

The Effects of Reading Strategies Instruction on Graduate Students' Reading Comprehension

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Abstract

This research aimed to investigate the effects of reading strategies instruction on graduate students' reading comprehension 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 positive outcomes even though there were no statistically significant differences among the subjects studied. However, examining the experiment throughout the whole process, 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.

Background of the study

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. Among those studies, it is shown that good and poor readers of the English language who are second language learners use different types of reading strategies in their reading performance (Carrell et al., 1988; Salatachi & Akel, 2002; and Wong & Agnes, 2003).

There are more than 4,000 graduate students at Thammasat University in Bangkok, Thailand, who are required, willingly or not, to read English textbooks and articles. Reading skills are the most commonly used language skill at this level of study (Vessakosol & Parisuttimarn, 1985). However, a substantial number of these students

struggle to understand the texts they read. To help them cope with this problem, therefore, 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.

Objectives of the study

This study aims to:

- investigate the effects of reading strategies instruction on graduate reading comprehension;
- find out the effects of reading strategies instruction on reading skills of graduate students’ reading comprehension;
- compare students’ attitudes *before* and *after* instruction in the use of reading strategies.

Research questions

This study attempts to answer the following questions:

1. Is there any difference in reading achievement between graduate students who have received explicit instruction in the use of reading strategies and those who have not?
2. Are there any differences between male and female graduate students who have received explicit instruction in the use of reading strategies and those who have not?
3. What are graduate students’ attitudes towards using reading strategies?

Literature review

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, readers employ different kinds of reading skills in order to understand what they read (Krashen & Terrell, 1983).

According to Anderson (1999), there are three models of comprehension process: ‘bottom-up’, ‘top-down’ and ‘interactive’. According to ‘bottom-up’ models, readers decode and reconstruct the author’s meaning through recognizing the printed letters and words and then build meaning from the smallest textual units at the ‘bottom’ (letters and words) to larger and longer units (phrases, clauses, intersentential linkages) at the ‘top’ units (Carrell, 1988). As for the ‘top-down’ models, 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 interpreting contextual clues (Anderson, 1999; Eskey, 1988). The ‘interactive’ model is the combination or interaction between the aforementioned models. According to Hedge (2000), the interactive model provides the description of a vital relationship with the text as the readers make a great effort to understand it; it also relates to the interactions among many different kinds of knowledge that the readers use while reading through texts.

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):

- Strategies allow readers to elaborate, organize and evaluate information derived from the text.
- The acquisition of reading strategies coincides and overlaps with the development of multiple cognitive strategies to enhance attention, memory, communication and learning.
- Strategies are personal cognitive tools that can be used selectively and flexibly.
- Strategic reading reflects metacognition and motivation because readers need to have both knowledge and disposition to use strategies.
- Strategies that foster reading and thinking can be taught directly by teachers.
- 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 schemata, 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 & 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, following the reading models mentioned above, Anderson (1999) divided the reading process, or reading strategies, into three categories: *bottom-up*, *top-down* and *interactive*. The *bottom-up* process emphasizes 'lower-level' reading skills 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). Those strategies are:

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

Aebersold & Field (1997) further refined the set of reading strategies that can be used to help guide reading teachers to improve students' reading comprehension (see Appendix 1 for a modified version of their strategies that was used for instruction of the experimental group in this study).

Related studies concerning reading strategies

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

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 (Block, 1986; Anderson, 1991; Harnseithanon, 2002). In the Block (1986) study, 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 learners of English as a Second Language (ESL) learners at an American university to determine whether strategies used in reading an academic text differed comparatively from 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.

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 first language (L1) when coming across unknown vocabulary in a second-language (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.

There are many research studies conducted with Thai students. 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. Supanan (2005) investigated 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. Saowakhon (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 learning vocabulary, learning difficult sentence patterns, reading passages, storing content in memory, individual reading outside the classroom and in other reading tasks requiring strategies. Meanwhile, Sunate (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. Thus, an essential element in the learning of reading strategies may be the role and guidance of the teacher in actively modeling how to employ the strategies consistently and appropriately across the wide range of available strategic skills.

Methodology

Subjects and subject selection

This study is an applied research study involving an experimental study of the pretest-posttest control-group design, consisting of 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 subjects is as follows.

Incoming graduate students are required to take the Thammasat University Graduate Entrance 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 scores: poor readers (17-39), moderate readers (40-54) and good readers (55-98).

Among the 25 classes of the English remedial course, with approximately 35 students in each class, 7 classes are made up of the moderate readers. Only two classes, comprising 70 moderate readers, 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 a total of 30 subjects in each group.

The principle 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 making it hard to draw any generalizations from this group. Secondly, the author believes that the moderate group more or less accurately represents the average population and can lead to valuable generalizations in certain domains of study.

As shown in Table 1, the 30 subjects 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 1: Background 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

Instruments

Two instruments were used in this study, a reading comprehension pretest-posttest and a semi-structured interview. The test was used in order to find out if there were any differences between the control and experimental groups and any differences between male and female students; the interview was used to elicit the subjects' attitudes towards using reading strategies.

Procedures

Both the experimental and control groups were administered the pre-test. Both groups were taught by the researcher and they received an equal amount of instruction in reading comprehension over sixteen 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 researcher's adaptation of Aebersold & Field's (1997) set of reading strategies (see Appendix 1). The subjects in this group were introduced to the reading strategies in the first period of teaching, followed by reading practice of short passages closely related to students' schemata. As the course progressed, the teacher provided longer reading passages for the students to read, consistently and explicitly highlighting the use of appropriate reading strategies to assist in their comprehension.

After the sixteen weeks of instruction, both groups were administered the post-test, which was identical to the pre-test. The pretest-posttest was designed and administered by the Language Institute of Thammasat University. At the end of instruction, ten subjects in the experimental group were randomly selected and interviewed. The interviews were semi-structured (see Appendix 2 for core questions), conducted in Thai, recorded, translated and transcribed. The researcher sought to elicit the subjects' attitudes towards using reading strategies and how they used the reading strategies.

Data analysis

For the pretest-posttest, using SPSS, the arithmetic means (X) and standard deviations (SD) of the two groups were computed using the t-test to determine the differences between the two groups; the significance level was set at the $p < .05$. The data from the interviews were analyzed descriptively.

Results

There are three parts to this section: results from the tests, results from the interviews and the researcher's informal observations of classroom interactions.

Results from the tests

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 2: Comparison of pre-test/post-test scores across groups

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		

Note: The full score is 1,000.

Table 3 shows that 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 not significantly different.

Table 3: Comparison of pre-test/post-test scores within groups by gender

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

Table 4 shows that 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 of 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. The result of the t-test between these two groups was not significantly different at the level of .05.

Table 4: Comparison of pre-test/post-test scores across groups by gender

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

Table 5 shows that the average pre-test and post-test scores of the control group were 455.33 and 474.33 while the average scores of the experimental group were 442.37 and 493.60, respectively. The result of the t-test was not significantly different at the level of .05.

Table 5: Comparison of average pre-test/post-test scores of the groups

Group	Control		Experimental		t-test	Significance
	Mean	SD	Mean	SD		
Pre-test	455.33	68.27	442.37	65.79	0.75	0.46
Post-test	474.33	56.06	493.60	56.60	-1.32	0.19

Summary of results from the pretest-posttest data

The effects of reading strategies instruction on graduate students' reading comprehension reveal the following results, comparing the control group and the experimental group. There was no statistically significant difference between the pre-test and post-test scores of the following:

- the students in the control group;
- the students in the experimental group;
- the male and female students in the control group;
- the male and female students in the experimental group;

- the male students in both the control and the experimental groups, even though the experimental group's post-test score was substantially higher than the control group's;
- the female students in both the control and the experimental groups, even though the experimental group's post-test score was substantially higher than the control group's; and
- the control and the experimental groups.

Results from the interviews

Most of the ten subjects interviewed from the experimental group stated that using reading strategies boosted their confidence and made them more at ease when reading by themselves. Some of them reported reading the title or the topic of the reading passages first and trying to guess some of the content of the passages from the topic. Some of the interviewees said they skimmed through the passages without paying attention to unknown words and then asked themselves questions about the content of the passages. Next, some of them reported trying 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 were reading; word roots and affixes were also examined from time to time and they paid attention to the syntax of the sentences to help them understand the passages better. Rereading was also a must for them to understand thoroughly what they were reading. Some of them also reported consulting friends during class reading tasks. The last step some of them mentioned was summarizing the passage.

Overall, the subjects said that using reading strategies increased their self-reliance and improved their levels of comprehension of the passages they read. Some of them concluded that their reading was not passive but quite active in terms of comprehending the vocabulary and grasping the whole meaning of the passages. Some of them reported guessing and trying to determine the correct meanings of unknown words and then confirming their meanings in order to understand the whole passage. Having had instruction in reading strategies motivated them to read more and to feel more comfortable when interacting with friends in a reading class.

Self-confidence

Some of the interviewees, 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 friends in the class to check their reading comprehension.

Self-reliance

Some of the interviewees claimed they had become more independent in reading all kinds of reading materials. Before instruction, they had not read much without a teacher's help, but now they believed 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.

Informal observations of classroom interactions

From the researcher's informal observation during the experiment, it seemed apparent that those graduate students who enjoyed using reading strategies felt more comfortable in a classroom atmosphere. There were more classroom interactions among classmates and teacher. The students worked at their own pace while the teacher allocated enough time for the students to complete their reading tasks. The most interesting consequence was the perceived increased rapport between the teacher and the students by the end of the course, which was very helpful in ensuring that the students could read accurately and with fuller comprehension.

Discussion and conclusion

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. This is a required course for all graduate students at Thammasat University, Bangkok, whose English skills did not meet the Graduate School's requirements. Based on both statistical data and interviews, there was substantial evidence to show that there were positive outcomes even though there were no statistically significant differences among the subjects studied. There may be various underlying reasons for this finding, one of which could be due to the sample size and the uneven number of male and female samples. Thus, based on the findings, the research questions can now be answered as follows:

1. There was no statistically significant difference at the level of .05 between the graduate students who were instructed in the use of reading strategies and those who were not.
2. There were no statistically significant differences between male and female graduate students who were instructed in the use of reading strategies for reading comprehension and those who were not.
3. The semi-structured interviews provided evidence that, following instruction, these graduate students had very positive attitudes towards using reading strategies.

Furthermore, from the researcher's informal observation through teaching both groups in the experiment, the research seems to yield the result that there was something qualitatively different between the two groups, especially the teaching-learning atmosphere and the classroom-interactions. Since this research focused mainly on moderate readers, it may be valuable to recommend that students at all levels be taught reading strategies at the very beginning of each semester so that they would have these skills at their disposal throughout their language courses. There should be further studies on reading strategies at all levels using greater sample size to verify the effectiveness of reading strategy instruction.

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Appendix 1: Strategies (adapted from Aebersold & Field, 1997)

This is a list of the strategies used in instruction to the experimental group in this study.

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

Appendix 2: Core questions in the semi-structured interviews

- Do reading strategies help you read better?
- Have you ever been taught these strategies?
- What reading strategies do you use quite often?
- How do you feel when you apply these strategies?
- Do you think you will use them when you have to read any English materials?
- Would you recommend or introduce these strategies to your friends or your younger brothers and sisters to help them read better?
- Are you happy to have been taught these strategies and know how to use them?

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