Using Metacognitive Strategies to Develop Reading Comprehension Ability at a College, Thailand

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ABSTRACT

The purpose of this study was to train students in using five metacognitive strategies, namely predicting, questioning, scanning, guessing meaning from context clue, and summarizing, and to compare their reading comprehension ability before and after the training.

The subjects selected by purposive sampling were thirty second-year high certificate vocational students majoring in information technology at Nakhon Si Thammarat Technical College. The students received sixteen hours of metacognitive strategy training in reading-focused lessons over a period of eight weeks during the second semester of academic year 2011. A reading comprehension test was used as a pre-test and a post-test to measure the students’ overall reading comprehension ability as well as their reading comprehension ability at three cognitive levels, namely knowledge, comprehension, and application, at the beginning and at the end of the study.

The results of the study show that the students’ post-test score on overall reading comprehension ability was significantly higher than their pre-test score at a level of 0.05. In addition, it was found that their post-test scores on reading comprehension at the three cognitive levels were higher than their respective pre-test scores at a significant level of 0.05. The significant differences found in this study indicate that metacognitive strategy training could help develop the students’ overall reading comprehension ability as well as their ability to comprehend reading passages at the cognitive levels of knowledge, comprehension, and application.
INTRODUCTION

Among the four skills of English, reading is considered a fundamental and necessary skill for anyone learning English as an international language. Reading is a tool for learning and acquiring information. According to Harris and Sipa (1979), reading skills are necessary for academic studies, professional success and development because today most text books and journals are printed in English. Similarly Dubin, Eskey and Grabe (1986) and Adamson (1993) state that reading skills are needed for advanced students who need to read a large mass of materials both in class and at home. Therefore, the ability to read and understand English effectively is regarded as the most important skills for students.

However, according to my own teaching experience at a technical college I have found that reading is a big problem for students. Although students have spent many years studying English, they say that they have reading comprehension problems. This might be because they have not received adequate instruction in how to effectively read and acquire knowledge. Therefore, the teacher has to find ways to assist students in developing their reading comprehension ability.

According to Nuttall (1996), reading is considered a process of decoding, deciphering, identifying, articulating, pronouncing, understanding and responding. It can be understood as cognition and metacognition and involves the use of cognitive and metacognitive strategies as readers strive to effectively reach a desirable outcome. Cognitive strategies refer to the step or operation used in learning which requires direct analysis and transformation of learning materials. Metacognitive strategies refer to thinking about what one is doing while reading.

Metacognitive strategies are regarded as a part of effective strategies that enhance learners’ reading ability (Cohen, 1998). To be able to read effectively and intelligently, students need to improve their reading ability by using their prior knowledge, language knowledge and metacognitive strategies to understand words and sentences in the text. Specifically, metacognitive strategies involve thinking about what one is doing while reading, checking the outcome of problem-solving techniques, planning how to use an effective strategy, controlling the effectiveness of an action plan, testing, revising and evaluating one’s learning strategies (Block, 1992; Saltaci & Akyel, 2002).

Because of the benefits of metacognitive strategies, this study intended to investigate the use of metacognitive strategies to help students at a technical college improve their reading comprehension ability.
PURPOSE OF THE STUDY AND RESEARCH QUESTIONS

This study attempted to train students in using metacognitive strategies and to compare their reading comprehension as well as their ability to read at various levels of comprehension before and after being trained. Specifically, the study addressed the following questions:

1. Is there a difference in students’ reading comprehension ability before and after being trained in using metacognitive strategies?
2. Is there a difference in students’ reading comprehension ability at various cognitive levels before and after being trained in using metacognitive strategies?

SCOPE AND LIMITATIONS OF THE STUDY

1. This study investigated the use of metacognitive strategies on a specific group of students, namely thirtysecond-year high certificate vocational students majoring in information technology at Nakhon Si Thammarat Technical College in the second semester of the academic year 2011. Therefore, the outcomes might not apply to all students.
2. Five metacognitive strategies were covered in this study: predicting, questioning, scanning, guessing meaning from context clue and summarizing. Predicting and questioning are classified as planning strategies; scanning and guessing meaning from context clue, monitoring strategies; and summarizing, an evaluating strategy.
3. The duration of metacognitive strategy training in this study was limited to eight weeks. Each weekly lesson took two hours. Altogether, the students received sixteen hours of metacognitive strategy training.

DEFINITION

In this study, reading comprehension ability refers to students’ ability to comprehend reading texts in a reading comprehension test in which three levels of comprehension are measured, namely knowledge, comprehension and application.
LITERATURE REVIEW

Reading

Reading is an important skill for learners. It has been variously defined. According to Nuttall (1996), reading is considered a process of decoding, deciphering, identifying, articulating, pronouncing, understanding and responding. Alderon (2000 p.28) defines it as “an enjoyable, intense, private activity, from which much pleasure can be derived, and in which one can come totally absorbed.” For Aebersold and Field (1997 p.15), reading is “what happens when people look at a text and assign meaning to the written symbols in the text.” The readers’ comprehension of what they read depends on the interaction between them and the text. Samuels and Kmil (1984) and Stanovich (1980) regard reading as a multidimensional activity in which readers make inference and bring prior knowledge to the reading task. The reader can conclude the text by using their previous knowledge.

It can be seen that it is difficult to define what reading is because there are various meanings of reading and its definition depends on the purpose of the individual reader. In general the definition of reading is the connection between the reader and the text.

Cognitive Levels of Reading Comprehension

Bloom (1956) identified three domains of educational activities: cognitive, affective and psychomotor. The cognitive domain deals with knowledge; the affective domain, attitude; and the psychomotor domain, skills. Of relevance to reading comprehension is the cognitive domain.

According to Bloom (1956), the cognitive domain involves knowledge and the development of intellectual skills. There are six major cognitive levels ranging from the simplest to the most complex behavior, three of which addressed in this study were the knowledge, comprehension and application levels. They are described below.

The knowledge level involves recalling data or information in the text. The keywords in this level are define, identify, describe, know, label, list, match, name, outline, recall, recognize, reproduce, select, and state.

The comprehension level requires students to understand the meaning, translate, interpolate and interpret instruction and problems or state a problem in their own words. The
keywords in this level are comprehend, convert, defend, distinguish, estimate, explain, extend, generalize, give an example, infer, and interpret.

The application level requires students to use a concept in a new situation. The keywords in this level are apply, change, compute, construct, demonstrate, discover, relate, and show.

**Metacognitive Strategies in Reading**

The first definition of metacognition comes from Flavell (1979) who describes metacognition as knowledge about cognition which includes an appreciation of the variables that influence thinking as well as sensitivity to act. Metacognition refers to knowledge, awareness, and control of one’s own learning. It also refers to thinking about what one is doing while reading. It includes checking the result of the problem-solving and planning how to use effective strategies (Block, 1992; Salataci&Akyel, 2002). For Garner (1987), metacognitive strategies involve both knowledge about learning (metacognitive knowledge) and control or regulation over learning (metacognitive strategies or experiences). According to Cohen (1998) and Rubin (1993) reading comprehension involves understanding words, sentences, and a text, and a complex integration of the readers’ background knowledge, language proficiency, and metacognitive strategies. Metacognition, therefore, is considered by these educators to be a necessary element for enhancing performance in reading tasks.

Pressley (2002) states that metacognition consists of three basic parts: developing a plan of action, monitoring or controlling the plan, and evaluating the plan. Firstly, readers develop a plan of action before they read a text. For example, they might evaluate what they need to do first. Next, while they are reading the text, readers monitor their plan of action. They may ask themselves what important information they need to remember or what they need to do if they cannot understand the text. Finally, when these proficient readers evaluate their plan, they ask themselves how they might apply the reading strategies to other reading problems or whether they need to go back and resolve any misunderstanding.

According to Cohen (1998), planning strategy is used in the pre-reading stage. This strategy is related to scanning and guessing what the text is about. It helps readers to predict the text or information and think about its topic. The while-reading stage involves the monitoring strategy. This strategy is related to self-questioning and problem-solving. The readers pay attention to their reading and ask themselves questions when they face problems on the significance of the text. The monitoring occurs when they think about their strategy.
and check their comprehension. The post-reading stage involves the evaluation strategy. The readers can evaluate their strategy by asking themselves questions concerning what strategies have an effect on their reading and how well they use these strategies.

**METHODOLOGY**

This part describes the key elements of research methodology of this study: subjects, instruments, data collection and data analysis.

**Subjects**

The subjects were a class of thirty-second-year high certificate vocational students majoring in information technology at Nakhon Si Thammarat Technical College selected by purposive sampling. The students were enrolled in the Internet English course taught by the researcher in the second semester of the academic year 2011. The Internet English course focuses on integrated skills and the reading portion of the course was the focus of the study. The students met once a week for eight weeks and each weekly lesson took two hours covering two reading passages. Altogether sixteen reading passages were covered in the study.

**Instruments**

Eight lesson plans and a reading comprehension test were constructed by the researcher.

Eight two-hour weekly lesson plans were designed by the researcher. Each lesson focused on reading two passages and training the students in using five metacognitive strategies in three reading stages. The passages were selected based on three criteria: appropriateness for metacognitive strategy training, updated and interesting topic and a length of 250-300 words. Two planning strategies, namely predicting and questioning, were covered in the pre-reading stage. Two monitoring strategies, namely scanning and guessing meaning from context clue were introduced in the while-reading stage. One evaluating strategy, summarizing, was covered in the post-reading stage. In conducting the lesson, the teacher mainly taught the students in English and switched to Thai in case the students did not understand or could not follow the lesson.

A reading comprehension test serving as a pre- and post-test was constructed by the researcher. The test consisting of three reading passages and thirty multiple choice items with
four options were designed to measure the students’ reading comprehension ability at three cognitive levels. Of the thirty items, ten items measured the knowledge level; fifteen items, the comprehension level, and five items, the application level. The test took one administration hour.

**Data Collection and Data Analysis**

The data collection taking a period of eight weeks was conducted in the second semester of the academic year 2011. During the first week of the study, the pre-test was administered to assess the students’ reading comprehension ability before the training of metacognitive strategies. Then, the students received the training in using metacognitive strategies for sixteen hours in eight weeks. Upon the completion of the training, the post-test was administered.

In analyzing the data, the students’ mean scores on the pre- and post-test were compared by using the paired sample t-test to determine whether there was a difference in their reading comprehension ability as well as their reading comprehension ability at various cognitive levels before and after being trained in using metacognitive strategies.

**RESULTS**

**Students’ Reading Comprehension Ability Before and After Metacognitive Strategy Training**

The following table presents the results of the analysis of the students’ scores on the reading comprehension test before and after metacognitive strategy training.

<table>
<thead>
<tr>
<th>Table 1: Students’ Scores on Reading Comprehension Test Before and After Metacognitive Strategy Training</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Score</td>
</tr>
<tr>
<td>-------------</td>
</tr>
<tr>
<td>(n = 30)</td>
</tr>
<tr>
<td>Mean</td>
</tr>
<tr>
<td>30</td>
</tr>
</tbody>
</table>

* Significant at 0.05 level
As presented in Table 1, the students’ mean scores on the pre- and post-test were 13.93 and 20.47 respectively. The result of t-test shows that their post-test score was significantly higher than their pre-test score at a level of 0.05. This significant difference indicates that metacognitive strategy training did help students improve their reading comprehension.

**Students’ Reading Comprehension Ability at Various Cognitive Levels Before and After Metacognitive Strategy Training**

The table below presents the results of the detailed analysis of the students’ scores on the reading comprehension test at various cognitive levels before and after metacognitive strategy training.

<table>
<thead>
<tr>
<th>Cognitive Levels</th>
<th>Total Score</th>
<th>Pre-test Score Mean (n = 30)</th>
<th>Post-test Score Mean (n = 30)</th>
<th>Paired Differences Mean</th>
<th>df</th>
<th>t-value</th>
<th>Sig. (2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Mean S.D.</td>
<td>Mean S.D.</td>
<td>Mean S.D.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Knowledge</td>
<td>10</td>
<td>5.63 2.22</td>
<td>7.23 1.38</td>
<td>-1.60 2.30</td>
<td>29</td>
<td>-3.81</td>
<td>.001*</td>
</tr>
<tr>
<td>Comprehension</td>
<td>15</td>
<td>6.70 1.99</td>
<td>10.23 1.94</td>
<td>-3.53 2.33</td>
<td>29</td>
<td>-8.31</td>
<td>.000*</td>
</tr>
<tr>
<td>Application</td>
<td>5</td>
<td>1.60 .97</td>
<td>3.00 .95</td>
<td>-1.40 .86</td>
<td>29</td>
<td>-8.97</td>
<td>.000*</td>
</tr>
</tbody>
</table>

* Significant at 0.05 level

As shown in Table 2, in the pre-test the students’ mean scores on the reading comprehension test at the cognitive levels of knowledge, comprehension, and application were 5.63, 6.70, and 1.60 respectively. In the post-test, their scores on the reading comprehension test at the three cognitive levels were 7.23, 10.23, and 3.00 respectively. The results of t-test show that their post-test scores on the three cognitive levels investigated were higher than their respective pre-test scores at a significant level of 0.05. This significant difference reveals that metacognitive strategy training helped students improve their reading comprehension at the cognitive levels of knowledge, comprehension, and application.
DISCUSSION AND CONCLUSION

The results of the current study show that training the students in using metacognitive strategies enhanced their overall reading comprehension ability as well as their reading comprehension ability at various cognitive levels. This might be due to the fact that the training in using metacognitive strategies enabled the students to use metacognitive strategies to facilitate their reading over the period of the study. The results are in agreement with Chumpavan (2000) who investigated the metacognitive strategies used by Thai students in learning English as a foreign language at Coat Illinois State University. In the study Chumpavan found that the participants applied their metacognitive strategies to facilitate their reading comprehension.

This study confirmed that training in using metacognitive strategies helped develop students’ reading comprehension ability. This is also consistent with Dhieb-Henia (2003) who investigated the reading process of EFL/ESL students while they were reading articles related to biology. The study found that training the students in the experimental group in the use of metacognitive strategies increased their reading efficiency.

In addition, using metacognitive strategies activated the students reading comprehension ability. When the students used metacognitive strategies whilst reading they had a clear understanding of the contents of the text. The training allowed them to read and comprehend at a higher cognitive level.

In conclusion, metacognitive strategies play an important role in developing students’ overall reading comprehension ability as well as their ability to comprehend at various cognitive levels.

RECOMMENDATIONS FOR FURTHER STUDIES

Since this study has investigated the use of five metacognitive strategies, namely predicting, questioning, scanning, guessing meaning from context clue and summarizing, to improve the students’ reading comprehension ability and has shown that metacognitive strategies play a vital role in their learning to read, further studies should explore the potentials of other metacognitive strategies not addressed in this study in helping students to develop reading skills as well as other skills. In addition, this study was conducted on second-year high certificate vocational students at a technical college. In order to confirm the effect of metacognitive strategy training on students’ reading comprehension ability, further studies
expanding to subjects of different attributes are recommended.
REFERENCES


