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Metacognitive Reading Strategy Usage among Vietnamese University Students and its Relationship with Reading Comprehension Performance

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Abstract

The concern about learners' use of reading strategies during the reading process for better reading comprehension prompted this investigation, especially at the research site where reading skills play a pivotal role in the student's overall learning process. The main aims of the study included examinations of (1) the frequency of metacognitive reading strategy usage (MRSU), (2) differences among students of IT, Economics, and English Studies in MRSU, and (3) the relationship between MRSU and final reading test scores. The study utilized the knowledge monitoring assessment (KMA) theory, a framework used to evaluate an individual's ability to accurately judge their knowledge and understanding, to explain the MRSU-reading score relationship. An explanatory sequential mixed methods design was conducted on 297 participants who responded to the Survey of Reading Strategies (SORS) in the first phase and ten respondents in semi-structured interviews in the second. The quantitative data analysis revealed nearly 60% of moderate reading strategy users, statistically significant differences among IT, Economics, and English Studies majors in MRSU, and no statistically significant relationship between MRSU and reading test scores. Further explanations from qualitative information disclosed that reading test scores were affected by multiple factors, both internal and external, and this result is a practical contribution of the study. No statistically significant relationship between MRSU and reading scores is a theoretical contribution of the study. This finding disproves the KMA theory, which proposes that individuals' accurate self-assessment can predict better performance. Pedagogical implications for instructors and students were also discussed.

INTRODUCTION

Reading is an imperative skill that leads readers to a plethora of knowledge for academic success (Gaith & El-Sanyoura, 2019). Reading is accompanied by understanding (Ur, 2009), which means "the processing of information to extract meaning" (McNamara & Magliano,

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2009, p. 298). To comprehend a text, reading strategies are believed to support learners to communicate with the text (Khellab et al., 2022). These strategies facilitate readers' comprehension (Wu et al., 2021; Yapp et al., 2021; Yoshikawa & Leung, 2020). Specifically, they pay the way for readers to grasp textual information (Wu et al., 2021).

There has been a variety of reading strategies suggested by various researchers. For instance, Shin and Crandall (2014) suggested 11 strategies, including "predicting, monitoring, confirming, connecting, questioning, skimming, scanning, distinguishing, using context clues, paraphrasing or summarizing, and visualizing" (pp. 184-185). Similarly, Ba and Huan (2017) proposed 11 reading strategies, which include using context clues, connecting, questioning, prediction, skimming, distinguishing, direct instruction, visualizing, confirming, discussion, and small-group work. However, these two studies' taxonomy of reading strategies served instructional purposes. The current research shifts attention to learners' perspectives. Consequently, the researcher applied another taxonomy of reading strategies known as metacognitive reading strategies (MRS).

MRS is defined as "the knowledge of the readers' cognition about reading and the self-control mechanisms they exercise when monitoring and regulating text comprehension" (Mokhtari & Sheorey, 2002, p. 249). The significance of reading with metacognition lies in its ability to make readers self-conscious of what they are reading and thinking during the reading process (Thongwichit & Buripakdi, 2021). Put it simply, learners know what reading strategies to employ and optimal times to utilize them for learning. This awareness enables learners to plan, monitor, and evaluate their learning process (Bagci & Unveren, 2020).

Mokhtari et al. (2008) posited that "there is a strong interface between one's ability to read strategically and one's ability to excel academically" (p. 46). It means a high level of MRS is related to better performance and higher grades (Gavora et al., 2020). Several studies have documented the effectiveness of MRS instruction on reading comprehension performance as measured by standardized test scores, namely TOEIC, TOEFL, and the like (e.g., Kung & Aziz, 2020; Wahyuni et al., 2018). However, the relationship between MRS usage and final reading test scores, particularly following reading strategy instruction, has yet to be recorded in any previous studies. Therefore, further examining the association between these two variables is necessary to extend the existing literature. Furthermore, there is a deficiency in investigations addressing differences in reading strategy employment among various fields of study (Behtash et al., 2019); thus, comparing learners from different academic disciplines is warranted. Most past studies have been predominantly quantitative (e.g., Do & Phan, 2021; Muhid et al., 2020), which might raise skepticism about findings (Adunyarittigun, 2021). This underscores the need for alternative research approaches to understand the research problem better.

Based on the gaps above, this study attempted to fill the voids by conducting a mixed-methods study on Vietnamese learners to explore the use of MRS while reading English texts among students of various fields of study and the relationship between MRS use and final reading test scores, hence proposing embedding metacognition in reading strategy instruction to instructors at the research site. The objectives were tailored to research questions that follow:

1. What is the students' frequency of metacognitive reading strategy usage?

2. Are there differences in the use of metacognitive reading strategies among students of Information Technology, Economics, and English Studies?

3. What is the relationship between metacognitive reading strategy usage and final reading test scores?

The findings are significant to both students and teachers. For learners, gaining an insightful understanding of their current status of using reading techniques might foster their awareness of increasingly utilizing strategies while reading. The results provide teachers with a clear vision of reading strategy instruction with metacognition.

LITERATURE REVIEW

Metacognition

Metacognition is defined as "knowledge concerning one's own cognitive processes and products or anything related to them; and the active monitoring, consequent regulation and orchestration of these processes" (Flavell, 1976, p. 232). Two dimensions of metacognition emerge from Flavell's (1976) definition: metacognitive knowledge and metacognitive monitoring. Based on this model, Baker and Brown (1984) suggested a two-component framework that has been followed by multiple researchers (e.g., Mokhtari & Reichard, 2002; Mokhtari & Sheorey, 2002; Wu et al., 2021). The framework encompasses knowledge of cognition and regulation of cognition.

Knowledge of cognition refers to "what individuals know about their own cognition or about cognition in general" (Schraw, 2001, p. 4). Three underlying sub-components demonstrate individuals' metacognitive knowledge. Declarative knowledge is "knowing what or knowing that" (Schmitt, 2005, p. 102). Procedural knowledge refers to "knowing how to do things" (Moshman, 2018, p. 3), and conditional knowledge means "knowing why and when" to apply the knowledge obtained from instructional contexts (Moshman, 2018, p. 3).

The regulatory mechanisms are "a set of activities that help students control their learning" (Schraw, 2001, p. 4) and include three underlying regulatory skills. Planning concerns the adoption of relevant tactics and the distribution of performance-affecting resources. Monitoring appertains individuals' consciousness of their on-line understanding and task accomplishment (Schraw, 2001). Evaluating means assessing the outcomes and effectiveness of one's learning (Schraw, 2001).

Metacognitive reading strategies (MRS)

Reading strategies refer to "deliberate, goal-directed attempts to control and modify the reader's efforts to decode text, understand words, and construct meanings of text" (Afflerbach

et al., 2008, p. 368). There has been a misunderstanding that reading strategies are like reading skills. Indeed, the former refers to purposeful and intentional actions, while the latter involves "automatic actions that result in decoding and comprehension with speed, efficiency, and fluency and usually occur without awareness of the components or control involved" (Afflerbach et al., 2008, p. 368). In other words, reading strategies are deliberate, conscious, and goal-directed, while reading skills are automatic, unconscious, and goal-free.

Metacognition with reference to reading strategies in a foreign language has been of growing concern to scholars guided by the two-component framework by Baker and Brown (1984). In terms of metacognitive knowledge of reading strategies, Mokhtari and the associates were pioneers. Mokhtari and Reichard (2002) developed the Metacognitive Awareness of Reading Strategies Inventory (MARSI) to evaluate "adolescent and adult readers' metacognitive awareness and perceived use of reading strategies while reading academic or school-related materials" (p. 249). Adolescents and adults, in their sense, are "6th through 12th grade students" (p. 250). In the same year, Mokhtari and Sheorey (2002) developed the Survey of Reading Strategies (SORS) to "measure adolescent and adult ESL students' metacognitive awareness and perceived use of reading strategies while reading academic materials such as textbooks" (p. 2). The primary difference between these two measures is that the former is purposeful for native speakers, while the latter is for non-native learners. The second difference lies in the refinement of the wording, the addition of "translation and thinking natively" strategies, and the removal of "summarizing and discussing with other readers" techniques in the SORS to fit ESL/EFL students. This comparison leads to the current researcher's selection of SORS as the main instrument to fulfill the present research aims.

Mokhtari and Sheorey (2002) define MRS as "the knowledge of the readers' cognition about reading and the self-control mechanisms they exercise when monitoring and regulating text comprehension" (p. 249) and classified MRS into three sub-types:

- Global reading strategies (GLOB) are "intentionally, carefully planned techniques" readers use to control their reading (p. 4).
- Problem-solving strategies (PROB) are "the actions and procedures" utilized for solving reading problems (p. 4).
- Support strategies (SUP) are "basic support mechanisms" intentionally used by readers to help them better understand texts (p. 4).

Since the creation of SORS, studies using the scale to measure metacognitive reading strategies in various aspects have been growing. The following parts act to review what past researchers have found.

Frequency of metacognitive reading strategy usage

The analysis of the accumulated evidence on the frequency of MRSU showed conflicting results. A moderate level of use was recorded in various contexts (e.g., Do & Phan, 2021; Rabadi et al.,

2020; Wahyuni et al., 2018). In Vietnam, 123 students responded to the SORS in a study by Do and Phan (2021), and the result revealed medium usage of reading strategies (M = 3.38). In Jordan, the analysis of SORS data in Rabadi et al.' (2020) research also uncovered analogous output that 240 Jordanian students utilized strategies moderately (M = 3.0). Similarly, students using reading strategies by 155 students in a Malaysian context were in moderation (M = 3.3). Excepting for similar research findings, these three inquiries were on a quantitative basis and adopted SORS as the primary data-gathering tool. Further, their samples were all English majors. However, there needed to be a more detailed description of the subjects in Do and Phan's (2021) and Rabadi et al.'s (2020) studies, especially whether the research subjects were instructed to use reading strategies.

Additionally, highly strategic readers were reported in three other selected investigations adapting MARSI to investigate the usage of MRS (Daguay-James & Bulusan, 2020; Deliany & Cahyono, 2020; Chutichaiwirath & Sitthitikul, 2017). The percentage of high users in Daguay-James and Bulusan's (2020) mixed methods research was 66.5% out of 403 learners from the Philippines. In Thailand, Chutichaiwirath and Sitthitikul (2017) also recorded high use from 15 female students (M = 2.85) in a mixed methods study. Similarly, the survey analysis of 53 Indonesian participants in Deliany and Cahyono's (2020) investigation yielded an overall mean value of 3.7, indicating high use of MRS. Apart from comparable results, these sources differ in methodologies. The first two were mixed methods inquiries, while the last one was a survey. Moreover, Daguay-James and Bulusan (2020) examined non-English majors whereas the remaining samples majored in English foreign language studies. Differences in research participants might result in varying outcomes as different majors might read different materials. The adapted MARSI required these sources to provide justifications as this instrument is for native usage. As such, more findings on moderate and high MRSU levels were recorded than those of low use. The frequency of MRSU also suggests further exploration of users' actual usage of MRS.

Study fields in relation to metacognitive reading strategy usage

The examination of MRS usage among students from various academic disciplines has yet to receive much consideration. To the author's knowledge, only two studies have investigated this problem. The T-test-based comparison between 39 students of Humanities and 47 of the Scientific Faculties in MRSU in Abu-Snoubar's (2017) quantitative study pinpointed no significant differences between the two groups. Conversely, Bećirović et al. (2017), on the same research approach and method basis (quantitative and T-test), revealed statistically significant discrepancies between 89 students of the English Language and Literature Department and 51 students of the Management Department in the usage of MRS. The dissimilarity of the two sources might be due to the utilization of varying instruments. The former adopted SORS developed by Mokhtari and Sheorey (2002), while the latter employed the Metacognitive Reading Strategy Questionnaire (MRSQ) measuring analytic cognition and pragmatic behavior. Different constructs could result in different outcomes. Moreover, the minus point of these studies is providing no detailed explanations for the findings, i.e., the reasons for a difference or no difference between groups of majors need to be clarified. Simply stated, the difference between single strategy usage and the purpose of utilization might be the cause and needs to be interpreted.

Metacognitive reading strategy usage and reading comprehension performance

Adopting reading techniques might influence learners' reading performance, and MRSU in relation to reading comprehension has been one of the scholars' concerns. Reading comprehension in related scholarly works has mainly been manifested in standardized test scores. The documentation of this relationship has revealed contradictory findings. The survey data analysis demonstrated no correlation between MRSU and reading comprehension test scores in Dardjito's (2019) mixed-methods study. A similar result was detected in an experiment by Halim et al. (2020) and a quantitative investigation by Wahyuni et al. (2018). The similarity of these studies is that they use standardized comprehension test scores adopted from Cambridge IGCSE or TOEFL to measure the relationship; however, the difference lies in the instrument selection. If Dardjito (2019) adopted the Metacognitive Reading Awareness Inventory (MRAI) and Wahyuni et al. (2018) adopted the SORS, no evidence of a data-gathering instrument emerged in Halim et al. (2020).

Conversely, MRSU was positively correlated with reading comprehension in Kung and Aziz's (2020) and Fitrisia et al.'s (2015) investigations. The action research by Kung and Aziz (2020) disclosed that Malaysian learners with training in MRS better-comprehended texts. Similarly, Fitrisia et al. (2015) found a weak positive relationship in a quantitative study, indicating that high use of reading techniques might not guarantee complete comprehension of Indonesian learners. Notwithstanding similar findings, these two sources vary in the adoption of the instruments. While Fitrisia et al. (2015) adopted MARSI (Metacognitive Awareness of Reading Strategies Inventory), Kung and Aziz (2020) adopted MARSI-Revisited. Further, Fitrisia et al. (2015) utilized TOEIC reading tests to measure the correlation, whereas Kung and Aziz (2020) neglected to mention this information in their research.

General observations of the above-reviewed literature show several gaps necessary to be filled. Samples of past studies were EFL/ESL students in general (e.g., Daguay-James & Bulusan, 2020) and learners of different majors (e.g., students of English Language and Literature, Management) but little, if not none, are students of IT and Economics. Methodologically, most were quantitative-based studies, seven out of eleven (e.g., Fitrisia et al., 2015; Wahyuni et al., 2018), while three were mixed methods (e.g., Dardjito, 2019), and one was action research (Kung & Aziz, 2020). This suggests more mixed methods to comprehend the research problem better. Considering the research problem, in the MRSU-reading comprehension relationship, most research has considered TOEFL, TOEIC or other standardized test scores, but not final reading test scores yet. More importantly, all the MRSU-reading comprehension studies lack a theoretical framework that might explain the MRSU-reading comprehension relationship. The present research will add a framework and present it in the following part. These gaps called for the present research to not only fill the voids but also extend the literature by applying a mixed methods approach to examine ESL learners' awareness of MRS, their differences in MRSU, and the relationship between MRSU and final reading test scores based on the Knowledge Monitoring Assessment (KMA) framework.

Knowledge monitoring assessment as the theoretical framework

The principal component of metacognitive processes is monitoring knowledge, which is the key to learning in all domains (Tobias & Everson, 2009). The knowledge monitoring assessment (KMA) was introduced to appraise students' ability to separate what they have learned and what they have not yet learned and then compare these estimates with performance (Tobias & Everson, 2002). The differentiation enables the evaluation of the relationship or effectiveness of what is known and not known on performance based on multiple-choice tests (Tobias & Everson, 1996). The theory holds that the capacity to differentiate between the known and the unknown could support learners in singling out apt strategies to reach their goals. The framework predicts that students' estimation of knowing what or how can lead to correct or incorrect answers in the test, and the estimates of not knowing what or how can also generate correct and incorrect judgments.

Investigations to support this presumption in reading comprehension revealed that the knowledge of known lexical resources is an indicator of reading comprehension (Tobias & Everson, 2002; Tobias & Everson, 2009). However, the relationship between MRS usage and reading comprehension performance using this framework has yet to be recorded to the author's knowledge. Thus, this theory would be appropriate for the current study to investigate the relationship between students' estimates of knowing what strategies to use and how to use them and final reading test scores. The assumption is that the knowledge of instructed reading strategies would enhance learners' reading comprehension performance.

METHODS

Research design

An explanatory sequential mixed methods research design, a two-phase project, was undertaken to develop a complete understanding learners' MRS usage and the relationship between their usage of MRS and reading comprehension performance. Specifically, the qualitative data could help clarify and further explain significant quantitative findings. The project was implemented in two phases: the collection and analysis of quantitative data took place in Phase 1, and qualitative data was gathered and analyzed in Phase 2.

Setting

The study was conducted at a private university, where English proficiency is a prerequisite for all students in the Preparational Period before officially studying specialized subjects in the second phase. Based on their placement test result, this condition has materialized into six English Preparational Courses (EPC) corresponding to students' English proficiency levels, from Elementary to Advanced. The last two reading skill-specific courses are for Upper-intermediate and Advanced levels. Reading strategies in these two courses encompass skimming, scanning, identifying main ideas and supporting details, previewing, recognizing organizational structure, among others. Ongoing assessments and finals examine students' literacy in English, i.e., English reading and writing skills and knowledge of vocabulary items covered in coursebook units.

Participants

The samples were 297 students who had finished EPC and were studying the first semester of the specialist period. Their English proficiency level was Advanced as a default. There were more males than females (71.7% vs 26.9%), and 1.3% were other gender in the research. Students of Information Technology outnumbered those of Economics and English Studies with 65% (193 students) as opposed to 25.3% (75 students) and 9.8% (29 students), respectively. They originate from different geographical areas: urban (35.7%), rural (48.8%), and suburban (15.5%).

The sample collecting method was convenience sampling as it is advantageous for the researcher to gather data rapidly with readily available subjects. However, this sampling strategy only allows generalizability to the specific sample of the study (Bornstein et al., 2013). Thus, findings from this research can be generalized to first-semester students in IT, Business, and English Studies within this study. The sample size strictly follows the suggestion by Griffee (2018) that with a language program, 50% of the population as survey participants should be enough. In the present research, nearly 50% of 600 students were research participants.

Instruments

The SORS questionnaire: The tool is adopted from the Survey of Reading Strategies (SORS) developed by Mokhtari and Sheorey (2002). The instrument includes 30 five-point Likert scale items with three sub-categories: 13 Global Reading Strategies (GLOB), 8 Problem Solving Strategies (PROB), and 9 Support Strategies (SUP). The survey was validated by EFL/ESL students in two American universities. The internal consistency reliability coefficients were .93 for the entire survey, .92 for GLOB, .79 for PROB, and .87 for SUP. In the current study, the reliability by Cronbach's Alpha revealed .89 for the entire scale, .78 for GLOB, .76 for PROB, and .68 for SUP. Additionally, the adopted scale was translated into Vietnamese to ensure students' complete comprehension, guaranteeing the data's exactness. The researcher followed a team-based approach suggested by Dörnyei and Dewaele (2023). That is, the first version, translated by me, was subsequently reviewed by two other lecturers who have experience in translation and are in charge of translation classes in our English Department. Two lecturers' constructive feedback on the wording was obtained for corrections, and the corrected version was sent to students of one intact class for final review.

Another group of questions at the end of the survey asked informants to provide demographic information about gender, fields of study, birthplace, students' roll numbers that aided the researcher in obtaining their final reading test scores on Academic Portal, and their willingness to participate in interviews, if any.

Semi-structured interviews: These interviews were conducted to delve deeply into the research problem and exhaustively comprehend the information the survey respondents provided. Further, this type of interviewing allows interviewees to share their thinking freely. Main interview questions concern what students think about their frequency of MRSU, what specific strategies they have utilized during the reading process, and whether they think the use of MRS affected their reading scores. Probes were also used to obtain additional information.

Final reading test scores as reading comprehension performance: Final examinations of reading skill-specific courses in the EPC involve a reading test, a vocabulary test, and a writing test, which form completion criteria. The present study only targeted reading test scores and excluded the others. Reading test scores were obtained from the Academic Portal based on students' roll numbers provided in the survey.

Procedure

Phase 1: Quantitative data collection

The investigator emailed students of Economics, IT, and English Studies with a clear research purpose to invite them to participate in the survey. The Google Form-based questionnaire hyperlink was also attached in the email. To warrant voluntary participation, one question inquiring whether students accept or reject doing the survey was posed. If they "Accept," they see the survey items, and if they "Do not accept," they receive no information. Over 300 responses were returned after one week, with a response rate of over 50%.

Phase 2: Qualitative data collection

Based on quantitative findings such as more than half of respondents reporting a moderate level of metacognitive reading strategy usage (MRSU), statistical differences in MRSU among fields of study, and no correlation between MRSU and final reading test scores, semi-structured interviews were called for further explanations. Ten interviewees were purposefully selected; following Tracy's (2020) recommendation, the researcher applied the maximal variation sampling method to select varying cases. Specifically, the researcher depended on their level of MRSU and readiness to participate in face-to-face discussions, as indicated by their survey response, to single out seven moderate MRS users, two low MRS users, and one high MRS user. The interviewing was done via Google Meet for students' convenience as they could not arrange a time for a face-to-face.

Data analysis

The quantitative data was later downloaded from the Google Form and numerically coded. Responses with acquiescence-response bias were eliminated before being imported into Statistical Package for the Social Sciences (SPSS) Version 26 for preliminary analysis. Descriptive data analysis was used to describe sample characteristics and address Research Question 1. The scoring rubric for calculating the frequency of MRSU in Research Question 1 is based on Oxford and Burry-Stock's (1995) suggestions for general learning strategy usage: "Averages of 3.5-5.0 were usually considered high strategy use; 2.5-3.4 were designated medium strategy use; and 1.0-2.4 were regarded as low strategy use" (p. 12).

For the appropriate type of statistical techniques for Research Questions 2 and 3, the investigator initially assessed the SORS data normality. The output revealed the normal distribution of scores with a Sig. value of more than .05 (p = .64). Therefore, referential analysis, such as one-way ANOVA, was implemented for Research Question 2 to compare groups of students

(IT, Economics, English Studies) using MRS, and correlation analysis was used to address Research Question 3.

For the qualitative data, all the recordings were transcribed and translated into English for manual thematic analysis. As Creswell and Crewell (2023) suggested, a small amount of qualitative information (below 50 pages) should be manually handled. The author then followed six steps of thematic analysis by Braun and Clarke (2022). In Step 1, the author read and reread through the data to get a general understanding. The author identified data chunks related to the research questions in the coding step. In Step 3, the author developed primary themes based on significant findings from the quantitative phase. Then, these themes were redeveloped and reviewed several times in collaboration with a Ph.D. who is a skilled qualitative researcher. After reducing overlapping and redundant codes, three main themes emerged in Step 5 before official writing in Step 6: *Reasons for the medium use of metacognitive reading strategies, their adoption of metacognitive reading strategies, and factors related to reading scores.*

RESULTS

1. Quantitative data

Research question 1: What is the students' frequency of metacognitive reading strategy usage?

The overall mean value of 30 survey items was 3.12, indicating that research participants "sometimes" utilized strategies during the reading process as the interpretation guide offered by Mokhtari and Sheorey (2002) suggests that rating 3 means "I sometimes do this (about 50% of the time)". To clarify the frequency of use, three levels of usage were computed depending on suggestions for general learning strategy usage by Oxford and Burry-Stock (1995).

Table 1

The frequency of students' metacognitive reading strategy usage

Frequency	Frequency	Valid Percent
High	85	28.6
Medium	178	59.9
Low	34	11.4

As indicated in Table 1, 85 respondents (28.6%) were high-reading strategy users, 178 (59.9%) were medium users, and 34 (11.4%) were low users. As such, most of the research participants utilized reading techniques moderately. In other words, they "sometimes" employed strategies while reading.

Research question 2: Are there differences in the use of metacognitive reading strategies among students of Information Technology, Economics, and English Studies?

Due to the normal distribution of scores with a Sig. value of more than .05 (p = .64), the researcher used one-way ANOVA to compare the SORS scores of students of IT, Economics, and English Studies. Participants were divided into three groups (Group 1: IT students, Group 2: Economics students, and Group 3: English Studies students). The finding demonstrated a statistically significant difference at the $p < .05$ level in SORS scores for three groups of fields of study: $F(2, 294) = 4.6$, $p = .01$. Notwithstanding statistical significance, the actual difference in SORS mean scores between groups was relatively small. The effect size, calculated using eta squared, was .03, indicating a small effect size based on Cohen's rules. Post-hoc comparisons using the Tukey HSD test indicated that the mean score for group 1 (M = 3.05, SD = .58) was significantly different from that for group 2 (M = 3.22, SD = .53). Nevertheless, group 3 (M = 3.12, SD = .44) differed from neither group 1 nor 2. These outcomes indicate that IT students had lower SORS mean scores than students in Economics. In contrast, English Studies students exhibited no significant difference in SORS scores compared to the other two groups.

Research question 3: What is the relationship between metacognitive reading strategy usage and final reading test scores?

Table 2

Correlation between SORS, GLOB, PROB, SUP, and final reading test scores

	Scores	SORS	GLOB	PROB	SUP
Scores	1				
SORS	-.02	1			
GLOB	.024	.922**	1		
PROB	.005	.854**	.704**	1	
SUP	-.097	.831**	.636**	.572**	1

Also, due to the normal distribution of SORS scores, the relationship between MRSU and final reading test scores was examined using the Pearson product-moment correlation coefficient. The result disclosed no statistically significant correlation between two variables, r = -.02, n = 297, p = .73 ($p > .05$).

Another Pearson test was conducted to determine whether there is a relationship between SORS sub-categories, namely GLOB, PROB, and SUP, and reading test scores. As can be seen from Table 2, a similar finding of no statistically significant correlation was revealed between GLOB and reading scores (r = .024, n = 297, p = .68 > .05), PROB and reading scores (r = .005, n = 297, p = .93 > .05), and SUP and reading scores (r = -.097, n = 297, p = .095 > .05).

2. Qualitative data

This part presents qualitative information that further explains significant quantitative findings (e.g., a moderate level of MRSU, differences in MRSU between students of IT and those of Economics, and no relationship between MRSU and reading test scores). Ten participants, including five IT and five Economics students, were involved in in-depth discussions with the researcher. Students of English Studies were excluded from the follow-up qualitative phase as the quantitative results disclosed no difference in the use of MRS between students of English

Studies and students of IT and Economics. Three main themes presented below emerged from codes after reducing overlapping and redundant codes. All interviewees were anonymous by Student 1, 2, or 3, and so on and written in short as S1, S2, or S3:

Theme 1: Reasons for the medium use of reading strategies

When asked to self-rate the frequency of MRSU, almost all interviewees (nine out of ten respondents) acknowledged a moderate level. Reasons provided include "lazy or not ready to apply reading strategies" (S1, S2, S3), "just reading for comprehension, without concern about using techniques" (S4), "no habit of reading with strategies" (S8, S7), and "unsure about whether I have used reading strategies or not. I mean I have no awareness of that" (S9)

Theme 2: The adoption of reading strategies

The numerical data uncovered discrepancies in MRS usage between students majoring in Information Technology and Economics and no differences in MRSU between students of English Studies and the other groups. This led to the exclusion of learners of English Studies in the discussion of specific strategy usage. The qualitative analysis resulted in two sub-themes as follows:

Theme 2.1: The most frequently adopted techniques

Discussions with students of IT revealed that they have considerable flexibility in most frequently used reading strategies. Their high frequency of MRS usage ranges within all types of reading techniques: GLOB, PROB, and SUP. For example, S1 admitted, "I often re-read the text when I cannot understand it. This is because the reading covers so much information, and I forget what I read before." (PROB). He added, "I also recalled my prior relevant knowledge as most of the readings are academic and require knowledge I have studied before." (GLOB). Meanwhile, S3 declared "translation from English into Vietnamese" (SUP), "scanning," and "underlining keywords" (SUP) to be top prioritized techniques. Strategies in S5's great concern include "setting clear reading purposes" (GLOB), "reading slowly and carefully to make sure that I understand what I am reading" (PROB), and "readjusting myself when I lose concentration" (PROB). Like S5 and S3, S2 much preferred "identifying my reading purpose to see what I need before official reading" (GLOB) and "translating what I read into Vietnamese" (SUP). Additionally, he tried to "guess the meaning of words that are strange in daily communication" (PROB) and "take notes" (SUP).

Similarly, students of Economics employed various techniques during the reading process. "Reading with a purpose in mind" (GLOB) has become the preferred choice by S4 and S6. "Taking an overview" or "reading through the whole text very fast" (GLOB) was used more frequently than the others by S4 and S7. Further, S6 said she would "stop reading and think about what I have read, especially when the texts are so difficult" (PROB). S8 acknowledged that her frequently adopted techniques were "taking notes of important information by habits" (SUP), "reading again and again to check whether I have understood the reading" (PROB), and "reading aloud to help me remember better" (SUP). More than that, S7 admitted "translating

into Vietnamese" (SUP) and "reading slowly for a better understanding" (PROB) when reading English texts.

Theme 2.2: The least frequently adopted techniques

Regarding the least used strategies, supporting strategies (SUP) were not preferable to students of IT. In particular, S2 contended that "circling or underlining keywords while reading is not necessary. It is a waste of time" and "I never flip the text over and over or go back and forth to find relationships among ideas," while S1 never used translation due to its inappropriateness for future learning. Like S2, S3 had no preference for underlining or circling information. S5 claimed that "reading aloud" was the least used strategy as "it does not bring about any results as I expected." In addition, some global reading strategies (GLOB) were also not students' favorite. For example, "I do not re-evaluate information because my work just requires me to get information, not assess it" and "making a guess and checking my guesses are not my type" (S2). Meanwhile, no problem-solving strategies (PROB) were the least choice by IT learners.

For students of Economics, several global techniques (GLOB) seemed the least useful to them. For instance, "I rarely used tables and visuals to improve comprehension as that is not my habit," and "rather than using context clues to help me understand better, I read over and over" (S8). Further, student 4 admitted she has never "predicted the content while reading academic texts." Apart from GLOB, some support strategies were not selected, such as using a dictionary and reading aloud. Regarding PROB, "re-reading" and "guessing meanings of unknown words" have also rarely been adopted.

Theme 3: Factors Affecting Reading Scores

When inquired about the frequency of reading strategy usage during quizzes and tests, almost all respondents confirmed: "no utilization of so many techniques due to time limits." Participants asserted the constant use of "skimming and scanning" because of the quickness of the mind caused by the time constraint in exams. They also clarified that they learned these strategies in high school. Moreover, reporters revealed abundant determinants of reading results besides reading strategies. "Vocabulary size is the top cause; especially technical terms would be a big challenge without a dictionary. The organization of information also affects my reading comprehension. Writing patterns such as thesis statements and then supporting details underlying major supporting points trouble my understanding. I sometimes cannot identify them" (S9). Outside of lexical resources, S1 maintains that "unfamiliar topics, reading speed, and time constraints" are contributions. Further, "losing concentration and excessively academic texts" are additional contributors. Other elements influencing the quality of reading products are "the difficulty of reading passages varying in semesters" (S11), "insufficient preparations for the quizzes and tests," and psychological effects including "nervousness and stress in exam rooms" (S2).

DISCUSSION

The first finding answering research question 1 refers to the frequency of MRS usage. Quantitative data showed moderate MRS usage. The qualitative data also confirmed this result, where eight out of ten learners acknowledged they utilized MRS in moderation. In-depth discussions with interview respondents also helped expand the quantitative results by providing reasons for respondents' medium use of MRS. Specifically, learners reported that they were reading instinctively. That is, they read and read without concern about or without the habit of using reading strategies as they shared. Furthermore, they had no consciousness of strategic reading at all and declared that they were not ready for reading strategically. The result of the medium MRS usage found in this study agrees with that established by Do and Phan (2021), Rabadi et al. (2020), and Wahyuni et al. (2018). Nevertheless, previous sources provided no justifications for moderation in MRS usage as the current research did. Conversely, the present findings contradict those of Chutichaiwirath and Sitthitikul (2017), Daguay-James and Bulusan (2020), and Deliany and Cahyono (2020) who found highly strategic readers in their investigations.

In response to research question 2, the second result concerns the differences in MRSU among students of various majors. Based on quantitative findings, the interviewing was conducted with two groups: IT and Economics students. The combination of quantitative and qualitative databases showed that the discrepancy between IT and Economics majors in the most utilized MRS is minor. Although both groups utilized wide-ranging strategies from GLOB, PROB, and SUP, a slight difference was found. Specifically, IT students adopted more strategies across all three strategy groups (including three global, four problem-solving, and three support strategies) than students of Economics who reported utilizing two global, three problem-solving, and two support strategies. Interestingly, both student groups preferred problem-solving strategies to global and support strategies. In terms of the least adopted strategies, a few support strategies, such as "circling or underlining" and "going back and forth to find relationships among ideas," were not preferred by IT students. In contrast, some global strategies, namely "using tables and visuals," "reading over and over," and "predicting the content," were the least adopted by Economics learners.

The finding reported in this study is consistent with Bećirović et al.'s (2017) result that demonstrated statistically significant differences between students of English language and Literature and Management. Unlike the present research, Bećirović et al. (2017) neglected to clarify how groups were dissimilar in using MRS. Conversely, the current finding conflicts with Abu-Snoubar (2017), which found no differences in MRSU between 39 students of Humanities and 47 of Science. The inconsistency between the findings by Abu-Snoubar (2017) and the current research might be attributed to the sample size differences. The larger sample size of the present study (193 IT students and 75 Economics students) compared to Abu-Snoubar's (2017) study (39 vs. 47) might yield distinctive results.

In addition to minor differences in MRSU, two similarities in using MRS contradicting the quantitative data were found. One exciting result disclosed that both students of IT and Economics have a habit of skimming and scanning English texts more than using any other strategies during most of the reading time. These two strategies are believed to show "the

most valuable results for learners" (Alrizq et al., 2021, p. 5) and help readers center on essential details and avoid irrelevant information (Hong, 2013). Interviewees also mentioned that they have been accustomed to skimming and scanning strategies since high school. This indicates that learners have proficiently employed skimming and scanning strategies over time. In other words, two strategies have become skills. Another intriguing qualitative result is that both students of IT and Economics utilized translation while reading English texts. In second language (L2) reading, translation is "a mental reprocessing of L2 words, phrases, or sentences in L1 forms while reading L2 texts," or in short, "mental translation" (Kern, 1994, p. 442). Respondents use this strategy during their reading process because using translation in L2 reading can heighten readers' comprehension (Alaboud, 2022; Nourinezhad & Kashefian-Naeeini, 2020).

The remarkable finding addressing research question 3 relates to the relationship between MRSU and final reading test scores. Quantitatively, the two variables were not significantly correlated with each other. The qualitative information supplementing the numerical result explains that readers rarely utilized all reading techniques except skimming and scanning during the reading process, implying that these two reading strategies were their preference. Their reading scores were also affected by abundant factors. Some factors originate from the readers themselves: inability to concentrate, insufficient prior preparation for tests and exams, time management, and psychological effects (e.g., nervousness, stress), while others emerge from the texts: unfamiliar topics, unfamiliar words, text organization, and text difficulty. Connecting both databases shows that it is not reading strategies per se that largely influence readers' performance but rather reader variables and text variables. That does not imply they have not utilized any reading techniques; indeed, they have utilized some, but not all. Learners' preference for skimming and scanning might be because two strategies, taught since high school, have imprinted on their minds. In contrast, other strategies (e.g., previewing, identifying main ideas, evaluating texts, among others) that they have approached more recently have not been much used. The result of the current research confirms the findings of Dardjito (2019), Halim et al. (2020), and Wahyuni et al. (2018). However, using qualitative data to explain the lack of correlation between the two variables in this study makes it distinctive from other sources that provided no justifications. Furthermore, the finding disagrees with Kung and Aziz (2020) and Fitrisia et al. (2015), who found a positive MRSU-reading test score relationship.

Referring back to the KMA framework, the present research finding does not support the relationship between what is known and not yet known and performance. The explanation is based on the reasoning that both the internal and external factors presented above affected the performance. What is known, namely the strategies learners have obtained, plays a minimal role in students' reading results. In other words, the relationship between the estimates and performance might be controlled by other factors.

LIMITATIONS AND FURTHER RESEARCH SUGGESTIONS

The study highlights some limitations. First, the sample size of 297 is too small to generalize the findings to the whole batch of thousands of students. Moreover, convenience sampling limits the generalization of results to the studied sample only, according to Bornstein et al.

(2013). Therefore, to obtain a more comprehensive insight into the research problem, it is advisable to conduct the study with more students. The sampling method should be population-based probability sampling, specifically stratified sampling, due to the uneven distribution of students across various majors. Second, the SORS does not cover all the strategies instructed in the course, especially critical thinking skills. A newly developed questionnaire that includes these strategies would provide better insight into students' application of metacognitive reading strategies. Third, the inclusion of English Studies students in the follow-up qualitative phase is another area for improvement. These English-majored students might differ in their utilization of metacognitive reading strategies compared to non-English majors. Thus, it is necessary to examine this aspect in future research.

PEDAGOGICAL IMPLICATIONS

The findings revealed that students have moderate MRS usage; therefore, it is necessary to heighten their awareness of using metacognitive reading strategies. To do so, teachers should do more than simply present strategies. Based on the sub-components of metacognitive knowledge, teaching metacognitive reading strategies can be presented in three steps. In Step 1, teachers introduce a targeted reading strategy. In Step 2, teachers instruct students on how to use that strategy. Finally, in Step 3, teachers explain why or when to use the strategy. For instance, in Step 1 (knowing what/that), students are introduced to "identifying the topic". In Step 2 (knowing how to use), they are instructed to read the title and scan the headings, sections, and sub-headings for the main topic. In Step 3 (knowing when/why to use), the benefits of this strategy are explained to the students. This method requires teachers' persistence from the first lesson to the last. Before any new lessons, learned techniques should be repeated as reminders to students.

The findings also suggest that strategy instructions should be accompanied by practicing the adoption of reading strategies. To achieve this, teachers can follow some suggestions. First, distribute handouts with questions (e.g., what reading techniques they have utilized for each reading question; why they use those strategies) to students during all reading practices. This means students write down how and why they applied those strategies. Second, peer instruction is another practical suggestion. According to Tullis and Goldstone (2020), a demanding question is posed to learners in peer instruction. Initially, learners address the question independently, then discuss their responses with a classmate, and finally respond to the question again. This method can help increase student engagement (Knight & Brame, 2018) and benefit student learning in many aspects (see the review by Tullis & Goldstone, 2020). Instructors can modify the method by first training all students with reading strategies. Then, students are paired to work on the same reading practice. They answer all the reading comprehension questions by themselves before sharing what specific strategies they use and why they employ those strategies with each other.

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REFERENCES

Abu-Snoubar, T. K. (2017). English as a foreign language learners' major and metacognitive reading strategy use at Al-Balqa Applied University. *English Language Teaching, 10*(9), 69–85.

Adunyarittigun, D. (2021). Metacognitive awareness of reading and reading strategy use by nonproficient college readers. *rEFLections, 28*(1), 82–106. https://doi.org/10.61508/refl.v28i1.250764

Afflerbach, P., Pearson, P., & Paris, S. G. (2008). Clarifying differences between reading skills and reading strategies. *The Reading Teacher, 61*(5), 364–373.

Alaboud, A. (2022). The positive effect of translation on improving reading comprehension among female Arabic learners of English as foreign language. *Arab World English Journal, 13*(2), 424–436. https://dx.doi.org/10.24093/awej/vol13no2.29

Alrizq, M., Mehmood, S., Mahoto, N. A., Alqatani, A., Hamdi, M., Alghamdi, A., & Shaikh, A. (2021). Analysis of skim reading on desktop versus mobile screen. *Applied Sciences, 11*(16), Article 7398. https://doi.org/10.3390/app11167398

Ba, T. T. B., & Huan, N. B. (2017). Reading strategy instruction to Vietnamese young language learners: Teachers' practices and perceptions. *Can Tho University Journal of Science, 7*, 138–147.

Bagci, H., & Unveren, D. (2020). Investigation the relationship between metacognitive awareness of reading strategies and self-efficacy perception in reading comprehension in mother-tongue: Sample of 8th graders. *International Journal of Educational Methodology, 6*(1), 83–98.

Baker, L., & Brown, A. L. (1984). Metacognitive skills and reading. In P. D. Pearson, R. Barr, M. L. Kamil & P. Mosenthal (Eds.), *Handbook of reading research* (pp. 353–394). Longman.

Bećirović, S., Brdarević-Čeljo, A., & Sinanović, J. (2017). The use of metacognitive reading strategies among students at International Burch University: A case study. *European Journal of Contemporary Education, 6*(4), 645–655.

Behtash, E. Z., Barabadi, A., & Eskandari, Z. (2019). Reading comprehension strategies used by Iranian university students while reading academic English texts. *Issues in Educational Research, 29*(4), 1089–1106.

Bornstein, M. H., Jager, J., & Putnick, D. L. (2013). Sampling in developmental science: Situations, shortcomings, solutions, and standards. *Developmental Review, 33*(4), 357–370. https://doi.org/10.1016/j.dr.2013.08.003

Braun, V., & Clarke, V. (2022). *Thematic analysis: A practical guide*. SAGE Publishing Ltd.

Chutichaiwirath, K., & Sitthitikul, P. (2017). The metacognitive awareness of reading strategies in Thai EFL learners. *Journal of Nusantara Studies, 2*(2), 1–14.

Creswell, J. W., & Creswell, J. D. (2023). *Research design: Qualitative, quantitative, and mixed methods approaches* (6th ed.). SAGE Publications, Inc.

Daguay-James, H., & Bulusan, F. (2020). Metacognitive strategies on reading English texts of ESL freshmen: A sequential explanatory mixed design. *TESOL International Journal, 15*(1), 20–30.

Dardjito, H. (2019). Students' metacognitive reading awareness and academic English reading comprehension in EFL context. *International Journal of Instruction, 12*(4), 611–624.

Deliany, Z., & Cahyono, B. Y. (2020). Metacognitive reading strategies awareness and metacognitive reading strategies use of EFL university students across gender. *Studies in English Language and Education, 7*(2), 421–437.

Do, H., M., & Phan, H. L. T. (2021). Metacognitive awareness of reading strategies on second language Vietnamese undergraduates. *Arab World English Journal (AWEJ), 12*(1), 90–112. https://dx.doi.org/10.24093/awej/vol12no1.7

Dörnyei, Z., & Dewaele, J.-M. (2023). *Questionnaires in second language research: Construction, administration, and processing* (3rd ed.). Routledge.

Fitrisia, D., Tan, K., & Yusuf, Y. Q. (2015). Investigating metacognitive awareness of reading strategies to strengthen students' performance in reading comprehension. *Asia Pacific Journal of Educators and Education, 30*, 15–30.

Flavell, J. H. (1976). Metacognitive aspects of problem solving. In L. B. Resnick (Ed.), *The nature of intelligence* (pp. 231–235). Lawrence Erlbaum.

Gavora, P., Vaculíková, J., Kalenda, J., Kálmán, O., Gombos, P., Świgost, M., & Bontová, A. (2020). Comparing metacognitive reading strategies among university students from Poland, Hungary, Slovakia and the Czech Republic. *Journal of Further and Higher Education, 44*(7), 896–910. https://doi.org/10.1080/0309877X.2019.1614545

Ghaith, G., & El-Sanyoura, H. (2019). Reading comprehension: The mediating role of metacognitive strategies. *Reading in a Foreign Language, 31*(1), 19–43.

Griffee, D. T. (2018). *An introduction to second language research methods: Design and data* (2nd ed.). TESL-EJ Publications.

Halim, N., Arif, M. M., & Supramaniam, K. (2020). Enhancing reading comprehension through metacognitive reading strategies and peer tutoring among Year 7 students at a home school centre. *Asian Journal of University Education (AJUE), 16*(1), 22–31.

Hong, N. C. (2013). Teaching of skimming at tertiary level: Theoretical and pedagogical issues. *International Journal of Bilingual & Multilingual Teachers of English, 1*, 1–7.

Kern, R. G. (1994). The role of mental translation in second language reading. *Studies in Second Language Acquisition, 16*(4), 441–461.

Khellab, F., Demirel, O., & Mohammadzadeh, B. (2022). Effect of teaching metacognitive reading strategies on reading comprehension of engineering students. *SAGE Open, 12*(4), 1–19. https://doi.org/10.1177/21582440221138069

Knight, J. K., & Brame, C. J. (2018). Peer instruction. *CBE – Life Sciences Education, 17*(5), 1–4.

Kung, L. Y., & Aziz, A. A. (2020). An action research on metacognitive reading strategies instruction to improve reading comprehension. *International Journal of English Language and Literature Studies, 9*(2), 86–94.

McNamara, D. S., & Magliano, J. (2009). Toward a comprehensive model of comprehension. In B. Ross (Ed.), *Psychology of learning and motivation* (pp. 297–384). Academic Press. https://doi.org/10.1016/S0079-7421(09)51009-2

Mokhtari, K., & Reichard, C. (2002). Assessing students' metacognitive awareness of reading strategies. *Journal of Educational Psychology, 94*(2), 249–259.

Mokhtari, K., & Sheorey, R. (2002). Measuring ESL students' awareness of reading strategies. *Journal of Development Education, 25*(3), 2–10.

Mokhtari, K., Sheorey, R., & Reichard, C. (2008). Measuring the reading strategies of first and second language readers. In K. Mokhtari & R. Sheorey (Eds.), *Reading strategies of first and second language learners: See how they read* (pp. 43–66). Christopher-Gordon Publishers.

Moshman, D. (2018). Metacognitive theories revisited. *Educational Psychology Review, 30*, 599–606.

Muhid, A., Amalia, E. R., Hilaliyah, H., Budiana, N., & Wajdi, M. B. N. (2020). The effect of metacognitive strategies implementation on students' reading comprehension achievement. *International Journal of Instruction, 13*(2), 847–862.

Nourinezhad, S., & Kashefian-Naeeini, S. (2020). Iranian EFL university learners and lecturers' attitude towards translation as a tool in reading comprehension considering background variables of age, major and years of experience. *Cogent Education, 7*(1), Article 1746104. https://doi.org/10.1080/2331186X.2020.1746104

Oxford, R. L., & Burry-Stock, J. A. (1995). Assessing the use of language learning strategies worldwide with the ESL/EFL version of the Strategy Inventory for Language Learning (SILL). *System, 23*(1), 1–23. https://doi.org/10.1016/0346-251X(94)00047-A

Rabadi, R. I., Al-Muhaissen, B., & Al-Bataineh, M. (2020). Metacognitive reading strategies use by English and French foreign language learners. *Jordan Journal of Modern Languages and Literatures, 12*(2), 243–262.

Schmitt, M. C. (2005). Measuring students' awareness and control of strategic processes. In S. E. Israel, C. C. Block, K. L. Bauserman & K. Kinnucan-Welsch (Eds.), *Metacognition in literacy learning: Theory, assessment, instruction, and professional development* (pp. 101–119). Lawrence Erlbaum Associates, Inc.

Schraw, G. (2001). Promoting general metacognitive awareness. In H. J. Hartman (Ed.), Metacognition in learning and instruction. *Neuropsychology and cognition, 19*, 3–16. Springer. https://doi.org/10.1007/978-94-017-2243-8_1

Shin, J. K., & Crandall, J. A. (2014). *Teaching young learners English: From theory to practice*. National Geographic Learning.

Thongwichit, N., & Buripakdi, A. (2021). A glimpse of metacognitive reading strategy instruction through modelling technique in ESP class at the tertiary level. *LEARN Journal: Language Education and Acquisition Research Network, 14*(1), 118–145.

Tobias, S., & Everson, H. T. (1996). *Assessing metacognitive knowledge monitoring* (College Board Report No. 96-01). College Entrance Examination Board.

Tobias, S., & Everson, H. T. (2002). *Knowing what you know and what you don't: Further research on metacognitive knowledge monitoring* (Research Report No. 2002-03). College Entrance Examination Board.

Tobias, S., & Everson, H. T. (2009). The importance of knowing what you know: A knowledge monitoring framework for studying metacognition in education. In D. J. Hacker, J. Dunlosky & A. C. Graesser (Eds.), *Handbook of metacognition in education* (pp. 107–127). Routledge.

Ur, P. (2009). *A course in language teaching*. Cambridge University Press.

Wahyuni, Z., Ratmanida, R., & Marlina, L. (2018). The relationship of students' metacognitive reading strategies awareness and reading comprehension: The case of the sixth semester student of English Department Universitas Negeri Padang (UNP). *Journal of English Language Teaching, 7*(3), 399–413.

Wu, L., Valcke, M., & Keer, H. V. (2021). Supporting struggling readers at secondary school: An intervention of reading strategy instruction. *Reading and Writing, 34*(4), 2175–2201. https://doi.org/10.1007/s11145-021-10144-7

Yapp, D., de Graaff, R., & van den Bergh, H. (2021). Effects of reading strategy instruction in English as a second language on students' academic reading comprehension. *Language Teaching Research, 27*(6), 1456–1479. https://doi.org/10.1177/1362168820985236

Yoshikawa, L., & Leung, C. Y. (2020). Transitional shift of metacognitive awareness of reading strategy along with L2-English reading proficiency. *The Reading Matrix: An International Online Journal, 20*(1), 36–44.