The Effect of Metacognitive Strategy Instruction on the Comprehension Reading Abilities of Undergraduate Students.

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Abstract

English educators in Thailand should know that there is a need to incorporate reading strategy instruction into regular English classes to foster reading comprehension among high school students, as well as to foster motivation and positive attitudes towards English reading. There is evidence that reading strategies were not widely taught in high schools or middle schools in Thailand, and EFL students hoped that reading strategies should have been taught to them. The findings of this study were conducted on reading comprehension abilities using CALLA, a metacognitive strategy instruction, for four weeks. A one-shot case design was used to investigate the effects of metacognitive strategy instruction on the reading comprehension skills of 15 undergraduate tourism students. During the intervention, they used reading logs to reflect on their metacognitive awareness and self-regulatory mechanisms while they were engaged in reading tasks on the internet. Data from participants' reading logs were analyzed qualitatively. The findings reveal that metacognitive strategy instruction can increase students' reading comprehension skills. In addition, the results imply that metacognitive awareness increased. Thus, they have become strategic readers and autonomous learners. However, they also require vocabulary and syntax instructions and exercises. In addition, Reading Comprehension Strategies for the Internet should be taught to students. Recommendation 1. Although lower-level students' reading comprehension abilities improved after the four-week metacognitive strategy instruction, instructing lower-level readers should take a longer time. Many models of reading strategies are required for classroom demonstrations. 2 Because of their lack of knowledge of vocabulary and syntax sentences, teachers should review the basics of reading to help them tackle their reading problems, especially some tourism terms and complex syntax in a hypertext on a website.

Introduction

English is widely known as an international language used in various aspects of the globalization of business, society, education, politics, economics, medicine, and science and technology. Angkhawatthanakun, S. (1997) states that language competence enables users to understand infinite variations in people's ideas in foreign countries, including a global perspective. Thus, English is a vital tool used for making a good understanding and relationship among countries In the educational curriculum of Thailand, English is a continuing basic course

studied from the primary level (prathomsuksa level) to the university level. At the

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university level, reading skills are necessary not only for their studies but also for their future careers. Anderson. N. J. (1999) stated that "reading is the most important skill for EFL/ESL students to master. With strengthened reading skills, EFL/ESL readers will make greater progress and attain greater development in all academic areas". If they lack reading skills, they will be unable to comprehend what they are reading. They may have lost confidence in reading and interpreting them incorrectly.

Most students encounter reading problems because of a deficiency in their reading strategy training. In order to comprehend printed text, readers need knowledge of text structures, the ability to use certain cognitive skills and related reading skills, motivation, readable texts, and prior knowledge appropriate to the reading materials (Devine, T. G. , 1986).; Nuttall, C. (1996), pointed out that training or teaching word text attack skills is the best way for reading teachers to enable students to confront problems. She added that the skills of reading plain sense are basic skills; however, they are absolutely necessary for interpreting difficult texts.

Therefore, language teachers should stress the importance of the development of learners' comprehensive reading skills: understanding main ideas, makingInferences, predicting outcomes, and guessing vocabulary form context (Anderson, N.J. 1999)

Conclusion: To help poor second-year tourism students cope with reading problems, they were taught metacognitive strategies explicitly. Therefore, this study aimed to investigate the effects of metacognitive strategy instruction on reading comprehension skills.

Research background

Comprehension is a reader's efficient ability to understand and make sense of the sources he/she reads (Senshaowanit, 2006) The relationship between education and experience is a vital component of comprehension. Eskey, D. E. (2002). cited in Anderson, N.J,1999) adds that "reading comprehension is most likely to occur when students are reading what they want to read, or at least what they see some good reasons to read". Thus, a good reader must have the purpose of reading.

There were two types of comprehension.

1 Receptive comprehension: A reader must know adequate lexical semantics to comprehend the writer's idea.

2 Reflective comprehension – A reader must have good language skills and ability so that the learners can reach the writer's purpose and analyze and conclude what the learners had read.
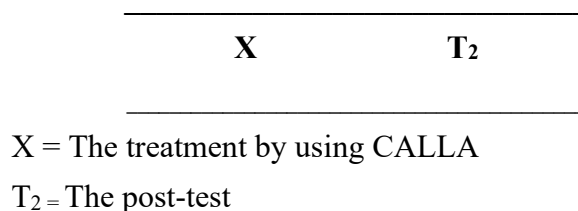
Objective of Research

To investigate the effect of metacognitive strategy instruction on reading comprehension abilities.

Research Design

This study used a one-shot case design method. The design diagram is as follows:

$$X \qquad\qquad T_2$$

X = The treatment by using CALLA

T_2 = The post-test

Population and Sample

Participants

The participants of the study were 15 second-year students who enrolled in English in the first semester of the academic year 2022 and achieved reading scores of less than 50% in the midterm exam. They were from the Tourism Program of the Faculty of Management Science, Silpakorn University in Petchaburi,Thailand. The researcher used a sampling technique by selecting her lower-level students as subjects for the purposive study.

The variables used in this study were as follows:

1. The independent variable was metacognitive strategy instruction.

2. The dependent variable was English reading comprehension ability.

Research Instrument

The research instrument was used to collect the following data.

1 Four lesson plans according to CALLA were undertaken with the material and exercises developed from the pre-intermediate-level textbook, English for International Tourism by the researcher, and authentic articles from websites. Lesson plans were used as the treatment for 4 weeks.

2 The posttest/achievement test consisted of 30 four multiple-choice items of reading comprehension developed by the researcher. The test content was related to tourism. The test was conducted with another 15 lower-level students of the same characteristics from other groups and improved in reliability and validity before it was used as the post-test for the study.

3 Reading logs with points adjusted from the meta-comprehension Strategy Index (MSI) (Griffith, P.L. & Ruan, J. (2005)were used.

Procedure

The main study was conducted after the announcement of the midterm examination in the first semester of the academic year 2012. The research procedure for data collection was as follows:

1 Before the metacognitive strategy instruction

The participants were asked which strategies, when, how, and why they used to elicit their schemata on reading strategies.

2 During the metacognitive strategy instruction

The subjects received 100 minutes of metacognitive strategy instruction through a reading comprehension class based on the CALLA model for four weeks. The five steps of the CALLA model of teaching learning strategy (Chamot & O'Malley, 1994) used in this study are as follows:

2.1 Preparation: The researcher elicited learners' prior knowledge about the strategies they may already know, when, and how they are used.

2.2 Presentation: The learners learned a variety of new languages and strategies from the researcher, demonstrating how to comprehend the text.

2.3 Practice: The learners practiced reading chapters in a pre-intermediate textbook, "English for International Tourism" downloaded from the website.

2.4 Evaluation: The learners' comprehension was assessed by performing exercises after reading and were asked to reflect on their reading in the reading log to summarize the content, identify the effective strategies in the reading text, and assess their learning, including problems they encountered while reading.

2.5 Expansion: The learners were assigned to select text on websites and notes in the reading log.

3 After the metacognitive strategy instruction

After the 4-week instruction, the subjects were administered a 3o four multiple-choice post-test on comprehension reading for 50 minutes. The posttest or achievement test was marked and recorded by the researcher's assistant. The reading logs were gathered and analyzed.

4 Data Analysis

4.1 Learners' post-test scores were computed to determine the arithmetic mean and standard deviation (S.D.). Then, all scores, including the mean, were calculated to determine the percentage. The calculated percentage was compared with 50 percent, which is the standard criterion.

4.2 Data from the students' readings were analyzed qualitatively.

The Item-Objective Congruence (IOC) index of the posttest/achievement test was calculated using the following formula:

$$IOC = \frac{\sum}{N}$$

IOC = the Item-Objective Congruence (IOC) Index
$\sum$ = the consensus of the three language lecturers on the test
N = the number of language lecturers

The post-test/achievement test

The researcher constructed 30 multiple-choice achievement tests after instruction. The test content related to tourism covered the following sub-skills of reading comprehension: main ideas, facts or details, inferences, interpretation, and vocabulary in context.

Expected Finding and Discussion

Learners' reading comprehension abilities after using the four CALLA lesson plans based on metacognitive strategy instruction

Fifteen learners selected by prepositive sampling received 100 minutes of metacognitive strategy instruction through a reading comprehension class based on the CALLA model for four weeks. After the 4-week instruction, the subjects were administered 30 four multiple-choice posttests of comprehension reading for 50 minutes. The post-test or achievement test was marked and recorded by the researcher's assistant. Their reading logs were gathered and analyzed.

Tabel 1 The results of the post-test or achievement test after the instruction

Learner	Post-test Scores (30 points)	Percentage of Post-test Scores
1st Learner	19	63.33
2nd Learner	19	63.33
3rd Learner	21	70.00

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4th Learner	20	66.67
5th Learner	19	63.33
6th Learner	21	60.00
7th Learner	19	56.67
8th Learner	23	76.67
9th Learner	22	73.33
10th Learner	21	70.00
11th Learner	21	70.00
12th Learner	21	70.00
13th Learner	19	63.33
14th Learner	19	63.33
15th Learner	20	66.67
Mean	20.27	65.57
S.D.	1.28	-
Max	23	76.67%
Min	19	63.33%

From Table overall, the learners could pass the post-test after the metacognitive strategy instruction. The average score was 20.27 equals to the percentage of 65.57 (S.D. = 1.28). The 8th learners obtained 23 of the 30 overall scores (76.67 percent), which was the maximum score, whereas six students (1st, 2nd, 5th, 7th, 13th, and 14th learners) obtained 19 (63.33 percent) of the 30 overall score, which was the minimum score.

Table 2 Mean, Standard Deviation, Percentage of the Mean, and Percentage of Acceptable Criterion for Reading Comprehension Test

Number of students	Mean of Post-test scores	Standard Deviation	Percentage of Mean	Percentage of Standard Criterion
15	20.27	1.28	65.57	50

From Table 2, it can be seen that the average post-test scores is 20.27 (S.D. = 1.28) for 30 overall scores. It is 65.57%, which is higher than the standard criterion of 50 %.

Learners' reflections on their reading in the expansion phase

During the expansion phase, 15 learners were assigned to read information on the Internet. According to their reading logs, the data from the students' reading logs was analyzed. The concluded data on the strategies are shown in Table 4.3, and the concluded data on self-evaluation are shown in Table 2.

Table 3 Number of Learners Using strategies, and the Percentages of Using Strategies

Strategies	Number of Learners Using	Percentage of Using
Before Reading:		
1. Looking at a picture(s) to see what the text is about.	15	100
2. Determining the purpose of reading.	15	100
3. Predicting Content from the Tittle or Topic of the Text	15	100
4. Asking learners about the text.	15	100

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While Reading:		
1. Skimming through text by skipping difficult parts.	15	100
2. Trying to guess difficult words from the context.	15	100
3. Looking up some difficult words in the dictionary after guessing.	5	33.33
4. Guessing about what is going to happen next.	15	100
5. Trying to answer learners' own questions.	15	100
6. Thinking about the picture, people, and the event in the text	15	100
7. Reread the important or interesting text to find answers to the learner's own questions.	15	100
After Reading:		
1. Checking whether he/she met their purpose for reading the text	15	100
2. Re-telling the main points of the text to learners' friends.	15	100
3. Summarize what learners had read and how they would apply to their future careers.	15	100

According to Table 3, the interpretation can be presented as follows. Overall, all the learners (100 percent) know what strategies should be used, when, why, and how to use them. Moreover, they determined their reading purpose. However, five students (33.33 percent) dealt with the problems of some unfamiliar words by looking up some difficult words in the dictionary after they tried to guess the meaning in the context.

Table 3 Number of Respondents and Percentage of Respondents to Self-Evaluation

Self-evaluation	Number of Respondents	Percentage of Respondents
I think I understand the whole text very well and I know to use strategies very well. I have much confidence to read. I can answer most of the questions of the text.	0	0%
I think I understand the whole text well and I know how to use strategies well. I have confidence to read and I can answer many questions of the text.	12	80%
I think I have understood some of the text. I know how to use these strategies, but I still get confused about some points. I have some confidence in reading and I can answer some questions in the text.	3	20%
I think I slightly understand the text a little bit. I am unsure how to use these strategies. I lack confidence in reading, and I can answer a few questions in the text.	0	0%

From Table 3, it can be concluded that 12 learners (80 percent) understood the entire text well and knew how to use the strategies well. Moreover, they had confidence in reading and could answer many questions of the text, whereas three students (20 percent) understood some of the text and knew how to use strategies, but still got confused about some points. However, they had some confidence in reading and could answer some questions in the text. According to the table, no learners understood the entire text and knew how to use the strategies

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very well. Neither learners understood the text a little nor lacked confidence to read either.

Conclusions

This classroom action research is a one-shot-case design that was conducted to investigate the effect of CALLA, a metacognitive strategy instruction for four weeks, on the reading comprehension skills of 15 undergraduate tourism students. The subjects were 15 second-year students enrolled in English in the first semester of the academic year 2012 who achieved reading scores in the midterm exam of less than 50 percent. They were from the Tourism Program at the Faculty of Management Science, Silpakomn University, Petchaburi, Thailand. Due to classroom action research, the researcher used a purposive sampling technique by selecting lower-level students as the subjects of the study. The three instruments used in this study were as follows:1) Four lesson plans according to CALLA undertaken with the material and exercises developed from the pre-intermediate level textbook, English for International Tourism by the researcher, and authentic articles from websites. The lesson plans were used as a treatment for four weeks. 2) The post-test consisted of 30 multiple-choice items of reading comprehension developed by the researcher. The test content was related to tourism. The test was performed with another 15 lower-level students with the same characteristics from other groups and improved for reliability and validity before it was used as the post-test for the study; and 3) the points in reading logs were adjusted from the Metacomprehension Strategy Index (MSI) (Griffith, P.L. & Ruan, J. (2005) Documentary data from students' reading logs were subjected to content analysis.

The research procedures for data collection were as follows:1) before the metacognitive strategy instruction, the subjects were asked to elicit their schemata on reading strategies; 2) during the metacognitive strategy instruction, the subjects received 100 minutes of metacognitive strategy instruction through a reading comprehension class based on the CALLA model (Chamot and O'Malley, 1994) for 4 weeks. During the intervention, the students reflected on their metacognitive awareness in reading logs while they engaged in reading tasks; and 3) after the metacognitive strategy instruction, the subjects were administered a 30 four multiple-choice post-test of comprehension reading for 50 minutes. The post-test or achievement test was marked and recorded by the researcher's assistant. Their reading logs were gathered and analyzed.

Students' reading comprehension abilities after using the four CALLA lesson plans based on metacognitive strategy instruction

With reference to the result of the post-test achievement test shown in Chapter Four, it was revealed that the average score of the post-test was 20.27 of the 30 overall scores equal to 65.57%, which was higher than 50 percent, the standard criterion. Consequently, it could be concluded that the students' reading comprehension abilities improved after the metacognitive strategy instruction. This means that the learners know which strategies should be used, when, and why, to use them appropriately within different contexts. That is, they can use their schemata with the interaction of macro- and microprocesses to solve reading problems. They have become skilled readers who can imagine what they have read from the text (Irwin, J. W. (1986); Griffith, P.L. & Ruan, J. (2005) It could be seen that metacognitive strategies enable the students comprehend the difficult texts even though the percentage of the mean score was not much higher than the standard criterion. Because of limited teaching time, students' reading skills developed by a small margin.

Students' reflections on their reading in the expansion phase

Fifteen students were assigned to read information on the Internet during the expansion phase. The data from the students' reading logs were analyzed and are presented below. Before

they began reading, they read the title or topic of the reading text, looked at the pictures, and tried to predict what they thought would happen in the text. While reading, they skimmed through the text without paying attention to unfamiliar words and then asked themselves and guessed the answers about the picture, the people, and the event in the text. Later, they reread the important or interesting text and thought about the title or pictures to guide what was going to happen next. They checked the guessed answers. After reading, they examined whether they met the purpose for reading the text. Next, they checked their understanding by retelling their main points to their friends. Subsequently, they summarized what they had read and how they would apply this to their future careers.

According to the data from their reading logs, it can be concluded that all of them could read by themselves. They knew what strategies should be used, when, why, and how to use them; nevertheless, a few students had a problem with guessing the meaning of some vocabulary in the context because of their lower vocabulary level. Overall, the students reflected that learning metacognitive strategies could improve their reading ability. In addition, this could make them more confident in reading. After the instruction, they felt that reading was not too difficult. This accords with Griffith, P.L. & Ruan, J. (2005) who found that strategy instruction is very useful for lower-level readers. Most of them understood the whole text well, even though a few students were confused about some points. However, some of them noted that they had reading problems on the Internet. They could not derive the meanings of unknown words using word roots or contextual clues. Sometimes, they had to look up meanings in the dictionary. Some noted that they had problems with sentence syntax. They added that they could imagine the entire text when reading. However, if each sentence was considered, they were not sure of its meaning when it was needed to answer the exercise or test. Because the hypertext is flexible and structured, few skilled readers encounter difficulties when reading (**Aftlerbach, P. & Cho, B. (2009)**). Therefore, Reading Comprehension Strategies for the Internet and hypertext should be taught to students. Moreover, the students suggested that guessing the meaning of the vocabulary and syntax of the sentences should be taught, and there should be more vocabulary and grammar exercises.

Recommendation

1 Although lower-level students' reading comprehension abilities improved after the four-week metacognitive strategy instruction, instructing lower-level readers should take a longer time. Many models of reading strategies are required for classroom demonstrations.

2 Because of their lack of knowledge of vocabulary and syntax sentences, teachers should review the basics of reading to help them tackle their reading problems, especially some tourism terms and complex syntax in a hypertext on a website.

3 To develop self-regulatory mechanisms in current reading trends, Reading Comprehension Strategies for the Internet should be taught.

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