Journal
of Liberal Arts
Prince of Songkla University

# Metacognitive Reading Strategy Instruction: Effects on Reading Comprehension and Attitudes Among Thai EFL University Students

# ผลของการสอนอ่านแบบกลวิธีอภิปัญญาต่อการอ่านเพื่อความเข้าใจและทัศนคติของนักศึกษาชาวไทยที่เรียนภาษาอังกฤษเป็นภาษาต่างประเทศ

**Received:** April 16, 2026 **Revised:** May 15, 2026 **Accepted:** June 5, 2026

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## Abstract

This study investigated the effects of Metacognitive Reading Strategy Instruction (MRSI) on Thai EFL university students' reading comprehension and examined learners' attitudes toward MRSI. A quasi-experimental pretest-posttest design with a non-equivalent control group was employed. The participants were 51 Thai EFL university students enrolled in a reading course at a Thai university. They were divided into an experimental group (n = 26), which received MRSI, and a control group (n = 25), which received conventional reading instruction, over a 10-week period. The instruments included reading comprehension pretest and posttest and semi-structured interviews. Quantitative data were analyzed using descriptive and inferential statistics, while qualitative data were analyzed using thematic analysis. The results showed that the experimental group improved significantly from pretest to posttest, $t = 22.58$, $p < .001$, $d = 3.36$, and outperformed the control group on the posttest, $t = 4.67$, $p < .001$, d = 4.32. Qualitative findings revealed generally positive attitudes toward MRSI, including increased confidence and motivation, clearer direction during reading, and greater strategic autonomy. However, some learners also reported difficulties with MRSI, particularly initial confusion with multiple strategy steps, increased cognitive load, slower reading, and the need for teacher and peer support during the early stages of strategy use. The study recommends integrating MRSI into reading courses to promote self-regulated reading. Teachers should provide explicit modeling, while curriculum designers should embed metacognitive strategy training activities.

***Keywords:*** metacognitive reading strategy instruction (MRSI), reading comprehension, learner attitudes, Thai EFL university students

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**บทคัดย่อ**

การวิจัยนี้มีวัตถุประสงค์เพื่อศึกษาผลของการสอนอ่านแบบกลวิธีอภิปัญญาต่อการอ่านเพื่อความเข้าใจของนักศึกษามหาวิทยาลัยชาวไทยที่เรียนภาษาอังกฤษเป็นภาษาต่างประเทศ และศึกษาทัศนคติของผู้เรียนที่มีต่อการสอนดังกล่าว การวิจัยใช้รูปแบบกึ่งทดลองแบบทดสอบก่อนเรียนและหลังเรียนร่วมกับกลุ่มควบคุมที่ไม่เทียบเท่า กลุ่มตัวอย่างเป็นนักศึกษามหาวิทยาลัยชาวไทยที่เรียนภาษาอังกฤษเป็นภาษาต่างประเทศจำนวน 51 คน ที่ลงทะเบียนเรียนรายวิชาการอ่านในมหาวิทยาลัยแห่งหนึ่งในประเทศไทย แบ่งเป็นกลุ่มทดลอง 26 คน ซึ่งได้รับการสอนอ่านแบบกลวิธีอภิปัญญา และกลุ่มควบคุม 25 คน ซึ่งได้รับการสอนอ่านแบบปกติ ทั้งสองกลุ่มได้รับการฝึกการอ่านทั้งสองแบบเป็นเวลา 10 สัปดาห์ เครื่องมือที่ใช้ในการวิจัยประกอบด้วยแบบทดสอบการอ่านเพื่อความเข้าใจก่อนเรียนและหลังเรียน และการสัมภาษณ์แบบกึ่งโครงสร้าง วิเคราะห์ข้อมูลเชิงปริมาณด้วยสถิติเชิงพรรณนาและสถิติอนุมาน ส่วนการวิเคราะห์ข้อมูลเชิงคุณภาพดำเนินการโดยใช้วิธีการวิเคราะห์ประเด็นหลัก ผลการวิจัยพบว่ากลุ่มทดลองมีคะแนนหลังเรียนสูงกว่าก่อนเรียนอย่างมีนัยสำคัญทางสถิติ ($t$ = 22.58, $p$ < .001, $d$ = 3.36) และมีคะแนนหลังเรียนสูงกว่ากลุ่มควบคุมอย่างมีนัยสำคัญทางสถิติ ($t$ = 4.67, $p$ < .001, $d$ = 4.32) ผลการวิจัยเชิงคุณภาพพบว่า ผู้เรียนมีทัศนคติเชิงบวกต่อการสอนอ่านแบบกลวิธีอภิปัญญา โดยมีความมั่นใจและแรงจูงใจเพิ่มขึ้น มีแนวทางที่ชัดเจนระหว่างการอ่าน และมีความเป็นอิสระในการใช้กลวิธีในการอ่านมากขึ้น อย่างไรก็ตาม ผู้เรียนบางส่วนระบุว่ายังคงประสบปัญหาในการเรียนรู้ผ่านกลวิธีอภิปัญญาในการอ่าน โดยเฉพาะความสับสนในช่วงแรกเกี่ยวกับขั้นตอนของกลวิธีที่หลากหลาย ภาระทางความคิดที่เพิ่มขึ้น การอ่านที่ช้าลง และความจำเป็นในการได้รับการสนับสนุนจากผู้สอนและเพื่อนในช่วงเริ่มต้นของการใช้กลวิธีการอ่านแบบกลวิธีอภิปัญญา งานวิจัยนี้เสนอแนะให้มีการบูรณาการกลวิธีอภิปัญญาในการสอนอ่าน เพื่อส่งเสริมความสามารถในการกำกับตนเองในการอ่านของผู้เรียน ครูควรสาธิตการใช้กลวิธีอย่างชัดเจน ในขณะที่ผู้ออกแบบหลักสูตรควรบรรจุกิจกรรมการฝึกใช้กลวิธีอภิปัญญาไว้ในหลักสูตร

***คำสำคัญ:*** การสอนอ่านแบบกลวิธีอภิปัญญา ความเข้าใจในการอ่าน ทัศนคติของผู้เรียน นักศึกษาชาวไทยที่เรียนภาษาอังกฤษเป็นภาษาต่างประเทศ

## Introduction

Reading comprehension is a fundamental skill in language learning because it requires readers to coordinate multiple cognitive processes in order to construct meaning from a text (Grabe & Stoller, 2022; Grabe & Yamashita, 2022). Successful comprehension depends on both lower-level processes, such as word recognition, and higher-level processes, such as syntactic and semantic processing (Grabe & Stoller, 2022; Grabe & Yamashita, 2022). Readers must not only recognize words efficiently, but also connect ideas across sentences and the whole text to achieve full understanding. In addition, strategy awareness plays a crucial role, as readers need to preview, predict, question, connect ideas to prior knowledge, summarize, and recognize text structure to support comprehension (Grabe & Stoller, 2022). Therefore, reading difficulties among EFL learners should not be viewed only as language problems, but also as challenges related to learners' ability to regulate their own reading processes.

Metacognition plays a key role in supporting comprehension because it helps readers regulate the reading process. Metacognition in reading is referred to as the ability to reflect on one's reading to understand, regulate and self-guide the process of reading (Pinninti, 2016). Hence, metacognition involves planning, monitoring, controlling, and evaluating (Efklides, 2001; Flavell, 1979). Before reading, readers set goals and select strategies; during reading, they monitor comprehension and adjust when difficulties occur; after reading, they evaluate outcomes and strategy effectiveness. Metacognitive reading strategies have been linked to improved comprehension and stronger strategic reading behavior. Such strategies also support deeper comprehension, including inferential and critical processing, through activities such as integrating prior knowledge, selecting relevant information, and generating inferences (Ali & Razali, 2019; Khellab et al., 2022; Noipa & Phusawisot, 2025; Thongwichit & Buripakdi, 2021).

Explicit metacognitive strategy instruction has been argued to improve learners' metacognition and their ability to regulate reading, which can enhance reading comprehension. This is especially important in higher education, where students are expected to learn from discipline-based texts and academic resources. However, many EFL learners enter university without sufficient preparation for these academic reading demands (Anggia & Habók, 2024; Kan et al., 2024; Pahrizal et al., 2025; Villanueva, 2022). Research in Thailand has shown that explicit strategy instruction can enhance reading comprehension and increase learners' awareness and independence (Noipa & Phusawisot, 2025; Thongwichit & Buripakdi, 2021). Despite these benefits, metacognitive reading strategy instruction is not consistently implemented in Thai university reading classrooms, and many learners still rely on limited approaches such as word-by-word translation and vocabulary-focused decoding rather than strategic monitoring and meaning construction across the text (Seedanont & Pookcharoen, 2019; Thongwichit & Buripakdi, 2021). As a result, learners may struggle to cope with academic reading tasks that require inferencing, integrating ideas, and evaluating information. In addition, existing research in Thailand has tended to focus on general EFL populations, while fewer studies have examined metacognitive reading strategy instruction among university students in specific academic disciplines or explored how learners with different proficiency levels employ strategies before, during, and after reading (Aghajani & Gholamrezapour, 2019; Noipa & Phusawisot, 2025; Thongwichit & Buripakdi, 2021). Furthermore, learners' attitudes toward metacognitive reading strategy instruction and their perceived usefulness of these strategies remain underexplored in relation to measurable comprehension outcomes.

To address the limited empirical evidence regarding the effectiveness of metacognitive reading strategy instruction in improving Thai EFL university students' reading comprehension and shaping their attitudes toward strategic reading, this study therefore investigates the effects of metacognitive reading strategy instruction on the reading comprehension of Thai EFL university students and examines learners' attitudes toward metacognitive reading strategy instruction. The following two research questions are addressed:

1. To what extent does metacognitive reading strategy instruction affect the reading comprehension of Thai EFL university students?

2. What are Thai EFL university students' attitudes toward metacognitive reading strategy instruction?

## Literature Review

### 1. The Interplay of Reading Comprehension and MRSI

Metacognitive Reading Strategy Instruction (MRSI) is a teaching technique that improves reading comprehension abilities of learners by focusing on the metacognitive knowledge and strategies needed to be successful in the reading process (Goh & Vandergrift, 2021; Teng, 2020). MRSI helps learners to be more aware of the strategies needed to be successful in the reading process, including planning, regulating, and evaluating the reading process, in order to process the information in the text more effectively, overcome comprehension barriers, and self-evaluate their reading progress (Goh & Vandergrift, 2021; Noipa & Phusawisot, 2025; Pahrizal et al., 2025).

Moreover, MRSI improves learners' reading comprehension by teaching them how to apply metacognitive strategies, such as planning, monitoring, and evaluating, to better understand complex texts. MRSI is based on the concept of metacognition, which involves the active monitoring and control of reading processes. Metacognition, in the context of reading, enables learners to control the reading process and understand the text by using strategies to enhance the level of understanding when the text is not clear (Ali & Razali, 2019; Pahrizal et al., 2025; Phakiti, 2003; Teng, 2020). This enables learners to actively participate in the reading process.

Metacognitive instruction in reading comprehension is closely connected to problem-solving because it encourages learners to identify parts of the text that cause difficulty, such as vocabulary, structure, or content, and then apply appropriate strategies to resolve comprehension problems. Learners use the appropriate strategies to enhance the level of understanding, such as using the context clues when some parts of the text cannot be read. This is based on the fundamental elements of the strategies, such as predicting, summarizing, making inferences, and visualizing (Noipa & Phusawisot, 2025; Thongwichit & Buripakdi, 2021).

### 2. Theoretical Framework of MRSI

This study adopts Pressley and Gaskins' (2006) framework of Metacognitive Reading Strategy Instruction. MRSI comprises three core components: planning, monitoring, and evaluating, which are applied in the pre-reading, while-reading, and post-reading phases of the instruction, respectively (Pressley & Gaskins, 2006). The planning strategies include setting purposes, skimming/scanning and inferring, previewing, and deciding what and when to read for a particular purpose, among others. The monitoring strategies include tracking key words, questioning, self-regulation, inferring, rereading, regulating speed, solving problems, translating, and using prior knowledge, among others. The evaluating strategies include summarizing, checking comprehension, making a concept map, identifying the main idea, selecting the most important information, and retelling or synthesizing, among others (Noipa & Phusawisot, 2025; Pressley & Gaskins, 2006).

**Table 1**

*Theoretical Framework of MRSI (Pressley & Gaskins, 2006)*

| Steps | Strategies |
|---|---|
| Planning | • establishing and keeping reading goals<br>• skimming and scanning and guessing what a text is about<br>• determining what and when to read; deciding which reading materials are appropriate |
| Monitoring | • paying attention to key points by focusing on words and phrases<br>• self-questioning or self-regulating<br>• guessing meanings from context clues<br>• problem-solving; rereading and adjusting the reading speed<br>• translation; converting L2 to L1 for better comprehension.<br>• using background knowledge |
| Evaluating | • summarizing and checking comprehension<br>• judging the key message of the text<br>• retelling or synthesizing |

### 3. Empirical Studies on Metacognitive Reading and Reading Comprehension

Reading strategy use and instruction have been increasingly investigated to assist EFL learners in becoming more strategic and self-regulated readers (Grabe & Yamashita, 2022). Metacognitive Reading Strategy Instruction (MRSI) especially highlights learners' abilities to plan before reading, monitor comprehension during reading, and evaluate understanding after reading. Previous research has found that explicit instruction of metacognitive reading strategies can enhance learners' awareness of their strategy use and their reading comprehension (Khellab et al., 2022; Kung & Aziz, 2020; Muche et al., 2024). However, it is difficult to implement metacognitive strategies in classroom instruction because teachers need to choose suitable strategies, demonstrate their use explicitly, and give sufficient guided practice based on the learners' needs and level of proficiency (Khellab et al., 2022; Noipa & Phusawisot, 2025).

In global EFL contexts, a number of research have demonstrated the usefulness of metacognitive reading strategy. Metacognitive Reading Strategy Instruction (MRSI) improved Malaysian secondary students' awareness and use of reading strategies following two intervention cycles (Kung & Aziz, 2020). Similarly, Khellab et al. (2022) found that explicit instruction using the CALLA paradigm greatly enhanced Libyan engineering students' metacognitive awareness and reading comprehension in an English for Science and Technology context. Similarly, Villanueva (2022) also revealed that problem-solving strategies, such as rereading difficult sections, adjusting reading speed, visualizing information, and paying closer attention to challenging parts of the text, were significantly related to college students' reading comprehension performance. In addition, Teng (2020) found that metacognitive reading strategy instruction

increased the reading comprehension and the metacognitive awareness of young English language learners. After participating in ten process-based reading lessons, learners were better able to identify factors that influenced their reading, understand the nature and demands of reading more clearly, and gain greater confidence in completing reading tasks. Students in the metacognitive instruction group also performed better on reading tasks than those in the control group.

Previous research in the Thai EFL setting has also highlighted the significance of metacognitive reading technique. Seedanont and Pookcharoen (2019) emphasized the necessity of developing metacognitive reading methods for Thai EFL learners at different competence levels. Thongwichit and Buripakdi (2021) suggested that modeling strategies allowed Thai tertiary learners to develop metacognitive reading strategy use in ESP classrooms. More recently, Noipa and Phusawisot (2025) discovered that Thai EFL engineering students who received explicit MRSI dramatically improved their reading comprehension and became more engaged and strategic readers through planning, monitoring and assessing techniques.

In conclusion, these results imply that MRSI is effective in both global and Thai EFL contexts because it facilitates learners' ability to regulate comprehension before, during, and after reading. Most previous studies, however, have concentrated mainly on reading performance, strategy awareness or specific types of strategies. There have been few studies on reading comprehension outcomes and learners' attitudes toward MRSI in the Thai university context. Therefore, the present study aims to fill this gap by studying the effects of MRSI on Thai EFL university students' reading comprehension and their attitudes toward the instruction.

## Research Methodology

### 1. Research Design

This study employed an explanatory sequential mixed-methods design, in which quantitative results were collected and analyzed first, followed by qualitative data collection and analysis to further explain and contextualize the quantitative findings (Creswell, 2012). The study aimed to examine the effects of Metacognitive Reading Strategy Instruction on Thai EFL university students' reading comprehension and to explore their attitudes toward MRSI. Two intact classes participated in the study: one class received conventional reading instruction, while the other received MRSI for 10 weeks. The quantitative component adopted a quasi-experimental pretest–posttest non-equivalent control group design. The qualitative component involved semi-structured interviews to explore students' attitudes toward MRSI through thematic analysis.

### 2. Research Context and Participants

The participants in this study were Thai EFL university students enrolled in a reading course at a university in Northeastern Thailand. They were third-year English major students and were 21 years old. Two intact classes were selected based on course enrollment: 25 students in the control group and 26 students in the experimental group. The study was conducted in regular classroom settings. Both groups studied the same course content and used the same reading materials; however, the instructional approach differed between the two groups. In addition, nine participants were selected through purposive sampling for the interview phase. The selection was based on their reading comprehension test scores to ensure that the interview

sample represented a range of reading proficiency levels. The participants were divided into three groups: low proficiency, medium proficiency, and high proficiency.

**3. Research Instruments**

The research instruments employed in this study were reading comprehension tests and a semi-structured interview.

***3.1 Reading Comprehension Tests***

The reading comprehension tests included a pretest and a posttest, each containing 60 items in multiple-choice and gap-filling formats. The tests measured three levels of reading comprehension: literal, inferential, and critical comprehension. For content validity, five experts in English instruction evaluated the test items using the Index of Item-Objective Congruence (IOC). Items with IOC values greater than 0.60 were considered valid, whereas others were revised. To ensure reliability, Cronbach's alpha was used to assess the internal consistency of the test items. The analysis yielded a coefficient of 0.86, signifying high reliability.

***3.2 Semi-Structured Interview***

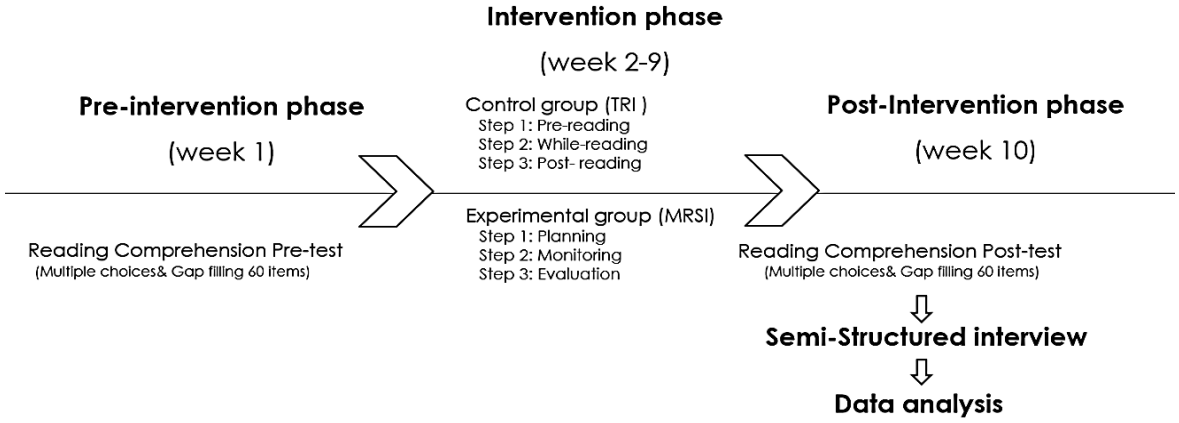
The semi-structured interview was used to obtain qualitative data on students' attitudes toward MRSI. The interview guide was developed based on the research objectives. It consisted of three main parts: grand tour questions, main questions, and follow-up questions. Nine participants were purposively selected from the experimental group based on their reading comprehension test scores. To ensure representation across proficiency levels, three students were chosen from each of the following categories: low, medium, and high. The interviews explored students' learning experiences, perceived benefits, and challenges related to MRSI. All interviews were conducted in Thai, audio-recorded, transcribed, and analyzed.

**4. Data Collection**

Data collection was conducted in three phases. First, both groups completed a reading comprehension pretest. Next, over a period of 10 weeks, the control group received traditional reading instruction, whereas the experimental group received Metacognitive Reading Strategy Instruction (MRSI), which focused on planning, monitoring, and evaluating. Finally, both groups completed a posttest. Interview participants were selected through purposive sampling based on their reading comprehension test scores and were interviewed using a semi-structured interview. Ethical procedures were strictly followed, including informing participants of the purpose of the study, obtaining informed consent, ensuring voluntary participation, and protecting anonymity through the use of codes or pseudonyms in accordance with institutional approval. The data collection procedures are presented in figure 1.

**Figure 1**

*Data Collection Procedures*




### 5. Data Analysis

Quantitative data were analyzed using descriptive and inferential statistics in SPSS (Version 29). Specifically, paired-samples *t*-tests were used to examine within-group improvement from pretest to posttest, and independent-samples t-tests were conducted to compare performance between the experimental and control groups. Qualitative data were analyzed using an inductive thematic analysis approach in MAXQDA (Version 26). Audio recordings were transcribed and analyzed through open, axial, and selective coding to identify recurring patterns and refine themes related to learners' attitudes toward MRSI and their experiences with the instruction (Braun & Clarke, 2006). To enhance trustworthiness, intra-coder checking and member checking were conducted, and representative excerpts were used to support each theme.

## Findings

### 1. RQ1: To what extent does metacognitive reading strategy instruction affect the reading comprehension of Thai EFL university students?

This study examined the effects of MRSI on Thai EFL university students' reading comprehension by comparing pretest and posttest results within each group and assessing the performance differences between the experimental and control groups.

**Table 2**

*Descriptive Statistics of Reading Comprehension Performance*

| Group/Test | Experimental (n=26) | | | Control (n=25) | | |
|---|---|---|---|---|---|---|
| | Mean | % | S.D. | Mean | % | S.D. |
| Pretest | 29.38 | 48.97 | 3.09 | 28.38 | 47.26 | 2.62 |
| Posttest | 56 | 73.84 | 5.10 | 38.64 | 64.40 | 3.32 |

Table 2 shows the descriptive statistics of reading comprehension performance, including the mean scores, percentages, and standard deviations for both the experimental and control groups in the pretest and posttest. In the pretest, the experimental group obtained a mean score of 29.38 (48.97%, S.D. = 3.09), while the control group scored 28.38 (47.26%,

S.D. = 2.62). In the posttest, the experimental group achieved a mean score of 56.00 (73.84%, S.D. = 5.10), whereas the control group obtained 38.64 (64.40%, S.D. = 3.32). Overall, the posttest results suggest that students who received MRSI demonstrated stronger improvement in reading comprehension.

**Table 3**

*Comparisons Between Pretest and Posttest Within-Group*

| Group/test | Pre-test | Post-test | *t*- value | *p*-value | Cohen's *d* |
|---|---|---|---|---|---|
| Experimental | A | B | 22.58 | 0.000*** | 3.36 |
| Control | A | B | 16.02 | 0.000*** | 3.20 |

*Note.* $p < .001$***

Table 3 presents the results of the paired-samples *t*-test comparing the pretest and posttest scores of both the experimental and control groups on reading comprehension performance. In the experimental group, students' reading comprehension improved significantly from pretest to posttest, $t = 22.58$, $p < .001$, with a very large effect size (Cohen's $d = 3.36$). These results indicate a substantial effect of MRSI on enhancing students' reading comprehension. In contrast, the control group also demonstrated significant improvement from pretest to posttest, $t = 16.02$, $p < .001$, with a very large effect size (Cohen's $d = 3.20$). Overall, these findings suggest that both instructional approaches supported gains in reading comprehension; however, the experimental group demonstrated significantly stronger improvements, suggesting that MRSI is more effective than conventional instruction in enhancing reading comprehension performance.

**Table 4**

*Comparison of Test Performance Between the Experimental and Control Groups*

| Test | Group | t- value | p-value | Cohen's d |
|---|---|---|---|---|
| Pretest | Experimental / Control | 1.27 | 0.21 | 2.88 |
| Posttest | Experimental / Control | 4.67 | 0.000*** | 4.32 |

*Note.* $p < .001$***

Table 4 presents the results of the independent-samples *t*-tests comparing reading comprehension performance between the experimental and control groups before and after the intervention. The results indicate that there was no statistically significant difference between the two groups in the pretest, $t = 1.27$, $p = 0.21$, with a large effect size (Cohen's $d = 2.88$). This suggests that the experimental and control groups had comparable baseline reading comprehension prior to instruction. However, after the intervention, a statistically significant difference emerged in favor of the experimental group. In the posttest, the experimental group scored significantly higher than the control group, $t = 4.67$, $p < .001$, with a large effect size

(Cohen's $d$ = 4.32). Overall, these findings suggest that MRSI was more effective than conventional reading instruction in improving students' reading comprehension performance.

**2. RQ2: What are Thai EFL university students' attitudes toward metacognitive reading strategy instruction?**

This study explored Thai EFL learners' attitudes toward Metacognitive Reading Strategy Instruction (MRSI) in relation to their reading performance using a semi-structured interview. After the intervention, nine students were classified by reading comprehension proficiency into three groups: low proficiency (n = 3), medium proficiency (n = 3), and high proficiency (n =3). The interview data were transcribed and analyzed through open, axial, and selective coding to identify recurring themes related to learners' perceptions and experiences with MRSI. The thematic analysis generated four major themes: positive emotional engagement and increased confidence, practical guidance for understanding texts, strategic autonomy through greater awareness and self-regulation, and challenges related to cognitive load and classroom interaction. These themes capture both the benefits and difficulties experienced by learners and reflect how MRSI influenced their reading processes and attitudes across proficiency levels.

**Positive Emotional Engagement: Increased Confidence and Motivation**

The findings indicated that MRSI contributed to a significant increase in learners' confidence and emotional engagement in reading English texts. At the beginning of instruction, several learners expressed uncertainty about how to deal with difficult parts of a text and often felt nervous when they could not understand what they were reading. As Thai EFL learners, they tended to feel pressured and unsure, especially when texts were long or unfamiliar. However, after learning to use metacognitive strategies such as planning, monitoring, and evaluating, learners reported feeling calmer, more confident, and more motivated to continue reading. Having clear steps to follow appeared to reduce anxiety and provided learners with a greater sense of control during reading. As a result, learners became more willing to persist when they encountered difficulty and developed more confidence in their reading ability.

> Excerpt 28 (L2) "Before, I was afraid because I did not know enough vocabulary. Now, I try to understand, translate word by word, and check the meaning step by step, so I feel more confident and enjoy reading texts."

> Excerpt 23 (L1) "When I followed the steps, I felt more motivated. Even if the text was long, I wanted to continue because I could see my understanding improving."

> Excerpt 28 (M1) "At first, I felt nervous when I started reading because I didn't know how to manage difficult parts. After I learned to plan and set my purpose, I felt calmer because I knew what to look for and what to do next."

> Excerpt 27 (H1) "MRSI made my reading smoother because I monitor quickly. If a part is easy, I read faster, and if it's difficult, I slow down and reread only the key sentences."

Across proficiency groups, learners described confidence in different ways. Low-proficiency learners emphasized emotional relief and step-by-step support when comprehension broke down. For example, L2 explained that limited vocabulary had previously caused fear and uncertainty, but after instruction the learner could understand, translate word by word, and check meaning step by step, which increased confidence and enjoyment in reading. L1 added, "I wanted to continue because I could see my understanding improving," showing greater motivation and persistence even with long texts. Medium-proficiency learners emphasized the importance of receiving clear directions before and during reading in supporting their reading process. M1 stated, "After I learned to plan and set my purpose, I felt calmer because I knew what to look for and what to do next," indicating that MRSI reduced anxiety by giving the learner a clearer focus and greater emotional control. In contrast, high-proficiency learners described confidence in terms of efficiency, independence, and flexible strategy use. H1 reported, "MRSI made my reading smoother because I monitored quickly," showing the ability to adjust reading speed, identify difficult parts, and reread selectively when needed. This suggests that confidence at the high-proficiency level was closely linked to strategic efficiency and automatic self-regulation.

**Practical Guidance for Understanding Texts**

Learners also expressed positive attitudes toward MRSI because it provided practical guidance for understanding texts. Students frequently mentioned that planning strategies, such as setting goals and previewing, helped them focus on key ideas, while monitoring strategies, such as checking understanding, rereading, and slowing down, supported comprehension repair when meaning broke down. Evaluation strategies were also viewed as helpful for confirming comprehension and remembering content. These strategy steps appeared to make the reading process more structured, purposeful, and manageable.

> Excerpt 31 (L1) "During reading, I keep checking if I understand. When I notice I don't, I reread and connect the sentences again instead of translating every word."

> Excerpt 25 (M3) "When I preview the title and key words first, I can predict the topic and focus on the main idea. It helps me not get lost while reading."

> Excerpt 31 (H2) "After reading, I summarize in my own words and check if I can explain it. If I can't, I go back to find where I misunderstood."

Across proficiency groups, learners described the usefulness of MRSI in different ways. Low-proficiency learners mainly valued it as practical support when comprehension broke down. For example, L1 explained that during reading, they kept checking understanding and, when meaning was unclear, reread and reconnected the sentences instead of relying only on word-for-word translation. This suggests that MRSI helped low-proficiency learners repair comprehension in a more active and manageable way. Medium-proficiency learners highlighted planning strategies as a means of gaining clearer direction before reading. M3 stated, "When I preview the title and key words first, I can predict the topic and focus on the main idea," showing that previewing helped the learner prepare for the text and maintain focus. This indicates that MRSI supported reading by giving learners a clearer purpose before they began. In contrast, high-proficiency learners described MRSI as useful for evaluating comprehension

after reading. H2 reported, "After reading, I summarize in my own words and check if I can explain it," indicating that MRSI supported deeper comprehension through reflection and self-checking. Learners' comments on returning to the text when they were unable to explain a passage reflect enhanced independent monitoring and evaluation skills.

**Strategic Autonomy: Greater Awareness and Self-Regulation**

The findings indicated that MRSI increased learners' awareness of strategy use and encouraged more autonomous reading behavior. Many learners reported that they became more conscious of how they read and were able to choose strategies depending on text difficulty. These strategies included adjusting reading speed, rereading selectively, connecting ideas, and monitoring comprehension. As a result, learners appeared to develop greater control over their reading process and relied less on teacher support.

> Excerpt 3 (L2) "When I don't understand, I reread slowly and check the important words first. Then I try to continue with the next sentence."

> Excerpt 28 (M2) "I try to connect ideas across paragraphs and use notes to combine information, so I understand the whole text, not only one part."

> Excerpt 33 (H1) "I naturally adjust my reading: I skim familiar parts, slow down in dense parts, and reread the key sentence to confirm meaning."

Across proficiency groups, learners showed different levels of strategic autonomy. Low-proficiency learners relied on basic control strategies when they faced difficulty. For example, L2 explained that when comprehension broke down, they reread slowly and checked important words first, indicating emerging strategy awareness but continued dependence on step-by-step support. This suggests that MRSI helped low-proficiency learners begin to regulate their reading, although their strategy use remained fairly simple. Medium-proficiency learners showed more deliberate and organized strategy use. M2 stated, "I try to connect ideas across paragraphs and use notes to combine information," indicating a more active effort to build meaning across the whole text. This reflects a higher level of awareness and control, as the learner moved beyond sentence-level understanding toward integrating ideas more deeply. In contrast, high-proficiency learners described strategy use as more automatic and flexible. H1 reported, "I skim familiar parts, slow down in dense parts, and reread the key sentence to confirm meaning," demonstrating the ability to adjust strategies efficiently based on text difficulty. This suggests that strategic behavior had become more internalized and required less conscious effort.

**Challenges: Cognitive Load and Classroom-Related Difficulties**

Although learners generally expressed positive attitudes toward MRSI, the findings also revealed some challenges, particularly during the early stages of instruction. Some learners reported difficulty using several strategies at the same time, especially when texts were complex or vocabulary was unfamiliar. These difficulties sometimes caused confusion, slowed down reading, and increased the need for teacher support. However, most learners indicated that these challenges gradually became easier to manage with practice. This suggests that

although MRSI initially required considerable mental effort, learners increasingly adapted to the strategy use over time.

> Excerpt 26 (L1) "At the beginning, I felt confused because I had to think about many steps while reading. It made me slower, and I needed the teacher to guide me."
>
> Excerpt 24 (M1) "Monitoring my understanding took more time at first because I stopped often to check meaning and confirm the main idea."
>
> Excerpt 34 (M2) "It was difficult at first, but after practicing, the steps became more natural and helped me read with more control."
>
> Excerpt 36 (H3) "It was sometimes boring when I had to wait for my peers during group sharing. Some of them relied on me to translate, and the most challenging part was that they often interrupted me while I was reading to ask for translations."

Across proficiency groups, learners experienced these challenges in different ways. Low-proficiency learners mainly reported confusion, slower reading, and dependence on teacher support during the early stage of instruction. For example, L1 explained that having to think about many steps while reading caused confusion and slowed the reading process, suggesting that MRSI initially created a heavy cognitive load for learners with limited reading ability. Medium-proficiency learners also found strategy use time-consuming at first. M1 stated that monitoring comprehension took more time because they had to stop often to check meaning and confirm the main idea. M2 reflected that the process was difficult at first, but repeated practice made the steps more natural and improved reading control. This suggests that medium-proficiency learners faced initial difficulty but gradually adapted as they became more familiar with the strategies. In contrast, high-proficiency learners were less likely to view strategy use itself as a major difficulty. Instead, their challenges were more related to the classroom context, such as group-sharing activities or peer interruption. H3 explained that it was sometimes boring to wait for peers during group sharing and frustrating to be interrupted for translation support while reading. This suggests that high-proficiency learners could generally manage the cognitive demands of MRSI, but still experienced challenges related to classroom interaction and group dynamics.

## Discussion

This section discusses the quantitative and qualitative findings in relation to the research questions, previous studies, and the role of MRSI in supporting reading comprehension and learner attitudes.

### 1. Effects of MRSI on Reading Comprehension of Thai EFL University Students

The findings indicate that Metacognitive Reading Strategy Instruction (MRSI) had a positive impact on Thai EFL university students' reading comprehension. Before the intervention, the experimental and control groups showed similar levels of reading comprehension. After the 10-week intervention, however, the experimental group demonstrated stronger improvement than the

control group. Although both groups improved after instruction, students who received MRSI made greater progress in reading comprehension than those who received regular reading instruction.

These findings are consistent with previous research showing that metacognitive strategy instruction can improve reading outcomes in EFL contexts by helping learners regulate comprehension more effectively (Babashamasi et al., 2022; Banditvilai, 2020; Noipa & Phusawisot, 2025; Seedanont & Pookcharoen, 2019). MRSI strengthened learners' ability to plan, monitor, and evaluate their reading, enabling them to identify comprehension problems, apply repair strategies, and regulate meaning construction more successfully. This result is also in line with metacognitive theory, which emphasizes the role of conscious regulation in effective learning (Efklides, 2001; Flavell, 1979; Kan et al., 2024; Pinninti, 2016). As learners became more aware of how to approach a text before, during, and after reading, they appeared better able to engage with academic texts that required inferencing, integrating ideas, and evaluating information.

The present findings are particularly meaningful in the Thai EFL context, where learners often rely on limited reading approaches such as word-by-word translation and vocabulary-focused decoding rather than strategic monitoring and meaning construction across the text (Pahrizal et al., 2025; Seedanont & Pookcharoen, 2019; Thongwichit & Buripakdi, 2021). In this study, MRSI appeared to provide a clearer structure for reading by guiding learners through pre-reading, while-reading, and post-reading strategy use. This structured support may explain why the experimental group demonstrated stronger improvement than the control group. Overall, the quantitative findings suggest that explicit metacognitive strategy instruction can help Thai EFL university students become more effective and more strategic readers (Noipa & Phusawisot, 2025; Thongwichit & Buripakdi, 2021).

**2. Thai EFL University Students' Attitudes Toward MRSI**

The qualitative findings further support the quantitative results by showing that learners generally held positive attitudes toward MRSI, although some may find MRSI somewhat challenging. The thematic analysis generated four major themes: positive emotional engagement and increased confidence, perceived usefulness as clearer direction during reading, strategic autonomy through greater awareness and self-regulation, and challenges related to cognitive load and classroom interaction. These themes indicate that MRSI influenced not only learners' reading performance but also their reading experiences and attitudes toward strategic reading. It is worth highlighting that students with different proficiency levels appeared to experience MRSI in different ways: low-proficiency learners relied more on step-by-step support; medium-proficiency learners used strategies more deliberately to organize meaning; and high-proficiency learners tended to apply strategies more flexibly and independently.

First, learners reported increased confidence and emotional engagement in reading English texts. Many participants described feeling calmer, more motivated, and more confident after learning to use planning, monitoring, and evaluation strategies. Low-proficiency learners particularly emphasized emotional relief and step-by-step support when comprehension broke down, whereas high-proficiency learners described confidence in terms of smoother reading, strategic efficiency, and flexible strategy adjustment. These findings suggest that MRSI reduced anxiety and promoted a stronger sense of control during reading, which may have contributed to more positive engagement with texts. This result is in line with earlier studies

showing that metacognitive strategy instruction can enhance learners' confidence, motivation, and engagement in reading (Kung & Aziz, 2020; Muhid et al., 2020; Noipa & Phusawisot, 2025; Pahrizal et al., 2024).

Second, learners perceived MRSI as useful because it provided clearer direction during reading. Low-proficiency learners highlighted the usefulness of monitoring strategies for repairing comprehension, medium-proficiency learners emphasized previewing and setting a purpose before reading, and high-proficiency learners found post-reading evaluation strategies such as summarizing and checking understanding particularly helpful. These findings indicate that MRSI made the reading process more structured, purposeful, and manageable. Rather than depending only on translation, learners were encouraged to interact with the text more actively and strategically. This supports previous research suggesting that explicit metacognitive strategy instruction helps learners move beyond surface-level reading and engage more actively in comprehension monitoring and strategic meaning construction (Ali & Razali, 2019; Khellab et al., 2022; Teng, 2020; Villanueva, 2022).

Third, the findings showed that MRSI promoted strategic autonomy and self-regulation. Learners became more aware of how they read and reported choosing strategies depending on text difficulty. Low-proficiency learners described using basic support strategies such as rereading slowly and checking important words, medium-proficiency learners reported connecting ideas across paragraphs and using notes to combine information, and high-proficiency learners demonstrated more automatic and flexible strategy use. This progression suggests that MRSI supported learners in moving from guided strategy use toward more independent self-regulated reading. These findings are consistent with the conceptual view of MRSI as a process of developing planning, monitoring, and evaluating strategies across phases of reading (Noipa & Phusawisot, 2025; Pahrizal et al., 2024; Thongwichit & Buripakdi, 2021).

Although the qualitative findings showed that learners generally held positive attitudes toward MRSI, the findings also revealed some difficulties and negative experiences during the implementation of the instruction. Some learners reported that using several metacognitive strategies at the same time was confusing, especially in the early stages of the intervention. This finding is consistent with previous studies suggesting that explicit strategy instruction can be challenging because learners need time to understand how, when, and why to apply particular strategies effectively (Khellab et al., 2022; Noipa & Phusawisot, 2025). Others felt that planning, monitoring, and evaluating while reading increased their cognitive load and made the reading process slower. These difficulties suggest that MRSI may require time, repeated practice, and sufficient scaffolding before learners can use the strategies independently and effectively (Khellab et al., 2022; Noipa & Phusawisot, 2025).

These challenges are important because they indicate that MRSI should not be viewed solely as a beneficial instructional approach, but also as a demanding learning process for some students. Learners who are unfamiliar with strategic reading may need explicit modeling, step-by-step guidance, and opportunities for guided practice before moving toward independent strategy use (Kung & Aziz, 2020; Noipa & Phusawisot, 2025). Therefore, teachers should introduce metacognitive strategies gradually and provide continuous support, particularly for learners with lower proficiency or limited experience in self-regulated reading (Khellab et al., 2022; Pahrizal et al., 2024).

## Conclusion and Implications

In conclusion, Metacognitive Reading Strategy Instruction (MRSI) significantly improved Thai EFL university students' reading comprehension. The experimental group performed better than the control group on the posttest and showed greater gains from pretest to posttest, indicating that MRSI was more effective than conventional reading instruction. The qualitative findings also showed that learners generally had positive attitudes toward MRSI. They reported increased confidence, stronger motivation, clearer direction during reading, and greater strategic independence. At the same time, the study found that some learners experienced difficulties with MRSI, such as confusion with multiple strategy steps, increased cognitive load, slower reading, and dependence on teacher or peer support. These challenges indicate that MRSI should be implemented with careful scaffolding, clear modeling, and sufficient practice so that learners can gradually internalize the strategies and use them independently. The quantitative improvement and qualitative evidence of increased confidence, clearer direction, and strategic independence together suggest that MRSI works not only as a set of reading techniques, but also as a self-regulated learning process that helps learners become more active and strategic readers.

Taken together, these findings suggest that MRSI has important implications for both theory and classroom practice in EFL reading instruction. The following sections discuss the implications for theory, practical implications for educators and instructional designers, and limitations and areas for future research.

### 1. Implications for Theory

Theoretically, the findings support the view that reading comprehension is closely related to learners' ability to regulate their own reading processes. The quantitative improvement in reading comprehension, together with qualitative evidence of increased confidence, clearer strategic direction, and greater independence, suggests that MRSI functions not only as a set of reading techniques but also as a self-regulated learning process. Through planning, monitoring, and evaluating, learners become more aware of how they read and how they can manage comprehension difficulties. Therefore, this study contributes to the theoretical understanding of metacognitive reading by showing how strategy instruction can support both comprehension development and self-regulated reading among Thai EFL university students.

### 2. Practical Implications for Educators and Instructional Designers

For educators, this study highlights the importance of incorporating MRSI into EFL reading classrooms. The findings show that learners benefit from a structured approach to reading that includes planning before reading, monitoring during reading, and evaluation after reading. These stages help learners focus on key ideas, repair comprehension when difficulties arise, and reflect on their understanding after reading.

The study also emphasizes the importance of scaffolding and guided practice, especially for learners who are unfamiliar with strategic reading. Since some learners reported confusion, slower reading, and the need for teacher support during the early stages of strategy use, teachers should introduce strategies gradually, model how to use them clearly, and provide repeated opportunities for guided and independent practice.

The finding that students with different proficiency levels experienced MRSI differently also has important instructional implications. Teachers should adjust the level of support according to learners' proficiency. Low-proficiency learners may need more explicit modeling, simplified strategy steps, and close teacher guidance, while medium-proficiency learners may benefit from guided practice that helps them connect ideas and monitor comprehension more independently. High-proficiency learners may need more challenging reading tasks and opportunities to apply strategies flexibly, evaluate their own comprehension, and support peer discussion without becoming overly dependent on translation.

Moreover, the findings suggest that MRSI should be integrated with meaningful reading activities such as previewing, summarizing, rereading, checking understanding, and discussing main ideas across paragraphs. These practices support not only comprehension performance but also learners' strategic awareness and self-regulation. Additionally, curriculum designers may consider embedding MRSI into university reading courses to help learners build stronger habits of self-regulated reading over time.

### 3. Limitations and Areas for Future Research

While this study demonstrates the effectiveness of MRSI in improving reading comprehension, several limitations should be acknowledged. First, the study employed a quasi-experimental design using two intact classes, which may limit the generalizability of the findings. Future research could adopt a true experimental design with random assignment to strengthen the validity of the results.

Second, the study was conducted with Thai EFL university students in one institutional context. Therefore, the findings may not fully represent learners in other universities, disciplines, or educational levels. Future studies could investigate the effectiveness of MRSI in other contexts to determine whether similar outcomes can be achieved across broader learner populations.

Third, the intervention lasted 10 weeks. Although the findings showed significant improvement in reading comprehension and generally positive attitudes toward MRSI, a longer intervention period may provide deeper insight into how metacognitive strategy use develops and becomes internalized over time. Future longitudinal studies could examine whether learners sustain or further develop their strategy use after instruction ends. In addition, future studies could explore learners' difficulties with MRSI in more depth, particularly issues related to cognitive load, confusion with multiple strategy steps, slower reading, and dependence on teacher or peer support.

## Acknowledgement

The authors would like to declare that we used two AI tools, ChatGPT and QuillBot, solely for proofreading and language-editing purposes. Specifically, ChatGPT was used to identify and correct grammatical errors, while QuillBot assisted with word choice and sentence refinement to enhance readability. Additionally, we would like to emphasize that all content in our paper is entirely our original work. No AI tools, software, or services were used to create the content. Data derived from previous studies have been acknowledged in the text, and all references used have been cited appropriately.

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