

Relationship between Metacognitive Awareness of Reading Strategies and Reading Comprehension

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Published: 27 June 2022

To cite this article (APA): Abd Halim, N., Satimin, O., Obaid, A., & Ghazali, A. S. (2022). Relationship between Metacognitive Awareness of Reading Strategies and Reading Comprehension. *AJELP: Asian Journal of English Language and Pedagogy*, 10(1), 56-67. <https://doi.org/10.37134/ajelp.vol10.1.5.2022>

To link to this article: <https://doi.org/10.37134/ajelp.vol10.1.5.2022>

Abstract: The study aimed to investigate the level of metacognitive awareness of reading strategies and its relationship with reading comprehension. The study was conducted on Diploma in TESL students at a private tertiary institution. Data was collected using the Metacognitive Awareness of Reading Strategies Inventory (MARSIS) Version 1.0 by Mokhtari and Reichard (2002) and a reading comprehension test that the students must sit for as one of their assessments in their Reading and Writing course. The simple random sampling method was used and the number of students who participated in the study was 191 respondents. The level of metacognitive awareness of reading strategies was analyzed and the Pearson's Product Moment correlation was employed to identify the correlation between the two variables. Overall, the result indicated that most of the respondents are aware of the various strategies that can assist them in reading comprehension. A further analysis revealed that the most preferred strategies are the ones under Problem-solving domain. In terms of its relationship with reading comprehension, the result indicated a positive correlation between the two variables indicating that metacognitive awareness of reading strategies plays a significant role in enhancing the students' reading comprehension.

Keywords: metacognitive awareness, reading strategies, reading comprehension

INTRODUCTION

Reading skill is an important skill as it assists the students with their learning process in general (Zhang & Seepho, 2013). Students need to be able to understand the input in order to acquire new information from the learning process and in tertiary education, as mentioned by Zhang and Seepho (2013), most input comes from reading. The use of strategies to help ESL learners develop their reading skills has been suggested by research in this field. Zare (2012), for example, believes that these students should use language learning strategies. This is supported by Shi (2015), who claims that the use of strategies will help students become more autonomous, resulting in students who are responsible for their own learning.

Researchers believe that metacognitive methods play a critical role in improving students' reading comprehension among the strategies taught to them (Rahimi & Katal, 2012; Zhang & Seepho, 2013; Tavakoli, 2014). Metacognition refers to one's understanding of one's own cognitive process and consequences, according to Flavell (1976), as cited in Iwai (2011). This leads to the conclusion that metacognitive techniques include being mindful of one's own thoughts and behaviour when performing a language mission. According to Rahimi and Katal (2012), this approach allows students to prepare, monitor, and assess their own learning, which will help them reach higher levels of achievement.

The research conducted by Zhang and Seepho (2013) had looked into the third-year English majors use of metacognitive strategy and their achievement in academic reading comprehension test. Their findings indicated that there was a significant positive correlation between the students' metacognitive strategy use and their achievement in the academic reading comprehension test. Other than this, Tavakoli (2014) also conducted a study on the effectiveness of metacognitive strategy awareness in reading comprehension on 100 English majors and found that there was a strong positive correlation between the metacognitive strategy use reported by the students and their achievement in reading comprehension. Looking at the huge possibility that metacognitive could be the answer to the problems in enhancing reading comprehension among ESL learners, it is important to conduct a study that would further investigate whether or not metacognitive strategy use could enhance reading comprehension.

Problem Statement

Although most of the previous research reported that metacognitive strategies could improve reading comprehension (Rahimi & Katal, 2012; Lian & Seepho, 2012; Tavakoli, 2014), Soleimani and Hajghani (2013) found themselves the opposite. Their research on pre-university students found that while students' comprehension and use of the skill improved, their reading performance remained unchanged. Another study conducted by Fitriasia, Tan and Yusuf (2015) which investigated the relationship between the metacognitive awareness of reading strategies and reading comprehension found that even though they reported a high level of metacognitive awareness, their reading comprehension achievement were not necessarily high. This means that there is no significant relationship between the two. Looking at these different results in past research, this research aims to determine how the subjects on which the research will be conducted will do.

Other than that, even though the number of studies that looked into the relationship between metacognitive awareness of reading strategy and reading comprehension achievement

might be quite a few, the number of studies that had been conducted in Malaysia is still rather limited. There are studies which looked into the metacognitive awareness of reading strategies, but many of them do not relate it to reading comprehension achievement, which is what this research is trying to achieve. For instance, a study conducted by Maasum and Maarof (2012) had used MARS to identify the metacognitive awareness of strategy use in a public university in Malaysia, but they did not correlate it with reading comprehension achievement to check whether it would actually give a positive result. This provides another reason to why this research should be conducted to have a further look into the stated issue.

Therefore, this present study intends to; 1) investigate the level of metacognitive awareness of reading strategies (MARS) among the Diploma in TESL students; and 2) study the relationship between metacognitive awareness of reading strategies and the students' scores in a reading comprehension test.

LITERATURE REVIEW

Reading Comprehension

Reading is a dynamic cognitive process, according to Soleimani and Hajghani (2013). In their research, they discovered that many students approached reading in a passive manner, using a dictionary to look up the meaning of words one by one, and as a result, they did not perform well. This is because, according to Meniado (2016), reading comprehension is not just a decoding process, but it is an interactive process of finding the right meaning that is being delivered by the author to the readers through the text. According to Ahmadi and Hairul (2012), reading comprehension is an important skill for ESL learners and it should be given a strong emphasis in all the different levels of education, primary, secondary and tertiary. Despite this realization, the teaching of reading strategies seems to still be neglected by the ESL trainers. One of the suggestions of their findings is to teach the ESL learners to use metacognitive strategies in reading.

Metacognitive Strategies

Metacognitive strategies make the students focus their attention on understanding the content and to help them to connect their previous knowledge with what they were reading in order to accomplish the task, which is to comprehend the text (Paris and Jacobs, 1984) as cited by (Sen, 2009). The goal of metacognitive strategies is to train the students on how to set objectives and how to be efficient and independent learners (Sen, 2009). Salataki and Akyel (2002) stated that most research had suggested that metacognitive reading strategy is an effective solution to the learner's reading comprehension problems. This is because metacognitive strategies are the conscious mental processes or behaviour which will help to regulate and modify the learner's attempt to comprehend a text (Afflerbach, Pearson & Paris, 2008). Metacognitive awareness is an effective strategy in assisting the students to decide on what, when, where and how they should apply the appropriate strategies in reading (Rastakhiz & Safari, 2014). The usage of these various reading strategies depends largely on the respondents' age, reading ability, difficulty of the text and the type of reading materials given (Mokhtari and Reichard, 2002).

The use of strategies also depends on the group of individuals. Yuksel and Yuksel (2012) conducted a study on the metacognitive awareness of academic reading strategies of the Turkish university students using the Survey of Reading Strategies (SORS) to determine the strategies that they use when dealing with academic materials. Their findings are consistent with Sheorey and Mokhtari's (2001) study which stated that non-native readers use reading

strategies more frequently and this leads to their high level of metacognitive awareness. Other than that, they also found that the strategies that is used most by the participants is the ones under problem-solving counterparts which is also consistent with Mokhtari and Reichard (2004) and Sheorey and Mokhtari (2001). This research stated that non-native readers use a lot of problem-solving strategies because these strategies are very essential for comprehension. Their findings which indicate that support strategies were the least used strategies might be due to the fact that these strategies are time consuming.

Despite the different findings in terms of the least used strategies, where Yuksel and Yuksel (2012) found that support strategies were the least used strategies while Madhumathi and Ghosh (2012) found global reading strategies to be the least preferred, these two studies revealed one similar finding. Both studies found that problem-solving strategy is most widely used strategies. This could be an indicator of students' preferences towards problem-solving strategies in reading. This finding regarding students' preference towards problem-solving strategies is supported by several other studies. One of them is by Maasum and Maarof (2012) which looked into the metacognitive strategy use of the undergraduate students in a public university in Malaysia and also other studies by Solak and Altay (2014), Li (2010) and Tipamas (2012). However, another study on metacognitive awareness of reading strategy use by English language teaching (ELT) students in the Turkish context were conducted by Kocaman and Beskardesler (2016). The result indicated that the students used more Global Reading Strategies than Problem Solving or Support Strategies while reading.

Even though different studies have revealed various results, among the existing strategies in reading, metacognitive strategies had been found to play a more significant role in language learning as according to Anderson (2003), learners who understand how to monitor and adapt their own learning with the use of different techniques will be able to complete the task more easily. In regard to reading comprehension, Rahim and Katal (2012), Lian and Seepho (2012) and Tavakoli (2014) agreed that metacognitive strategies play an important role in enhancing students' reading comprehension.

Domains of Reading Strategies

According to Mokhtari and Reichard (2002), there are three domains of metacognitive strategies which include Global Reading Strategies (GLOB), Problem-solving Strategies (PROB) and Support Reading Strategies (SUP). GLOB refer to the pre-reading actions that learners take before thinking about or reading the text (Rastakhiz & Safari, 2014). PROB on the other hand are very specific strategies focusing on the immediate problems during the reading process (Jafarigohar & Khanjani, 2014) while SUP according to Rastakhiz and Safari (2014), involve producing references outside of the text itself to assist their comprehension.

Metacognitive Awareness of Reading Strategies and Reading Comprehension

Metacognitive processes have long been recognised as an important component of comprehension (Phan, 2006). This is because it encourages students to prepare, monitor, and assess their own learning, which ultimately helps them achieve better learning outcomes (Rahimi & Katal, 2012). Even though some findings, such as those by Soleimani and Hajghani (2013), found that while learners' knowledge of how to use their abilities improved, their reading output did not, there are more studies that show that metacognitive strategies enhance reading comprehension. Other research has shown that if students are conscious of and use metacognitive strategies, their reading comprehension improves (Rahimi & Katal (2012); Lian & Seepho, 2012; Tavakoli, 2014).

This may be due to a variety of factors, including cultural differences and educational backgrounds (Oxford, 1990). These differences may have contributed to the disparities in findings among the various studies conducted in this field. Wang, Spencer, Minjie and Xing (2009) carried out an investigation on university EFL learners about their metacognitive beliefs and strategies. Their findings suggested that students who are confident about their learning process and can employ the metacognitive reading strategies are more successful than does who do not. In addition to this, Ahmadi, Hairul and Abdullah (2013) explored the issue of whether metacognitive awareness can help to improve students' reading comprehension. Their findings suggested that less proficient readers do not use metacognitive strategies as much as proficient readers do and that readers who use metacognitive strategies tend to be more successful than those who do not. This brings out another possible factor of the different level of effectiveness of these strategies on reading comprehension.

Estacio (2013) conducted a study to investigate whether bilingual reader's reading comprehension can actually be predicted based on the metacognitive strategies used. The study used the Metacognitive Awareness of Reading Strategies Inventory (MARS) to check their level of metacognitive awareness and two reading comprehension tests to measure their reading comprehension. Despite the frequent use of strategies, the result indicated that there is no single predictor to reading comprehension ability. On the other hand, a study done by Jafarigohar and Khanjani (2014) looked into the effect of text difficulty of the metacognitive reading strategy use among ESL learners. The result showed that the more difficult the text, the more metacognitive reading strategy will be used by the participants. Therefore, the study suggested that instructors should ensure that the difficulty of the text is above the learner's language ability in order to stimulate their metacognitive reading strategy use.

METHODOLOGY

The study was conducted on the Diploma in TESL students in a private institution. The total population was 350 students. The simple random sampling method was used and the number of students who participated in the study was 191 respondents. Based on the objectives of the study, a quantitative research approach was chosen. As for the research design, the survey research design was employed. For this research, a descriptive-correlational research nature was adopted. The instruments used were the Metacognitive Awareness of Reading Strategies Inventory (MARS) Version 1.0 by Mokhtari and Reichard (2002) and a reading comprehension test that the students must sit for as one of their assessment in their Reading and Writing course. MARS was chosen as the inventory to measure students' metacognitive awareness of reading strategies as according to Bentahar (2012), it is suitable for both adolescents and adult readers. It consists of 30 items which represents the three different reading strategies which are global reading strategies, problem-solving strategies, and support strategies. These items were arranged randomly and not divided according to the types of strategies. The instrument uses a five-point Likert scale ranging from 1 which means "I never or almost never do this" to 5 which means "I always or almost always do this". According to Karbalaee (2010), the internal consistency reliability coefficient for the three domains ranged from 0.89 to 0.93 which is considered as high, thus why this inventory has been chosen for this study.

Descriptive statistics were used in describing the level of MARS while inferential statistics were used in describing the relationship between MARS and the students' scores in a reading comprehension test. The Pearson's Product Moment correlation was employed to identify the correlation between the two variables.

FINDINGS AND DISCUSSION

Among the 191 participants, 156 of them were female students while 35 of them were male. Most of them reported to have an average reading skill level for English texts.

Level of Metacognitive Awareness of Reading Strategies

In investigating the level of metacognitive awareness of reading strategies, MARS inventory was used, and the level were categorized into the three levels set by the inventory. The findings for this study were reported as follows:

Table 1: The Level of Metacognitive Awareness of Reading Strategies

Level	Frequency (n=191)	Percentage %
Low (1.00 - 2.49)	1	0.5
Moderate (2.50 – 3.49)	73	38.2
High (3.50 – 5.00)	117	61.3
Total	191	100.0

Table 1 shows the levels of metacognitive awareness of reading strategies among the Diploma in TESL students. The findings indicate that majority of them, 61.3% (117) reported a high level of metacognitive awareness of reading strategies while another 38.2% (73) respondents reported a moderate level of metacognitive awareness of reading strategies. This finding is supported by Maasum and Maarof (2012) who conducted the same inventory to a group of students in a public university. They also found out that the students' metacognitive awareness of reading strategies ranges mainly from moderate to high. These were supported by Sheorey and Mokhtari (2001) who stated that non-native readers generally use more reading strategies leading to a higher metacognitive awareness of these reading strategies among them. This finding indicates that the students are mostly aware of the employment of the various reading strategies when they read a text in English.

Table 2 illustrates the mean and the standard deviation scores of the three domains of metacognitive awareness of reading strategies (MARS). The mean scores have been arranged in a descending order for a clearer illustration. Based on the findings, it can be seen that the overall MARS scores reported were 3.634 which is considered as high according to the scale set by Mokhtari and Reichard (2002) for the Metacognitive Awareness of Reading Strategies Inventory (MARSI) Version 1.0.

Table 2: Domains of Metacognitive Awareness of Reading Strategies

Domain	Mean	Standard Deviation	Indicator
Problem-solving Strategies	3.992	0.516	High
Global Reading Strategies	3.543	0.533	High
Support Reading Strategies	3.449	0.571	Moderate

Overall MARS **3.634** **0.464** **High**

Mean score indicator: 1.00 – 2.49 (Low), 2.50 – 3.49 (Moderate), 3.50 – 5.00 (High)

From Table 2, it can be seen that the most preferred domain is the problem-solving strategies with the highest mean score (mean=3.992, SD=0.516). This is supported by two other studies by Sheorey and Mokhtari (2001) and Mokhtari and Reichard (2002) with similar findings, where problem-solving strategies have the highest mean score. This indicates that the students are aware of their comprehension process and are capable of taking the necessary action to solve their problems while trying to comprehend the reading text by using the problem-solving strategies. Li (2010) and Tipamas (2012) also ended up with the similar findings which also support the finding of this study.

The least preferred domain reported is the Support Reading Strategies with the lowest mean score (mean=3.449, SD=0.571). According to Fitriasia, Tan and Yusuf (2015) and Yuksel an Yuksel (2012), this domain might have come out as the least preferred domain because the strategies under this domain is considered time consuming to the ESL readers. Under this domain, the strategies include using outside references as well as making extra effort like summarizing in order to assist them in understanding the text, thus explaining why not many students prefer to use the strategies under this particular domain.

A further analysis of the strategies under each domain were conducted and the findings are reported in Table 3, Table 4 and Table 5 below.

Table 3: Global Reading Strategies

Item No	Item	Mean	Standard Deviation
1	I have a purpose in mind when I read.	3.791	0.813
3	I think about what I know to help me understand what I read.	3.644	0.978
4	I preview the text to see what it's about before reading it.	3.812	0.998
7	I think about whether the content of the text fits my reading purpose.	3.414	0.958
10	I skim the text first by noting characteristics like length and organization.	3.147	1.095
14	I decide what to read closely and what to ignore.	3.476	1.141
17	I use tables, figures, and pictures in text to increase my understanding.	3.272	1.165
19	I use context clues to help me better understand what I'm reading.	3.560	0.949
22	I use typographical aids like bold face and italics to identify key information.	3.246	1.191
23	I critically analyze and evaluate the information presented in the text.	3.278	0.941
25	I check my understanding when I come across conflicting information.	3.969	0.894
26	I try to guess what the material is about when I read.	3.827	0.904
29	I check to see if my guesses about the text are right or wrong.	3.623	1.083

Overall Global Reading Strategies	3.543	0.533
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Mean score indicator: 1.00 – 2.49 (Low), 2.50 – 3.49 (Moderate), 3.50 – 5.00 (High)

Table 3 illustrates the distribution of mean scored for the Global Reading Strategies domain. The result of the overall mean score for Global Reading Strategies indicates that the overall mean score was high (mean=3.543, SD=0.533). Out of the thirteen (13) strategies under this domain, the item with the highest mean score for this domain is Item No 25 “I check my understanding when I come across conflicting information” (mean=3.969, SD=0.894). This is followed by Item No 26 “I try to guess what the material is about when I read” (mean=3.827, SD=0.904) and Item No 4 “I preview the text to see what it’s about before reading it” (mean=3.812, SD=0.998).

Table 4: Problem-solving Strategies

Item No	Item	Mean	Standard Deviation
8	I read slowly but carefully to be sure I understand what I’m reading.	3.963	0.970
11	I try to get back on track when I lose concentration.	4.147	0.840
13	I adjust my reading speed according to what I’m reading.	3.974	0.959
16	When text becomes difficult, I pay closer attention to what I’m reading.	4.236	0.854
18	I stop from time to time and think about what I’m reading.	3.335	1.087
21	I try to picture or visualize information to help remember what I read.	3.937	0.921
27	When text becomes difficult, I re-read to increase my understanding.	4.330	0.834
30	I try to guess the meaning of unknown words or phrases.	4.011	0.858
Overall Problem-solving Strategies		3.992	0.516

Mean score indicator: 1.00 – 2.49 (Low), 2.50 – 3.49 (Moderate), 3.50 – 5.00 (High)

Table 4 shows the findings for the strategies under the Problem-solving Strategies. The overall mean score for this domain is considered high (mean=3.992, SD=0.516). There are eight (8) items under this domain and the item with the highest mean score is Item No 27 “When text becomes difficult, I re-read to increase my understanding” (mean=4.330, SD=0.834) followed by Item No 16 “When text becomes difficult, I pay closer attention to what I’m reading” (mean=4.236, SD=0.854) and Item No 11 “I try to get back on track when I lose concentration” (mean=4.147, SD=0.840).

Table 5: Support Reading Strategies

Item No	Item	Mean	Standard Deviation
2	I take notes while reading to help me understand what I read.	3.272	1.005

5	When text becomes difficult, I read aloud to help me understand what I read.	3.665	1.220
6	I summarize what I read to reflect on important information in the text.	3.251	1.000
9	I discuss what I read with others to check my understanding.	3.225	1.155
12	I underline or circle information in the text to help me remember it.	3.639	1.192
15	I use reference materials such as dictionaries to help me understand what I read.	3.450	1.136
20	I paraphrase (restate ideas in my own words) to better understand what I read.	3.518	1.020
24	I go back and forth in the text to find relationships among ideas in it.	3.628	1.043
28	I ask myself questions I like to have answered in the text.	3.393	1.132
Overall Support Reading Strategies		3.449	0.571

Mean score indicator: 1.00 – 2.49 (Low), 2.50 – 3.49 (Moderate), 3.50 – 5.00 (High)

In Table 5, the distribution of mean score for the Support Reading Strategies domain is illustrated. Based on the overall mean score for this domain, it can be seen that Support Reading Strategies is the only domain with a moderate overall mean score (mean=3.449, SD=0.571). Item No 5 “When text becomes difficult, I read aloud to help me understand what I read” reported the highest mean score (mean=3.665, SD=1.220). This is followed by Item No 12 “I underline or circle information in the text to help me remember it” (mean=3.639, SD=1.192) and Item No 24 “I go back and forth in the text to find relationships among ideas in it” (mean=3.628, SD=1.043).

The result of the present study indicates that most of the Diploma in TESL students are aware of the various reading strategies that can assist them in comprehending the text. A further analysis on the MARS score revealed that the most preferred strategies are the ones under Problem-solving Strategies, followed by Global Reading Strategies with Support Reading Strategies being the least preferred domain. This indicates that the students are mostly very concern about their understanding of the text as a high mean score for Problem-solving Strategies indicates that they modify their use of strategies while they are reading whenever they face difficulties in the reading process. Looking at how these students made use of a lot of Problem-solving Strategies is an important indicator of their awareness of their comprehension process and it suggests that they can take the necessary actions to solve the problems that they encounter while they try to make sense of the reading task at hand (Maasum and Maarof, 2012). Therefore, the students’ preference in the use of Problem-solving Strategies should be fully utilized and enhanced as it provides good solutions to their comprehension problems at any point while reading.

Relationship between Metacognitive Awareness of Reading Strategies and the Students' Achievement in a Reading Comprehension Test

Table 6: Relationship between MARS and Reading Comprehension Achievement

		Reading Comprehension Achievement	MARS Score
Reading Comprehension Achievement	Pearson Correlation	1	.172*
	Sig. (2-tailed)		.017
	N	191	191
MARS Score	Pearson Correlation	.172*	1
	Sig. (2-tailed)	.017	
	N	191	191

*. Correlation is significant at the 0.05 level (2-tailed).

Based on Table 6, there is a significant relationship between reading comprehension achievement and metacognitive awareness of reading strategies ($r=.172$, $p\text{-value}=.017$). According to the correlation coefficient measurement by Davis (1971), the relationship is considered as a low positive correlation.

Even though the finding indicates that there is only a low positive correlation between reading comprehension marks and metacognitive awareness of reading strategies, the finding is still considered as significant. This finding is similar to other studies done on the relationship between these two variables (Rahimi & Katal, 2012; Lian & Seepho, 2012; Tavakoli, 2014). Other than these studies, Koda (2005) and Fatima Zahra et al. (2016) also found that MARS has a strong correlation with reading comprehension. The correlation between reading comprehension ability and metacognitive reading strategy is crucial in any reading process (Sheorey and Mokhtari, 2001), thus it is not surprising to see that the metacognitive awareness of reading strategies will influence reading comprehension. Singhal (2001) who studied ESL learners experience in their second language reading stated that good, proficient readers see reading as a meaning-making process and not as a decoding process as how poor readers would. This shows that the students' reading ability will affect their reading experience. If their metacognitive awareness is poor, thus they will not perform in terms of reading comprehension. Thus, for the present study, even though the relationship between the two variables is not that strong, it still indicates that there is a positive relationship between the two.

The employment of these strategies, based on the findings of the present study, has proven to be positively related to the reading comprehension achievement of these Diploma in TESL students. Having known that metacognitive awareness of reading strategies could influence the learners' reading comprehension level, educators should pay more attention in informing the students of these strategies and encouraging them to use variations of strategies to assist their comprehension of the reading text. This is because, as stated by Goldenberg (2011), improving ESL learners' skills in reading is very important because the goal in reading is to achieve comprehension and according to Lian and Seepho (2012), most input for ESL learners comes from reading. Thus, the use of metacognitive strategies is obviously relevant in improving ESL learners' ability to learn more especially in tertiary level.

CONCLUSION AND RECOMMENDATION

The metacognitive awareness of reading strategies not only can improve reading comprehension (Zhang, 2008), but it also can be used to promote independent learning. Training individuals to be independent learners is essential especially in today's education environment where independent learning could benefit the students in so many ways as they are presented with limitless number of resources to refer to. Learners who are capable of utilising metacognitive strategies effectively are learners with direction (Lam, 2008). These learners are the type of learners who will become autonomous in their learning process. Students will become empowered learners with metacognition as metacognition encourages the monitoring of the comprehension process which is an important aspect in skilled reading (Maasum & Maarof, 2012). Thus, one of the recommendations of this study is to also use metacognitive strategies to encourage learners to become more independent learners.

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