

# The Effects Of Metacognitive Strategy Instruction On EFL Thai Students' Reading Comprehension Ability

Saovapa Wichadee, Bangkok University, Thailand

## ABSTRACT

*This study examined the effectiveness of explicit instruction of metacognitive strategies over a 14-week semester with a group of 40 EFL learners at a private university in Thailand. A metacognitive questionnaire and a reading test were administered at the beginning and at the end of the course to find the changes in both the questionnaire responses and test scores. The data obtained were analyzed by using mean, standard deviation, and paired sample t-tests. Qualitative data from a semi-structured interview were also analyzed to explore students' views on the strategy-based instruction. It was found that after the instruction, the reading score and metacognitive strategy use of the three groups namely: high, moderate, low were significantly higher than those before the instruction at the .05 level. In addition, different types of learners exhibited different responses to the strategy instruction. This study's findings contribute to a better understanding of strategy instruction and support the belief that strategy training should be conducted to enhance reading performance of the learners.*

**Keywords:** metacognitive strategies, reading strategies, strategies-based instruction

## INTRODUCTION

Metacognition is referred to the knowledge people have about their own thinking which is considered as an important key to learning and learning performance (Brunning, Schraw, & Ronning, 1995). By definition, metacognitive strategies surround the learning activity and are often triggered by the success or the failure of a learner's selected or habitual strategies (Roberts & Erdos, 1993). Metacognition clearly involves more executive components such as setting goals, selecting strategies and monitoring their effectiveness in the accomplishment of learning tasks. According to Kuhn (2000), metacognition has two components, firstly, the students' self awareness of a knowledge base in which information is stored about how, when, and where to use various cognitive strategies and secondly, their self awareness of and access to strategies that direct learning (e.g. monitoring difficulty level, a feeling of knowing).

Basically, metacognitive strategies are effective tools which help learners to be consciously aware of what they have learned and recognize situations in which it would be useful. Alderson (2000) explains the connection between metacognition and reading comprehension that the ability to use metacognitive skills effectively and to monitor reading is an important component of skilled reading. Readers who are metacognitively aware know what to do when they do not understand because they have strategies to find out what they need to do. The use of metacognitive strategies ignites one's thinking and leads to more profound learning as well as improved performance. As for the benefits of metacognitive strategy use, teachers can help increase students' reading comprehension when reading a story by modeling different types of planning, monitoring, and evaluation strategies and these types are what most teachers recognize as before-, during-, and after- reading processes (Pressley & Afflerbach, 1995). Israel (2007) strongly agrees that metacognitive strategies increase readers' meaning construction, monitoring of text and reading comprehension, and their ability to evaluate the text they are reading. Metacognitively skilled readers are aware of knowledge, procedures, and controls of the reading process. They use this knowledge during the reading process to improve reading and comprehension ability.

Obviously, promoting metacognitive awareness among EFL readers have been conducted in many studies. Rasekh and Ranjbar (2003) investigated the effect of metacognitive strategy training through the use of explicit strategy instruction on the development of lexical knowledge of EFL students and the result of the study showed that explicit metacognitive strategy training has a significant positive effect on the vocabulary learning of EFL students. La-onghong (2002) assessed an English reading comprehension instructional model using metacognitive strategies for undergraduate students and reported that the students' achievement in the use of metacognitive strategies and their English reading comprehension were higher than the standard criteria. Similarly, Cubukcu (2008) taught metacognitive strategies for reading in a five week program. The purpose of the study was to determine the effectiveness of systematic direct instruction of multiple metacognitive strategies designed to assist students in comprehending text. Specifically, the reading comprehension and vocabulary achievement of 130 third year university students has been investigated to determine whether instruction incorporating metacognitive strategies has led to an increase in the reading comprehension of expository texts. The results showed that the experimental group outperformed the control group. The metacognitive strategies that were engaged to facilitate Taiwanese university learners' EFL reading comprehension revealed a strong achievement level effect on the reading comprehension outcomes. Likewise, Akkason & Setobol (2009) investigated the effects of metacognitive strategies instruction on Thai students' English reading comprehension. The findings revealed that the high and moderate reading proficiency subjects used more metacognitive strategies when reading texts than before. The mean scores of the post-test gained by the subjects of the high, moderate and low reading proficiency groups were significantly higher than those of the pre-test at the statistical level of .05.

In addition, Fan (2009) explored how metacognitive strategies can be implemented most effectively in Taiwanese universities to improve EFL students' reading comprehension. One hundred forty three first-year students at the Lung Hwa University were recruited as subjects in the study. A 2-by-2 ANCOVA measure was employed to assess whether metacognitive strategy training can bring significant outcomes on the EFL reading comprehension. Erskine (2010) conducted a study to assess first-year university students' metacognitive awareness and usage. Four of the six classes were trained in metacognitive skills and strategies using the Metacognitive Skill Instruction. Two of these four classes were prompted to specifically reflect on their use of metacognitive skills and strategies. The other classes were not prompted about their use of metacognition. Students' metacognitive performance was assessed at the end of the semester using the Metacognitive Awareness Inventory. Results showed there was no initial difference between groups yet a significant difference between posttest and retrospective pretest scores was found for all three groups at the end of the term.

The above-mentioned effectiveness of metacognitive strategy training or instruction proves to have significant gains in performance, and many researchers strongly agreed that students need to receive more effective instructional practice so as to enhance their reading achievement. Readers can become skilled readers and learners of whole text if they are given instruction in effective strategies and taught to monitor and check their comprehension while reading (Cubukcu, 2008). Based on these reasons, the researcher felt very interested in teaching students these effective comprehension strategies to enhance the awareness of their own learning when they are reading texts. The results obtained will clarify how strategy instruction and training affects students' reading comprehension and confirm the findings of previous studies conducted in language learning settings.

## **RESEARCH OBJECTIVES**

1. to compare the pre- and post- reading comprehension scores of students in three reading proficiency levels- high, intermediate, and low.
2. to compare the pre-and post-metacognitive strategy use of students in three reading proficiency levels - high, intermediate, and low
3. to explore the students' opinion on metacognitive strategy instruction.

## **RESEARCH HYPOTHESES**

**Hypothesis 1:** After the intervention, the reading mean score of the post-test is significantly higher than that of the pre-test.

**Hypothesis 2:** After the intervention, the students' reading strategy usage improves significantly.

## **SCOPE OF THE STUDY**

1. The subjects in this study include the 40 undergraduate students enrolled in EN111: Fundamental English I in semester 1/2011.
2. In this study, the independent variable is teaching strategies based on collaborative learning approach while the dependent variables are the students' English reading comprehension ability, their strategy use, and opinion on teaching metacognitive strategies.

## **REVIEW OF LITERATURE**

### **Reading Comprehension**

Goodman (1995) explains that reading is the process of constructing meaning through the dynamic interaction among the reader's existing knowledge, the information suggested by the written language, and the context of the reading situation. Reading comprehension is the process of understanding and constructing meaning from a piece of text. In this concept, the writer encodes thought as language and the reader decodes language to thought. According to Carnine et al (1997), comprehension is regarded as the principal point of reading. The most straightforward definition of comprehension is understanding what we read. It is the ultimate goal of any kind of reading. He also concludes that a successful reader must be proficient in decoding to comprehend. However, there are a number of reasons why students might have difficulty comprehending information that is read. According to Anderson (1999), reading involves interactions among the reader's interlanguage competence (e.g., incomplete, fragmented or not fully-developed linguistic, strategic, discourse and sociolinguistic competence), personal characteristics (e.g., learning and cognitive style, gender, motivation, socioeconomic status, educational levels) and external contexts (such as topics, text characteristics, reasons to read, stakes of reading, and time constraints).

Levels of reading comprehension are classified differently. For example, Day & Park (2005) categorize reading comprehension into six types. These include literal comprehension, reorganization, inference, prediction, evaluation, and personal response. For Burns, Roe, & Ross (1999), comprehension can be divided into two levels: literal and higher-order comprehension. The literal comprehension is the most basic type whereas the latter involves specific types of comprehension. Among these are interpretive, critical, and creative comprehensions (Kirin, 2007). Reading comprehension may be affected by the difficulty of the text, the vocabulary words used in the text, and the students' familiarity with the subject matter. Therefore, many researchers have introduced different types of models of reading to help readers understand the process of reading and how to get meaning from the written materials. As the students' problems in understanding the reading text are realized, a variety of reading strategies has been introduced to EFL classes to develop their reading skill.

### **Metacognitives Reading Strategies**

Reading strategies can help students read in a very efficient way. It means that students can transfer the strategies they use when reading in their native language to reading in a language they are learning. If students face the difficult tasks and are able to use the strategies to overcome the problem. Effective readers often monitor their understanding, and when they lose the meaning of what they are reading, they usually select and use a reading strategy (such as rereading or asking questions) that will help them reconnect with the meaning of the text. Therefore, it's necessary to know reading strategies which indicate how the readers understand the tasks they read.

Metacognition is one of the important concepts used to promote reading comprehension. Metacognitive strategies consist of connecting new information to former knowledge, selecting thinking strategies deliberately, planning, monitoring, and evaluating thinking processes (Brown , 1994; cited in Ozek & Civelek, 2006, p. 3). According to Alderson (2000), metacognitive strategies can simply be defined as thinking about thinking. Students who are metacognitively aware and know what to do when they do not understand; that is they have strategies to find out of to figure out what they need to do. For example, they will determine and select strategies to define a difficult situation and investigate alternative solutions. They will evaluate time and energy as well as determine how well they can solve the problem until the satisfaction is met. Therefore, the metacognitive activities vary according to the current cognitive processing task. The following is the Metacognitive Reading Strategy Checklist conducted by Anderson (1999, pp. 82-83).

- Setting goals for yourself to help you improve areas that are important to you.
- Making a list of relevant vocabulary to prepare for new reading.
- Working with a classmate to help you develop your reading skills.
- Taking opportunities to practice what you already know to keep your progress steady.
- Evaluating what you have learned and how well you are doing to help you focus on your reading.

Besides, the work of Phakiti (2006) also presents nine metacognitive reading strategies in his research.

- Identifying easy and difficult test tasks.
- Planning how to complete the task and follow the plan.
- Being aware of what and how to do the task.
- Checking your own performance and progress while completing the test.
- Thinking through the meaning of the test before answering them.
- Correcting mistakes when found.
- Keeping track of your own progress to complete the questions on time.
- Clarifying goal and know how to complete the task.
- Checking the answers before submitting

To sum up, metacognitive strategies are conscious processes that regulate cognitive strategies and other processing. They are composed of planning (for future actions and goal attainment, such as goal-setting, overseeing tasks, planning actions beforehand), monitoring (for checking ongoing comprehension or performance, such as noticing comprehension failure or errors, double-checking comprehension) and evaluating (for evaluation of past and current actions or performance, such as assessing level of difficulty, self-questioning, evaluating performance/product accuracy) strategies.

## **METHODOLOGY**

### **Subjects**

This study was a kind of one group pre-test post-test design, conducted with the first-year students enrolled in EN111 course at Bangkok University. As the students were already assigned in groups by the institution, one group was randomized by cluster sampling. This group consisted of 40 students from the School of Communication Arts. Since they were the first-year students and just entered the university, they neither had an idea what studying English was like nor experienced teaching styles in university level. They attentively came to the classroom and gave a lot of cooperation when metacognitive strategy training was conducted for ten weeks.

### **Instruments**

Three instruments were used in this study. The first one was a 30 item multiple-choice test of reading skill, which was developed by the researcher and examined by three teachers of English from Language Institute to assume language accuracy and content validity. The value of coefficient alpha after piloting with 40 students was .84. The same test was used as a parallel test for pre-and post-testing phases. That is, the researcher administered the test twice and employed an alternate form of the test from the first administration to the second.

The second instrument was a metacognitive questionnaire composed of three categories: planning strategies, monitoring strategies and evaluating strategies. Based on the literature review, the 20 items were created on 5-point rating scales, namely (5) always, (4) usually, (3) sometimes, (2) rarely, (1) never to investigate the respondents' frequency of actual use of metacognitive strategies. Then the questionnaire items were examined by three English language teachers and later revised for clarity of the questions asked. The item-level analyses were conducted to validate the constructs of metacognitive strategies questionnaire. The values higher than .05 were acceptable. Two items were not qualified and deleted. After that the questionnaire was piloted with 40 undergraduate students and calculated for proper reliability value by Cronbach's alpha coefficient. Four items with low alpha were eliminated. Finally, there were only 14 items left. The reliability value was .72, implying that the questionnaire was reliable.

The third instrument was a semi-structured interview conducted to acquire the students' opinion on this strategy instruction. Based on the post-test score, ten subjects: five with the lowest scores and five with the highest scores, were chosen to give a response. Two questions were posed as follows: 1) What do you think about teaching metacognitive strategies? 2) Do you think you will become a skilled reader after you are trained with metacognitive strategies? Why or why not?

### **Metacognitive Strategy Instruction**

This empirical study was carried out in an EFL class where the researcher was the teacher. The students received 45 minutes of reading strategy instruction for 14 weeks. The instruction was strategies-based orientation, using a prescribed course book, titled *Passages* (second edition) written by Jack C. Richards & Chuck Sandy. Students were taught explicitly what each individual strategy is (declarative knowledge), the context or situation in which the strategy should be used or applied (situational knowledge), and how to employ the strategy (procedural knowledge). The students received the strategies designed based on Wade, Trathen, and Schraw's work (1990) as follows:

- highlighting/underlying/circling
- looking for keywords
- paraphrasing in notes/outlining
- using graphic organizers (diagram)
- mental integration/ having feeling towards reading texts
- rote learning of specific information
- relating information to background knowledge
- comprehension monitoring
- problem monitoring
- imaging/ visualizing
- self-questioning/ self-testing
- re-reading selected content
- adjusting reading rate

### **Data Collection and Analysis**

The data collection was done on week 1 and week 14. First of all, all subjects were pre-tested to determine their pre-instructional level of English reading comprehension ability. Right after finishing a test, they were given a metacognitive questionnaire to check their strategy use. Then the intervention period started on week 2 and finished on week 14. Students were taught with specific reading strategies mentioned above. In order to practice using the strategies taught, the students were asked to do five reading exercises from the textbook with the teacher's suggestion in class and other two reading exercises at home. On week 14, the intervention was followed by the post-test and questionnaire. The data obtained from the tests and the questionnaires were analyzed quantitatively. Mean scores of the questionnaire were calculated to indicate the degree to which each group of students perceive themselves to be using a particular strategy: a mean score of 1-1.50 indicates very low level of using a strategy, 1.51-2.50 using a strategy at a low level, 2.51-3.50 using a strategy at a moderate level, 3.51-4.50 using a strategy at a high level, whereas a mean score of 4.51-5.00 indicates using a strategy at a very high level. The obtained scores were compared to reveal changes in performance of reading comprehension and metacognitive strategy use. After that, ten students were chosen for an interview, and the data were analyzed by content analysis.

## RESEARCH RESULTS

## Comparisons Between Pre- And Post- Reading Comprehension Scores

Table 1 Mean Scores And Analysis Of The Pre- And Post-Tests

	$\bar{X}$	S.D.	n	t-value	Sig
Pre-test	13.95	4.74	40	14.93	.000
Post-test	18.22	4.61	40		

In order to see the efficacy of the intervention, students' pre-and post-test scores of reading comprehension tests were analyzed to see if there was a statistically significant difference between the two groups. Table 1 indicates that the overall mean score of the pre-test was much higher than the post-test (13.95, 18.22). Also, a t-test analysis shows a significant difference between two tests at the level of .001.

Table 2 Mean Scores And Analysis Of The Pre- And Post-Tests Shown In Three Groups

Group	N	Mean	S.D.	t-value	Sig
<b>High Proficient</b>					
Pre-test	12	19.58	.45	6.66	.000
Post-test	12	23.42	.38		
Difference		3.84			
<b>Intermediate Proficient</b>					
Pre-test	15	13.93	1.28	5.23	.000
Post-test	15	18.13	1.88		
Difference		4.20			
<b>Low Proficient</b>					
Pre-test	13	8.77	1.88	9.16	.000
Post-test	13	13.54	2.54		
Difference		4.77			

Table 2 shows that the mean scores of the post-test in three groups were higher than that of the pre-test. The differences of the mean scores of the high-, intermediate-, and low-reading proficiency groups are 3.84, 4.20, and 4.77 respectively. In order to find out whether the students' reading proficiency increased significantly in each group, the pre-and post-test mean scores were compared by using a paired samples t-test. As evidenced by the significant difference at the level of .001 for all three groups, it clearly illustrates that metacognitive strategy training helped students to have higher reading scores.

## A Comparison Between Pre- And Post-Metacognitive Questionnaire Scores

Table 3 Mean And Standard Deviation Of Pre- And Post- Metacognitive Strategy Use

Metacognitive Strategy	pre		post	
	$\bar{X}$	SD	$\bar{X}$	SD
1. I monitored the topic or keywords of the reading text to activate prior experience.	2.83	.87	3.87	.73
2. I made sure I understood what had to be done.	2.95	.90	3.17	.93
3. I made sure to clarify the goal of reading.	3.45	.93	4.07	.80
4. I planned how to read the text.	3.30	.97	3.55	.96
5. I used multiple techniques to help understand the reading text. (e.g. highlighting/underlying/circling/outlining)	2.85	1.0	3.12	1.0
6. I thought about how this text made me feel.	2.78	.83	2.90	.90

Metacognitive Strategy	pre		post	
	$\bar{X}$	SD	$\bar{X}$	SD
7. I was aware of which strategy to use and how or when to use it.	3.18	.93	3.85	.89
8. When I read, I asked myself how the given text related to what I already knew.	2.70	.91	3.30	1.0
9. I was aware of how much the content remained to be read.	3.60	.71	4.00	.78
10. I asked myself some questions as I was going through reading.	3.33	.92	3.95	1.1
11. I adjusted my reading rate according to the difficulty.	2.90	.90	3.20	1.0
12. I kept track of my own progress to finish the text on time.	2.90	.87	3.23	1.0
13. I checked my own performance and progress while reading.	3.35	.80	3.53	.88
14. I reread the selected content.	2.85	1.0	3.08	1.1
Total	3.07	.35	3.48	.49

From Table 3, the overall mean score of strategy use of the students before the instruction was 3.07 and improved to 3.48 after the instruction with the same level of interpretation (using them at a moderate level). Three strategies with the highest mean scores after the instruction included clarifying the goal of reading, being aware of how much the content remained to be read, and asking oneself some questions while reading (4.07, 4.00, 3.95) while the lowest mean score was thinking about how the text made one feel while reading (2.90). In order to find out whether the students’ overall metacognitive strategy use also increased significantly after the intervention, the pre- and post scores were analyzed. The finding reveals that there was a statistically significant difference. The students turned to use more strategies than before.

**Table 4 Mean, Standard Deviation, And T-Test Of Overall Metacognitive Strategy Use Of The Students**

	$\bar{X}$	S.D.	n	t-value	Sig
Pre-strategy use	3.07	.35	40	5.71	.000
Post-strategy use	3.48	.49	40		

To compare the pre- and post-metacognitive strategy use of Thai students of three reading proficiency levels - high, intermediate, and low, the mean score of pre-test (13.95) was used to find the ranges to divide the groups on a basis of mean  $\pm$ .5SD. The mean scores of three groups were shown in Table 4.

**Table 5 Mean, Standard Deviation, And T-Test Of Metacognitive Strategy Use Of The Students Shown In Three Proficiency Groups**

Reading Proficiency Group		Pre-Metacognitive		Post-Metacognitive		Mean Difference	t-value	Sig
		$\bar{X}$	SD	$\bar{X}$	S.D.			
High	(n=12)	2.96	.45	3.26	.48	.30	5.23	.000
Intermediate	(n=15)	3.20	.33	3.72	.48	.52	3.51	.003
Low	(n=13)	3.00	.23	3.41	.44	.41	2.94	.012

The result from Table 5 indicates that the post-metacognitive mean scores of the three groups were obviously higher than those obtained from the pre-metacognitive questionnaire. The differences of the mean scores of the high-, intermediate-, and low-reading proficiency groups are .30, .52, and .41 respectively. The t-test results also suggest statistically significant differences between pre- and post metacognitive scores of the high-, intermediate-, and low-reading proficiency groups (p=.000, .003, .012). The findings can be concluded that all three groups used more metacognitive strategies after they were trained in this experiment.

### Results From Semi-Structured Interview

The data of the interview were collected from five students whose reading post-test scores were the highest and five students who received the lowest scores. An analysis was made to examine what each group of learners thought about teaching metacognitive strategies and to see whether the difference existed in their responses.

**Table 6 Results From A Semi-Structured Interview**

Question No.	High Proficient Students	Low Proficient Students
1. What do you think about teaching metacognitive strategies?	+ Teaching strategies is useful. It's wonderful when the teacher trained us step by step. (1) + Very interesting. I think everyone can improve reading skills through practice of using strategies. (1) + Great. It's my first time to know metacognitive strategies. (1) + Although learning how to use these strategies takes time, it is worth a waste of time. (1) + Practicing how to use these strategies is a must. The more you know, the more you will be familiar with them. (1)	+ It's good. I think these strategies should be taught in other classes. too. (2) + Metacognitive strategies are difficult to understand. If no one teaches you about these strategies, you will never understand them for sure. So, it's a good idea to have the instruction in class. (2) - It's a little bit boring. We had to do a lot of exercises. (1)
2. Do you think you will become a more skilled reader after you are trained with metacognitive strategies? Why or why not?	+ Certainly. I am more careful when I read the text. (1) + Teaching these strategies makes me read better, faster and more carefully. (1) + I think I am better than before. (1) + I become more confident when I am assigned to read any unseen passages. It's like I have a weapon to fight with a difficulty. (1) + After I learn these strategies, my score increases greatly. I spent less time reading the passages. (1)	- Fifty-fifty per cent. I am not sure. Some strategies are too abstract. They cannot be applied while reading. (2) - I am not sure. Some strategies are too hard to use. (1) - It's up to each person. Knowing metacognitive strategies doesn't help much if you can use only some, not all strategies you acquire. (1) + Yes. These strategies help me plan what to do when I read a text. (1)

Table 6 shows that 9 out of 10 students had favorable views on strategy instruction. However, when asked about its effectiveness to make them become a skilled reader, all high proficient students agreed that metacognitive strategies were effective in promoting their reading performance because they can understand the texts easier, spending less time. In contrast, low proficient students still questioned about its effectiveness. The results show that 4 out of 5 low proficient students were not quite sure. The reason behind their suspect lied in some strategies that were rather difficult and abstract to put into practice. In spite of the training, they still were not able to use some strategies.

### DISCUSSION AND CONCLUSION

The author came across two main points which can be brought to discussion. The first discussion is about the effectiveness of metacognitive strategies instruction; the second discussion lies on the increase in metacognitive strategies use. First, the research finding indicates that teaching metacognitive strategies might be an effective way to improve students' reading comprehension due to a high score increase. The significant improvement on the participants' score was probably because continuous practice on strategies made them develop their thinking process and be able to think metacognitively. This result, therefore, proves that unskilled readers can become skilled readers if they are given instruction in effective strategies and taught to monitor and check their comprehension while reading (Alderson, 2000). Students had tools to deal with the texts. For example, they learned to take notes and highlight the main points. They know how to monitor their own problems. These strategies help them to raise awareness when they read. So, teaching students to know more when and how to use these strategies is important in all EFL classes. From the result it can be concluded that learners can be trained to use metacognitive strategies in order to become successful in doing any reading tasks. The finding goes along with many previous studies (Akkakoson & Setobol, 2007; Cubukcu, 2008; Fan, 2009) and substantiates the principle of learning that



metacognitive strategies are necessary as they help students to comprehend the text better with more self-awareness (Khun, 2000).

Second, there was a change in the subjects' behaviors of using strategies to facilitate their reading English texts in three groups. This finding was in accordance with the researcher's assumption that there should be an increase of strategy use after the instruction. This might be because 14 weeks of experiment is enough to make students familiar in using strategies. The increase of strategy use suggests that students realize value and benefit of using strategies in EFL reading and consider metacognitive strategies useful; they learned to use them to deal with the reading text. In addition, the more they were trained, the more they were accustomed to using those strategies. They automatically make use of strategies whenever they read the text. The pleasant outcome is in accordance with the replies gained from the interview question no. 1, showing that 5 out of 6 students had positive opinions on strategy instruction. However, two types of learners exhibited different responses to the strategy instruction in terms of becoming skilled readers. The replies reflected that low proficient students might need more time for strategy practice; they might not catch up with others. So, when conducting the training, teachers should take this into consideration and find the best way to help them keep up with the instruction.

### **LIMITATION OF THE STUDY**

The current study has been carefully designed to optimize the internal and external validity, but this is not without any limitations. Three areas of limitation have emerged and should be considered when interpreting the findings from this study.

1. Since this research is conducted in a classroom setting, the sample size is small. Therefore, with limited samples, the generalizability of the findings should be interpreted with caution and may extend only to this immediate population.
2. This study employs the one group pre-test post-test design. Since students are already assigned to their sections, it is not possible to randomly select the samples out of the population.
3. While participating in the treatment, students enrolled in this English course need to develop other skills comprising listening, speaking, and writing as well. Thus, students are also exposed to other types of input besides learning reading strategies.

### **RECOMMENDATIONS FROM THE STUDY**

1. Teaching metacognitive strategies to students should be integrated in the curriculum in order to help students learn more successfully. It is important to consider how particular strategies are applied and the contexts in which they are needed.
2. Strategies need to be taught over a sufficient duration for the training to be effective and should be presented over a number of contexts with a variety of texts to make sure that the learners will be able to use the strategy automatically.
3. Any strategies that are too difficult for students to understand and apply in reading tasks should be taken into consideration. If the teacher wants to keep them, then students should be practiced much enough in related texts in order to strengthen their use.

### **AUTHOR INFORMATION**

**Saovapa Wichadee** (Assoc. Prof.) is now working as a full-time teacher at the Language Institute, Bangkok University, Thailand. Her research interest includes teaching methodology in EFL and teacher self-development. She has experienced in writing many textbooks and instructional materials, such as *Writing for Business Purposes*, *English for Art and Design*, and *Business Conversation*.

## REFERENCES

1. Akkakoson, S., & Setobol, B. (2009). Thai EFL use of strategies in reading English texts. *The Journal of KMUTNB*, 19(3), 2009.
2. Alderson, R. C. (2000). Research foundations to support wide reading. In V. Greaney. (Ed.), *Promoting reading in developing countries* (pp. 55-77). Newark, DE: International Reading Association.
3. Anderson, N. (1999). *Verify strategies: Exploring second language reading*. Boston, MA: Heinle & Heinle.
4. Anderson, J.R. (2000). *Learning and memory: An integrated approach* (2<sup>nd</sup> ed.). New York: John Wiley & Sons.
5. Burns, P., Roe, B. & Ross, E. (1999). *Teaching reading in today's elementary schools* (7<sup>th</sup> ed.). New York: Houghton Mifflin.
6. Brunning, R.H., Schraw, G.J. & Ronning, R.R. (1995). *Cognitive psychology and instruction*. NJ: Prentice Hall.
7. Carnine, D., Silbert, J., & Kameenui, E. (1997). *Direct instruction reading*. Upper Saddle River, NJ: Prentice Hall.
8. Cubukcu, Feryal. (2008). Enhancing vocabulary development and reading comprehension through metacognitive strategies. *Issues in Educational Research*, 18(1), 2008.
9. Day, R. & Park, J. (2005). Developing reading comprehension questions. *Reading in a Foreign Language*, 17(1), 60-73.
10. Erskine, Dana L. (2010). Effect of prompted reflection and metacognitive skill instruction on university freshmen's use of metacognition (Doctoral dissertation). Available from ProQuest dissertation and theses database. (Document ID 3412778)
11. Fan, Hsiu-Chiao, (2009). The effectiveness of metacognitive strategies in facilitating Taiwanese university learners in EFL reading comprehension (Doctoral dissertation). Available from ProQuest dissertation and theses database. (Document ID3354803)
12. Goodman, K. (1995). *The reading process*. In P. L. Carrell, & J.D. Eskey (Eds.), *Interactive approaches to second language reading* (pp. 33-45). Cambridge: Cambridge University Press.
13. Israel, S., E. (2007). *Using metacognitive assessments to create individualized reading instruction*. International reading association. Newark, DE: International Reading Instruction.
14. Kirin, Wirairat. (2007). *The effects of extensive reading plus activities on the development of reading and writing skills and perceptions of undergraduate students*. Dissertation, Chulalongkorn University.
15. Kuhn, D. (2000). Metacognitive development. *Current Directions in Psychological Science*, 9, 178-181.
16. La-ongthong, S. (2002). A development of reading instructional model through metacognitive strategies for students at Rajabhat Buriram University. Master's Degree Thesis, Rajabhat Buriram University.
17. Ozek, Y. & Civelek, M (2006). A study on the use of cognitive reading strategies by ELT students. *Astan EFL Journal*, 14 (1), 3-10.
18. Phakiti, Ake. (2006). Modeling cognitive and metacognitive strategies and their relationships to EFL reading test performance. Melbourne Paper in Language Testing.
19. Pintrich, P. R., Wolters, C. A., & Baxter, G. P. (2000). Assessing metacognition and self-regulated learning. In: G. Schraw & J. C. Impara (Eds.), *Issues in the measurement of metacognition* (43-97). Lincoln NE: Buros Institute of Mental Measurements.
20. Pressley, M., & Afflerbach, P. (1995). *Verbal protocols of reading: The nature of constructively responsive reading*. Hillsdale, NJ: Erlbaum.
21. Rasekh, Z., & Ranjbary, R. (2003). "Metacognitive strategy training for vocabulary learning," *TESL-EJ* [Online]. 7(2) Available: <http://www-writing.berkeley.edu/TESL-EJ/ej26/a5.html>
22. Roberts, M. J., & Erdos, G. (1993). Strategy selection and metacognition. *Educational Psychology*, 13, 259-266.
23. Wade, S. E., Trathen, W., & Schraw, G. (1990). An analysis of spontaneous study strategies. *Reading Research Quarterly*, 25(2), 147-166.