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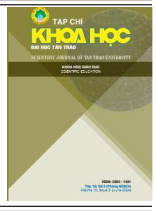

THE EFFECTS OF METACOGNITIVE STRATEGY INSTRUCTION ON STUDENTS' READING PROFICIENCY: A QUASI-EXPERIMENTAL DESIGN

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Abstract:

The primary objective of this study was to look into the effect of metacognitive strategy training (MSI) on students' reading ability. The study used a quasi-experimental method and comprised two cohorts of students: the experimental group (EG) was assigned to receive explicit MSI, whereas the control group (CG) did not. The participants were given pre- and post-tests to determine their degree of reading proficiency. Descriptive statistics, correlation analysis, the paired samples t-test, and confidence interval analysis were used to evaluate the data. The findings demonstrated a considerable increase in the experimental group's (EG) reading abilities, as shown by a higher average score on the post-test compared to the pre-test. The control group, on the other hand, showed no discernible gain in reading skills. This study's results give empirical evidence in support of the premise that there is a positive relationship between MSI and students' reading ability. The research underlines the need of educators adopting MSI into their teaching approaches, as well as the importance of offering explicit training in these techniques. The implications of the findings for the design of effective literacy programs are crucial for educational policymakers, emphasizing the need for more research into the long-term effects of MSI on reading proficiency.

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Từ khóa:

Đào tạo Chiến lược Siêu nhận thức (MSI), thiết kế bán thực nghiệm, khả năng đọc hiểu.

Tóm tắt

Nghiên cứu điều tra tác động của việc đào tạo chiến lược siêu nhận thức (MSI) đối với khả năng đọc hiểu của sinh viên. Nghiên cứu sử dụng phương pháp bán thực nghiệm trên hai nhóm học sinh: nhóm thí nghiệm (EG) được hướng dẫn sử dụng MSI, trong khi nhóm kiểm soát (CG) được giảng dạy theo phương pháp truyền thống. Sinh viên của cả hai nhóm phải bài kiểm tra trước và sau để xác định mức độ thành thạo trong khả năng đọc hiểu. Thống kê mô tả, phân tích tương quan, kiểm định t-test và phân tích khoảng tin cậy được sử dụng để đánh giá dữ liệu. Kết quả cho thấy sự tăng đáng kể về khả năng đọc hiểu của nhóm thí nghiệm, được thể hiện qua điểm trung bình cao hơn trong bài kiểm tra sau so với bài kiểm tra trước. Ngược lại, nhóm kiểm soát không có sự tiến bộ rõ rệt về kỹ năng đọc. Kết quả của nghiên cứu này ủng hộ giả thuyết rằng có mối quan hệ tích cực giữa MSI và khả năng đọc hiểu của sinh viên. Nghiên cứu này nhấn mạnh kiến thức cơ bản về MSI và sự cần thiết khi giảng viên áp dụng MSI vào phương pháp giảng dạy. Nghiên cứu cũng chỉ ra tầm quan trọng của các nghiên cứu trong tương lai về tác động dài hạn của MSI lên khả năng đọc hiểu.

1. Introduction

The demand for English language competency in Vietnam has continually grown (Mui & Quyen, 2021; Ngoc, 2022), particularly in the context of international language tests like the International English Language Testing System (IELTS). The IELTS reading part presents considerable challenges for Vietnamese pupils due to its distinctive structure and demanding criteria. As a result, there is a rising interest in researching effective teaching practices that help enhance Vietnamese students' IELTS reading abilities.

According to Mui and Quyen (2021), IELTS reading assessments have explicitly been used to

assess students' comprehension and time management abilities in Vietnam. First, IELTS reading passages are lengthy and complex, covering a wide range of subjects and utilizing technical language. This may be challenging for students who do not have enough language or topic expertise (Ahmadian et al., 2016). Reading abilities are necessary to grasp the passage's key ideas, supporting information, and arrangement. Second, time is running out. Questions are included in the IELTS reading exam sections. Students must read chapters fast and respond to questions. The need to read rapidly may impair understanding. Students may find it challenging to dedicate enough time to each chapter and question. The range of question types makes the IELTS reading portion more challenging. Multiple-choice, matching, and sentence completion questions, among others, must be answered by students. Students may struggle to change their approach to different question kinds while remaining engaged in class. According to Ahmadian et al. (2016), reading passages on the IELTS often include diversions, incorrect information, or competing opinions. This purposeful inclusion of difficult aspects challenges students' abilities to discriminate between useful and irrelevant material, find hidden meanings, and critically analyze the text. Complexity may impede student learning and make it more difficult to answer questions. Finally, IELTS reading anxiety and performance pressure may impact students' overall performance. Anxiety may interfere with focus, reading speed, and understanding, making it difficult for children to understand and react to questions.

Understanding students' IELTS reading problems is essential for generating effective teaching techniques and solutions. Metacognitive techniques are a novel way to teaching (Anderson, 2003; Ha, 2022; Iwai, 2011; Meniado, 2016). To keep one's thoughts under control throughout the study, one employs metacognitive methods. These tools help students plan, evaluate, and enhance their reading comprehension (Mokhtari et al., 2018; Lawrence, 2009). The impact of metacognitive strategy instruction on IELTS reading comprehension must be investigated. Students may increase their reading comprehension by employing metacognitive tactics to monitor and manage their cognitive processes while reading. This research might provide insight on the impact of metacognitive strategy education on student reading comprehension. In terms of reading comprehension, the study compares metacognitive-strategy training to regular reading instruction.

2. Literature review

2.1. Metacognition

Metacognition is the knowledge and understanding of one's cognitive processes, such as thinking, learning, and problem solving (Kimmin & Rahman, 2010; Pammu et al., 2014; Scoot, 2008). It comprises the ability to think about and regulate one's own ideas, information, and tactics in order to increase learning and achieve certain goals. Metacognition is essential for self-directed learning, critical thinking, and problem-solving abilities.

According to Shen (2003), metacognitive processes are made up of two main components: metacognitive knowledge and metacognitive control. Furthermore, Yaemtui (2015) asserts that metacognitive knowledge is the understanding of how a person learns and thinks. It entails being aware of one's own assets and limits, being aware of different learning methodologies, and being aware of task requirements and the circumstances that promote successful learning. Metacognitive regulation, on the other hand, is the active monitoring and control of one's cognitive processes (Zhang & Seepho, 2013; Zare-ee, 2007; Wang et al. (2009); Chen & Chen, 2015). It offers the ability to plan, set goals, track progress, and make adjustments based on feedback. Self-assessment, self-reflection, and self-evaluation are also necessary for monitoring one's understanding and learning results (Anderson, 2003).

Metacognition is a useful tool for pupils since it allows them to participate actively in their own

learning. Students who are aware of their thinking and learning techniques may make educated decisions about how to approach a problem, choose acceptable solutions, and assess their progress. Metacognition allows pupils to realize when they are struggling or facing difficulties, enabling them to utilize the most effective ways to overcome barriers.

2.2. Theoretical frameworks of metacognitive strategy use

Two seminal theories—O'Malley and Chamot (1990) and Oxford (1990)—have made significant contributions to the understanding of how metacognitive strategies are implemented during language acquisition. These theoretical perspectives prioritize the role of metacognition in the process of acquiring a new language and offer frameworks for instructing metacognitive strategies. A simplified comparison of Oxford (1990) and O'Malley and Chamot (1990) regarding the application of metacognitive strategies in language acquisition is presented in Table 1.

Table 1. Metacognitive strategy use framed by Oxford (1990) and O'Malley and Chamot (1990)

	Oxford (1990)	**O'Malley and Chamot (1990)**
Theory	Metacognitive strategy use	Cognitive-affective model of learning
Components	Planning strategies Monitoring strategies Evaluating strategies	Cognitive strategies Metacognitive strategies Socio-affective strategies
Examples	Setting goals Organizing tasks Selecting learning resources Summarizing main ideas Self-assessment Reflecting on learning outcomes	Making connections Inferencing Note-taking Goal setting Self-questioning Seeking help from peers/ teachers Managing anxiety Seeking opportunities for language use
Focus	Learners' awareness and control of cognitive processes	Learners' cognitive and affective aspects of language learning
Application	Enhancing metacognitive skills in language learning	Developing strategic and autonomous language learners
Benefits	Improved comprehension and learning outcomes Transferability to various tasks and subject areas	Enhanced learning outcomes Increased learner autonomy Motivated and confident learners

The metacognitive strategy theory, as postulated by Oxford in 1990, functions as the foundational framework for this inquiry. In language acquisition, the Oxford theory (1990) emphasizes the significance of awareness and control over cognitive processes. By integrating metacognitive strategies, individuals can proactively participate in the processes of learning planning, monitoring, and evaluation, which ultimately leads to improved comprehension and superior learning outcomes. Classifying metacognitive strategies into planning, monitoring, and evaluating components, Oxford's (1990) theory offers a comprehensive understanding of their application. The objectives of the study, which are to investigate the impact of metacognitive strategy instruction on students' reading comprehension in the context of the IELTS, align well with this framework. By applying Oxford's theory, this study can investigate the impact of metacognitive

strategy usage on students' reading proficiency and make a scholarly contribution to the current body of knowledge regarding the application of metacognitive strategies in language acquisition.

2.3. Metacognitive Strategy Instruction in reading classes

Metacognitive Strategy Instruction (MSI) in reading classes involves instructing pupils on particular strategies that enhance their metacognitive control and awareness while reading (Chen & Chen, 2015; Hieu & Huong, 2021; Wang et al., 2009; Pammu et al., 2014; Ngoc & Nhung, 2022). The aim is to furnish pupils with the requisite understanding and abilities to develop into more autonomous, strategic, and proactive readers. MSI provides students with an array of metacognitive strategies that empower them to assess their own comprehension, control their cognitive processes, and formulate well-informed choices concerning their reading methodology. Self-monitoring, goal-setting, activating prior knowledge, making predictions, posing questions, summarizing, and visualizing are some of these techniques.

Providing opportunities for guided practice and instructing students explicitly on how to implement these strategies is an essential element of MSI (Phuong, 2022; Minh & Nga, 2019). Educators exemplify the utilization of metacognitive strategies, manifest their advantages, and impart precise directives regarding their efficient implementation. Students gradually assimilate and autonomously execute these strategies by means of scaffolded instruction. Iwai (2011) explains that MSI also entails promoting self-evaluation and metacognitive reflection. It is highly recommended that students assess their reading experiences, comprehension, and the effectiveness of their strategies. Engaging in this reflective practice enables students to discern areas that require improvement and adapt their reading strategies accordingly.

The benefits of incorporating MSI into literacy courses have been well-documented (Chen & Chen, 2015; Ha, 2022; Duc & Tinh, 2011; Scoot, 2008; Zhang & Seepho, 2013). To begin with, it enhances students' comprehension through the provision of a comprehensive repertoire of effective reading strategies. These methodologies aid learners in actively participating in the material, establishing associations, assessing their understanding, and dispelling misunderstandings. Secondly, MSI provides students with the authority to manage their own education. Students develop a greater sense of autonomy and responsibility for their own education when instructed in the process of establishing goals and formulating strategic choices concerning their reading methodologies. Beyond the classroom, MSI also promotes the dissemination of acquired knowledge and abilities. Students are capable of applying metacognitive strategies to a wide range of reading assignments and subject matters as they develop proficiency in their implementation. This transferability assists students in becoming more self-reliant readers and learners and promotes lifelong learning. To effectively implement MSI, educators must furnish explicit instruction, guided practice, and opportunities for independent application. Systematic formative assessments can serve as a means to track the progress of students and offer personalized feedback with the intention of enhancing their metacognitive capabilities.

As a result, MSI is an efficacious approach to augment reading comprehension and cultivate metacognitive consciousness in the classroom. MSI enables students to develop into independent, proactive, and strategic readers through the instruction of targeted strategies and the promotion of introspection. This approach not only enhances students' literacy abilities but also provides them with practical competencies that transcend the confines of the educational setting.

2.4. Current situation of teaching reading in Vietnam

In Vietnamese English language training, MSI is increasingly shown to improve language learning results. Student knowledge and control over their cognitive processes allows them to organize, monitor, and analyze their learning using metacognitive techniques. To meet the increased need for English language skills, educators are exploring new ways to teach metacognition. Metacognitive methods help students become autonomous, deliberate, and reflective language learners who can handle language acquisition's difficulties. Given these trends, it is vital to examine MSI in the English classroom and its impact on language ability and learning experience in Vietnam. This research examines how metacognitive strategy education affects English language learning results, specifically reading comprehension. A thorough analysis of MSI in Vietnamese universities may guide pedagogical approaches and improve English language training.

Duc and Tinh (2011) examined the cognitive and metacognitive methods employed most often by 196 Can Tho University English majors during reading. According to this research, students reported using cognitive and metacognitive reading methods via the questionnaire. Most pupils used "understanding" cognitive technique. This implies that pupils concentrate on reading comprehension. The research indicated that most students used metacognitive planning methods at level 4, indicating high frequency. This implies that metacognitive reading practices increase students' awareness, especially English majors. Their results suggest metacognitive tactics for English majors' reading comprehension education. They stressed the need of teaching students metacognitive skills to increase comprehension and English language ability.

Minh and Nga (2019) examined Kien Giang University Vietnamese non-English majors' reading comprehension techniques. The poll included 117 Economics, Accounting, and Construction sophomores. The descriptive results showed Vietnamese non-English majors used several reading strategies. Students mostly used cognitive, metacognitive, and support reading techniques. At the maximum frequency, students reread the material to have a better grasp, but they couldn't identify its kind. These data show that Vietnamese non-English majors use many reading techniques for comprehension. Cognitive approaches emphasize text processing. The decreasing usage of metacognitive and support strategies suggests higher-level thinking and assistance may be improved.

Hieu and Huong (2021) examined undergraduate English majors' problem-solving, global, and support reading techniques. 123 Hong Bang International University students completed the study's online survey. Researchers classified readers as outstanding, ordinary, or bad using a TOEIC-like reading comprehension exam. Research focused on crucial concerns. Academic literature reading skills were used by most pupils. Problem-solving reading techniques were most popular, followed by support and global. Students knew their reading methods. Second, more women than men used coping methods. Literacy teaching and student support varies by gender. A research indicated that kids' reading competence may predict metacognition. Reading methods were used more by higher-level readers. This emphasizes the necessity to tailor reading and metacognitive awareness to student ability levels. The authors suggested teaching Vietnamese pupils all three reading patterns to boost their reading abilities. Student metacognition and formal reading comprehension increase with this method.

Ha (2022) examined how Vietnamese non-English major tertiary students read English level 3 texts and how teaching affected them. Surveys, semi-structured interviews, and learning reflections were employed in the study. Cognitive and non-cognitive advantages of the teaching

were found. Cognitively, students reported increased reading strategy awareness, repertoire, fluency, and scores. Students reported increased reading confidence, motivation, and autonomy non-cognitionally.

Ngoc and Nhung (2022) examined how high- and low-achieving Vietnamese university Faculty of Foreign Languages students employ metacognitive reading methods to understand English texts. The MARSI Scale questionnaire and semi-structured interviews were used in a hybrid study technique. Forty-two English majors completed the questionnaire, and high- and low-achieving group representatives participated in semi-structured interviews for further information. Studies found that students used metacognitive reading strategy groups for comprehension reading differently. The data also showed how often high- and low-achieving students used each metacognitive reading method.

Phuong's (2022) study examined how frequently Vietnam National University of Agriculture first-year students use metacognitive reading approaches to improve. The findings showed that metacognitive reading approaches such preliminary organizing, focused attention, selective attention, self-monitoring, and self-assessing were seldom used. The results suggest that teaching reading methods, particularly metacognitive reading strategies, may raise students' awareness of reading approaches while comprehending and responding text questions.

Metacognitive reading techniques and reading comprehension in non-English majors at Dong Nai Technology University in Vietnam were explored by Ngoc (2022). The study comprised 70 students and collected quantitative and qualitative data. Student metacognitive reading techniques were modest, with problem-solving and global strategies being the most and least used. skilled readers used metacognitive methods more often, effectively, and appropriately than less skilled readers. The research recommends metacognitive reading practices for teachers and students in second language learning.

The preceding research have helped us understand students' metacognitive reading methods, including their frequency, kinds, and perspectives. A study vacuum exists on how metacognitive methods affect pupils' reading competence. Some research have shown a favorable link between metacognitive strategy usage and reading performance, but few have studied how metacognitive strategy education affects reading competency. This research compares the experimental group's reading competency to a control group that did not receive metacognitive strategy education to fill this gap. This will help establish evidence-based teaching techniques and improve metacognitive strategy education.

3. Methodology

3.1. Research design

This quasi-experimental study on metacognitive strategies in IELTS reading classes was limited by logistics. Lack of random assignment is a serious concern. Randomly allocating individuals to treatment groups may not be ethical or feasible. Someone may have signed up for IELTS reading classes on their own, or random assignment was difficult for other reasons. A quasi-experimental technique might study MSI's effects in such situations. Also, quasi-experimental designs often mimic classroom circumstances. The research examines treatments' effectiveness in real-world circumstances like IELTS reading classes. Quasi-experimental research may help researchers comprehend metacognitive strategies' effects in IELTS reading courses.

Ethics are equally crucial when choosing a quasi-experimental design. Randomly assigning pupils to control and experimental groups in various educational contexts raises ethical concerns. Abstaining from helping others may be sinful. The intervention may be given to all

participants in a quasi-experimental manner and compared across groups to determine its efficacy. This method allows ethical consideration and investigation of the intervention.

Quasi-experimental methods may also improve research generalizability. Compared to highly controlled experimental procedures, adding a broader range of people and scenarios may increase the applicability of study findings to real-world IELTS reading classrooms and a bigger student population. Metacognitive strategies will help the study's findings affect the classroom.

Finally, quasi-experimental designs may work with existing group structures. Institutional or social divides may have divided participants. Researchers might utilize these categories in a quasi-experimental approach to study metacognitive intervention effects.

Quasi-experimental methods may reveal the effects of educational interventions in real life, however they are less trustworthy than randomized controlled trials. Researchers should be aware of quasi-experimental technique limitations, interpret and report data carefully, and consider possible sources of observed effects. Overall, quasi-experimental research on MSI's efficiency in IELTS reading sessions is practical and moral.

3.2. Setting and participants

The current investigation is now being conducted at the esteemed Hanoi University of Science and Technology (HUST). A total of 63 students, including 47 men and 16 females, were included in the research study. HUST engages in a diverse range of academic disciplines and intellectual pursuits. The participants in IELTS reading classes are those who voluntarily enroll in the program. Students choose for these sessions with the intention of enhancing their reading competence and aiming to get a band score of 5.5 on the International English Language Testing System (IELTS) reading assessment. The participants were placed into two groups: the experimental group (EG) consisting of 32 students, and the control group (CG) consisting of 31 students.

The inclusion of individuals from diverse demographics in this study has the potential to enhance its outcomes by including a wide range of experiences and perspectives. The inclusion of participants with diverse academic backgrounds in the research may contribute to the study's findings in two key domains: reading comprehension and learning processes.

3.3. Data collection instruments

This research looks at how different metacognitive techniques improve IELTS reading comprehension using pre- and post-tests. The effectiveness of metacognitive techniques may be measured by comparing participants' pre- and post-intervention reading test results.

The exams were given by the researcher in the IELTS reading format, which is a widely regarded means of standardizing the assessment of English language skills. To standardize the test's structure, Sam McCarter and Norman Whitby's "Improve Your IELTS Reading Skills" and New Channel International Education Group's "IELTS Reading Recent Actual Test" were used. This is official IELTS reading material, written to the same standards and difficulty level as the test. The reading component of the IELTS is usually broken into five sections, each with its unique reading passage. Participants must answer forty questions based on the books. Reading the materials and answering relevant questions will take up 60 minutes of the test time. Because this format closely mirrors the real IELTS reading examination, the test is both accurate and instructive. Using this standardized test structure, researchers may assess participants' reading skills in a way similar with the globally known IELTS reading exam. This technique offers a consistent foundation for assessing the influence of MSI on IELTS reading performance and allows for direct assessment of participants' reading comprehension abilities.

Using pre- and post-tests based on the IELTS reading format and received from reliable sources ensures the data gathering method's overall legitimacy and validity. Participants' reading abilities may be properly tested in a short amount of time due to the combination of varied texts and question types. Researchers may more precisely examine the influence of participants' metacognitive tactics on their performance in the IELTS reading portion thanks to this standardized procedure.

3.4. The procedure of the research

This study examines the effectiveness of integrating metacognitive strategies into IELTS reading instruction. Here is how it operates:

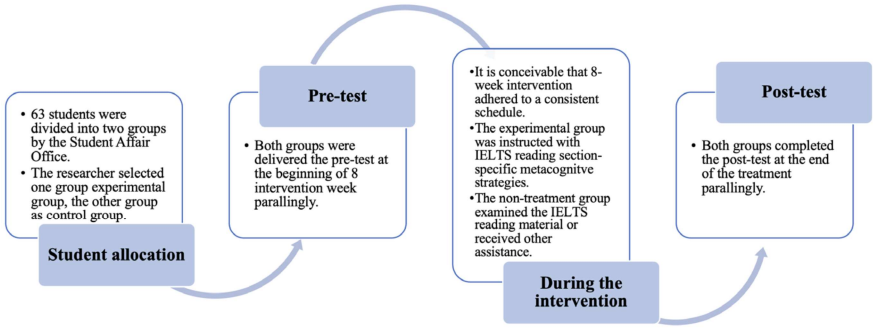

Figure 1. The process of student allocation and data collection

After collecting the post-test data, the researcher conducted the process of data analysis and interpretation. Overall, the study follows a systematic procedure and this rigorous approach ensures a comprehensive investigation of the effectiveness of metacognitive strategies.

3.5. Data analysis

Participants' pre- and post-test results were analyzed using SPSS 25.0. For data summarization, descriptive statistics were produced. Statistics like means, standard deviations, and others were used to examine pre- and post-test data. These measurements of central tendency and dispersion helped describe data and illuminate pre- and post-intervention performance. Pre- and post-test data were compared using the paired samples t-test within each cohort. We could establish whether each cohort's two intervals differed using this statistical method. The paired samples t-test determined if the intervention increased literacy levels statistically.

Standardization ensures research assessments' reliability and validity. It entails creating standard exams. Use reputable sources and academic publications connected to the researched concept to validate reading proficiency evaluations' reliability and validity. These sources assist test item creation and assure industry-standard information and presentation. Study tests were homogenized from "Improve Your IELTS Reading Skills" by Sam McCarter and Norman Whitby and "IELTS Reading Recent Actual Test" by New Channel International Education Group. Thus, such exams ensured uniformity.

Before assessing people, pilot assessments are needed. This takes comparing a few people. Pilot testing finds test item flaws and ambiguities. Researchers may check question clarity and relevance to ensure participants can understand and respond appropriately. Pilot testing permits test item change to increase reliability and validity. Ten students were randomly chosen to take the pilot exams at the start of the intervention in this research. Two lecturers gathered and examined test data and changed them to remove errors and ambiguities.

All participants must also finish the exams in the same time and manner to guarantee consistency. Test administration consistency assures that all test takers experience the same circumstances. This eliminates bias and mistake from compromising outcomes' reliability and validity. Standardized test administration techniques improve pre- and post-test data reliability and validity. All students had to take the examinations in class at the allotted time under two instructors.

3.6. Research Hypotheses

As indicated, the efficacy of the MSI is investigated by comparing post-test scores between the EG and CG. The hypothesis predicts that EG will outperform CG on the post-test after receiving the metacognitive intervention. This hypothesis is based on the belief that incorporating metacognitive methods into the intervention will enhance the literacy skills of the target population. The EG, which will receive instruction and practice in metacognitive skills such as comprehension monitoring, self-evaluating, and goal planning, is predicted to have enhanced reading comprehension.

4. Findings and discussions

A paired samples t-test was deployed to correlate the outcomes of two groups in terms of pre- and post-tests. Table 2 demonstrates the comparison within Pair 1 (pre- and post-test of the EG) and Pair 2 (pre- and post-test of the CG).

Table 2. Descriptive statistics and pair-sample t-tests correlate pre- and post-tests of EG and CG.

Paired Samples Statistics					
		Mean	**N**	**Std. Deviation**	**Std. Error Mean**
Pair 1	Pre_EG	4.2500	32	.64758	.11448
	Post_EG	4.9063	32	.61484	.10869
Pair 2	Pre_CG	4.0000	31	.75277	.13520
	Post_CG	4.0484	31	.63711	.11443

Paired Samples Correlations				
		N	**Correlation**	**Sig.**
Pair 1	Pre_EG & Post_EG	32	.648	.000
Pair 2	Pre_CG & Post_CG	31	.573	.001

Paired Samples Test									
		Paired Differences					**t**	**df**	**Sig. (2-tailed)**
Mean		**Std. Deviation**	**Std. Error Mean**	**95% Confidence Interval of the Difference**					
				Lower	**Upper**				
Pair 1	Pre_EG - Post_EG	-.65625	.53033	.09375	-.84745	-.46505	-7.000	31	.000
Pair 2	Pre_CG - Post_CG	-.04839	.65006	.11675	-.28683	.19006	-.414	30	.682

The mean pre-test score for Pair 1 was 4.250, with a standard deviation of 0.64758. Similarly, the mean post-test score was 4.9063, with a standard deviation of 0.61484. The results indicate a favorable and statistically significant association between the pre- and post-test scores of the Pre_EG group ($r = 0.64$, $p = 0.001$). The results of the paired samples t-test indicated a significant difference between

the pre- and post-test scores of the Pre_EG group ($t(31) = -7.000$, $p < 0.001$). The 95% confidence range for the mean difference was calculated to be between -0.84745 and -0.46505, with a corresponding confidence level of 95%. The findings indicate that the use of the MSI had a substantial positive impact on the reading performance of the experimental group (EG).

The mean pre-test score for Pair 2 (Pre_CG and Post_CG) was 4.000 with a standard deviation of 0.75277. Similarly, the mean post-test score was 4.0484 with a standard deviation of 0.63711. The association between the pre- and post-test scores of the Pre_CG group exhibited a favorable and statistically significant relationship ($r = 0.573$, $p = 0.001$). On the other hand, the statistical analysis of a paired samples t-test indicated that there was no statistically significant difference seen between the pre-test and post-test scores of the control group ($t (30) = -0.414$, $p = 0.68$). The 95% confidence interval for the mean difference was estimated to be between -0.28683 and 0.19006, with a mean difference of -0.04839 and a standard error of 0.11675. The results suggest that the control group did not exhibit any noticeable improvement in their reading proficiency.

The data demonstrates that the implementation of the MSI had a substantial positive impact on the reading performance of the experimental group (EG). In contrast, there was no significant improvement seen in the literacy levels of the Pre_CG and Post_CG. The findings of this study provide empirical evidence in support of the hypothesis that the implementation of a metacognitive intervention yielded more benefits for readers in the experimental group compared to those in the control group.

When examining these findings in relation to prior research, it is evident that these results align with the findings of Ngoc's (2022) study, which also saw a significant improvement in reading scores among students who were exposed to metacognitive strategy teaching. Both studies provide evidence supporting the notion that the use of metacognitive methods has a beneficial impact on individuals' reading proficiency.

Nevertheless, the findings presented in this study diverge from the research conducted by Ha (2022), Phuong (2022), Ngoc and Nhung (2022), Hieu and Huong (2021), Minh and Nga (2019), and Duc and Tinh (2011). These aforementioned studies primarily focused on examining the various types of metacognitive strategies utilized by students and their subjective perceptions, rather than delving into the effects of these strategies on reading proficiency. Hence, the present research aims to fill a gap in the existing literature by providing empirical support for the effectiveness of metacognitive strategy education in improving reading performance.

It is crucial to acknowledge that the individuals, setting, and particular research methodologies used in each study may differ, potentially leading to divergent outcomes. However, the consistent findings of the present study and Ngoc (2022) with regards to the favorable effects of metacognitive strategy teaching contribute to the existing body of research that supports the effectiveness of these treatments in enhancing reading competence.

5. Conclusions, limitations, implications, and recommendation

This research suggests that metacognitive strategy instruction (MSI) may improve students' reading skills. EGs who got MSI had statistically significant improvements in reading scores, but CGs did not. These data suggest explicit metacognitive strategy education to enhance reading. The conclusions of this study have major consequences for literacy instructors, administrators, and researchers. This study's small sample size may restrict its application to broader populations. The research was also done in a specific cultural and language environment, which may restrict its generalizability. Additional research with bigger and more varied populations is needed to corroborate this study's results and

examine MSI's impact in other circumstances. This study suggests emphasizing metacognitive schooling to improve reading skills. When creating literacy initiatives and policies, policymakers should emphasize metacognition. The long-term effects of MSI on pupils' reading skills and the benefits of combining MSI with other literacy therapies should be studied. Based on this research, instructors should explicitly teach metacognitive skills. Instructors may help students develop metacognitive abilities including self-reflection and assessment. Policymakers may help schools adopt MSI programs by providing teachers with tools and training. Finally, MSI's impact on student subgroups and integration with other literacy treatments should be studied.

REFERENCES

Ahmadian, M., Poulaki, S. & Farahani, E. (2016). *Reading strategies used by high scoring and low scoring IELTS candidates: A think-aloud study*. Theory and Practice in Language Studies, 6(2), 24-37. DOI:10.17507/tpls.0602.25

Anderson, N. J. (2003). *Metacognitive reading strategies increase L2 performance*. The Language Teacher, 27, 20-22.

Chen, K. T. -C., & Chen, S. C. -L (2015). *The use of EFL reading strategies among high school students in Taiwan*. The Reading Matrix: An International Online Journal, 15(2), 156-166.

Duc, N. T. & Tinh, T. H (2011). *The level of use of cognitive and metacognitive reading strategies of English major students*. Can Tho University Journal of Science, 19b, 104-109.

Ha, H. T. L (2022). *Explicit reading strategy instruction for Vietnamese non-English major tertiary students*. Doctor of Philosophy Thesis. University of Foreign Languages, Hue University.

Hieu, D. M. & Huong, P. T. L (2021). *Metacognitive awareness of reading strategies on second language Vietnamese undergraduates*. Arab World English Journal, 12(1), 90-112. DOI: https://dx.doi.org/10.24093/awej/vol12no1.7

Iwai, Y (2011). *The effects of metacognitive reading strategies: Pedagogical implications for EFL/ESL teachers*. The Reading Matrix, 11 (2), 150, 159.

Kummin, S. a., & Rahman, S (2010). *The relationship between the use of metacognitive strategies and achievement in English*. Procedia - Social and Behavioral Sciences, 7, 145-150.

Lawrence, W (2009). *Chinese senior high school EFL students' metacognitive awareness and reading-strategy use*. Reading in a foreign language, 21(1), 37 - 59.

Meniado, J. C (2016). *Metacognitive reading strategies, motivation, and reading comprehension performance of Saudi EFL students*. English Language Teaching, *9*(3), 117-129. DOI:10.5539/elt.v9n3p117.

Minh, N. T. N. & Nga, N. T. (2019). *An investigation into reading strategies used by Vietnamese non-English major students at Kien Giang University*. Ho Chi Minh City Open University Journal of Science, *9*(2), 100-107.

Mokhtari, K., Dimitrov, D. M., & Reichard, C. A. (2018). *Revising the metacognitive awareness of reading strategies inventory (MARSI) and testing for factorial invariance.* Studies in Second Language Learning and Teaching, *8*(2), 219-246. http://dx.doi.org/10.14746/ssllt.2018.8.2.3.

Mui, P. T. & Quyen, V. T (2021). *IELTS reading test-taking strategies employed by high score candidates in academic training module*. TNU Journal of Science and Technology. *226*(3), 64-71. DOI: https://doi.org/10.34238/tnu-jst.4107

Ngoc, N. T. K (2022). *Metacognitive strategies on reading English texts of non-English majored*

students at Dong Nai Technology University, Vietnam: A mixed design. Journal of English Language Teaching and Applied Linguistics, *2*(3), 56-70. Doi:10.32996/jeltal.2022.4.3.6.

Ngoc, D. T. B. N. & Nhung, V. T (2022). *Metacognitive reading strategies used by English-majors at a university in Vietnam*. VNU Journal of Foreign Studies, 38(5), 180-196.

O'Malley, J. M., & Chamot, A. U (1990). *Learning strategies in second language acquisition.* Cambridge, UK: Cambridge University Press.

Oxford, R. L (1990). *Language learning strategies: What every teacher should know.* New York: Newbury House/Harper & Row.

Pammu, A., Amir, Z., & Maasum, T. N. R. T. M. (2014). *Metacognitive reading strategies of less proficient tertiary learners: A case study of EFL learners at a public university in Makassar, Indonesia*. Procedia-Social and Behavioral Sciences, 118, 357-364. https://doi.org/10.1016/j.sbspro.2014.02.049.

Phuong, T. T (2022). *Mức độ sử dụng các chiến lược đọc hiểu siêu nhận thức của sinh viên: Nghiên cứu trường hợp sinh viên năm thứ nhất hệ tiên tiến - chất lượng cao tại Học viện Nông nghiệp Việt Nam*. Tạp chí Giáo dục, 22(8), 41-46.

Scoot, B. M (2008). *Exploring the effects of student perceptions of metacognition Across Academic Domains*. Unpublished Doctoral Dissertation. Indianapolis, IN: Graduate Faculty of the Indiana University.

Shen, H.-J (2003). *The role of explicit instruction in ESL/EFL reading*. Foreign Language Annals, *36*(3), 424-433.

Wang, J., Spencer, K., & Xing, M (2009). *Metacognitive beliefs and strategies in learning Chinese as a foreign language*. System, 37(1), 46-56.

Yaemtui, W (2015). *Investigating reading strategies utilized by able English users and less able English users of Thai EFL students*. International Forum of Teaching and Studies, 11(1), 55-68.

Zare-ee, A (2007). *The relationship between cognitive and meta-cognitive strategy use and EFL reading achievement*. Journal of Applied Psychology, *2*(5), 105-119.

Zhang, L., & Seepho, S (2013). *Metacognitive strategy use and academic reading achievement: Insights from a Chinese context*. Electronic Journal of Foreign Language Teaching, 10(1), 54-69.