showed that successful readers demonstrated higher levels of strategy awareness than less proficient readers, which is consistent with international research linking metacognition and reading success [4], [11] - [14]. The study, however, did not examine whether such awareness could be systematically developed through instructional intervention or whether gains in awareness would translate into improved reading performance.

Another study adopted the Cognitive Academic Language Learning Approach (CALLA) model in reading classes for non-English majors [15]. The results revealed that students demonstrated generally positive attitudes toward strategy use. While these findings suggest that learners were receptive to strategy-based instruction, its reliance primarily on self-report data meant the study could hardly establish the relationship between strategy awareness and actual reading outcomes. In contrast, the study by [6], using a quasi-experimental mixed-methods design, provided comparatively stronger evidence by showing that MSI positively influenced students' reading comprehension. Yet, the participants selected for this study were high school students preparing for the national graduation examination rather than university students. Their learning goals, cognitive maturity, and academic reading needs may therefore differ substantially from those of tertiary learners. Overall, previous Vietnamese studies have tended to prioritise either correlational evidence, attitudinal data, or school-level samples, leaving tertiary non-English-major learners underexplored.

Accordingly, prior research indicates the potential value of MSI, but the evidence remains uneven across learner groups and research designs. Further empirical research is therefore needed to examine the effectiveness of MSI among non-English-major undergraduates in Vietnamese tertiary contexts. Addressing this gap is important, as non-English majors constitute a substantial proportion of the university population in Vietnam and often face significant challenges when engaging with English academic texts.

3. Theoretical Background

3.1. Reading Comprehension

3.1.1. Definition of Reading Comprehension

Reading comprehension is commonly understood as the process through which readers actively construct meaning from written texts [10], [16]. However, more than a mere extraction of text meaning, it can be conceptualized as a complex, multidimensional cognitive activity. According to Grabe, reading comprehension involves not only decoding written symbols and constructing meaning, but also activating the reader's background knowledge to interpret and extract relevant information from texts [17].

3.1.2. Reading Comprehension in the EFL Context

Given the fact that reading is a key skill in EFL learning, it still remains a challenge for many EFL learners due to their limited linguistic proficiency and background knowledge [18]. Indeed, difficulties with unfamiliar vocabulary, idiomatic expressions, and complex syntactic structures often force learners to focus primarily on decoding rather than constructing meaning from the text. As noted by [19], lower-proficiency learners tend to rely heavily on bottom-up processing, which may not be sufficient for effective comprehension, particularly when dealing with academic texts.

In this context, MCA plays an important role in helping learners regulate their reading process. Studies have shown that learners who use metacognitive strategies more frequently tend to perform better in reading comprehension

tasks [4], [20]. These findings highlight the importance of fostering metacognitive strategy use in EFL reading instruction.

3.2. Metacognition

3.2.1. Definition of Metacognition

Among the factors influencing reading comprehension, *metacognition* has been widely recognized as a key component of successful reading. The concept was first introduced in 1979 by Flavell, who defined it as the knowledge about, as well as the control of, cognition, or in simpler terms, an individual's awareness and understanding of their own thinking [3]. Later conceptualizations by other researchers expanded this definition by including both monitoring and self-regulation [21], [22]. Metacognition thus functions as a higher order thinking skill, ensuring one's capacity for planning, monitoring, and regulating cognitive processes [12].

3.2.2. Classification of Metacognition

Metacognition is commonly conceptualized as consisting of two main components: metacognitive knowledge and metacognitive regulation [23] - [26]. In their conceptualisations, *metacognitive knowledge* refers to what learners know about their own cognitive abilities and about learning strategies. The component is typically divided into three types: (i) declarative knowledge - concerning knowledge about oneself as a learner and the factors influencing performance; (ii) procedural knowledge - involving knowing how to use strategies; and (iii) conditional knowledge – being knowledge about when and why particular strategies should be applied.

Metacognitive regulation, on the other hand, refers to how learners monitor and control their cognitive processes. This component involves three key processes: planning, monitoring, and evaluating. While *planning* involves selecting appropriate strategies and allocating resources before engaging in a task, *monitoring* refers to learners' awareness of their comprehension and performance during the task, and *evaluating* means assessing the effectiveness of strategies and revising them, if necessary, after the task completion.

3.2.3. Interaction between Metacognitive Knowledge and Metacognitive Regulation

In reading comprehension, metacognitive knowledge and metacognitive regulation operate as interdependent components of a broader self-regulatory system. As noted by Schraw and Moshman [25], metacognitive knowledge provides an essential foundation because readers who understand what strategies are available and when and why they should be used (i.e., conditional knowledge) are generally better able to regulate their learning effectively. Learners with stronger MCA tend to be more capable of monitoring comprehension and recognizing breakdowns in understanding during reading.

However, effective reading depends not only on possessing such knowledge, but also on coordinating knowledge with regulatory processes in practice. Without this connection, strategies may remain inert, meaning that learners know about them conceptually but fail to transfer or apply them appropriately in new contexts [25]. Ultimately, proficient strategy users are those who integrate self-knowledge with active planning, monitoring, and evaluation, thereby making reading a purposeful and self-directed process.

3.2.4. Metacognition in Reading Comprehension

A growing body of empirical research has also established a strong relationship between the use of metacognitive reading strategies and reading comprehension performance. Studies have consistently shown that skilled readers employ a wider range of metacognitive strategies and use them more effectively than their lower-performing peers [20], [14]. What is more, explicit instruction in metacognitive reading strategies can significantly enhance learners' comprehension, particularly in EFL contexts where learners have limited exposure to English academic texts [13]. Explicit instruction in metacognitive strategies has thus been recommended as an effective pedagogical approach for improving reading comprehension [27].

3.2.5. Measuring metacognitive awareness in Reading

To assess learners' MCA during reading, several instruments have been developed and validated. Among the most widely used are the *Metacognitive Awareness of Reading Strategies Inventory* (MARSI) and its adapted version, the *Survey of Reading Strategies* (SORS). The former (i.e., the MARSI) was developed by Mokhtari and Reichard in 2002 to measure the MCA of native English speakers when reading academic texts [4]. The latter, or SORS, later adapted by Mokhtari and Sheorey in 2002 [28], was specifically designed to examine the metacognitive reading strategies employed by ESL/EFL learners when engaging with English academic materials. This instrument consists of 30 items rated on a five-point Likert scale and categorizes strategies into three groups: (i) *Global Reading Strategies*, which relate to planning and managing the reading process; (ii) *Problem-Solving Strategies*, which are used when readers encounter difficulties in the text; and (iii) *Support Reading Strategies*, which involve the use of external aids to facilitate comprehension.

Research has shown that SORS possesses strong reliability and validity. High internal consistency for the instrument was reported by [28], with Cronbach's alpha coefficients of .92 for Global Reading Strategies, .79 for Problem-Solving Strategies, and .87 for Support Strategies, and .93 for an overall reliability. Due to its robustness and applicability in EFL contexts, SORS has been widely employed in research examining learners' metacognitive strategy use across diverse educational settings [29], [30].

4. Research Methodology

This study adopts a quasi-experimental design combined with a sequential mixed-methods approach. This combination allows for both statistical measurement of changes in reading performance and an in-depth exploration of students' perceptions and experiences.

A total of 80 third-year non-English-major students at the B1 level of the CEFR participated in the study.

Two intact classes were selected through convenience sampling because students had been administratively assigned to existing classes prior to the commencement of the semester, making random allocation impracticable. The two classes were therefore designated as the experimental group ($n = 40$) and the control group ($n = 40$). Although the use of intact classes may introduce potential selection bias, several measures were taken to mitigate this threat to internal validity: both groups were comparable in academic status and proficiency level, followed the same syllabus, used similar materials, and were taught by the same instructor. In addition, independent-samples t-tests on the pre-test measures indicated no statistically significant between-group differences at baseline ($p > .05$), suggesting initial equivalence on the key study variables.

The experimental group received seven weeks of MSI, consisting of one 45-minute lesson per week integrated into regular reading classes, while the control group followed the standard curriculum. As the participants were students taught by the researcher, the dual role of teacher and researcher was explicitly acknowledged. The intervention followed a progressive sequence from awareness-raising to guided practice and reflective evaluation. lesson topics included: (1) introduction to metacognition and metacognitive reading strategies; (2) previewing and predicting before reading a text; (3) skimming & patterns of organization; (4) scanning effectively and metacognitively; (5) guessing word meanings from context; (6) topics of paragraphs & main ideas of paragraphs; and (7) becoming a strategic reader. Each lesson followed a consistent procedure: (i) warm-up, (ii) explicit explanation and modelling of strategies, (iii) guided practice with course-related texts, (iv) collaborative discussion, and (v) brief reflection. Students were encouraged to explain when and why strategies were used, promoting declarative, procedural, and conditional knowledge.

Quantitative data were collected using parallel pre- and post-tests adapted from the B1 Preliminary examination developed by Cambridge Assessment English, a standardized assessment with established reliability, and the SORS developed by Mokhtari and Sheorey [28], which measures three categories of strategies: Global (or GLOB), Problem-Solving (or PROB), and Support (or SUP) strategies.

The quantitative data were analysed using SPSS Statistics 27.0, including descriptive statistics and inferential analyses such as paired-sample and independent-sample t-tests to examine differences within and between groups. To support the quantitative findings, semi-structured interviews were conducted with six students from the experimental group, and such qualitative data were analysed using thematic analysis to explore participants' perceptions of the strategy instruction.

To ensure the credibility of the findings, several measures were taken to address the reliability and validity of the instruments and research procedures. The reading comprehension tests were designed as parallel forms with comparable format, difficulty level, and scoring procedures to ensure measurement consistency. In addition, the SORS demonstrated high internal consistency in the study, with Cronbach's alpha values exceeding the commonly accepted threshold of .70 for all subscales. The use of standardized instruments, consistent data collection procedures, and a quasi-experimental design with comparable control and experimental groups further strengthened the internal validity of the study.

5. Results and Discussion

5.1. The Effects of Metacognitive Reading Strategy Instruction on Students' Strategy Awareness

To address RQ1, students' metacognitive strategy awareness was measured using the SORS administered before and after the seven-week instructional intervention. As the results from the independent-samples t-tests show, there were no significant differences between the experimental and control groups at the pre-test stage across the three SORS subscales (all $p > .05$). These findings suggest that the two groups were comparable prior to the intervention, which helps strengthen the internal validity of the subsequent comparisons.

Table 1. *SORS subscales' descriptive statistics*

		GLOB (Pre)	GLOB (Post)	PROB (Pre)	PROB (Post)	SUP (Pre)	SUP (Post)
Experimental Group	Mean	**3.11**	**3.97**	**3.16**	**3.48**	**2.82**	**3.07**
	N	40	40	40	40	40	40
	Std. Deviation	.66	.33	.81	.63	.73	.65
Control Group	Mean	**3.08**	**3.09**	**3.13**	**3.13**	**2.70**	**2.70**
	N	40	40	40	40	40	40
	Std. Deviation	.76	.73	.76	.76	.63	.63

As shown in Table 1, after the intervention, the experimental group demonstrated notable improvements in all three subscales, whereas the control group exhibited only negligible changes. The most substantial increase was observed in Global Reading Strategies (GLOB), with the mean score increasing from $M = 3.11$ to $M = 3.97$, Problem-Solving Strategies (PROB) also improved from $M = 3.16$ to $M = 3.48$, while Support Strategies (SUP) rose from $M = 2.82$ to $M = 3.07$. In contrast, the scores experienced by the control group remained largely stable across the two measurement points. These descriptive patterns provide initial evidence that MSI positively influenced students' awareness of reading strategies.

The results of paired-samples t-tests in Table 2 further corroborate that the improvements observed in the experimental group were statistically significant. The largest gain was observed for GLOB Strategies, followed by PROB Strategies and SUP Strategies. Notably, all effect sizes were large, which may imply the fact that the intervention has had a substantial impact on the students' metacognitive strategy awareness.

Table 2. *Changes in SORS scores in the experimental group*

	Mean Difference	t	p	Cohen's d
GLOB (Pre) – GLOB (Post)	-.86	-12.44	<.001	-1.97
PROB (Pre) – PROB (Post)	-.33	-7.34	<.001	-1.16
SUP (Pre) – SUP (Post)	-.25	-6.36	<.001	-1.005

The dominance of GLOB gains, as shown in Table 2, may be attributed to the instructional design of the intervention with its emphasis on planning, previewing, predicting, and monitoring during reading. These strategies show close correspondence with the metacognitive regulation processes described by Flavell [3] and the framework of declarative, procedural, and conditional knowledge proposed by Schraw and Dennison [24]. The observed increase in GLOB scores could therefore be attributable to the systematic and repeated training of these planning strategies.

Regarding PROB strategies, the results show significant but comparatively smaller gains. One possible explanation for this gain is that problem-solving strategies are typically activated when comprehension difficulties arise and therefore depend partly on learners' linguistic competence. Qualitative findings revealed that many students experienced vocabulary limitations, which may have constrained their ability to effectively apply certain repair strategies.

Support (SUP) strategies also demonstrated moderate improvement. This pattern may be attributed to the instructional design of the intervention, which primarily emphasized planning, monitoring, and repair processes during reading rather than auxiliary techniques such as note-taking or translating. As a result, students had more opportunities to practice and internalize global and regulatory strategies than the support strategies captured by the SORS instrument. Overall, these findings suggest that metacognitive strategy awareness develops most effectively when specific strategic behaviours are explicitly taught and consistently reinforced in classroom instruction.

5.2. The Effects of Metacognitive Reading Strategy Instruction on Students' Reading Comprehension (RQ2)

To address RQ2, students' reading comprehension scores were compared before and after the intervention.

Table 3. *Descriptive statistics of reading comprehension scores*

		Pre-test Reading Score	Post-test Reading Score
Experimental Group	Mean	**5.65**	**7.18**
	N	40	40
	Std. Deviation	2.55	1.91
Control Group	Mean	**5.6**	**5.5**
	N	40	40
	Std. Deviation	2.32	1.73

Table 3 shows that at pre-test, the experimental group ($M = 5.65$) and the control group ($M = 5.60$) exemplified nearly identical mean scores, indicating comparable baseline reading proficiency. After the seven-week intervention, there was a substantial improvement observed in the experimental group, with the mean score increasing to 7.18. In contrast, the control group's performance remained largely unchanged ($M = 5.5$ - 5.6).

Such improvement in the experimental group was authenticated by a paired-samples t-test as being statistically significant, with $p < .001$ and a very large effect size ($d = 1.19$), whereas no significant change was observed in the control group. Furthermore, an independent-samples t-test revealed a significant post-test difference between the two groups, with $p < .001$ and a large effect size ($d = 0.92$).

These findings well indicate that MSI can significantly enhance students' reading comprehension, which echoes what has been argued by previous studies that explicit metacognitive instruction can lead to measurable improvements in reading performance [13], [27], [31]. The findings, however, should be interpreted with caution since the intervention lasted only seven weeks, and the limited vocabulary reported by the research participants may have exerted constraints on students' reading comprehension.

5.3. Students' Perception of the Impact of Using Metacognitive Strategies on their Reading Performance (RQ3)

For addressing RQ3, semi-structured interviews were conducted with six students from the experimental group, namely S1, S2, S24, S41, S75, and S78, who represented varying levels of improvement during the quantitative phase. The qualitative data were analysed using Braun and Clarke's thematic approach [32]. Four major themes were identified in correspondence with the cross-case pattern: (1) Enhanced MCA in reading; (2) Perceived improvements in reading efficiency and confidence; (3) Selective internalization and strategy preference; and (4) Persistent constraints on strategic reading development. These themes are deemed to provide deeper insight into how students experienced the intervention, and at the same time help explain why the quantitative gains were not equally strong across all reported cases.

5.3.1. Enhanced metacognitive awareness in Reading

One of the most salient findings was that participants reported becoming more aware of their own reading processes and more deliberate in their choice of strategies. Rather than approaching the texts in a purely linear or intuitive way, these respondents described pausing to consider the nature of the text, the demands of the reading task, and the type of questions prior to reading. This shift signifies the development of metacognitive regulation, particularly in the areas of planning and monitoring. Below are some comments recorded from the interviews.

The comments, as prompted in Table 4, suggest that the students have begun to move beyond simple strategy use toward a more reflective understanding of when and why certain strategies should be applied. This pattern is consistent with Flavell [3], highlighting the presence of both awareness of cognitive processes as well as the regulation of those processes during learning.

A related aspect of this theme was the reported expansion of students' strategic repertoires. Several interviewees noted that, prior to the intervention, they tended to read linearly from beginning to end without consciously applying strategies. Following the instruction, however, they reported using a wide range of strategies, including previewing, skimming, scanning, identifying main ideas, and inferring meaning from context.

Nevertheless, this awareness was not uniform across participants. While some students (e.g., S1, S2, & S41) provided detailed reflections on their strategic thinking, others (e.g., S75 & S78) demonstrated more limited MCA. This variance suggests that the internalization of metacognitive strategies is gradual and varies across the sample participants.

Table 4. *Students' comments on MCA changes*

S1	*"Compared with what it was before the training, I can now see quite a clear change. Previously, I rarely thought actively about my reading process. Now, I often do so".*
S2	*"Yes. (I was consciously thinking about my reading process). I thought about which strategy I needed to apply to a specific reading text".*
S41	*"Before the training, no. But now I do, although it's true to say that this has not yet become a consistent habit, I suppose".*
S24	*"Sometimes, I just thought about which strategy is needed, and which strategy should be used when reading a specific text".*

5.3.2. Perceived Improvements in Reading Efficiency and Confidence

Alongside changes in MCA, most participants perceived noticeable improvements in reading efficiency and confidence after the intervention. Some of the student responses can be listed in the table below (Table 5).

Table 5. *Perceived improvements in reading efficiency and confidence*

S1	*"Yes. I feel that my test results improved, and I become more confident. Especially when I approach long texts, I feel much less anxious because I already have the strategies I learned".*
S2	*"When I work on some practice tests, I feel that I can read faster and understand the text more. My confidence used to be around 20%, and now it has increased to about 60–70%".*
S24	*"Yes, (my reading comprehension and confidence improved during the course), but only to a certain extent".*
S41	*"At the moment, I feel a little more confident. When applying strategies to reading texts, I can read faster than before".*
S78	*"I think there has been some improvement, but not much. For shorter texts or questions that required scanning, I feel more confident because I am already familiar with that approach. But for more difficult questions, I am still not very confident".*

It is evident from Table 5 that five out of six interviewees reported feeling more confident when dealing with English reading tasks, especially longer passages, the ones that had made them anxious previously. Some students also described feeling less overwhelmed because the strategies gave them a clearer sense of how to approach a text. These accounts suggest that metacognitive strategies may influence not only comprehension processes, but also learners' affective responses to reading tasks. When students felt that they had practical tools assisting them in dealing with the text, reading appeared to be less intimidating and more manageable.

5.3.3. Selective Internalization and Strategy Preference

Table 6. *Strategies used by students after the intervention*

S1	*- "I remember using previewing, skimming, identifying the topic and main idea of paragraphs, and scanning".* *- "When the text became difficult, I would slow down my reading, guess the meaning of words from context, or use a dictionary".* *- "One strategy that has the strongest impact on me is previewing and predicting. I think it helps me narrow the topic more easily".* *- "I think scanning is very effective. In my major, there is a large amount of material. When I read English documents, I prioritize scanning to find the information I need instead of reading the whole text, because that would take a lot of time".*
S2	*- "I remember using previewing, guessing the meaning of new words based on context, and scanning".* *- "I read aloud or used supporting tools".* *- "…when reading a text, I would first skim through the whole passage and then focus on the title and the first and last sentences of each paragraph. This allows me to understand the text more easily and grasp the main idea more quickly".*
S24	*- "I often practise skimming and previewing before reading".* *- "Scanning helped me save time and quickly find the information that contained the answers".*
S41	*- "I remember using several strategies such as skimming, scanning, and guessing word meaning based on context".* *- "I often slowed down, read aloud, and if I still did not understand, I used a dictionary or Google Translate".* *- "Scanning is the strategy I use most often. It helps me save time and quickly find the information containing the answers".* *- "I find predicting effective in reducing my reading time".* *- "However, for me, guessing the meaning of new words from context is a bit difficult. Sometimes I try to guess based on the surrounding context, but that context also contains many unfamiliar words, so I cannot always guess successfully".*
S75	*- "I remember learning how to guess the meaning of words from context and find the main idea of a paragraph. But, when doing the tasks, I still read and translate each sentence like before".* *- "I usually reread it several times. If I still couldn't understand, I skipped that question and moved on to another one".* *- "There were a few times when I tried to guess the meaning of a word based on the surrounding sentences and guessed correctly. However, overall, I still found the reading texts quite difficult".*
S78	*- "I remember using strategies such as skimming, scanning, and guessing the meaning of unfamiliar words".* *- "I slowed down my reading and broke long sentences into smaller parts to understand each section. If necessary, I reread the previous paragraph to connect the ideas".* *- "Scanning is the strategy I used most frequently to save time and quickly locate answers to the questions".*

A further pattern emerging from the interviews, as shown in Table 6, was that strategy internalization was selective rather than uniform. Although participants reported

using a range of strategies such as skimming, scanning, previewing, predicting, adjusting reading speed, reading aloud, and inferring meaning from context, not all strategies were adopted to the same extent. Across the reported cases, scanning, skimming, and previewing were mentioned most frequently, with scanning appearing to be the most strongly preferred. Indeed, most interviewees said they opted for this strategy because it saved their time, and it is useful for locating answers directly in the reading tasks. Previewing and predicting were also positively commented by some participants, mainly because these strategies enabled them to anticipate text content and grasp main ideas more quickly. The interview data also indicated that students were more likely to internalize strategies that yielded immediate and observable benefits, whereas more cognitively demanding strategies were applied less consistently. For example, although several participants reported using contextual inference to determine word meanings, they also noted that this strategy was difficult to sustain in actual reading practice. Some students described adjusting their reading speed or reading aloud in response to task demands, suggesting emerging self-regulation; however, such use remained inconsistent and had not yet become automated.

Overall, these findings suggest that students did not adopt all taught strategies equally; rather, they tended to favour those that were perceived as practical, efficient, and directly relevant to task performance. This selective pattern of adoption further supports the view that metacognitive development is gradual and uneven rather than immediate or comprehensive.

5.3.4. Persistent Constraints on Strategic Reading Development

Despite the positive comments as mentioned, the interviews revealed several continuing difficulties that may have limited the extent of the reading progress on the part of the respondents. As *Table 7* shows, the most common constraint was limited vocabulary knowledge, which was cited by all six participants. The interviewees also explained that unfamiliar words often slowed down their reading and sometimes prevented them from fully understanding the text despite their attempts to apply the taught strategies. This finding is consistent with previous research, reporting that limited lexical knowledge remains a persistent barrier to academic reading comprehension among university students [2], [18]. Pedagogically, this suggests that MSI should be accompanied by systematic vocabulary support, including pre-teaching key lexical items, contextualized vocabulary practice, repeated exposure through extensive reading, and training in contextual inferencing. An added challenge that emerged from the interview data was the need for more practice in using newly learned strategies with confidence. Some participants acknowledged that although they understood the strategies in principle, they had not yet internalized them sufficiently so that they could apply them effectively in all reading situations.

In other words, while MSI promoted greater awareness, confidence, and strategic engagement of students in reading activities, its impact was neither immediate nor uniform. Rather, its effectiveness appeared to be shaped by the students' vocabulary knowledge as well as the extent to which opportunities were given for their continued practice in reading.

Table 7. *Persistent constraints reported by interviewees*

S1	*"First, I had very little vocabulary, so I was sometimes unclear about the meaning of sentences or paragraphs. Second, when I looked at a text that was too long, I easily felt discouraged".*
S2	*"I did not have much vocabulary, and when the texts were too long, I could not fully understand the content".*
S24	*"I feel that my vocabulary is still limited…"*
S41	*- "However, honestly, I am still not very proficient with some of the newer strategies. Recently, I have had many tests, so I have not had much time to practice".* *- "Sometimes I try to guess based on the surrounding context, but that context also contains many unfamiliar words, so I cannot always guess successfully".* *- "First, I have not spent much time practicing. Second, my vocabulary is still limited".*
S75	*- "The biggest difficulty for me was vocabulary. There were many words I didn't know. Sometimes, even after finishing the text, I still couldn't grasp the main idea. I also worked quite slowly".* *- "But because I'm not used to using the strategies yet, I still find it somewhat difficult".*
S78	*- "Sometimes I found it difficult when the text contained many academic words. However, I usually tried to guess the meaning from the context. Occasionally, I was careless when doing the tasks, which led to unnecessary mistakes".* *- "I am still not very proficient in using the new strategies".*

6. Conclusion

This sequential mixed-methods study set out to examine whether explicit MSI could enhance the reading comprehension and MCA of non-English-major students at Dong A University. Through a seven-week intervention with MSI, the study showed significant stronger reading performance and greater awareness of strategic reading processes amongst the students having the intervention compared with those following regular instruction. Qualitative evidence further suggested that the intervention encouraged learners to approach texts more consciously and strategically, with increased confidence and more deliberate regulation of comprehension. At the same time, persistent vocabulary difficulties indicate that the benefits of strategy instruction may be moderated by learners' underlying linguistic resources.

The present study contributes to the existing literature in several ways. First, it extends current knowledge on MSI to a relatively under-researched population, namely, Vietnamese non-English-major undergraduates, whose academic reading needs are often overlooked in comparison with English-major students or secondary school learners. Second, the findings add further empirical support to theoretical claims that planning, monitoring, and evaluating processes are closely associated with successful reading development. Third, by employing a sequential mixed-methods design, the study not only identified measurable instructional effects but also captured learners' experiences and perceptions, thereby offering a more

nuanced account of how metacognitive instruction functions in classroom settings.

The findings also carry important pedagogical implications. For classroom teachers, the results suggest that metacognitive strategies should be embedded within regular reading instruction. Activities such as previewing, predicting, monitoring understanding, identifying text structure, and reflecting on strategy effectiveness may help learners develop more self-regulated reading habits. For students, the findings highlight the importance of combining strategic awareness with continuous vocabulary development, as effective reading appears to depend on both metacognitive control and sufficient lexical knowledge. For teacher educators, the study indicates a need to provide practical training in modelling strategic reading behaviours and scaffolding students' comprehension processes in tertiary EFL classrooms.

Several limitations should nevertheless be acknowledged. The study was conducted with a relatively small sample drawn from one institution, which may limit the wider generalisability of the findings. In addition, the quasi-experimental design did not allow complete control over all learner-related variables, such as motivation, self-study habits, or exposure to English outside the classroom. The intervention also lasted only seven weeks, and no delayed post-test was administered; therefore, the long-term sustainability of the observed gains remains uncertain. Finally, part of the data relied on self-report measures of strategy awareness, which may not always correspond fully to actual reading behaviour.

Future research may therefore benefit from examining longer interventions across multiple institutions and learner groups and incorporating delayed post-tests. Further studies could also explore how MSI interacts with other instructional variables, such as vocabulary support or digital reading environments.

REFERENCES

[1] J. A. Aebersold and M. L. Field, *From reader to reading teacher*, Cambridge University Press, 1997.

[2] N. T. B. Thuy, "Reading strategies used by Vietnamese EFL and ESL university students," *VNU Journal of Foreign Studies*, vol. 34, no. 2, pp. 1-15, 2018.

[3] J. H. Flavell, "Metacognition and cognitive monitoring: A new area of cognitive-developmental inquiry," *American Psychologist*, vol. 34, no. 10, pp. 906-911, 1979.

[4] K. Mokhtari and C. A. Reichard, "Assessing students' metacognitive awareness of reading strategies," *Journal of Educational Psychology*, vol. 94, no. 2, pp. 249-259, 2002.

[5] L. Zhang and S. Seepho, "Metacognitive strategy use and academic reading achievement: Insights from a Chinese context," *Electronic Journal of Foreign Language Teaching*, vol. 10, no. 1, pp. 54-69, 2013.

[6] N. T. Ha, *"Enhancing English reading comprehension among twelfth graders in Da Nang through instruction of metacognitive reading strategies"*, Master's thesis, The University of Danang - University of Foreign Language Studies, Danang, 2023.

[7] D. T. B. Ngoc and V. T. Nhung, "Metacognitive reading strategies used by English majors at a university in Vietnam," *VNU Journal of Foreign Studies,* vol. 38, no. 5, pp. 180-196, 2022.

[8] D. M. Hieu and P. L. T. Huong, "Metacognitive Awareness of Reading Strategies on Second Language Vietnamese Undergraduates," *Arab World English Journal*, vol. 12, no. 1, pp. 90-112, 2021.

[9] L. C. Tuan *et al.*, "Learners' awareness of metacognitive strategies in listening: A case of English majors at a university in the Mekong Delta of Vietnam," *Language Related Research*, vol. 16, no. 3, p. 179-204, 2025.

[10] J. C. Alderson, *Assessing reading*, Cambridge University Press, 2000.

[11] Z. Husna, S. Wahyuni, D. Rukmini, and R. S. Wulandari, "The Impact of Cognitive and Metacognitive Reading Strategies on EFL Students' Reading Comprehension," *Language Circle: Journal of Language and Literature*, vol. 19, no. 2, 2025.

[12] M. F. Yong, A. A. Samad, and M. A. Embi, "Metacognitive strategy use and reading comprehension among ESL learners," *International Journal of Instruction*, vol. 13, no. 2, pp. 329-346, 2020.

[13] L. J. Zhang, P. Y. Gu, and G. Hu, "A metacognitive perspective on reading strategy instruction in EFL contexts," *System*, vol. 97, 2021.

[14] A. Habók and A. Magyar, "The effects of EFL reading comprehension and certain learning-related factors on EFL learners' reading strategy use," *Cogent Education*, vol. 6, no. 1, pp. 1-19, 2019.

[15] H. T. Hau, "Teaching Metacognitive Strategies in Reading through CALLA to Non-English Major Students in a Vietnamese University," *Vietnam Journal of Education*, vol. 8, no. 1, pp. 18-28, 2024.

[16] W. Grabe and F. L. Stoller, *Teaching and researching reading*, Pearson Education, 2002.

[17] W. Grabe, *Reading in a second language: Moving from theory to practice*, Cambridge University Press, 2009.

[18] G. Gorsuch and E. Taguchi, "Developing reading fluency and comprehension using repeated reading: Evidence from longitudinal student reports," *Language Teaching Research,* vol. 14, no. 1, pp. 27-59, 2010.

[19] P. L. Carrell, "Some causes of text-boundedness and schema interference in ESL reading," *in Interactive approaches to second language reading, J. D. &. D. E. E. P. L. Carrell, Ed., Cambridge University Press,* 1988, pp. 101-113.

[20] A. Phakiti, "A closer look at the relationship of cognitive and metacognitive strategy use to EFL reading achievement test performance," *Language Testing,* vol. 20, no. 1, pp. 26-56, 2003.

[21] D. R. Cross and S. G. Paris, "Developmental and instructional analyses of children's metacognition and reading comprehension," *Journal of Educational Psychology*, vol. 80, no. 2, pp. 131-142, 1988.

[22] D. Kuhn and D. Dean, "Metacognition: A bridge between cognitive psychology and educational practice," *Theory Into Practice*, vol. 43, no. 4, pp. 268-273, 2004.

[23] A. L. Brown, "*Metacognition, executive control, self-regulation and other more mysterious mechanisms,"* in Metacognition, motivation and understanding, Erlbaum, 1987, pp. 65-116.

[24] G. Schraw and R. S. Dennison, "Assessing metacognitive awareness," *Contemporary Educational Psychology*, vol. 19, no. 4, pp. 460-475, 1994.

[25] G. Schraw and D. Moshman, "Metacognitive theories," *Educational Psychology Review*, vol. 7, no. 4, pp. 351-371, 1995.

[26] G. Schraw, K. J. Crippen, and K. Hartley, "Promoting self-regulation in science education: Metacognition as part of a broader perspective on learning," *Research in Science Education*, vol. 36, no. 1-2, pp. 111-139, 2006.

[27] A. D. Cohen, *Strategies in Learning and Using a Second Language*, 2nd ed.. London: Routledge, 2014.

[28] K. Mokhtari and R. Sheorey, "Measuring ESL students' awareness of reading strategies," *Journal of Developmental Education*, vol. 25, no. 3, pp. 2-11, 2002.

[29] S. Seng, "Cambodian EFL undergraduates' metacognitive reading strategies use to comprehend English reading texts," *THAITESOL Journal*, vol. 38, no. 1, pp. 44-61, 2025.

[30] N. T. T. Thuy, "Metacognitive awareness of using reading strategies by TESOL postgraduate intakes 11 and 12 at Ho Chi Minh City Open University," *Theory and Practice in Language Studies*, vol. 10, no. 2, pp. 157-165, 2020.

[31] H. N. M. Kha, "Implementing English as a second language in Vietnamese schools: the role of comprehensive teacher training", *The University of Danang - Journal of Science and Technology*, vol. 23, no. 10A, pp. 18-22, Oct. 2025.

[32] V. Braun and V. *Clarke, Successful qualitative research: A practical guide for beginners,* Sage, 2013.