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Metacognitive Reading Strategies and Their Impact on Comprehension: Insights from Rural EFL Learners

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Abstract

The need for more understanding and implementation regarding the importance of metacognitive reading strategies has constrained reading skills learning among EFL learners. While these strategies improve reading comprehension, learners must still utilize them effectively, reducing their performance in reading texts critically and independently. This study examines the influence of metacognitive awareness reading strategies on reading comprehension among rural EFL learners. This study exploited cross-sectional design, one of two major designs of survey methods. This study employed 114 EFL learners of the English Department in Indonesia. This study employed two instruments, namely a questionnaire to measure EFL learners' metacognitive awareness reading strategies from MARSI-R by Mokhtari et al. (2018) and documentation obtained from the scores of the reading courses in the third semester. This study used quantitative statistical analysis, descriptive statistics to analyze the ability level of EFL learners to read comprehension, and inferential statistics to determine the influence of metacognitive awareness reading strategies on reading comprehension among EFL learners. The result of this study revealed that reading comprehension among EFL learners is at a moderate level. EFL learners are highly aware of metacognitive reading strategies, especially problem-solving strategies. These subscales also strongly correlate with each other and metacognitive awareness reading strategies for improving readers' metacognitive ability to understand texts. Then, metacognitive reading strategies have a significant relationship but a weak impact on reading comprehension, explaining only slight variability. Regularly employing metacognitive strategies can improve reading performance and effectiveness, making learners more strategic and skilled in planning, monitoring, and evaluating their reading comprehension.

Keywords: EFL education, cross-sectional design, MARSI-R, metacognitive awarness, metacognitive reading strategies, reading comprehension, reading performance

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1. Introduction

Reading is one of the most important-language skills at all levels of education (Wahyuningsih & Citraningrum, 2019; Wingard et al., 2020; Ritonga et al., 2024). Reading comprehension becomes one of the fundamental skills in the language learning process. Reading is defined as one of four primary skills in language teaching, and it plays a prominent role in a language teaching program (Namaziandost et al., 2022). Reading skill is a tool to understand information and knowledge from texts as a reader (Ebadi & Ashrafabadi, 2022; Vaughn et al., 2024). In addition, reading skills also play a crucial role in assisting the development of commu-

nication skills (Koda, 2018) because a good comprehension of written text or a good reader can be the foundation for developing writing, speaking, and critical thinking skills.

Reading, one of the major receptive skills of language besides listening, is an alternative way to provide access to language input, taking an essential role in acquiring a first or second language. Reading is a skill that allows readers to gather new information through a text. Having good reading comprehension, learners can explore various learning resources (Anderson, 2003; Ediger, 2006; Weisi et al., 2012). So, the reading process is interactive and recognizes the relationship between the components of the reader, text or genre, and context.

Reading comprehension comprises two levels of understanding: comprehension of explicit information from text and inferences drawn from the information (Wagner, 2004). This process relies on the interaction between three main components: reader characteristics (knowledge, capacities, and memory), the text (text representations and features), and the activity or the reading purpose (Snow, 2002). Accurate comprehension occurs when the reader's knowledge and skills match the characteristics of the text and the reading activity. However, a mismatch between these components can interfere with comprehension. Stronger readers use reading strategies to enrich comprehension, whereas weaker readers employ these strategies to overcome the limitations (Alderson et al., 2016).

In an institutional setting, reading skills are considered academic skills and proficiency for learners. Reading as a skill has received a lot of attention in almost every pedagogical situation because the purpose of reading and the tasks it fulfills can be various, and it can affect the learning of other components as well (Linse & Nunan, 2005; Nunan, 2015). Through reading skills, learners can gain, learn, synthesize new information, and interpret the information as a learning resource. Reading activities have been a foundation for synthesizing learning and the critically evaluated and could be an essential tool in self-directed learning (Grabe, 2009; Hodges, 2015; Grabe & Stoller, 2019).

Therefore, reading activities are complicated activities for interpreting information. Readers should recognize and comprehend this information through the principles of the reading process. To understand text information, a reader should have strategies for the reading process. Reading strategies are monitoring systems that include self-reflection, awareness of text interaction, and the relationship between strategy and text comprehension (Teevno & Raisani, 2017; Al Raqqad et al., 2019; Ali & Razali, 2019; Banditvilai, 2020; Yapp et al., 2023).

Reading strategies are a monitoring system that involves readers reflecting on their own reading processes, being aware of their interaction with the text, and understanding how reading strategies relate to text comprehension. Based on the reading process, reading strategies are divided into two categories: bottom-up and top-down. Bottom-up strategies require knowledge of linguistic features, including letters, morphemes, syllables, words, phrases, grammar, and discourse markers. Top-down strategies employ the reader's intelligence and experiences to grasp the text (Yang et al., 2019; Tabata-Sandom, 2020; Kakvand et al., 2022).

Applying strategies to comprehend texts is inseparable from metacognitive strategy. The knowledge and application of metacognitive strategies, including awareness of the reading purpose and the overcoming of com-

prehension difficulties, are essential for the good comprehension of texts, particularly in the reading context of a second or foreign language (Eskey, 2005; Li, 2010; Urquhart & Weir, 2014). Students use Metacognitive reading strategies to monitor and evaluate their comprehension of reading materials. The strategies involve various techniques that enable learners to be more active and aware as readers, gaining a better and more in-depth understanding of texts (Khurram, 2023). Thus, metacognitive awareness reading strategies are essential in enhancing text comprehension.

However, in the reality of EFL contexts in higher education, the use of metacognitive awareness reading strategies has been varied and unequally applied, regardless of the importance of these strategies in enhancing reading comprehension. Several studies have revealed that among the various strategies, global reading strategies emerged as the most employed, whereas support reading strategies were the least utilized (Beşkardeşler & Kocaman, 2016). Regarding gender, it was clear that female students used reading strategies more often than their male counterparts (Fauzi & Ashadi, 2019). In gender terms, female students are more frequently and more aware of employing reading strategies than male students, which could impact their better reading performance. This finding is supported by previous research consistently showing the prominence of reading strategy awareness in female students (Chen & Chen, 2015; Madhumathi & Ghosh, 2012). So, it implies that the learners are unaware of the importance of metacognitive reading strategies, which could hamper their reading comprehension.

In addition, several studies have been emphasized in investigating the importance of reading strategies, including both bottom-up and top-down processes, and their combination can enhance teachers' performance in diverse EFL classrooms, especially in Iranian EFL education (Kakvand et al., 2022; List et al., 2021), it leaves a gap in understanding how English language learners explicitly use these strategies in university settings.

Generally, metacognitive awareness of reading strategies influences reading and text comprehension. Metacognition enables readers to be aware of and consciously control the thinking process, enhancing the reading and comprehension of the text in a deep and meaningful manner. Previous studies have shown that metacognitive awareness of reading strategies is essential in improving reading achievement and ability (Meniado, 2016; Shang, 2017; Ghaith, 2020; Muhid et al., 2020a); teaching metacognitive reading strategies was shown to significantly improve students' reading comprehension, with the experimental group showing better results than the control group (Al-Kiyumi et al., 2021); Metacognitive strategies in reading involve monitoring and self-regulation that address the reading process and outcomes (Lian & Seepho, 2012); and an application of these strategies improves text comprehension while developing strategic competencies, making readers more skilled and adaptive (khellab et al., 2022). Thus, metacognitive awareness enables students to actively control and evaluate their comprehension of texts, thereby improving their effectiveness and efficiency in reading.

The urgency of this study is to investigate the metacognitive awareness reading strategies and reading comprehension among English foreign language learners at university and their influences. The result could be a consideration for enhancing the development of readers' competencies and the quality of EFL teaching-learning. Understanding how metacognitive awareness affects reading comprehension is crucial in helping EFL

learners develop more adaptive and efficient reading skills. In the context of globalization and the need for English language acquisition, this research is highly relevant in preparing learners for success in an increasingly demanding academic and professional environment. Shortly, this study highlighted and resolved the study questions, including "How do EFL Learners use metacognitive awareness reading strategies and reading comprehension" and "How is the correlation between each other subscale and their relationship with overall metacognitive awareness reading strategies" and "Is there a statistically significant influence between EFL learners' metacognitive reading awareness strategies and reading comprehension".

2. Method

This study exploited cross-sectional design, one of two major designs of survey methods. A cross-sectional research design allows one to discover and understand the overview and relationships of research variables simultaneously. As Creswell (2012) points out that a cross-sectional design is one type of survey research method in which data are collected from a sample or population at a single time to investigate the phenomena and conditions at which the data are collected. In addition, Leavy (2017) revealed that cross-sectional design studies only collect data at a particular time to understand the distribution of attitudes, perceptions, and practices in the population, which serves as the basis for further analysis.

Utilizing a cross-sectional design provides a relevant perspective regarding the purpose of this study, which is to provide an overview of metacognitive awareness reading strategies and reading comprehension variables and to measure the relationship between these variables at one specific point in time. Nevertheless, this design is limited in explaining cause-and-effect relationships since the data is recovered at the current moment or time, not the dynamic changes among variables.

This study's population was English Department learners at the Islamic State College of Kerinci, Indonesia, with 114 EFL learners. Taking a sample of this study employs a total sampling technique, comprising 114 EFL learners who had taken an academic reading course. According to Creswell (2012), this technique provides an opportunity to minimize potential biases that may arise from errors in selecting the sample.

Regarding instruments, this cross-sectional design employed two instruments: a questionnaire and documentation. Measuring EFL learners of metacognitive awareness reading strategies conducted by adopting the questionnaire from 15 items of Metacognitive Awareness of Reading Strategies Inventory-Revised (MARSI-R) developed by Mokhtari et al. (2018). This inventory was conducted on the validity of using a prominent instrument in measuring metacognitive awareness reading strategies among EFL learners. MARSI-R is a further development of the original inventory of MARSI, also developed by Mokhtari & Reichard (2002), consists of 15 items from three board strategies, including Global Reading Strategies (GRS), Problem-solving Strategies (PSS), and Support Reading Strategies (SRS). This inventory employs a new 5-point scale for measuring learners' metacognitive awareness reading strategies, ranging from "I have never heard of this strategy before" to "I know this strategy well, and I use it often while reading." The grid of the questionnaire is in the following table 1.

Table 1. Revised-Metacognitive Awareness Reading Strategies Inventory

Subscale	Code	Indicator	Item number
Global Reading Strategies	GRS	GRS can be considered a common or general reading strategy intended to organize the stage for the reading act.	1, 3, 5, 12, 13
Problem-Solving Strategies	PSS	PPS is employed to comprehend problems related to textual information.	7, 9, 11, 14, 15
Support Reading Strategies	SRS	SRS contains a support mechanism or tool aimed at ensuring the responsiveness of reading.	2, 4, 6, 8, 10

Furthermore, the reliability of Cronbach's alpha coefficient for MARSI-R indicates a higher alpha value ($\alpha = 0.850$). MARSI-R is categorized as highly reliable when collecting data (Mokhtari et al., 2018a). Concerning the collected data, EFL learners were divided into four groups to avoid concentrating on giving responses to the MARSI-R questionnaire in a classroom setting. EFL learners had one hour to complete the responses to the questionnaire. This allocated time was given to determine the accurate and unbiased responses. This study used documentation as a second instrument to gather data on EFL learners' reading comprehension. Reading comprehension was obtained from the scores of the reading courses in the third semester.

The techniques of this study employed descriptive statistics and inference statistics related to data analysis. A descriptive statistic is to calculate the mean, the mode, the median, the standard deviation, and the percentage (Creswell, 2012; Vogt & Johnson, 2015) with using SPSS 20. This study conducted a descriptive statistic (such as mean and percentage) to determine the levels of metacognitive awareness reading strategies and reading comprehension based on the guidance of scores interpretation on MARSI-R instrument as Table 2 (Mokhtari et al., 2018a) and employed the categories of level score based on a distribution normal involving a mean (μ) and a standard deviation (σ) (Azwar, 2020). For reading comprehension among EFL learners, as shown in Table 3.

Table 2. The Guidance of Score Interpretation on MARSI-R Instrument

Category	Score
High level of awareness	3.5 or higher
Medium level of awareness	2.5 – 3.4
Low level of awareness	2.4 – lower

Table 3. The Categories of Score Interpretation on Reading Comprehension

Category	Score
High level of comprehension	$(\mu + 1.0\ \sigma) \leq$ X
Medium level of comprehension	$(\mu - 1.0\ \sigma) \leq$ X $< (\mu + 1.0\ \sigma)$
Low level of comprehension	X $< (\mu - 1.0\ \sigma)$

Furthermore, an inference statistic was used to calculate the Pearson product-moment correlation and a simple linear regression analysis (Field, 2009). This study involves two variables: metacognitive awareness reading strategies as the independent variable and reading comprehension as the dependent variable. A Pearson product-moment correlation enabled us to measure the correlation between each subscale and the correlation between overall metacognitive awareness reading strategies. A simple linear regression analysis allowed the researcher to determine how much metacog-

nitive awareness reading strategies affect reading comprehension among EFL (English as a Foreign Language) learners. Prior to inferential analysis, the data of this study should be examined through prerequisite tests such as the normality test using Kolmogorov–Smirnov test and Shapiro–Wilk test as the assumptions of the parametric test (Field, 2009) as follows.

Table 4. The Results of Normality Test

One-Sample Kolmogorov-Smirnov Test			
		Reading Comprehension	Metacognitive Awareness
N		114	114
Normal Parameters[a,b]	Mean	75.9995	55.2544
	Std. Deviation	5.16088	4.22762
Most Extreme Differences	Absolute	0.058	0.077
	Positive	0.058	0.077
	Negative	-0.031	-0.064
Test Statistic		0.058	0.077
Asymp. Sig. (2-tailed)		.200[c,d]	.096[c]

The data would be normal if the significance (p) value is more significant than 0.05. The value of sig. (*p*) employed the value of Asymp. Sig. (2-tailed). Based on the table above, the Asymp. The significance values of the Kolmogorov-Smirnov test are 0.200 and 0.096 for variables of reading comprehension and metacognitive awareness reading strategies, respectively; the values were greater than 0.05. Data on metacognitive awareness, reading strategies, and reading comprehension is normal distribution. Therefore, this study could further analyze parametric statistical techniques using simple linear regression analysis.

Proving the simple linear regression analysis could be calculated by several steps: (a) measuring the equation regression of variables, (b) calculating the value of regression linearity and regression significance from variables, and (c) measuring the value of correlation and determination coefficients.

3. Result and Discussion

a. Descriptive Statistics of Metacognitive Awareness Reading Strategies and Reading Comprehension among EFL Learners

1) Metacognitive Awareness Reading Strategies among EFL Learners

Metacognitive awareness reading strategies comprise the following subscales: global reading strategies (GRS), problem-solving strategies (PSS), and support reading strategies (SRS). The following tables and figures disseminated the results of overall and subscales of metacognitive awareness reading strategies.

Table 5. The Results of Metacognitive Awareness Reading Strategies

	N	Total Mean	Mean	Level
Metacognitive Awareness Reading Strategies	114	55.25	3.68	High level of Awareness
Global Reading Strategies	114	18.24	3.65	High level of Awareness
Problem-Solving Strategies	114	18.75	3.75	High level of Awareness
Support Reading Strategies	114	18.26	3.65	High level of Awareness

Table 5 reported that metacognitive awareness reading strategies used among EFL learners have a high level of awareness (mean 3.68). For subscales of MARS, respectively, global reading strategies (QRS), problem-solving strategies (PSS), and support reading strategies (SRS) provide a high level of awareness with mean 3.65, 3.75, and 3.65. These results reveal that EFL learners have a good awareness of various metacognitive reading strategies. The high awareness of problem-solving strategies (PSS) indicates that EFL learners are highly skilled in overcoming their reading difficulties. The high awareness of global reading strategies (QRS) and reading support strategies (SRS) also indicates that EFL learners can effectively manage and support their reading process. This hints at the importance of teaching, which emphasizes the development of metacognitive awareness to improve reading skills in a language learning context.

Table 6. The Results of Metacognitive Awareness Reading Strategies used by EFL Learners

	Intervals	Overall	GRS	PSS	SRS
High level of awareness	3.5 or higher	90 *(79%)*	75 *(65.8%)*	82 *(71.9%)*	69 *(60.5%)*
Medium level of awareness	2.5 - 3.4	24 *(21%)*	36 *(31.6%)*	32 *(28.9%)*	44 *(38.6%)*
Low level of awareness	2.4 or lower	0	3 *(2.6%)*	0	1 *(0.9%)*
Total			**114**		

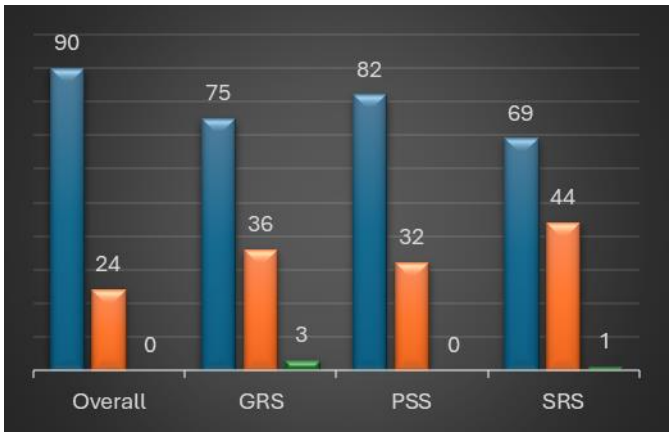


Figure 1. Distribution of Metacognitive Awareness Reading Strategies Used by EFL Learners

Most EFL learners have a high level of metacognitive awareness reading strategies, with 90 learners or 79% of high awareness. Despite this, EFL learners often need help comprehending complex academic text caused by a lack of vocabulary, grammar sentences, and various meanings or interpretations. In the current context, metacognitive awareness reading strategies become navigators to help a reader understand a difficult text. This is in line with relevant studies; metacognitive awareness reading strategies among EFL learners have a high level of awareness, and MARS is a crucial aspect for EFL learners as readers in understanding a text of abstract and technical academic context (Do & Le Thu Phan, 2021; Zhang & Seepho, 2013), and as the guidance for comprehending the complex academic text in a formal educational setting (Ab Aziz et al., 2023). Therefore, EFL learners are generally highly aware of metacognitive reading strategies when engaging with academic or school-related materials, such as book chapters, journal articles, and stories.

Metacognitive awareness reading strategies comprise three subscales that play a prominent role in comprehending a reading

text. According to the findings, 69 to 82 EFL learners are highly aware of these three strategies. This indicates that EFL learners, as readers, are aware of the effective way to read and comprehend complex text. Manoli and Papadopoulou (2012) and Ahmadi et al. (2013) argue that metacognitive awareness reading strategies are planned consciously, cautiously, and goal-oriented to be employed by readers in effectively facilitating text comprehension. This finding aligns with Wu et al.'s (2021) study; by employing metacognitive awareness reading strategies, EFL learners could more actively plan, control, and evaluate the process of understanding the reading text.

Problem solving required in learning activities (Ijirana et al., 2021). Problem-solving strategies have become highly important in reading resources as a piece of information. When EFL learners faced reading difficulties on various resources or texts, EFL learners employed problem-solving strategies. PSS emphasizes students' active involvement in the learning process. Through this strategy, learners practice becoming more self-organized within the learning process, which enables learners to be more responsible for making up for any misunderstanding while reading a difficult text. It is supported by Oxford (2011), who noted that learners who applied problem-solving strategies significantly improved comprehension of academic texts. This finding is consistent with previous studies by Wallace et al. (2021) that EFL readers applied more problem-solving strategies when reading texts than other strategies. Darwish (2017) affirmed Ghaith & El-Sanyoura (2019), Marboot et al. (2020), Rıanto (2022), Mortazavizadeh et al. (2022), and Naz et al. (2024) also noted in the study result that students mainly provide more revealing problem-solving reading strategies during reading than the other two strategies. EFL learners of this study used problem-solving strategies that have a dominant role in helping readers get information from texts/resources. EFL learners also employed several techniques (such as adjustment of time, speed, and on track; re-reading; and guessing the meaning) when having difficulties in cognitive and non-cognitive aspects (such as distracted, unknown words/phrases) of comprehending the information of texts.

However, problem-solving reading strategies tend to become the first preference of learners when facing any difficulties in reading, regardless of their awareness of global and support reading strategies and ineffectively in applying these strategies. Therefore, when learners have a barrier in reading texts, they tend to employ problem-solving strategies. The dependence of this strategy could support learners in accomplishing short-term academic tasks. Still, in the long-term academic tasks, it would hamper independent reading skills and reduce the effectiveness of learners' performance in situations that require more comprehensive reading comprehension.

2) Reading Comprehension among EFL Learners

The following table and figures are descriptive statistics and the categories of score interpretation on reading comprehension among EFL learners.

Table 7. Descriptive Statistic of Reading Comprehension Employed by EFL Learners

N	Min	Max	Mean	Standard Deviation	Skewness	Kurtosis
114	63.63	89.32	76.00	5.16	0.31	0.08

Table 8. Result of Level Reading Comprehension among EFL Learners

	Intervals			Learners	%
High Comprehension	81.16	≤ X		15	13.16
Medium Comprehension	70.84	≤ X <	81.16	78	68.42
Low Comprehension		X <	70.84	21	18.42
				114	

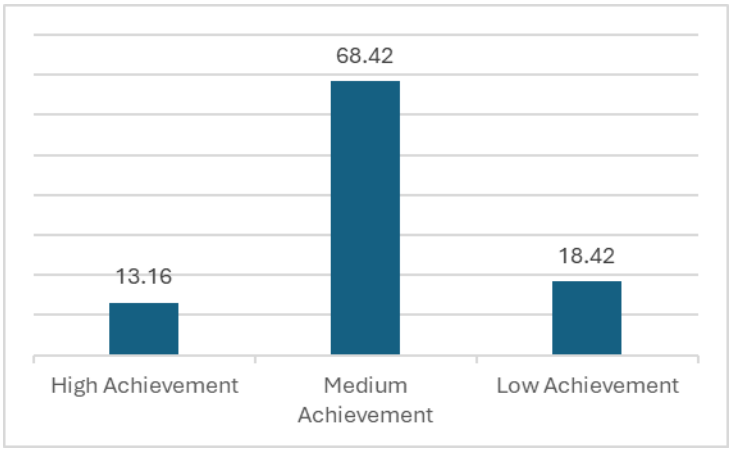


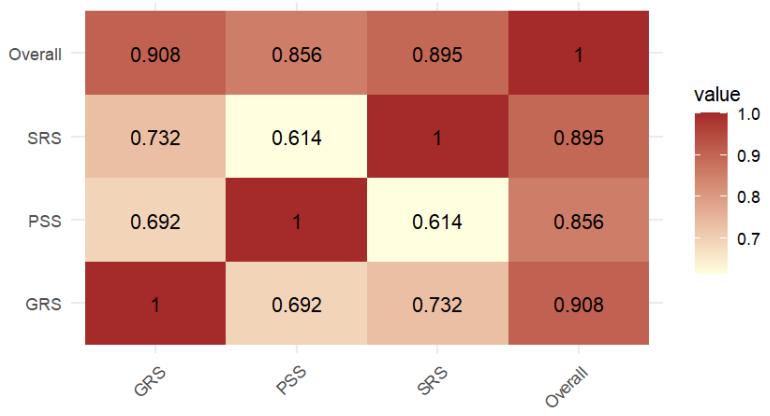
Figure 2. Distribution of Level Reading Comprehension among EFL Learners

Referring to the table above and Figure 2, learners' reading comprehension results represent an average performance. It indicated that most learners achieved a medium level of comprehension, with 78 learners or 68.42%. EFL learners' reading comprehension distribution tends to spread equally across the assessment scale, representing the diversity in students' academic comprehension within a reading learning context. This finding is supported by García and Cain's (2014) and Rastegar et al. (2017) studies show that most EFL learners achieved a medium or moderate reading comprehension level, reflecting their cognitive development in understanding the text in the target language (English). One of the causes is that most EFL learners only use the basic strategy to understand a text without the involvement of deeper critical thinking or a complicated understanding of the text (Pressley, 2002).

b. The Correlation between Each Other Subscale and Their Relationship with Overall Metacognitive Awareness Reading Strategies

Measuring the correlation emphasized a Pearson product-moment correlation. The result is shown as a result of Heatmap 1.

Heatmap 1. Correlation Matric of Each Subscale and Overall Metacognitive Awareness Reading Strategies



Proving the correlation between each subscale, global reading strategies (GRS) and problem-solving strategies have a good and positive correlation (r = 0.692). The correlation indicates that a reader has a high metacognitive awareness of global reading strategies (i.e., having a purpose for reading) and tends to utilize problem-solving reading more frequently in the reading process. In line with previous studies, global reading strategies positively correlate with problem-solving strategies (Mokhtari et al., 2018b; Ondé et al., 2022; Börekci & Börekci, 2023; Ab Aziz et al., 2023). The relationship between GRS and PSS does not reflect the benefit interactions of both strategies but indicates that these strategies are an integral part of the practical readers' experiences. GRS provides the basis for understanding, while PSS gives a way of coping with the difficulties of reading a text.

Global reading strategies (GRS) and support reading strategies (SRS) correlate strongly and positively (r = 0.732) and are significant statistically. This finding is consistent with other studies by Börekci & Börekci (2023), Ondé et al. (2022), and Ab Aziz et al. (2023). Considering real and practically relevant, a reader utilizes global reading strategies to comprehend the overall structure and purposes of reading text and support reading strategies to help a reader with difficulties comprehending overall reading text. These strategies are supported by using notes, discussing others, and using a dictionary.

Problem-solving strategies (PSS) and support reading strategies (SRS) indicate an adequate strong and positive relationship (r = 0.614). These findings are similar to Mokhtari et al.'s (2018b), Ondé et al.'s (2022), and Ab Aziz et al. (2023) studies that PSS has a strong and positive relationship with SRS. The positive relationship of each subscale implies that a good reader could continually implement several metacognitive reading strategies to enhance their comprehension of the text. So, a reader utilizing problem-solving strategies in comprehending the difficulties of reading text in the short term and using support reading strategies could reinforce the comprehension of text by seeking the broader information of text or applying the tool of understanding a text (Mokhtari et al., 2018b).

Then, in heatmap 1, the finding shows that the relationships between three subscales (GRS, PSS, SRS) and overall metacognitive awareness reading strategies are positive and powerful (respectively, 0.908, 0.856, and 0.895) relationships. The relationships indicate that the three scales have complemen-

tary roles and are established jointly in metacognitive awareness reading strategies to enhance reading comprehension and comprehension of the text. It is consistent with the opinion of Afflerbach et al. (2008) that metacognitive awareness reading strategies allow learners to plan, control, and evaluate comprehension while reading to enhance their understanding of texts independently. This finding is consistent with Salataci & Akyel's (2002) study. As confirmed by Deliany & Cahyono's (2020), having an awareness of implementing strategies in the thinking process and understanding the information in the text would enable the readers to map out the strengths and weaknesses.

These three strategies do not work individually; they are complementary in supporting readers to comprehend the text better. GRS contributes to planning and monitoring the reading process, PSS resolves the barriers faced while reading, and SRS helps readers by providing additional tools to reinforce their comprehension. The powerful relationship between these strategies suggests that their well-balanced and integrated utilization could significantly enhance reading and comprehension skills, including readers' metacognitive awareness of their reading process. So, these strategies could improve learners' reading comprehension, understanding of complicated and complex text, and academic performance in the English learning context.

c. Influence of Metacognitive Awareness Reading Strategies on Reading Comprehension

The regression equation of metacognitive awareness reading strategies and reading comprehension was measured from the SPSS output (Table 9. Coefficiencts[a]). The values of the constants and coefficients for the regression $\hat{Y} = 62.727 + 0.240X$. The results were also obtained t_{hit} = 2.124 and p-value = 0.036/2 = 0.018. The p-value is smaller than the significance level of 0.05, indicating that this result is not a coincidence. Robust evidence demonstrates that metacognitive awareness of reading strategies positively influences learners' reading comprehension.

Table 9. The Result of the Regression Equation

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	62.727	6.267		10.009	.000
	Metacognitive Awareness	.240	.113	.197	2.124	.036

a. Dependent Variable: Reading Comprehension

The foremost finding from the analysis is that the constant value (62.727) indicates the standard value of reading comprehension among EFL learners without any influence of metacognitive awareness reading strategies. Meanwhile, the regression coefficient value (0.240) and the significance value (0.018) indicate a positive and significant improvement and change in reading comprehension due to any improvement of metacognitive awareness reading strategies. These findings are consistent with other studies, which found metacognitive awareness reading strategies contribute to enhancing reading comprehension (Tavakoli, 2014) and MARS wielded an indirect relationship on reading comprehension of foreign or second language context (Guo, 2018). Metacognitive awareness reading strategies are crucial to comprehending a reading text in a

second or foreign English language (Rupp et al., 2006).

Table 10. Result of Linearity Test on Regression Analysis

ANOVA Table							
			Sum of Squares	df	Mean Square	F	Sig.
Reading Achievement * Metacognitive Awareness	Between Groups	(Combined)	545.902	20	27.295	1.030	0.436
		Linearity	116.533	1	116.533	4.399	0.039
		Deviation from Linearity	429.369	19	22.598	0.853	0.640
	Within Groups		2463.819	93	26.493		
	Total		3009.721	113			

Other evidence of the influence of metacognitive awareness reading strategies and reading comprehension revealed the linearity and significance test for regression analysis line equation. The linearity test could be obtained by calculating the *deviation from linearity* (Pedhazur, 1997; Darlington & Hayes, 2016; Field, 2024). The result of *deviation from linearity* proves whether there is a significant non-linear relationship between metacognitive awareness reading strategies and reading comprehension, with an F value of 0.853 and a p-value of 0.640 greater than 0.05. This indicates no significant deviation from linearity. So, the relationship between metacognitive awareness reading strategies and reading achievement is linear and significant, with no significant non-linear deviations. This indicates that the linear regression model is suitable for describing the relationship between these variables.

Previous studies have also reported this finding. The relationship between metacognitive awareness reading strategies and reading comprehension is linear (Hong-Nam et al., 2014; Wudneh, 2018; Kusumawardana & Akhiriyah, 2022), and there is a linear relationship between metacognitive awareness reading strategies and IELTS reading achievement (Fang & Rahman, 2024). EFL learners' metacognitive awareness of reading strategies does not capriciously impact reading comprehension at various levels or situations; instead, the impact is likely to be consistent and linear.

Table 12. Result of Significance Test on Regression Analysis

Model Summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.197[a]	0.039	0.03	5.08252	0.039	4.511	1	112	0.036

a. Predictors: (Constant), Metacognitive Awareness

Then, testing the significance of the correlation coefficient was obtained from the summary model table: the correlation coefficient r_{xy} = 0.197 and F_{hit} = 4.511 > 1.00, with p-value = 0.036 < 0.05, as shown in Table 12 above. There is adequate evidence to concede that the relationship between metacognitive awareness reading strategies and reading comprehension is statistically significant. The R_{Square} value is 0.039. This indicates that only 3.9% of the variability in reading comprehension can be explored by variability in metacognitive awareness reading strategies. Even though it is statistically significant, the

percentage of variability explained is relatively low.

Hence, these analyses show that while the relationships between metacognitive awareness in reading strategies and reading comprehension are statistically significant, these relationships are weak in a linear model. The metacognitive awareness reading strategies variable explores a small part of the variation in reading comprehension, suggesting that other factors also affect students' reading comprehension. So, metacognitive awareness reading strategies are essential for comprehending the reading activities. These findings are in line with previous studies. Rosnaeni et al. (2020) noted that metacognitive awareness reading strategies correlate with reading comprehension among students at senior high school. Students recognized the significance of reading comprehension and actively employed efficient reading strategies to get favorable outcomes in understanding texts. In addition, Muhid et al. (2020) confirmed that metacognitive strategies have affected students' reading comprehension by enhancing their reading performance and proficiency in maximizing their potential for compelling reading. Frequently using these strategies during reading activities helps students become proficient and strategic readers (Sheikh et al., 2019). Strategic readers can automatically plan, monitor, and evaluate their reading (Bagci & Unveren, 2020).

Other previous studies are also consistent with this study's findings. Metacognitive awareness helps students become more strategic readers, and implementing these strategies significantly enhances reading comprehension. (Marboot et al., 2020; Rıanto, 2022). The finding is also reinforced by the study by Nahar & Mallik (2022), which summed up that participants employing metacognitive reading strategies indicated higher levels of both comprehension and proficiency than participants not employing metacognitive reading strategies. So, metacognitive awareness of reading strategies has shown a positive relationship towards reading comprehension, enhancing reading performance and effectiveness. The routine employment of these strategies makes learners proficient and strategic readers in planning, monitoring, and evaluating automatically in reading comprehension activities.

As practical pedagogical implications, this study has highlighted the importance of implementing metacognitive awareness reading strategies for learning English as a foreign language (EFL), particularly at the tertiary level. For educationalists and curriculum developers, the results of this study suggest the necessity of embedding the instructions on metacognitive awareness reading strategies into the teaching and learning process. This could be accomplished through teaching techniques to effectively control and organize the reading process, such as self-reflection, objective setting, and adjustment of strategies based on the level of difficulty of texts. Thus, learners could become more self-regulated learners, capable of implementing such strategies in various reading tasks, and eventually enhance the academic performance of the learners.

The researcher provides the recommendation for future research to explore and deepen in the area of longitudinal design research, in which the aim is to analyze the development of metacognitive awareness across time and the impact on learning outcomes, such as reading comprehension and academic performance generally, and also explore how the other variables (such as those related to psychological or learning methods) such as motivation, anxiety, self-

efficacy, and others could be interacting with metacognitive awareness in influencing reading comprehension.

4. Conclusion

This study revealed that reading comprehension among EFL learners is at a moderate level. The result of utilizing MARSI by EFL learners has been a high awareness level, for subscales of MARSI – global reading strategy, problem-solving strategy, and support reading strategy – indicate high awareness. EFL learners are highly aware of using problem-solving strategies when facing reading difficulties. While problem-solving strategies are frequently used, reliance on these strategies may hamper independent reading comprehension in the long term. The dependencies could disregard the development of a more in-depth, comprehensive, and holistic understanding and the lack of skills in comprehending and analyzing texts, which are essential for long-term academic tasks and higher language acquisition. The GRS, PSS, and SRS subscales strongly correlate with each other and overall metacognitive awareness. The three subscales are essential in shaping and improving readers' metacognitive ability to understand texts. In addition, metacognitive reading strategies have a significant but weak effect on reading comprehension, explaining only a small variability. Regularly employing metacognitive strategies can improve reading performance and effectiveness, making learners more strategic and skilled in planning, monitoring, and evaluating their reading comprehension. EFL learners with higher MARSI awareness are likelier to have better reading comprehension. This is because learners can regulate the use of reading strategies, recognize problems that arise during the reading process, and apply appropriate strategies. Therefore, the development of metacognitive awareness should be a focus in language learning since it not only enhances reading comprehension in the short term but also provides learners with the necessary skills to succeed in further language learning.

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