



Metacognitive Reading Strategies and L2 Reading Achievements: A Correlational Study of EFL in Indonesia

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Abstract: This study aimed to investigate how metacognitive reading strategies correlate with EFL learners' achievement. Three types of metacognitive reading strategies were measured in this study, namely: global reading strategies, problem-solving reading strategies, and support reading strategies. The data collection was conducted with 56 participants from an ESP reading class at a private university in Yogyakarta. This study found that problem-solving reading strategies and global reading strategies correlated positively with students' achievement, while support reading strategies correlated negatively with their achievement. However, those correlations were not statistically significant. Therefore, it indicates insufficient evidence to suggest that the same correlations also happened in the population or that the observed correlations might have occurred by chance. Despite the correlations not being statistically significant, in this research, the participants were sampled from the population with a 95% confidence level and a margin of error of 5%. In addition to the findings, this study provides teachers with an example of a framework for a needs analysis to measure their students' metacognitive reading strategies and help them plan more informed reading instruction.

Keywords: *Global reading strategies; problem-solving reading strategies; support reading strategies; metacognitive reading strategies*

A. INTRODUCTION

Despite its seemingly simple guise, reading is a complex process of meaning-making that involves interactions between a reader and the text, not to mention the context. In fact, the skill facilitates the development of the other three skills (Anderson, 2003). Due to its complex nature, its mastery often entails the significant use of reading strategies. Ghafournia (2014) stated that reading strategies are essential techniques

employed by students to remember, understand, and use information effectively for language learning purposes. With reading strategies, second language learning can be done more quickly because there are techniques that can help them memorize and understand new information from their reading materials.

Reading strategies can be classified into several groups, such as cognitive reading strategies, socio-affective reading strategies, and metacognitive reading strategies (Ahmadian and Pasand, 2017; Anggraini et al., 2022; Fahim and Hoominian, 2014). For example, students use cognitive strategies to manipulate or remodel the language, while socio-affective strategies improve self-encouragement and lower anxiety (Mohammadi et al., 2012; Nasab and Motlagh, 2015). On the other hand, metacognitive reading strategies are portrayed as thought processes for self-control and self-regulation, with which readers can choose between various reading strategies in various contexts and for various reading purposes (Anderson, 2003; Khan and Khan, 2013; Mokhtari and Reichard, 2002; Nguyen, 2022).

In addition to cognitive and socio-affective reading strategies, metacognitive strategies are believed to be significant in helping improve students' reading proficiency (Pammu et al., 2014). The significance of metacognition has been confirmed by Mokhtari and Reichard (2002) by stating that it provides mechanisms of self-control and awareness of one's cognition about reading, both of which are vital to skilled reading. These strategies involve both metacognitive experiences and metacognitive knowledge. As defined by Iwai (2011), metacognitive experiences are learners' internal responses to their metacognitive processes. In contrast, metacognitive knowledge consists of beliefs about what variables might affect the outcome and the course of cognitive efforts. In accordance with Flavell (1979), as cited in Sheorey and Mokhtari, (2001), awareness of metacognitive strategies, no matter in L1 or L2, is indeed an integral factor that one needs to have in order to comprehend reading text effectively.

In this study, the leading theory of metacognitive reading strategies used is that of Mokhtari and Reichard (2002). According to Mokhtari and Reichard (2002), metacognitive reading strategies can be grouped mainly into three types, namely problem-solving, global reading, and support reading. Problem-solving strategies are pertinent to students' efforts to deal with reading difficulties when they are reading complex text. These strategies include changing the reading speed, reading aloud,

rereading, and guessing word meaning (Deliyani and Cahyono, 2020; Mokhtari and Reichard, 2002). Global reading strategies guide students to have purposes when they are reading. These strategies include activities such as increasing the target vocabulary and finding more information on particular topics (Ali and Razali, 2019; Mokhtari and Reichard, 2002). Finally, support reading strategies include using dictionaries, note-taking and highlighting specific sentences, asking questions about the text, and paraphrasing paragraphs (Ali and Razali, 2019; Mokhtari and Reichard, 2002). According to Ali and Razali (2019), metacognitive strategies can facilitate language instructors to understand their students' various styles of reading and select the most suitable reading strategies to teach in their classrooms.

The connection between reading achievement and the use of metacognitive reading strategies has been scrutinized by a number of researchers around the world with various emphases. Metacognitive reading strategies are considered effective in aiding students in dealing with difficulties in reading (Yüksel and Yüksel, 2012). Aziz et al. (2019) posited that metacognitive reading strategies are intended to improve readers' control and awareness to face reading difficulties through these strategies. Similarly, Sheorey and Mokhtari (2001) said that students might become more responsive by being aware of their metacognitive reading strategies. According to Annury et al. (2019), when students are conscious of their metacognitive reading strategies, they become aware of their goals because then they would be able to monitor their reading process and organize, evaluate, and adjust their reading strategies.

Meanwhile, the study conducted by Aisah et al. (2021) investigated how an introverted student used metacognitive reading strategies and found that the strategies enhanced the student's motivation and self-confidence in reading comprehension. Additionally, Ismail and Tawalbeh (2015) conducted a quasi-experiment to examine the effects of metacognitive reading strategies on underperforming EFL readers. They discovered that through training on how to use these strategies, students could be facilitated to improve their reading comprehension.

Studies of metacognition show that metacognitive reading strategies are strongly linked to successful learning of a second language or foreign language. As stated by Koda (2007), successful language learners need to be able to monitor, assess and control their thinking. Through metacognitive reading strategies, a reader will pay much more

profound attention to his/her reading process (Pressley, 2002). Cotterall and Murray (2009) affirmed that metacognitive strategies are essential for students' success in learning. Taraban, Keer, and Rynearson (2004) asserted that undergraduates are aware of choosing and applying reading strategies geared toward college success and achievement. Despite all these studies examining how metacognitive reading strategies were correlated with reading achievement, correlational research into the connection between the two variables was still rarely conducted in Indonesia. Thus, this research was undertaken.

Due to the limited amount of research on how metacognitive reading strategies are used in the Indonesian context (Deliyani and Cahyono, 2020; Rianto, 2021), this study focused on scrutinizing the topic further. Moreover, as inquiries into how metacognitive reading strategies are correlated with reading achievement in Indonesian EFL classes are still rare, this present study aimed to apply a quantitative method to explore the English reading class students' achievement and how it was correlated with their metacognitive reading strategies at one of the private universities in Yogyakarta. This research investigated three types of metacognitive reading strategies: global reading, problem-solving, and support reading.

To address the above-mentioned objective, six research questions (RQs) regarding the metacognitive reading strategies and how they were correlated with Indonesian EFL learners' achievement were formulated as follows:

1. How often did the learners use global reading strategies?
2. How often did the learners use problem-solving reading strategies?
3. How often did the learners use to support reading strategies?
4. What was the relationship between the learners' use of global reading strategies and their English (L2) reading achievement?
5. What was the relationship between their use of problem-solving reading strategies and their L2 reading achievement?
6. What was the relationship between their support reading strategies and L2 reading achievement?

As posited by Pammu et al. (2014), metacognitive strategies are believed to help improve students' reading proficiency. This research provides a way for students to assess their use of metacognitive strategies to understand better how they read and how

their reading strategies might affect their achievement. For teachers or educators, it provides a framework to assess their students' metacognitive reading strategies, which might contribute to their reading achievement in the class. By identifying those strategies and relating them to the students' achievement, the teachers can then use their own data to design lessons that facilitate their students' preferred metacognitive strategies. Thus, the teachers will know how to overcome and help the students with their reading difficulties using metacognitive strategies. Moreover, this study provides some findings that might benefit further discussion on related topics.

B. RESEARCH METHOD

This study is quantitative in nature and employed a correlational research design. Creswell (2014) stated that the quantitative method is a type of empirical research that examines variables' relationships to test objective theories by analyzing statistical data. This study conducted a correlational analysis to examine the correlation between students' reading achievement and their metacognitive reading strategies. The research participants were non-English major students at one of the private universities in Yogyakarta, Indonesia. Fifty-six out of sixty students were selected, and they belonged to an ESP reading class.

Since the classification of metacognitive reading strategies in this study was based on Mokhtari and Reichard (2002), the instrument in this research was also modified from their instrument. To collect the research data, a questionnaire was adapted from Mokhtari and Reichard (2002) and translated into Bahasa Indonesia (Indonesian language). It consists of three parts with 30 questions assessing the students' use of global reading strategies (13 questions), problem-solving reading strategies (9 questions), and support reading strategies (8 questions). Those 30 items yielded Cronbach's alpha of 0.82, indicating a good reliability level. Descriptive statistics were then used to analyze the questionnaire results and answer research questions 1 to 3. In addition to the questionnaire results, data about the students' reading achievement were gathered from reading scores provided by the lecturer. The participant's responses to the questionnaire and their reading scores were finally analyzed using SPSS 21 to answer research questions 4 to 6 and identify any relationships between metacognitive reading strategies and students' reading achievement.

C. FINDINGS AND DISCUSSION

Findings

RQ 1: Learners' Use of Global Reading Strategies

Table 1 shows the extent to which the research participants used global reading strategies. The table shows that the participants' responses to all 13 items belonged to the high usage category (mean > 2.5). This indicates that, on average, most of those students often used global reading strategies because all the items possessed mean values of more than or close to 3, which, according to the questionnaire scale, can be categorized into the "often" category. In alignment with [Ali and Razali \(2019\)](#), this high usage category of global reading strategies also means that the students were primarily aware of their reading purposes.

Table 1. Learners' Use of Global Reading Strategies

Questionnaire Item	N	Mean	
Q1.1: Having an aim in mind when reading	56	3.23	<i>Notes:</i> Those means were calculated from the questionnaire results containing items with the following scale of 1-4: 1 = almost never 2 = rarely 3 = often 4 = almost always
Q1.2: Thinking of what is known to help understand the content	56	3.39	
Q1.3: Doing preview before reading	56	3.07	
Q1.4: Thinking of whether the content fits the reading purpose	56	2.89	
Q1.5: Skimming the text first	56	3.00	
Q1.6: Deciding which to read and which to ignore	56	3.04	
Q1.7: Using figures, tables, and pictures	56	2.91	
Q1.8: Making use of context clues	56	3.00	
Q1.9: Making use of typographical aids	56	3.13	
Q1.10: Doing critical analysis and evaluation of the text	56	2.84	
Q1.11: Using conflicting information to check understanding	56	3.11	
Q1.12: Guessing what the text is about	56	3.29	
Q1.13: Checking the accuracy of the guesses	56	3.18	
Valid N (listwise)	56	3.08	

These results bear some similarities and differences to the previous studies. In terms of similarities, this study found that the students' use of global reading strategies belonged to the high usage category, resembling [Yüksel and Yüksel \(2012\)](#), where



global reading was reported to be one of the most frequently used types of strategies and [Deliyani and Cahyono \(2020\)](#) which stated that their participants demonstrated high awareness of global reading strategies. Few items in the questionnaire, however, were observed by some other studies ([Karbalaei, 2010](#); [Pammu et al., 2014](#)) to produce results in either medium or low usage categories. These differences in the usage categories of a few items in the questionnaire results were likely to be caused by different backgrounds and proficiency of the research participants. For example, this study involved 56 non-English major students in an ESP reading class at a private university in Yogyakarta. On the other hand, [Karbalaei \(2010\)](#) involved 93 Indians and 96 Iranians who were freshmen and sophomores majoring in English Translation and Literature, while [Pammu et al. \(2014\)](#) involved 40 less proficient EFL learners in the English Department of a public university in Indonesia.

RQ 2: Learners’ Use of Support Reading Strategies

Table 2 summarizes the extent to which the research participants used to support reading strategies. As indicated in the table, the students’ responses to all 9 items were also in the high usage category (mean > 2.5). It signifies that, on average, the students used to support reading strategies quite often. Based on the questionnaire scale, when all the items had mean values more than or close to 3, they belonged to the “often” category. This high usage of support reading strategies shows that the students were familiar with reference materials, such as dictionaries and notes, and techniques that can help support their reading ([Ali & Razali, 2019](#)).

Table 2. Learners’ Use of Support Reading Strategies

Questionnaire Item	N	Mean	
Q2.1: Taking notes during the process of reading	56	3.07	<i>Notes:</i> Those means were calculated from the questionnaire results containing items with the following scale of 1-4: 1 = almost never 2 = rarely 3 = often 4 = almost always
Q2.2: Reading aloud when the text difficulty level increases	56	2.77	
Q2.3: Writing summaries to reflect on key ideas	56	2.84	
Q2.4: Discussing the content of reading with other people	56	2.73	
Q2.5: Highlighting/circling information in the text	56	3.55	
Q2.6: Using reference materials (e.g., dictionaries)	56	3.38	
Q2.7: Paraphrasing the text	56	3.11	



Q2.8: Going back and forth in the reading text to identify connections between ideas	56	3.02
Q2.9: Asking questions to guide the reading	56	2.84
Valid N (listwise)	56	3.03

Since all the mean scores of questionnaire items pertaining to support reading strategies can be regarded as homogeneously belonging to the high usage category, this study produced slightly different results compared to those of [Karbalaie \(2010\)](#). In [Karbalaie \(2010\)](#), some questionnaire items on support reading strategies were reported to be in the medium and even low categories. The differences might have occurred due to the participants' different sample sizes and backgrounds. However, out of the nine support reading strategies listed in the table above, item Q2.5, “highlighting/circling information in the text,” and item Q2.6, “using reference materials (e.g., dictionaries)” were the two most frequently used strategies. It is in line with [Deliyani and Cahyono \(2020\)](#), who also found that those two were the most frequently used support reading strategies by their participants.

RQ 3: Learners’ Use of Problem-Solving Reading Strategies

Table 3 lists the mean scores of students’ responses to questionnaire items concerning support reading strategies. From the data, it can be concluded that the extent to which the students used to support reading strategies was in the high usage category (mean > 2.5). Students’ responses indicate this to all the 8 items, which were more than or close to 3 (3 = “often”). The high usage of problem-solving reading strategies indicates that the students frequently employed various techniques to solve the difficulties they encountered during reading ([Deliyani and Cahyono, 2020](#)).

Table 3. Learners’ Use of Problem-Solving Reading Strategies

Questionnaire Item	N	Mean	
Q3.1: Reading slowly but carefully to ensure comprehension	56	3.09	<i>Notes:</i> Those means were calculated from the questionnaire results containing items with the following scale of 1-4: 1 = almost never 2 = rarely 3 = often
Q3.2: Attempting to be back on track when starting to lose concentration	56	3.38	
Q3.3: Adjusting the reading speed as needed	56	3.21	
Q3.4: Paying closer attention when the text difficulty level increases	56	3.34	



Q3.5: Stopping from time to time to think	56	3.21	4 = almost always
Q3.6: Trying to picture and visualize information	56	2.75	
Q3.7: Rereading the text when it becomes difficult	56	3.30	
Q3.8: Trying to guess the meaning of unknown vocabulary	56	3.27	
Valid N (listwise)	56	3.19	

Even though all the mean scores of students' use of problem-solving reading strategies were in the high usage category, item Q3.6, "trying to picture and visualize information," was recorded to possess the lowest mean compared to the others. This indicates that despite the high frequency of its usage, picturing and visualizing information was the least preferred strategy compared to the other problem-solving reading strategies. It is in agreement with Magee (2018), who found out that picturing and visualizing information was one of the least preferred strategies used by his research participants. However, compared to this study which involved Indonesian EFL learners, Magee's research took a different setting by involving first-year students at a Japanese university as his participants.

Out of the eight problem-solving reading strategies listed above, the items Q3.2 "attempting to be back on track when starting to lose concentration", Q3.4 "paying closer attention when the text difficulty level increases," and Q3.7 "rereading the text when it becomes difficult" were the three most preferred strategies used by the students in this research. Similar findings were also observed by Maasum and Maarof (2012). Their study on 41 undergraduate students at a public university in Malaysia also found that those items were the three most regularly utilized problem-solving reading strategies.

RQ 4: The Relationship between Students' Use of Global Reading Strategies and Their L2 Reading Achievement

The Pearson correlation coefficient was utilized concerning the quantitative data to examine the correlation between the use of metacognitive reading strategies and Indonesian EFL learners' reading achievement. Those quantitative data comprise the students' reading scores and questionnaire results about the students' use of metacognitive reading strategies.



Firstly, quantitative data on students' use of global reading strategies and their L2 reading achievement manifested through reading scores were gathered and analyzed to identify any correlation coefficient.

Table 4. Correlation between Global Reading Strategies and Reading Achievement

		GLOB	SCORE
GLOB	Pearson Correlation	1	.057
	Sig. (2-tailed)		.676
	N	56	56
SCORE	Pearson Correlation	.057	1
	Sig. (2-tailed)	.676	
	N	56	56

The results in Table 4 above identified a positive correlation between global reading strategies and participants' reading achievement. It can be interpreted that the higher the participants' use of global reading strategies was, the higher their reading scores tended to be. However, the correlation was weak, $r(56) = 0.057$. It can also be identified from the results that the correlation was statistically not significant ($p > 0.05$). Therefore, it might imply that the correlation just occurred by chance, and there was not enough evidence to suggest that the correlation in the sample also existed in the population.

In comparison with the previous study by [Sutiyatno and Sukarno \(2019\)](#), where the correlation between global reading strategies and participants' L2 reading achievement was positive, substantial, and significant, this study yields a different result in terms of its strength and statistical significance. This might have been caused by the context differences between English department students and non-English department students. In this case, the English department students might have relatively more advanced L2 reading skills due to their more intensive English study than those from the non-English department.

RQ 5: The Relationship between Students' Use of Support Reading Strategies and Their L2 Reading Achievement

Next, quantitative data on students' use of support reading strategies and their L2 reading achievement shown through their reading scores were collected and analyzed using SPSS. Finally, statistical analysis was employed to examine any correlation between the use of support reading strategies and the students' reading achievement.

Table 5. Correlation between Support Reading Strategies and Reading Achievement

		SCORE	SUP
SCORE	Pearson Correlation	1	-.026
	Sig. (2-tailed)		.852
	N	56	56
SUP	Pearson Correlation	-.026	1
	Sig. (2-tailed)	.852	
	N	56	56

Table 5 shows a negative correlation between support reading strategies and the participants' L2 reading achievement. It can be interpreted that the higher the participants' use of support reading strategies was, the lower the reading scores they were inclined to have. However, the correlation was weak, $r(56) = -0.026$. Furthermore, as seen in Table 5, the negative correlation between support reading strategies and participants' reading achievement was also statistically insignificant ($p > 0.05$). This also indicates that the correlation might have occurred by chance, and there was not enough evidence to say that the observed correlation also existed in the population. Compared to the previous research by [Sutiyatno and Sukarno \(2019\)](#), where the correlation between support reading strategies and participants' L2 reading achievement was positive, strong, and significant, the correlation identified in this study was negative, weak, and not significant. This result is also different from the study by [Fitrisia et al. \(2015\)](#), which demonstrated a weak and significant positive correlation. The different results might have arisen because of the participants' different levels/grades and fields of study, even though they were all from Indonesia. The participants in the [Sutiyatno and Sukarno \(2019\)](#) sample were 55 students from an English department of a state university in Central Java. In contrast, [Fitrisia et al. \(2015\)](#) samples were 38 third-grade students from five different secondary schools in Aceh.

RQ 6: The Relationship between Students' Use of Problem-Solving Reading Strategies and Their L2 Reading Achievement

Lastly, quantitative data on students' use of problem-solving reading strategies collected through the questionnaire and the students' L2 reading achievement demonstrated through their reading scores were analyzed statistically using SPSS. The analysis was utilized to examine whether there was any correlation between the use of problem-solving reading strategies and the students' reading achievement.

Table 6. Correlation between Problem-Solving Reading Strategies and Reading Achievement

		SCORE	PROB
SCORE	Pearson Correlation	1	.076
	Sig. (2-tailed)		.579
	N	56	56
PROB	Pearson Correlation	.076	1
	Sig. (2-tailed)	.579	
	N	56	56

Table 6 above reveals the relationship between problem-solving reading strategies and participants' L2 reading achievement. As shown in the table, a positive correlation between problem-solving reading strategies and the students' reading achievement was identified. It can be interpreted that the higher the participants' use of problem-solving reading strategies was, the higher their reading scores tended to be. However, the correlation was weak, $r(56) = 0.076$. The result also shows no significant positive correlation between problem-solving reading strategies and participants' reading achievement ($p > 0.05$). Compared to the previous study by [Sutiayatno and Sukarno \(2019\)](#), which found a strong and significant positive correlation between problem-solving reading strategies and participants' reading achievement, this study yields a different result in terms of its strength and significance. This might have happened because of the different fields of study between the two groups of participants.

Based on the Pearson product-moment correlation coefficient employed to identify the relationship between the students' L2 reading achievement and the three metacognitive reading strategies, it can be concluded that all the correlations were insignificant. Out of the three types of metacognitive reading strategies, the closest correlation to statistical significance was shown by the problem-solving reading strategies. This finding is in keeping with a study by [Pammu et al. \(2014\)](#), which shows that the participants demonstrated a high awareness of problem-solving strategies among the other metacognitive strategies. Besides that, a similar study conducted by [Dünder \(2016\)](#) in Poland also found an interesting case where the respondents only used one metacognitive strategy, namely problem-solving strategies. According to [Djudin \(2017\)](#), problem-solving strategies are highly implemented in learning processes.



D. CONCLUSION

Consistent with the research findings, at least two main points can be wrapped up as part of the conclusion. Firstly, based on the questionnaire results, the extent to which the participants used global reading strategies, problem-solving reading strategies, and support reading strategies were all in the high usage category. Secondly, it was found that the correlations between the use of those three metacognitive reading strategies and the learners' L2 reading achievement were not statistically significant. Regarding correlational directions, both global reading and problem-solving reading strategies had positive correlations, whereas support reading strategies had a negative correlation. It means that the higher the participants' use of global and problem-solving reading strategies was, the higher their reading scores tended to be. On the contrary, the higher the participants' use of support reading strategies was, the lower the reading scores they were inclined to have. Concerning the correlational strength, weak correlations were identified between using all three metacognitive reading strategies and the learners' L2 reading achievement.

The limitation of this study is that the correlational results were not statistically significant. This indicates that the correlations might have occurred by chance or that there was insufficient evidence to claim that the same correlations existed in the population. However, despite the correlations not being statistically significant, 56 participants out of 60 were sampled to represent the population with a confidence level of 95% and a margin of error of 5%. As it is possible that the number of participants in this study might not be large enough to yield the required significance for the correlations, it is recommended for future studies to gain a larger number of participants to investigate whether similar results also occur with different sample sizes.

This research provides teachers and students with a framework to measure the use of metacognitive reading strategies. By identifying those strategies, students can strategically reflect on their reading experience, and teachers can use the data to design lessons that facilitate their students' preferred metacognitive strategies. This study also provides some findings that might be beneficial to further research on related topics.

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