Asia Pacific Journal of Educators and Education, Vol. 30, 15–30, 2015

INVESTIGATING METACOGNITIVE AWARENESS OF READING STRATEGIES TO STRENGTHEN STUDENTS' PERFORMANCE IN READING COMPREHENSION

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Abstract: This study was about the metacognitive awareness of reading strategies to enhance students' performance in reading comprehension. From five government secondary schools in Banda Aceh, Indonesia, 272 students in grade three participated in this research. Two standardised English reading comprehension tests from Ujian Nasional (UN, or National Examination) 2005/2006 and the Metacognitive Awareness of Reading Strategies Inventory (MARSI) by Mokhtari and Reichard were employed. The MARSI consisted of 30 items that measured MARS, which were divided into three categories: global reading strategies (13 items), problem solving reading strategies (8 items), and support reading strategies (9 items). The results indicated a weak positive relationship between MARS and scores in reading comprehension. No significant difference was found in the students' level of MARS between good and poor readers. It was also found that the level of MARS for problem solving reading strategy was than for global and support reading strategies. The findings suggest direct instruction in MARS may help students increase their attention to the reading process. Becoming aware of their own thinking as they read and solve problems allows students to seize the advantages of learning opportunities to become strategic and thoughtful readers.

Keywords: metacognitive awareness, reading strategies, EFL learners

INTRODUCTION

There is a growing concern regarding students' reading ability, especially for non-native language learners in English classes. Students seem to have limited ability to interpret the information from the texts, think critically and use context clues to find meaning. Reading comprehension instruction in many classrooms focuses on teacher-generated questions or is based on textbook instruction, which measures comprehension of a specific text rather than metacognitive strategies for comprehending texts. Such a situation is common in Indonesia where English is taught as a foreign language (National Institute for Educational Policy Research, NIER, 2002). In fact, Graham and Bellert (2004) find that it is

important for teachers to provide explicit instruction to students in comprehension strategies because it can help students overcome their problems in understanding the text being read. Therefore, there is a need for teachers to improve students' performance in reading comprehension because effective reading strategies can be taught to readers to develop better reading achievement (Akkakoson, 2012). Carrell (1998) further states that to achieve resourceful comprehension, reading strategies should be augmented in the classroom to guide the students to become competent readers.

To assist our understanding of the students' reading problems, it is important to investigate their metacognitive awareness of reading strategies. By examining the learners' metacognitive awareness, their reading comprehension can progress because increased metacognitive awareness can improve comprehension (Zhang, 2008). Vandergrift (2002: 559) believes metacognitive strategies are essential in learning because "they oversee, regulate, or direct the language learning task, and involve thinking about the learning process". They also provide awareness to students of their lesson contents and the need to be tactical in monitoring their comprehension.

THEORETICAL PERSPECTIVES

Metacognitive knowledge according to Flavell (1976: 232) is "…one's knowledge concerning one's own cognitive processes and products or anything related to them". In the context of reading comprehension, metacognition ensures that the students are able to construct meaning from information. They should to be able to reflect on their own thinking process, identify reading strategies while reading and manage how they read. It is a segment of a learner's stored world knowledge that includes cognitive tasks, goals, actions, and experiences that have to do with people. It primarily consists of knowledge or beliefs about what factors or variables act and interact in ways that affect the course and outcome of cognitive enterprises.

Flavell (1979: 907) further describes three types of metacognitive knowledge: *person, task* and *strategy*. Person knowledge involves everything that a learner believes about the nature of himself or herself and other people as cognitive processors. According to Wenden (1998), person knowledge consists of learners' general knowledge on how learning takes place and how different factors such as age, aptitude and learning styles can influence language learning. Task knowledge is further referred to by Wenden (1998) as what learners know about the purpose, demands, and nature of learning tasks. It concerns the information available to them during cognitive activity. In the reading context, Garner (1988) says that giving tasks from familiar topic materials and ordered stories are easier

for the readers to understand and recall. Additionally, explicit topic sentences can assist the readers in their tasks that require reduction of texts to their general ideas. Lastly, Wenden (1998) explains that strategy knowledge is concerned with effective strategies in achieving sub goals and goals in different sorts of cognitive activities. Garner (1988) further describes examples of this strategy as verbal rehearsal and elaboration of material assistance in retrieval, re-inspection of text for material while reading the text, and aids in answering questions or prediction of article content.

Metacognitive experiences are any conscious cognitive or affective experiences that accompany and pertain to any intellectual enterprises. They occur before, during, and after the reading. Garner (1988) describes before-reading knowledge that relates to a personal strength, during-reading information as strategy knowledge and after-reading knowledge as task information. For all of these three experiences, metacognitive knowledge provides a base for metacognitive experiences that are expressed as awareness.

Metacognition in reading can distinguish skilled and unskilled readers. Skilled and unskilled readers are differentiated based on their comprehension ability, which employs their general world knowledge to understand and draw valid inferences from literary texts, and uses their comprehension monitoring to repair strategies (Mokhtari & Reichard, 2002). Therefore, skilled readers are aware of the text they read, know the reason for reading it, and set strategies to handle problems and monitor their comprehension of information. Unskilled readers are limited in their metacognitive knowledge about reading. They focus on reading as a decoding process rather than as construction of meaning. Most importantly, all of the components of metacognition play a role in activating each other to achieve comprehension and influence the learner's performance in using reading skills.

The Role of Metacognition in Reading Comprehension

In general, the role of metacognition is to help students be aware of what they have read and learned to achieve text comprehension. O'Malley, Chamot, Stewner-Mazanares, Russo and Kupper (1985) say that learners who lack metacognitive approaches are those who have no direction or opportunity to reassess their progress, achievements and potential direction. Paris, Cross and Lipson (1984) believe that readers will not adopt and use actions as reading strategies if they do not understand the value or reason for doing so. Learners ought to be taught on how, when, and why to use various comprehension strategies so that they could become self-directed, independent readers. These

strategies can be driven as learning techniques, behaviours, and problem-solving or study skills (Oxford & Crookall, 1989).

Mokhtari and Reichard (2002) assessed learners' level of reading strategies by using the Metacognitive Awareness of Reading Strategies Inventory (MARSI), which was designed to assess 6th-12th grade students' awareness and perceived use of the reading strategies while reading academic or school related materials. A total of 825 students from 10 urban, suburban, and rural school districts in five Midwestern states participated in the study. Three strategy subscales involved for assessment were global reading strategy, problem solving reading strategy, and support reading strategy. Their findings showed that there were significant differences in the use of global and problem solving reading strategies, but no significant differences in the use of support reading strategy. Additionally, the readers who rated their reading ability as excellent had a significantly higher use of global reading strategy than readers who rated their reading ability as average. For problem solving reading strategy scores, it was found that the excellent reading ability readers had a significantly higher use of this strategy than readers who rated their reading ability as average. This study also found that MARSI was reliable and valid for measuring and assessing the students' metacognitive awareness based on the psychometric data demonstration. The usage of these strategies, however, depended largely on the students' age, reading ability, text difficulty, type of reading materials and other related factors.

THE STUDY

The present study aimed to examine the reading performance of secondary school students in Indonesia in relation to their awareness of reading strategies in EFL. This is deemed an important issue to be dealt with as many students do face problems in understanding their reading texts. Furthermore, all third year students in secondary schools have to face the National Examination with English among three other subjects (natural sciences, social sciences and religion). Sukowati (2013) further claims that among the language skills taught in English (reading, writing, listening and speaking), reading is one of the most important skills in Indonesia as it is a bridge for the students to obtain information needed in transferring knowledge from textbooks.

Research Questions

The research questions for the present study were as follows.

1. What is the correlation between the metacognitive awareness of reading strategies (MARS) and students' scores in a standardised reading comprehension test?
2. What is the level of MARS of good readers and poor readers? Is there a significant difference between the two levels?
3. What is the level of MARS for the three groups of reading strategies, namely, global, problem solving and support reading strategies?

METHOD

Participants

This study was carried out in five secondary schools located in Banda Aceh, Indonesia, on third grade students (ages 17–18 years old). All of the participants had similar characteristics; they were all third graders from the schools in an urban location in Aceh (i.e., the city of Banda Aceh). From these schools, 63 students participated from the first school, 54 students participated from the second school, 64 students participated from the third school, 37 students participated from the fourth school and 54 students participated from the fifth school. Therefore, a total of 272 students took part in the study. The majority of the students spoke Acehnese as their mother tongue (L1) and Indonesian (the national language) for educational purposes and social communication (L2). English was the first foreign language learned by these students.

Instrumentation

Reading comprehension test

A standardised test was used as a tool to measure the students' performance in reading comprehension. It is a reliable instrument derived from the English test of UN 2005/2006 for the third grade secondary high school students in Indonesia. The Indonesian Department of National Education adopted its content from the Test of English for International Communication (TOEIC) based on the English curriculum of 1999/2004. It is thus much simpler. Corresponding to the aim of this present study, only the reading comprehension test was used. The reading comprehension test was multiple choice with five possible answers for each item. There were 35 questions with nine reading texts, and the duration of the test was 90 minutes.

Metacognitive awareness of reading strategies inventory (MARSI)

A questionnaire was also adapted from MARSI to measure their metacognitive awareness of reading strategies. MARSI was developed by Mokhtari and Reichard (2002) to assess students' metacognitive awareness and perceived use of reading strategies while reading academic or school-related materials. Mokhtari and Reichard (2002: 251) stated that the major purpose of this inventory was "to assess the degree to which a student is aware or is not aware of the various processes involved in reading." It consists of 30 items accompanied by a 5-point Likert-type scale for each item. The 30 items listed in the MARSI belong to 3 categories, which are global (13 items), problem solving (8 items), and support reading strategies (9 items). In general, global reading strategy represents a set of reading strategies oriented towards a global analysis of the text. Problem solving reading strategy focuses on strategies for solving problems when the text becomes difficult to read. Support reading strategy involves the use of outside reference materials. The items in these strategies are presented in the findings section.

The MARSI in this study is translated into Indonesian to avoid the students' misunderstanding or ambiguity of meaning and to provide easier language access. Before administering the test to measure the reading comprehension and to assess the reading strategies, a pilot test was conducted on a group of 38 students (14 boys and 24 girls). They were randomly selected from third grade students of different schools. The test was held in a class on a selected date and time. Based on the result of the pilot test, the scores obtained are displayed in Table 1. The Reliability Coefficient alpha was .869, which indicated that the MARSI had a high reliability and the effect of errors in the instrument was small.

Table 1. Reliability analysis of metacognitive awareness of reading strategies

RELIABILITY ANALYSIS – SCALE (ALPHA)	
Reliability Coefficients	
N of cases = 38.0	N of items = 30
Alpha = .869	

Method of Data Analysis

The quantitative measures involved in this study were based on descriptive statistics and inferential statistics. Descriptive statistics described the data obtained by using raw scores, means, standard deviation (SD) and rank ordering. The inferential statistics used were Pearson correlation and t-test. SPSS 12.0 package was used to analyse the data obtained from the UN reading

comprehension test scores and MARSI questionnaire input. Interpretation of correlation coefficients is shown in Table 2.

Table 2. Interpretation of correlation coefficients (Gay, Mills & Airasian, 2006, p. 194)

Relationship between variables	Coefficient
Low or none	Lower than +.35 or –.35
Moderate	Between +.35 and +.65 or between –.35 and –.65
High	Higher than +.65 or –.65

FINDINGS

The findings are presented in the order of the research questions posed earlier and are as follows.

Research Question 1

To investigate the relationship between the metacognitive awareness of reading strategies and students' scores in a comprehension test as measured by the UN, Pearson correlations were used. As shown in Table 3, the *r*-value was .144, indicating that there was a significant but weak positive relationship between students' metacognitive awareness of reading strategies and their performance on reading comprehension.

Table 3. The metacognitive awareness of reading strategies and the students' reading scores

		Score of reading comprehension test	Total metacognitive strategies
Score of reading comprehension test	Pearson Correlation	1	.144(*)
	Sig. (2-tailed)	.272	.017
	N		272
Total metacognitive strategies	Pearson Correlation	.144(*)	1
	Sig. (2-tailed)	.017	.272
	N	272	

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

In this case, a weak correlation indicates that although students have a high level of metacognitive awareness for reading strategies, they do not necessarily have a high level of comprehension of the text. We assume that this may be caused by their limited competence in the language that the written text, which was English.

Seeing that this language is a foreign language in Indonesia and not extensively used by its people, the reduced amount of exposure to English resulted in difficulty in understanding the English text.

Research Question 2

Scores from the reading comprehension test were divided into three groups. From 272 participants, those who scored 70 to 100 were categorised into good readers, those who scored a 31 to 69 were categorised as medium readers and, lastly, those who scored a 0 to 30 were categorised as poor readers. As research question 2 focused only on poor and good readers, those classified in the medium group were excluded for these questions. From these scores, 56 students were categorised as good readers (46 students) and poor readers (10 students). Table 4 shows the means and standard deviations of the overall metacognitive strategies of good and poor readers.

Table 4. Means and standard deviations of the overall metacognitive strategies of good and poor readers

Reader level	N	Mean(Overall metacognitive strategies)	Std. Deviation
Good readers	46	3.43	.50
Poor readers	10	3.23	.54
Total	56		

It shows that for the good readers, the mean was 3.43 and the standard deviation was .50. Meanwhile, for the poor readers, the mean was 3.23 and the standard deviation was .54. The level of overall metacognitive reading strategies of good readers was slightly higher than that of poor readers. However, the standard deviation of the level of metacognitive reading strategies indicated that the amount of spread among good and poor readers was not wide.

To answer research question 2, which was to compare the level of MARS of students who were good and poor readers, an independent samples t-test was conducted. The results are shown in Table 5.

Table 5. Independent samples t-test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	*t*	Df	Sig. (2-tailed)	Mean Diff.	Std. Error Diff.	95% Confidence Interval of the Diff.	
									Lower	Upper
Meta-cognitive strategies	Equal variances assumed	.152	.698	1.185	54	.241	.20986	.17716	–.14534	.56505
	Equal variances not assumed			1.121	12.524	.283	.20986	.18723	–.19619	.61590

Table 5 shows that the probability (Sig. = .698) of obtaining this F-value was greater than .05. Thus, equal variances are assumed indicating that the variances between the two groups of poor and good readers are equal. Additionally, to determine the significance level of the difference in MARS between good and poor readers, the significance of the t-value with equal variances assumed was interpreted where $t = 1.18$ with a 2-tailed probability of .05 (.24 > .05). The average level of MARS of good readers (M = 3.43, SD = .500) was not significantly different from that of poor readers (M = 3.23, SD = .544), $p = .24$. In brief, the results indicated that there was no significant difference in the level of MARS between good readers and poor readers.

Based on the findings above, we believe that the similar level of MARS between the good readers and poor readers does not guarantee the students' use of those strategies. As discussed earlier, students need to be taught how, when and why to use these strategies to direct their comprehension of any reading texts and become independent learners. However, we observed that this is infrequently done by most teachers in Indonesia, which might have caused students of any level of competence to have no direction in applying such strategies.

Research Question 3

Research question 3 was to find out the level of MARS for the three groups of reading strategies, namely global, problem solving and support reading strategies. For this analysis, all 272 participants were included. Descriptive statistics were used.

Table 6. Mean and SD of metacognitive awareness of three groups of reading strategies

Metacognitive Awareness	N	Mean	SD
Problem solving reading strategy	272	3.66	.56
Global reading strategy	272	3.24	.55
Support reading strategy	272	3.13	.58
Total reading strategies	272	3.32	.48

Based on Table 6, the highest mean score was problem solving reading strategy (M = 3.66) followed by global reading strategy (M = 3.24). The lowest mean came from support reading strategy (M = 3.13). The following sections provide further descriptions of this finding.

Problem solving strategy

The awareness level of problem solving reading strategy was the highest compared to global reading strategy and support reading strategy. Table 7 presents the problem solving strategies in detail.

Table 7. Strategies used in problem solving reading strategy

Item	Strategy	M	SD
PROB8	Reading slowly but carefully to better understand	3.87	1.01
PROB11	Trying to stay focused on text	3.86	1.15
PROB13	Adjusting reading speed according the difficulty level of text	3.17	1.16
PROB16	Reading carefully when text becomes difficult	4.05	.98
PROB18	Pausing and thinking about text read	2.86	1.12
PROB21	Visualizing information to help remember text	3.75	1.03
PROB27	Re-reading for better understanding when text becomes difficult	4.07	1.06
PROB30	Guessing meaning of unknown words or phrases	3.63	1.11
PRS	Problem solving strategies	3.66	.56

Table 7 shows that the participants' metacognitive awareness of the strategies of re-reading for better understanding when the text becomes difficult (PROB 27, M = 4.07) and reading carefully when the text becomes difficult (PROB 16, M = 4.05) were among the highest. Perhaps, the students used those strategies as specific steps in problem solving during comprehension to understand what the text meant. To make sure that they comprehended the text in the right way, they read the text carefully when it became difficult. They were least aware of the strategy of pausing and thinking about the text (PROB 18, M = 2.86).

Global reading strategy

The second awareness level was global reading strategy. Table 8 shows the detailed strategies within global reading strategy.

Table 8. Strategies used in global reading strategy

Item	Strategy	M	SD
GLOB1	Setting a purpose for reading	3.61	1.10
GLOB3	Using prior knowledge	3.84	1.01
GLOB4	Previewing text before reading in detail	3.22	1.21
GLOB7	Evaluating how text contents fits reading purpose	3.17	1.19
GLOB10	Skimming the text before reading to see length and organisation	2.73	1.19
GLOB14	Skipping parts of text though unimportant	3.30	1.18
GLOB17	Using text features, e.g.: tables, figures, and pictures for better understanding	2.72	1.36
GLOB19	Using context clues to help better understanding	2.91	1.21
GLOB22	Using typographical aids, e.g.: boldface and italics to identify key information	3.12	1.16
GLOB23	Analysing and evaluating text read	2.88	1.05
GLOB25	Stopping and thinking when information in text does not make sense	3.60	1.12
GLOB26	Looking at the title before reading to get a hint about text content	3.34	1.07
GLOB29	Checking if one's guesses about the text are right or wrong	3.65	1.08
GRS	Global reading strategies	3.24	.55

Table 8 shows that the highest mean in this group was metacognitive awareness of using prior knowledge (GLOB3, M = 3.84) compared to the other strategies. The students used that strategy to make predictions and interpret the text content by relating the new information to their prior knowledge. Using prior knowledge in reading is included in the top-down reading model that reflects the schema theory that emphasizes the importance of the reader's background knowledge in the reading process (Carrell, 1998). The lowest mean came from awareness of using text features, such as tables, figures, and pictures, for better understanding (GLOB17, M = 2.72) and skimming the text before reading to see length and organisation (GLOB10, M = 2.73). From here, we can conclude that the students think that all the text generally is important and concentrate on the text itself instead of skimming the text or using features.

Support reading strategy

The lowest awareness level reading was the support reading strategy. Table 9 shows the number of strategies in this group in detail.

Table 9. Strategies used in support reading strategies

Item	Strategy	M	SD
SUP2	Taking notes while reading to better understand text	2.67	1.106
SUP5	Reading aloud when text becomes difficult	2.79	1.454
SUP6	Summarizing text to reflect on the important information	2.78	1.151
SUP9	Discussing text with others to check understanding	3.09	1.073
SUP12	Underlining or circling information in the text to help remember it	3.16	1.218
SUP15	Using reference materials, e.g.: dictionaries to better understand text	3.53	1.214
SUP20	Paraphrasing for better understanding	3.60	1.111
SUP24	Going back and forth in text	3.13	1.146
SUP28	Setting oneself questions about text and trying to answer them	3.37	1.177
SRS	Support reading strategies	3.13	.582

Table 9 shows that the level of students' metacognitive awareness of paraphrasing for better understanding (SUP20, M = 3.60) was the highest. Meanwhile, the least known strategy was awareness of taking notes while reading to better understand the text (SUP2, M = 2.67). As support strategies are intended to aid the reader in comprehending the text that involved the use of outside reference materials (Mokhtari & Reichard, 2002) and was used least by the students in this study, one interpretation is that they were avoiding the use of time-consuming strategies.

IMPLICATION FOR EFL CLASSROOM

The results showed that there was a weak positive relationship between MARS and scores on the reading comprehension test. As explained earlier, awareness can depend on students' reading ability and age and the type of material read (Mokhtari & Reichard, 2002). Perhaps the participants in this study knew such reading strategies, but they did not monitor the use of their strategies or apply them to aid comprehension. In other words, they needed to understand the application of those strategies in real situations to achieve better reading comprehension. As stated by Paris et al. (1984), although learners are aware of the strategies, they may not understand the benefits or rules for application of these strategies. It is not enough for the learners to merely know the appropriate reading strategies; they must be capable of successfully applying and monitoring

the use of the strategies to develop their reading comprehension (Mokhtari & Reichard, 2002). Considering that these strategies are not completely and overtly taught by the teachers in Indonesia, the students thus did not know how and when to employ the strategies related to their use of metacognition when reading a text.

Additionally, this study found that there was no significant difference in the mean level of MARS between good and poor readers. Both types of readers had an overall moderate level of awareness of metacognitive strategies. This result is related to the fact that English is taught as a foreign language in Indonesia. In an EFL environment, English is apparently not the primary language of the society (Anderson, 2003). Furthermore, in this scenario, Anderson (2003: 13) found that EFL students use fewer strategies than ESL environment students. ESL learners:

1. are known to be more motivated and active in their learning;
2. have more opportunities to use the target language and therefore have a greater need to use strategies;
3. are more aware of strategy use because of the instructional environment; and
4. stay in an English-speaking environment.

In Indonesia, English is merely taught in schools (or in formal courses for those students who are taking them) and is rarely needed in social activities. The media (e.g., channels on TV) that are provided freely for the public (not the subscribed ones) also have most of the English movies dubbed in Indonesian. Therefore, the exposure of the general public to this language is very limited. Due to the situation that both good and poor readers in this study were in an EFL environment, this might have been the reason for them to show no difference in their metacognitive awareness of reading strategies.

The findings further revealed that the awareness level of problem solving reading strategy was highest, followed by global and support reading strategies. This is assumed to be closely associated with the students' overall EFL proficiency level. In view of that, when EFL readers stumble upon reading problems or lose concentration during their reading process, they are prone to apply reading strategies that promptly route them back on track. Most of these strategies are included in the problem solving strategies such as re-reading to achieve comprehension and reading carefully when text becomes more complex to understand. Furthermore, global reading strategy is generally oriented towards a global analysis of text that readers apply to monitor or manage their reading (Mokhtari & Reichard, 2002). Similarly, the participants in this study were presumed to use their prior knowledge to make predictions and interpretations of the text content by relating new information to their prior knowledge. This

further emphasizes the importance of the readers' background knowledge in the reading process (Carrell, 1998) as this has an effect on the learners' effectual process of external representations (Schwonke, Ertelt, Otieno, Renkl, Aleven, & Salden, 2013) to enhance better understanding of the text involved. Prior knowledge provides the background for construing new information and further offers the conditions to any metacognitive strategies the learners take (Schwonke et al., 2013). Finally, support-reading strategy is intended to aid the reader in comprehending the text that involved the use of outside reference materials (Mokhtari & Reichard, 2002). These include paraphrasing for better understanding and taking notes. Thus, as they are quite time consuming, this was probably what caused the students to avoid them or be less aware of them.

The findings of this study generally imply that the participants were not fully aware of their reading strategies in their reading task. As metacognition is a known powerful tool for understanding reading processes and improving reading comprehension, and can be used by all teachers and in every classroom where reading occurs (Akkakoson, 2012). Therefore, teachers, especially in the Indonesian EFL context, are encouraged to offer explicit instruction to students on why and how to use comprehension strategies while reading. Readers will not implement and employ actions as reading strategies if they do not understand the value or reason for doing so (Paris et al., 1984).

Consequently, teachers should make greater efforts to teach either explicitly or implicitly the use of reading strategies such as those identified in the MARSI to help Indonesian students to enhance their performance on the mandatory UN. The information from the MARSI can assist teachers to investigate, assess and monitor the reading strategies used by the students. Reading strategies can also be used as teaching methods to train poor readers. Again, as stated by Anderson (1999), metacognition is an important part of reading skills because it helps readers verify their reading strategies so that the necessary adjustments can be made if meaning is not obtained. Good strategy use can aid them in lessening comprehension failure (Cubukcu, 2007). By becoming aware of their own thinking as they read and solve problems, it allows students to seize the advantages of learning opportunities to become strategic and thoughtful readers.

CONCLUSIONS AND RECOMMENDATIONS

Overall, this study has emphasised that reading strategies play an important role for students to improve their reading performance. It implies raising the awareness of teaching reading strategies in the classroom to improve the students' proficiency in English language. However, as a study, it was limited in several aspects. First, it is recommended for future research to include the teaching of

reading strategies as a treatment over a period of time. Second, the scope can be increased to include a control group who studies reading comprehension with reading strategies and another group without reading strategies to further assess the integrity and effect of these strategies on reading comprehension. By doing so, the causal link between metacognitive reading awareness and reading comprehension may be described in depth. Last, a qualitative component can be added to understand students' orientations towards strategy teaching and use in the reading class.

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