A Comparative Study of Reading Strategies Instruction on Graduate Students' Reading Comprehension

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Abstract

This research aimed to investigate whether reading strategies instruction affects the comprehension skills of graduate students whose reading comprehension abilities are moderate. The randomly-selected, pretest-posttest control group research design was employed with first-year graduate students in the academic year 2005 from various faculties at a public university in Bangkok. After sixteen weeks of instruction, both groups were administered a reading comprehension post-test and ten subjects in the experimental group were randomly selected and interviewed to elicit their attitudes towards using reading strategies. Based on both statistical data and interviews, there was substantial evidence to show that there were statistically significant differences among the subjects studied. Apart from the statistical analysis, the research yields the result that there was something qualitatively different among the two groups, especially the teaching-learning atmosphere and the classroom-interactions which were overtly observed.

1. Background

A great deal of time is spent during graduate study on reading materials from which graduate students must gain the gist and extract relevant information in order to attain deeper levels of understanding. Graduate students devote countless hours of effort browsing assigned texts and related research articles from various professional journals to obtain the information they need. In the process, they employ various techniques which they assume will help them more or less accomplish their goal.

Because of the complexity and amount of materials that graduate students must cover in a short period of time each semester, it is vital that their reading be both purposeful and efficient enough to understand the texts adequately.

To ensure this, graduate students must develop the reading strategies that are assumed to be crucial for their reading comprehension. Reading strategies equip the students with the skills of how to handle their reading materials effectively, how to understand textual structures, how to read for different purposes, and how to reflect on their reading. Once they have developed and utilized their reading strategies, they will more likely understand the written texts better.

Several research studies have shown that reading strategies play a vital role in students' reading comprehension. These studies show that both good and poor readers of English who are second language learners use different types of reading strategies in their reading performance (Salatachi & Akel, 2002; Wong & Agnes, 2003).

There are more than 4,000 graduate students at Thammasat University in Bangkok, Thailand who are required to read English textbooks and articles. Reading skills are the most commonly used language skill at this level of study (Vessakosol et al., 1985). However, a substantial number of these students struggle to understand the texts they read. To help them cope with this problem, they are introduced to reading strategies and are encouraged to apply these strategies as often as possible in order to improve their reading skills and to better understand the texts. Therefore, there is a need to investigate the effects of reading strategies on graduate students who are classified as "moderate" in their reading comprehension ability.

2. Objectives of the Study

This study aims to:

1. investigate the effects of reading strategies instruction on graduate students' reading comprehension
2. find out whether there is a significant difference in reading achievement between male and female students who use and who do not use reading strategies
3. study graduate students' attitudes towards the use of reading strategies

3. Research Questions

This study attempts to answer the following questions:

1. Is there any difference in reading achievement between graduate students who use reading strategies and those who do not use reading strategies?
2. Are there any differences between male and female graduate students who use reading strategies and those who do not use reading strategies in reading comprehension?

3. What are graduate students' attitudes towards using reading strategies?

4. Review of the Literature

4.1 Reading Comprehension

The ultimate goal of reading is reading comprehension. Reading comprehension is the process through which readers use their own syntactic, semantic, rhetorical and prior knowledge as well as necessary cognitive skills to analyze, interpret and understand the writer's thoughts and ideas conveyed through the printed text (Devine, 1986). Therefore, the readers employ different kinds of reading skills in order to understand what they read (Krashen & Terrell, 1983, p. 134).

According to Anderson (1999, p. 2), there are three models of comprehension process: the "bottom-up", the "top-down" and the "interactive" models. For the "bottom-up" model, the readers decode and reconstruct the author's meaning through recognizing the printed letters and words, then build up meaning from the smallest textual units at the "bottom" (letters and words) to larger and longer units (phrases, clauses, inter-sentential linkages) at the top units (Carrel, 1988, p. 2).

For the "top-down" model, the readers move through reading texts trying to understand them as a whole without worrying about individual visual components of the language, but actively using strategies like hypothesis testing, making and adjusting predictions, activating or generating prior knowledge as well as interpretation of contextual clues (Anderson, 1999; Eskey, 1988).

The 'interactive' model is the combination or interaction between the aforementioned. According to Hedge (2000, pp. 188-189), the interactive model provides the description of a vital relationship with the text as the readers make a great effort in understanding it. It also relates to the interactions among many different kinds of knowledge that the readers use while reading through the texts.

4.2 Reading Strategies

Reading strategies refer to those specific actions which readers employ before, during and after reading in order to understand most efficiently what they read. According to Koda (2005), reading strategies, or *strategic reading,* are believed to influence readers in adjusting their reading behaviors to work on text difficulty, task demands, and other contextual variables.

There are six characteristics of reading strategies that make them valuable for explicit teacher instruction (Paris et al, 1991, p. 609):

1. Strategies allow readers to elaborate, organize, and evaluate information derived from the text.

2. The acquisition of reading strategies coincides and overlaps with the development of multiple cognitive strategies to enhance attention, memory, communication and learning.

3. Strategies are personal cognitive tools that can be used selectively and flexibly.

4. Strategic reading reflects metacognition and motivation because readers need to have both knowledge and disposition to use strategies.

5. Strategies that foster reading and thinking can be taught directly by teachers.

6. Strategic reading can enhance learning throughout the curriculum.

There are four main approaches to grouping reading strategies:

First, Paris et al (1991) classified reading strategies into three categories based on when they are used: *before, during* and *after* reading. *Before,* or pre-reading, strategies are believed to activate prior knowledge, or schema, essential for understanding texts. *During,* or while-reading, strategies help to locate the main idea. *After,* or post-reading, strategies are used to review, detect and cogitate upon the information.

Second, Anderson (1991) adjusted Paris et al's time-based distinctions into five categories: *supervising, supporting, paraphrasing, establishing text coherence,* and *test-taking. Supervising* is used to self-monitor progress in comprehension; *supporting* for regulating processing behaviors such as skipping unknown words; *paraphrasing* for aiding information processing; *establishing text coherence* for global text-information processing; and *test-taking* for accomplishing a particular task on a reading test.

Third, Chamot and O'Malley (1994) grouped reading strategies into *cognitive, metacognitive,* and *social* and *affective* strategies. *Cognitive* strategies are used to accomplish a specific cognitive task during reading, while *metacognitive* strategies are used to regulate cognitive processing. *Social and affective* strategies are used to interact cooperatively with other strategies during reading.

Lastly, Anderson (1999) divided the reading process, or reading strategies, into three categories: a *bottom-up* process, a *top-down* process, and an *interactive* process. The *bottom-up* process emphasizes the "lower-level" reading skill such as word recognition, letter identification, and grapheme-phoneme recognition. The *top-down* process, on the other hand, operates mainly at a higher level, starting with hypothesizing and predicting, and then trying to confirm from the printed words. The *interactive* process is the interaction between the bottom-up and top-down processes and the interaction between the reader and the text.

Readers may choose a variety of strategies that they find appropriate for their reading proficiency and purposes. Successful readers tend to use many of the following specific actions (strategies) when attempting to comprehend reading materials (Gebhard, 1996, pp. 199-200):

1. Skipping words they do not know
2. Predicting meaning
3. Guessing the meaning of unfamiliar words from the context
4. Not consistently translating
5. Looking for cognates
6. Asking someone what a word means
7. Having knowledge about the topic
8. Drawing inferences from the title
9. Making use of all information in the paragraph to comprehend unfamiliar words
10. Trying to figure out the meaning of a word by the syntax of the sentence
11. Reading things of interest
12. Studying pictures and illustrations
13. Purposefully re-reading to check comprehension

Aebersold and Field (1997) further refined the set of reading strategy skills that can be used to help guide the reading teacher to improve students' reading comprehension:

1. Reading the title to infer what information might follow
2. Paying attention to the general idea of the passage
3. Guessing the meanings of unknown words by using the context
4. Varying reading rates according to the type of the passage
5. Skipping unknown words during the first reading
6. Underlining or marking important points of what was read
7. Trying to relate prior knowledge and experiences to the passage
8. Re-reading texts in order to make sure that important information was not missed
9. Reading over each sentence quickly for main ideas; then, going back and reading carefully for details
10. Paying attention to key words in sentences
11. Trying to understand what has been read by using imagination
12. Guessing the meanings of unknown words through word roots and/or affixes (prefix, suffix, infix)
13. Using different reading strategies according to the type of passage
14. Noticing punctuation and using it as an aid to reading
15. Guessing the meaning of unknown words by considering the syntax of the sentences
16. Separating important from unimportant information
17. Finding out the writer's intention
18. Keeping the purpose of reading in mind
19. Summing up or noting down the content

4.3 Related Studies

During the past two decades, a large body of research on reading strategies has been accumulated. To narrow the focus, this paper considers only a representative sample of those studies conducted at the college level both abroad and in Thailand. The findings yield remarkable and valuable insights for language teachers, especially EFL reading teachers.

While university-level students are consistently able to identify various kinds of reading strategies and agree that reading strategies may aid in reading comprehension, a surprisingly small percentage of those students actually employ reading strategies in their own reading behavior or use them successfully (Anderson 1991; Block 1986; Harnseithanon 2002). In Block's study (1986), researchers aimed at identifying the differences between native and non-native English-speaking college students in a remedial reading program. It was found that all participants in the study were able to identify various kinds of reading strategies, but only a few were able to use them successfully. It was concluded that it was implicitly invalid to assume that students would *use* reading strategies if they only knew about them.

Anderson (1991) studied *self-reported* actions among college ESL learners at an American university to determine whether strategies used in reading an academic text differed comparatively to those used in a standardized, multiple-choice reading test. It was found that participants who verbalized more during *self-reporting* generally performed better on reading tests. However, even though readers tended to know which strategies to use, they failed to employ the strategies successfully.

Harnseithanon (2002) undertook a survey study of the effectiveness of reading strategies on English reading comprehension of third-year marketing students at a college in Thailand. The findings from the rated questionnaire indicated that the students had positive attitudes towards reading strategies and felt that reading strategies affected their reading comprehension moderately.

Other impediments to effectively using a wide range of reading strategies were borne out in studies of native and non-native speaking students. Upton (1997) investigated the use of reading comprehension strategies by Japanese ESL students enrolled at an American university. Five of them were taking intermediate ESL classes, while another six were taking academic subjects only. It was found that the ESL students tended to switch to their L1 when coming across unknown vocabulary in an L2 text. The content-based students, however, retained the use of L2 in attempting to figure out the meaning of difficult vocabulary. Furthermore, the ESL students tended to rely more on translation and paraphrasing into L1.

Crabal (2002) surveyed the practice of reading strategies at the college level in universities in Portugal. The data from the questionnaire revealed that the majority of the students tended to use general strategies connected with their specific academic tasks and study habits. They avoided the use of strategies that involved interaction with the teacher and other strategies that would control/determine their academic writing tasks.

Prommak (2005) researched the reading strategies of first-year Business English students at a university in Thailand. The results of the questionnaire-based study showed that the students employed various reading strategies to assist in their comprehension of English material. More than half of the listed reading strategies were used by the students. The most frequent strategy identified was "looking up the meanings of unknown words and/or usage from an English-Thai dictionary."

Furthermore, two studies conducted on reading strategy use by Thai students reveal additional insights to how Thai university students employ reading strategies. Khunnawut (2003) studied the reading strategies of first-year engineering students at a university in Thailand. The results indicated that the students employed reading strategies moderately when reading English language materials. The students reported using reading strategies in (1) learning vocabulary, (2) learning difficult sentence patterns, (3) reading passages, (4) storing content in memory, (5) individual reading outside the classroom; and (6) other reading tasks requiring strategies.

Paesaroje (2004) surveyed the reading strategies used by students of English for Communication and a study-skills course at a Bangkok university. The findings revealed that overall the students used reading strategies moderately, but males tended to use reading strategies more frequently than females.

Based on the foregoing research studies, it can be summarized that both native and non-native English-speaking college students are *aware* of reading strategies, with some groups making moderate use of them, while others apply them unsuccessfully. However, competency *of* reading strategies does not necessarily lead to enhanced performance in reading ability.

5. Research Methodology

This study is an applied research study involving an experimental study of the pretest-posttest control-group design, consisting of two groups: an experimental group and a control group. Each group consists of 30 first-year graduate students in the academic year 2005 from various faculties at Thammasat University in Bangkok, Thailand. The procedure for selecting the subject is as follows.

Incoming graduate students are required to take the Thammasat University's Graduate English Test (TU-GET) to determine their academic English language proficiency. Based on the score results for the purpose of this study, students were classified as poor, moderate or good readers. The criteria used were the mean $\pm$ 1.5 SD on their TU-GET score: poor readers (17-39), moderate readers (40-54), and good readers (55-98).

Among 25 remedial English classes, each with approximately 35 students, there were 7 classes that were made up of moderate readers. Two of these classes comprised of 70 moderate readers and were randomly used as subjects for this study. However, ten

of them, five from each group, did not complete the post-test, and were therefore eliminated from the study, making the total number of 30 subjects in each group.

The principal rationale for selecting the moderate readers as subjects for this study is that many research studies tend to focus on the "good" and "poor" language students to determine the disparities between them. Few studies have focused attention on the "moderate" group, thus few generalizations have been drawn about this group. Secondly, the author believes that the moderate group more accurately represents the average population and can lead to valuable generalizations in certain domains of study.

The randomly-selected, pretest-posttest control group research design is as follows:

Group	Pre-test	Treatment	Post-test
Experimental	T1	X	T2
Control	T1		T2

Both the experimental and control groups were administered a reading comprehension pre-test. Both groups then received an equal amount of instruction in reading comprehension over 16 weeks. The control group was taught using a conventional teaching approach to reading comprehension skills, while the experimental group received extensive instruction in applying reading strategies. The reading strategies explicitly taught to the experimental group follow the set of strategic reading skills presented by Aebersold and Field (1997):

1. reading the title to infer what information might follow;
2. paying attention to the general idea of the passage;
3. guessing the meanings of unknown words by using the context;
4. varying reading rates according to the type of the passage;
5. skipping unknown words during the first reading;
6. underlining or marking important points of what was read;
7. trying to relate prior knowledge and experiences to the passage;
8. re-reading texts in order to make sure that important information was not missed;
9. reading over each sentence quickly for main ideas; then, going back and reading carefully for details;
10. paying attention to key words in sentences;
11. trying to understand what has been read by using imagination;
12. guessing the meanings of unknown words through word roots and/or affixes (prefix, suffix, infix);
13. using different reading strategies according to the type of passage;
14. noticing punctuation and using it as an aid to reading;

15. guessing the meaning of unknown words by considering the syntax of the sentences;
16. separating important from unimportant information;
17. finding out the writer's intention;
18. keeping the purpose of reading in mind;
19. summing up or noting down the content.

Through explicit instruction of the above strategies, students were able to develop their strategic reading skills and eventually they can improve their reading comprehension.

The subjects in the experimental group were introduced to the reading strategies in the first period of teaching, followed by reading practice of short passages closely related to students' schema. As the course progressed, the teacher provided longer reading passages for the students to read, consistently highlighting the use of appropriate reading strategies to assist in their comprehension.

After the sixteen weeks of instruction, both groups were administered a reading comprehension post-test which was identical to the pre-test. Both the pre-test and the post-test were designed and administered by the Language Institute of Thammasat University. The means (X) and the standard deviations (SD) of the two groups were computed using the t-test to determine the differences between the two groups.

At the end of instruction, ten subjects in the experimental group were randomly selected and interviewed to elicit their attitudes towards using reading strategies. The subjects were further asked how they used the reading strategies. The data from the interviews were analyzed descriptively.

6. Results and Discussion

6.1 Results from Quantitative Analysis

Data from both the experimental and control groups were analyzed by SPSS for arithmetic means, standard deviation and t-test. The significant level was set at the .05 level.

Table 1 Backgrounds of Graduate Students

Group	Sex	Number	%
Control	Male	18	60.00
	Female	12	40.00
Experimental	Male	14	47.00
	Female	16	53.00
Total		**60**	**100.00**

As shown in Table 1, the 30 samples in the control group consisted of 30 graduate students, 18 of whom were males and 12 females, while the samples in the experimental group consisted of 30 graduate students, 14 of whom were males and 16 females.

Table 2   Comparison Between the Pre-test and Post-test Scores of the Control Group and the Experimental Group

Group	test	Number	Mean	SD	T-test	Significance
Control	Pre-test	30	455.33	68.27	-2.16	0.04
	Post-test	30	474.33	56.06		
Experimental	Pre-test	30	442.37	65.79	-7.41	0.00
	Post-test	30	493.60	56.66		

As shown in Table 2, the average pre-test score of the control group was 455.33 with a SD of 68.27, while the average post-test score was 474.33 with a SD of 56.06. The result of the T-test was significantly different at the level of .05.

For the experimental group, the average pre-test score was 442.37 with a SD of 65.79, while the average post-test score was 493.60 with a SD of 56.66. The result of the t-test was highly significantly different at the level of .05.

Table 3 Comparison Between the Pre-test and Post-test Scores of Males and Females in the Control Group and in the Experimental Group

Group	Test	Male		Female		T-test	Significance
		Mean	**SD**	**Mean**	**SD**		
Control	Pre-test	457.78	67.87	451.67	71.71	0.24	0.81
	Post-test	480.00	56.67	465.83	56.48	0.67	0.51
Experimental	Pre-test	452.93	60.29	433.13	70.87	0.82	0.42
	Post-test	490.57	59.16	496.25	56.08	-0.27	0.79

The average pre-test and post-test scores for male students in the control group were 457.78 and 480.00, while the average pre-test and post-test scores of the female students were 451.67 and 465.83. However, the t-test was not highly significantly different at the level of .05.

The average pre-test and post-test score of female students in the experimental group was lower than the male students', but the average post-test score of female students was higher than the male students'. However, the result of the t-test was found insignificantly different.

Table 4 Comparison Between the Pre-test and Post-test Scores of Male and Female Students in the Control and Experimental Groups

Group	Test	Control		Experimental		T-test	Significance
		Mean	**SD**	**Mean**	**SD**		
Male	Pre-test	457.78	67.87	452.93	60.29	0.21	0.83
	Post-test	480.00	56.67	490.57	59.16	-0.51	0.61
Female	Pre-test	451.67	71.71	433.13	70.87	0.68	0.50
	Post-test	465.83	56.48	496.25	56.08	-1.42	0.17

The average pre-test scores of male students in the control group and the experimental group were almost the same, 457.78 and 452.93, respectively. However, the average post-test score of the experimental group was substantially higher than the control group's, 490.57 to 480.00, respectively. The result of the t-test was not significantly different.

The average pre-test scores of female students in the control group was higher than those in the experimental group, 451.67 and 433.13, while the average post-test score of the experimental group was higher than the control group's, 496.25 to 465.83, respectively. However, the result of the t-test between these two groups was not significantly different.

Table 5 Comparison Between the Average Pre-test and Post-test Means of the Control Group and the Experimental Group

Group	No	Mean	SD	Std. Error Mean	Corr.	Significance
Control	30	464.83	13.44	9.50	1.00	0.00
Experimental	30	467.95	36.23	25.62		

When the means of the pre-test and the post-test of the control group (464.83) and the experimental group (467.95) were calculated, the standard deviation of the experimental group (36.23) was higher than the control group's (13.44). The result of the t-test of the two groups was significantly different. This showed that the subjects in the experimental group had improved their reading ability after they had been taught and encouraged to use reading strategies.

To conclude, this study yields similar result to the previous research studies cited in the literature review. It confirms that reading strategies instruction does improve moderate graduate students' reading achievement.

6.2 Results from the Interviews

Semi-structured interviews were conducted to elicit the subjects' attitudes towards using reading strategies. The ten randomly selected subjects from the experimental group were individually interviewed by the researcher at the end of the experiment. They were asked how they felt after having practiced the use of reading strategies and how they applied these strategies. The results of the interviews are presented below.

Most of the subjects stated that using reading strategies boosts their confidence and makes them more at ease when reading by themselves. They read the title or the topic of the reading passages first and try to guess some of the content of the passages from the topic. They skim through the passages without paying attention to unknown words and then ask themselves questions about the content of the passages. Next, they try to derive the meaning of the unknown words using word roots and contextual clues. Then they reread the passages trying to grasp the main idea and major details of what they read. All word roots and affixes are also examined from time to time. They also pay attention to the syntax of the sentences to help them understand the passages better. Rereading is also a must for them to thoroughly understand what they read. They do consult with friends during class reading tasks. The last step is to summarize the passage.

Overall, the subjects said that using reading strategies increases their self-reliance and improves their levels of comprehension of the passages they have read. They conclude that reading is not passive but quite active in terms of comprehending the vocabulary and grasping the whole meaning of the passages. They have to guess and try to determine the

correct meanings of unknown words and then confirm their meanings in order to understand the whole passage. Having had instruction in reading strategies motivates them to read more and to feel more comfortable when interacting with friends in a reading class.

The graduate students who were taught reading strategies before they were encouraged to read on their own most of the time during the teaching activities found that their confidence had increased. They claimed that they felt for the first time that they could rely on themselves when reading. Even though reluctant at first, they eventually felt at ease to move around and consult with friends in the class to check their reading comprehension.

The graduate students who were urged to use reading strategies claimed they had become more independent in reading all kinds of reading materials. Before instruction they did not read much without a teacher's help, but now they believe they would be able to apply most of the reading strategies taught, especially skimming through the reading materials to get the general idea, guessing meaning using contextual clues, looking for key words, finding out the writer's intention and predicting.

7. Conclusions and Discussions

This study reveals the following results. Comparing the control group and the experimental group:

1. There was significant statistical difference between the pre-test and post-test scores of the students in both the control and the experimental group.
2. There was significant statistical difference in the reading comprehension abilities of the students in the control and the experimental groups.
3. There was no significant statistical difference between the pre-test and post-test scores of the male and female students in the control group.
4. There was no significant statistical difference between the pre-test and post-test scores of the male and female students in the experimental group.

Based on the above findings, the research questions can be now answered as follows:

1. There was significant statistical difference at the level of .05 between the graduate students who used reading strategies and those who did not use the strategies.
2. There were no significant statistical differences between male and female graduate students who used reading strategies in reading comprehension and those who did not.
3. Students who were encouraged to use reading strategies while reading felt comfortable, confident and independent about their reading.

8. Implications and Recommendations

This study intended to find out whether there is a relationship between reading strategies instruction and increased reading comprehension ability of moderate readers at a graduate level English remedial course, a required course for all graduate students at Thammasat University, Bangkok, whose English skills did not meet the University's Graduate School's requirements.

Examining the experiment throughout the whole process, the research yields the result that there is statistical difference in reading achievement between the two groups. Furthermore, the teaching-learning atmosphere and the classroom-interactions between the two groups were overtly observed.

Since this research focused mainly on moderate readers, it may be valuable to recommend that students at all levels be reminded and encouraged to use reading strategies at the beginning of each semester so that they would have these skills at their disposal in their language courses.

Significantly, there should be further studies on reading strategies at all levels using greater sample sizes to verify the effectiveness of reading strategy instruction.

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