Determining the Influence of Metacognitive Strategies on ESL Learners' Use of Comprehending Strategies: A Study in A Malaysian Public University

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ABSTRACT

Reading comprehension involves more than understanding words—it requires readers to actively monitor and regulate their thinking while constructing meaning from text. This study explores how metacognitive strategies influence ESL learners' use of comprehending strategies at a Malaysian public university. Drawing on the idea that effective readers plan, monitor, and evaluate their reading, the study focuses on the extent to which these metacognitive processes support the use of cognitive strategies during comprehension. The findings reveal that learners who are more aware of their reading processes tend to apply a broader range of strategies to make sense of texts. Among the various metacognitive behaviours, planning and monitoring appear to play the most critical role in regulating comprehending strategy. These insights highlight the importance of nurturing learners' metacognitive awareness to develop more independent, self-regulated readers. The study ultimately emphasizes that teaching students how to think about their own reading is just as vital as teaching them how to read.

Keywords: cognitive, metacognitive, reading strategies, L2 reading

INTRODUCTION

Reading is an essential skill that supports learning across all academic disciplines. Since reading competence is closely linked to academic success (González-Betancor et al., 2022), it remains a fundamental aspect of second language learning, especially for ESL learners. According to Mihret and Joshi (2025), proficient readers possess strong cognitive and linguistic skills, including vocabulary knowledge and executive control. Thus, reading success depends not only on the level of word recognition (decoding) and text comprehension but also on how effectively learners process and respond to it.

In second language (L2) contexts, however, reading comprehension poses greater challenges due to limited linguistic proficiency, smaller vocabulary size, and slower processing speed. Malaysian ESL learners, for instance, often experience difficulty constructing meaning beyond the sentence level, particularly when dealing with unfamiliar or complex texts (Romly, Badusah, & Maarof, 2017). These challenges call forth the importance of using effective reading strategies that can enhance comprehension and overall reading performance.

Among the strategies frequently linked to reading success are cognitive and metacognitive strategies. Cognitive strategies involve the mental actions used to comprehend, remember, and retrieve information, whereas metacognitive strategies refer to the self-regulatory processes that guide and control these cognitive actions through planning, monitoring, and evaluating (Ali & Razali, 2019; Zhang & Zhang, 2019). Research has shown that readers who are aware of and able to manage these strategies perform better in comprehension tasks (Phakiti, 2006; Muhid et al., 2020). However, many ESL learners remain unaware of how to use these strategies effectively or how the two interact to support comprehension (Nasab & Ghafournia, 2016; Shinta, 2024).

Recognising this gap, the present study aims to examine the relationship between metacognitive strategies and the cognitive strategy of comprehending among ESL learners in Malaysia. The present study was therefore set to address the following objectives:

1. To determine the relationship between metacognitive strategies (planning, monitoring, evaluating) and the cognitive strategy (comprehending).

2. To identify which metacognitive strategy (planning, monitoring, evaluating) most strongly influences the cognitive strategy (comprehending).

LITERATURE REVIEW

L2 Reading Comprehension

Alderson (2000) posited that reading is commonly viewed as two-fold across the research literature. The first is decoding, in which readers recognise words, and the second is comprehension. He further elaborated that comprehension, as often described by Gough et al. (1992), involves multiple components of cognitive processing. These include syntactic parsing, discourse-level interpretation, discourse construction, and integration with prior knowledge. Reading comprehension, in general, is often described as a complex mental process where readers build meaning from written text by drawing on their background knowledge, vocabulary, and understanding of language structures (Grabe, 2009). In the L2 reading contexts, this process tends to be more demanding since ESL learners are still developing their linguistic competence, hence may struggle with unfamiliar words or sentence patterns (Carrell, 1998), on top of needing to be aware of necessary reading mechanics (e.g, contextual clues) to aid their comprehension (Pakhiti, 2006). Therefore, in the words of Koda (2005), comprehension is not just about decoding words, but it is an active process that requires both thinking and reflection.

Cognitive Strategies in L2 Reading

When reading in a second language, the use of cognitive strategies represents a form of strategic processing, as learners consciously employ mental operations to construct meaning from text. Purpura (1999) described it as a multidimensional construct made up of strategies such as comprehending, memorising, and retrieving information. These strategies interact dynamically to support understanding and contribute significantly to learners' language performance. Grabe and Stoller (2011) elucidated that cognitive strategies are the mental operations that are evident in routine reading activities, such as identifying main ideas, making inferences, summarising content, and recalling key details to attain comprehension (Anderson, 1991). These strategies operate at multiple levels of processing. At the lower level, readers engage in word recognition and syntactic parsing to construct sentence meaning. At the higher level, they connect ideas across clauses, form a coherent mental representation of the text, and integrate new information with prior knowledge. In essence, reading involves a continuum of processing that ranges from basic decoding to complex inferential and integrative activities (Alderson, 2000; Pressley & Afflerbach, 1995).

Metacognitive Strategies and Their Role in L2 Reading

According to Flavell (1979), metacognitive strategies refer to the awareness and control of one's own cognitive processes during reading. These strategies enable learners to plan, monitor, and evaluate their approach to a reading task, helping them regulate the use of appropriate cognitive strategies to achieve better comprehension outcomes. Building on the role of cognitive processing, Purpura (1999) further conceptualised metacognitive strategy use as a "unidimensional" construct, encompassing a coordinated set of self-regulatory processes such as goal setting, planning, monitoring, self-evaluating, and self-testing. Within this framework, *planning* involves previewing the text, setting reading goals, and activating prior knowledge. Meanwhile, *monitoring* refers to checking comprehension, identifying difficulties, and adjusting reading speed or strategies when necessary. On the other hand, *evaluating* occurs after reading, when learners assess how effectively their comprehension goals have been met. Empirical evidence supports this view, with studies showing that learners who apply these metacognitive strategies tend to achieve higher levels of reading comprehension (Ahmadi, Ismail, & Abdullah,

2013; Zhang & Seepho, 2013). Collectively, these findings highlight that metacognitive awareness strengthens the use and effectiveness of cognitive strategies, thereby facilitating deeper comprehension and overall reading performance.

Relationship between Metacognitive and Cognitive Strategies in L2 Reading

The relationship between metacognitive and cognitive strategies in reading is widely recognised as reciprocal and interdependent (Anderson, 2002; Purpura, 1999; Zhang & Wu, 2009). Cognitive strategies are the mental operations used to construct meaning from text, whereas metacognitive strategies regulate how and when these cognitive processes are applied (Flavell, 1979; O'Malley & Chamot, 1990). Through metacognitive control, learners plan, monitor, and evaluate their use of cognitive strategies, which in turn enhances comprehension performance (Phakiti, 2006; Zhang & Seepho, 2013). Purpura's (1999) findings reported that metacognitive processing exerts a direct and positive influence on cognitive processing. This indicates that readers who regulate their comprehension activities perform better on language tasks. Similarly, the study by Ahmadi, Ismail, and Abdullah (2013) found that learners with greater metacognitive awareness are capable of employing cognitive strategies more effectively during reading. In line with these findings, Zhang and Wu (2009) observed that proficient readers demonstrate stronger coordination between the two, while less skilled readers often apply cognitive strategies without sufficient monitoring or evaluation.

RESEARCH METHODOLOGY

The purpose of this research is to determine the extent to which metacognitive strategies (planning, monitoring, evaluating) are associated with the cognitive strategy (comprehending) and to identify whether the correlation is positive, negative, or none. Thus, this research is categorised as a correlational research design. It is a non-experimental approach used to examine the relationship between variables, indicating how two or more variables are related to another (Salkind, 2012).

Population and Method of Data Collection

The population for this research consisted of 5883 students from UiTM Cawangan Kelantan who were enrolled in English courses offered throughout their academic programs. Using the Raosoft sample size calculator with a 5% margin of error, 95% confidence level, and 50% response distribution, the required sample size for this research was determined to be 361 students (Raosoft, 2004).

Primary data were collected through questionnaires adapted from Phakiti (2006). The set of questionnaires containing 35 questions was divided into five sections. The sections were demographic profile (7 items), comprehending (5 items), planning (6 items), monitoring (6 items), and lastly, evaluating (5 items). The questionnaire employed a 5-point Likert scale with the following response options: Never (1), Sometimes (2), Often (3), Usually (4), and Always (5).

RESEARCH FINDINGS

Normality Test

A normality test is used to see if a set of data is normally distributed in every research. In this research, skewness is used to quantify how asymmetrical a random variable's probability distribution is with respect to its mean. The skewness value may be undefined, positive, or negative. Pallant (2011) claimed that for the data to be properly distributed, a range of -1 to 1 is acceptable. Table 1 indicates that the data distribution was normally distributed, as the skewness measure was -0.534.

Table 1: Skewness Result

Skewness value	
Skewness	-0.534

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Reliability Test

Cronbach's Alpha was calculated for each item tested in order to perform the reliability analysis. According to Kline (1999), a value of value greater than 0.7 is the acceptable alpha value in the reliability analysis for the ability test case. Table 2 below shows that the Cronbach's Alpha values for all variables are greater than 0.734. This indicates that the questions for variables in the questionnaires were all valid.

Table 2: Cronbach's Alpha Values

Variables	Cronbach's Alpha	No. of question
Comprehending	0.734	5
Planning	0.883	6
Monitoring	0.910	6
Evaluating	0.879	5

Descriptive Statistics

The descriptive analysis of this research includes the gender of the respondents. The frequency distribution percentages for gender are displayed in Table 3 below. There were a total of 361 participants, of whom 75.3% (n=272) were women and 24.7% (n=89) were men.

Table 3: Gender

Gender	Frequency	Percentage (%)
Male	89	24.7
Female	272	75.3
Total	361	100

Inferential Statistics

To respond to the first objective, a correlation test is performed to determine the relationship between metacognitive strategies (planning, monitoring, evaluating) towards the cognitive strategy (comprehending). As shown in Table 4 below, all variables demonstrated significant positive relationships towards the cognitive strategy (comprehending) ($p<0.05$). The r-value for planning, monitoring, and evaluating was 0.524, 0.549, and 0.503, respectively. These results indicate moderate, positive relationships between the metacognitive strategies and the cognitive strategy (comprehending). They align with Lukes's (2021) and Khellab et al.'s (2022) findings, which revealed that metacognitive reading strategies led to significant improvements in both learners' metacognitive awareness and reading comprehension performance, thereby confirming their positive correlations. Therefore, it can be concluded that the learners who are more aware and frequently apply metacognitive strategies tend to comprehend reading texts better.

Table 4: Pearson Correlation Result

Variable	Comprehending		Level
	Pearson Correlation	Significant	
Planning	0.524	0.000	Moderate

Monitoring	0.549	0.000	Moderate
Evaluating	0.503	0.000	Moderate

Table 5 shows the model summary for the regression model. The value of R Square was 0.326, indicating that 32.6 of % variation in the cognitive strategy (comprehending) was explained by the independent variables, namely planning and monitoring.

Table 5: Model Summary

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
2	0.571[b]	0.326	0.322	0.52998

b. Predictors: (Constant), Planning and Monitoring

F-statistics were carried out to find the overall strength of the regression model. As shown in Table 6, the F-Statistic value was 86.523, and the p-value was less than 0.05, indicating that the model provides a good fit for the data.

Table 6: ANOVA Result

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
2	Regression	48.606	2	24.303	86.523	0.000[b]
	Residual	100.556	358	0.281		
	Total	149.162	360			

a. Dependent Variable: Comprehending

b. Predictors: (Constant), Planning and Monitoring

Table 7 presents the results of the regression model. It shows that only two independent variables—planning and monitoring—significantly influenced the cognitive strategy (comprehending) ($p<0.05$). This result echoes Takallou's (2011) findings, where experimental groups receiving five sessions of metacognitive instruction, particularly on planning and monitoring, outperformed the control group in the reading comprehension test. According to Romly et al. (2017), this outcome is attributed to the application of early metacognitive strategies, which help learners to set clear goals and simultaneously monitor their comprehension, hence positively impacting their cognitive processes. Muhid et al. (2020) further added that these learners can evaluate and adjust their approach during reading, which promotes the effective use of cognitive strategies in reading. In addition, this research also revealed that evaluating strategy is less influential compared to planning and monitoring, which may be attributed to its nature as a higher-order critical thinking process conducted after reading. Besides, evaluating involves reflecting and making judgments about the texts, which might not directly affect immediate comprehension and effective use of cognitive strategies during the reading process (Romly et al., 2017).

Table 7: Regression Model Result

Coefficients[a]				
Model	Unstandardized Coefficients	Standardized Coefficients	t	Sig.

		B	Std. Error	Beta		
2	(Constant)	1.457	0.171		8.524	0.00
	Planning	0.236	0.066	0.247	3.596	0.00
	Monitoring	0.314	0.060	0.357	5.195	0.00

a. Dependent Variable: Comprehending

Only one variable, which was "evaluating," had been removed from the model using the stepwise selection method since the p-value was greater than 0.05. Therefore, the final regression model is shown below.

$$Y = B_0 + 0.236\ X_1 + 0.314\ X_2$$

Comprehending = 1.457 + 0.236 (Planning) +0.314 (Monitoring)

CONCLUSION

The results of this research found that there is a significant positive moderate relationship between metacognitive strategies (planning, monitoring, evaluating) towards the cognitive strategy (comprehending), with r-values of 0.608, 0.524, 0.549, and 0.503, respectively (all the p-values are less than 0.05). The strength of these relationships suggests that students who employ higher levels of metacognitive strategies also tend to perform better in English comprehension learning. This relationship corresponds with Alderson's (2000) summary that the complexity of text is directly proportional to the readers' processing demand, which makes the process more automated. Concludingly, this leads to more efficient reading.

In addition, among these three metacognitive factors, planning and monitoring are perceived as the most influential in affecting the cognitive strategy (comprehending). This means that setting clear reading goals (planning) and continuously checking understanding (monitoring) during the reading process are particularly critical for enhancing comprehension outcomes. This scenario reinforces theoretical perspectives that position planning and monitoring as central mechanisms of metacognitive control, providing learners with the strategic guidance and ongoing adjustments necessary for effective meaning construction in reading. Future research could be conducted by using other dimensions of cognitive strategies.

Limitations Of The Study

Absence of reading test performance as a measure of validation. This study only adopted the cognitive and metacognitive strategy questionnaire developed by Phakiti (2006) but did not include the administration of a reading test component. Without the performance data, it is difficult to determine how far learners' reported use of strategies actually reflects their reading comprehension ability. The findings, therefore, rely solely on self-reported perceptions, which may not always align with students' actual reading behaviour or performance outcomes.

Variation in participants' proficiency and academic background. The participants in this study consisted of both diploma and degree students across multiple study programmes, whose English proficiency levels and learning experiences differed. As their compulsory English language courses were mainly designed to improve language proficiency (focusing on general language skills) or workplace readiness, their exposure to strategic reading instruction in the classroom may have varied. Such mix of learners could influence how each group interprets and reports their use of cognitive and metacognitive strategies. Hence, the results should be viewed with caution, as differences in proficiency or year of study might have shaped the overall pattern of responses.

Reliance on a single instrument for data collection. This study relied on a single self-report questionnaire to explore learners' use of cognitive and metacognitive reading strategies. While such questionnaires provide useful insights into the participants perceived reading behaviour, they may not fully capture the dynamic processes that occur during the actual reading tasks i.e. strategic processing. Therefore, the inclusion of multiple sources of

evidence, such as classroom observations, think-aloud protocols, or semi-structured interviews, could offer a more balanced and in-depth understanding of how learners apply these reading strategies in practice.

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