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A Study on EFL Graduate Students' Academic English Reading Strategies

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Abstract

This study investigates the strategies perceived by a group of graduate students studying at a university in Thailand when reading English academic articles or books. The 60 EFL learners were graduate students at either master or doctoral level including both Thai and international students from other countries in different majors. First, they completed the academic reading strategy questionnaire survey. After that, 10 among them responded to a semi-structured interview in order to explore the reasons for their use of certain strategies. Deceptive statistics were employed to examine the frequency of students' reading strategy use, and independent-samples t-tests were employed to compare the differences according to two variables of gender and field of study. The results revealed that the frequency of the participants' overall academic reading strategies use fell into the high use level; the three subscales of reading strategies demonstrated a high to moderate use, with PROB and GLOB at high level, while SUP at moderate level; no individual reading strategy was found at the low-use level. Moreover, no significant difference was found in the frequency of the participants' overall reading strategy use according to their gender and field of study, nor did GLOB and PROB vary significantly in terms of gender or field of study, but with one exception that Non-English majors employing SUP category significantly more frequently than the English majors. In addition, female students reported significantly higher use of three individual strategies than did their male counterparts, and six individual strategies were used significantly differently between the English majors and the non-English majors. The interview results provided the reasons for the top three and the least three used strategies. Finally, pedagogical implications of the findings and limitations are discussed in relation to academic reading strategies.

Keywords

Academic Reading, Reading Strategies, EFL, Graduate Students

1. Introduction

It is widely acknowledged that reading is an important channel of acquiring information, as it is an essential skill that ensures success in academic learning (Alderson, 1984). In academic English practice, for example, with strengthened reading skills, ESL/EFL (English as a second/foreign language) readers will make greater progress and attain greater development in all the academic areas (Anderson, 2004: p. 1). On the contrary, without adequate reading ability, it is hard to comprehend the materials in academic learning. Krashen (2004: p. 17) claims that reading promotes reading comprehension, writing style, vocabulary, spelling, and grammatical development. Although his result is based on "in-school free reading studies and "out of school" self-reported free voluntary reading studies", it provides reference for adult advanced learners when reading for academic purpose. Therefore, for advanced learners, the ability to read and comprehend academic materials is the basic requirement that might guarantee their learning achievement. Especially for graduate students, academic English reading is one of the most important skills to master so as to keep pace with the latest development in their academic fields. During the reading process, strategies are inevitably used as they can actually assist the reading process and give readers a clear sense of direction on what they are actually digesting while reading (Madhumathi & Ghosh, 2012).

Graduate students in the Thai university under investigation—no matter native or international—must get access to the English materials for their study, because most advanced articles or books in their academic fields are written in English. The present study aimed at exploring reading strategies employed by the graduate students in the Thai university during their academic reading process, and whether there are significant differences in term of their gender and field of study. To be specific, the purposes of present study were: 1) to investigate the overall profile of the graduate students' academic reading strategy use; 2) to examine whether there were significant differences in academic reading strategy use with regard to the graduate students' gender and field of study and, if any, what the main patterns of variation were; 3) to find out the reasons for the graduate students' adopting certain academic reading strategies frequently.

2. Literature Review

Academic language is the language used in schools to communicate in class discussions and read texts (Freeman & Freeman, 2009). Academic reading process in ESL is very deliberate, demanding and complex, which involves readers' metacognitive strategies (Li & Munby, 1996). According to Grabe and Stoller (2001), reading requires readers to be able to administer strategies effectively. Reading strategies have been defined and described by many researchers from different perspectives (e.g., Afflerbach et al., 2008; Anderson, 1991; Brown, 1994; Cohen, 1990; Cook & Mayer, 1983; Graesser, 2007). For example, Cohen (1990: p. 83) defines reading strategies as those "mental processes that readers con-

sciously choose to use in accomplishing reading tasks". Although the definitions may vary with researchers who discuss in L1, L2 or FL context (Cohen, 1998), there is consensus that reading strategies are conscious or unconscious, explicit or implicit, mental or physical behaviors for a reader to attain a reading goal (Luo, 2010).

There are various classifications concerning reading strategies in line with different criteria (e.g., Anderson, 1991; Mokhtari & Reichard, 2002; Sheorey & Mokhtari, 2001). On the basis of Sheorey and Mokhtari's (2001) Survey of Reading Strategies and Mokhtari and Reichard's (2002) Metacognitive Awareness of Reading Strategies Inventory, Mokhtari and Sheorey (2002) developed a new Survey of Reading Strategies (SORS) which focused on measuring the adolescent and adult ESL students' metacognitive strategy use within the context of academic reading. Reading strategies in this SORS were classified into three categories as global reading strategies, problem solving strategies and support strategies. According to Mokhtari and Sheorey's (2002) categorization, Global Reading Strategies (GLOB) are "intentional, carefully planned techniques by which learners monitor or manage their reading", such as "having a purpose in mind, previewing the text as to its length and organization, or using typographical aids and tables and figures". Problem Solving Strategies (PROB) are "the actions and procedures that readers use while working directly with the text", such as "adjusting one's speed of reading when the material becomes difficult or easy, guessing the meaning of unknown words, and re-reading the text to improve comprehension". Support Strategies (SUP) are "basic support mechanisms intended to aid the reader in comprehending the text", such as "using a dictionary, taking notes, or highlighting textual information". From the description of the three categories, it is obvious that the GLOB, PROB and SUP correspond to metacognitive strategies, cognitive strategies and support strategies respectively as categorized in their previous taxonomies.

Reading strategies may vary individually according to gender and field of study. Gender has been investigated by many researchers. Research studies on ESL/EFL strategy use revealed that female students use more strategies than male students (Green & Oxford, 1995; Madhumathi & Ghosh, 2012; Oxford, 1993).

Some research studies (e.g., Al-Ghamdi, 2010) are found about reading strategies used by students of different academic fields. Luo (2010) found that the art-oriented students reported higher frequency of overall reading strategy use than did the science-oriented students.

Although reading strategies have been explored in many studies, most are conducted to identify reading strategy use in general and in different proficiency groups (e.g., Al-Ghamdi, 2010; Chumworatayee, 2012; Madhumathi & Ghosh, 2012). Little is known about whether differences exist in terms of gender and field of study in reading strategies used by students with Thai academic background. The participants in the present study were graduate students from different fields of study, and they were categorized into either English or Non-English

major groups. It is unnecessary to compare the differences of the English and Non-English groups' reading strategy use in terms of their English proficiency levels. Therefore, only gender and field of study (English vs. Non-English) were under investigation in the current study.

To explore how the graduate students in the Thai university employ strategies into their academic reading process, the present study was conducted by adapting the Survey of Reading Strategies (SORS) developed by Mokhtari and Sheorey (2002), together with a semi-structured interview, to address the following three research questions: 1) How frequently are the academic reading strategies reported being employed by the graduate students in the Thai university? 2) Do the graduate students' choices of academic reading strategies vary significantly according to their gender and field of study? If they do, what are the main patterns of variation? 3) Why do graduate students report adopting certain academic reading strategies frequently?

3. Method

3.1. Participants

The participants in the present study were 60 graduate students studying in either master or doctoral programs in a technology university of Thailand, who were chosen according to convenient sampling. Among them 25 were male and 35 were female, and English majors were 22, Non-English majors (including bio-technology, civil engineering, food technology, chemistry, physics, and crop technology) were 38. The participants included Thai and international graduate students (such as Chinese, Vietnamese, Cambodian, Indonesian, etc.) who were all EFL learners.

The international graduate students in the university are required to use English in all their academic activities, because English is the working language. Normally, they read academic books and articles written in English. For Thai graduate students, if they study in the international programs (e.g., bio-technology) in which the courses are delivered in English, they have to use English for their academic purposes that mostly they read in English. Even for those Thai graduate students studying in non-international programs, if they want to keep pace with the advanced academic development in their academic fields, they have to read articles written in English, because in most cases the advanced articles are published in English. Therefore, English is inevitably involved in their academic reading process.

3.2. Data Collection Instruments

The data were collected through a questionnaire survey and a semi-structured interview.

3.2.1. Questionnaire Survey

The Academic Reading Strategy Questionnaire (ARSQ) designed for the present study consisted of two parts. One was about the personal information such as

name, gender, and major. The second part contained 28 items concerning academic reading strategies which were classified into three categories as global reading strategies (GLOB), problem solving strategies (PROB), and support strategies (SUP). The participants were required to respond on a 5-point rating scale following each statement indicating the frequency of strategy use ranging from "1—never or almost never do this" to "5—always or almost always do this". The internal consistency reliability coefficient (Cronbach's alpha) for the three subcategories: GLOB (α = .80), PROB (α = .71), and SUP (α = .74) and the overall scale (α = .85) indicated that the participants were conscientious when answering the questionnaire and therefore, the results of the questionnaire were reliable (*cf.* Glass & Hopkins, 1996).

3.2.2. Semi-Structured Interview

The one-on-one semi-structured interviews were carried out with 10 students among the 60 participants. The 10 respondents were interviewed immediately after they answered the questionnaire survey. The interview questions were mainly about the reasons why they used certain strategies frequently in academic reading process.

3.3. Data Analysis

In analyzing questionnaire data, descriptive statistics (the mean scores, standard deviation values, etc.) were employed to discuss the frequencies of overall use of reading strategies, and the use of each strategy category as well as individual strategies. In examining the frequency of students' strategy use in terms of the Likert scale that ranges from 1 to 5, mean scores of 3.5 - 5.0 are usually considered as high strategy use; 2.5 - 3.4, moderate strategy use; while 1.0 - 2.4, low strategy use, as suggested by Oxford and Burry-Stock (1995: p. 12). Then independent-samples *t*-tests were employed to examine whether or not there were statistically significant differences according to the participants' gender (male vs. female) and field of study (English vs. Non-English).

The interviews were transcribed verbatim first, and then the reported reasons for choosing certain items by each respondent were encoded. After that, the respondents' replies to the same strategies were put together to form categories. Finally, the categories were condensed to generate themes to find the reasons for the students' choosing of certain items.

4. Results

4.1. Frequency of Students' Strategy Use in the Overall and the GLOB, PROB, SUP Categories

Table 1 presents the overall frequency for the participants' perceived use of reading strategies. The mean frequency score of 3.68 indicates that as a whole, these graduate students reported using reading strategies at the high frequency level. As far as the three subscales of reading strategies are concerned, Table 1

Table 1. Frequency of students' reported overall strategy use and strategy use in the GLOB, PROB and SUP categories (n = 60).

	Mean	SD	Frequency Category
Overall Strategy	3.68	.40	High Use
GLOB Strategy	3.77	.52	High Use
PROB Strategy	3.88	.43	High Use
SUP Strategy	3.39	.50	Moderate Use

demonstrates that the participants showed a high to moderate use, with problem solving strategies (M = 3.88, SD = .43) as their prime choice at high level, followed by global strategies (M = 3.77, SD = .52) also at high level, and support strategies (M = 3.39, SD = .50) at moderate level.

4.2. Frequency of Students' Strategy Use of Individual Reading Strategies

Frequencies of the participants' individual reading strategy use are displayed in Table 2. In order to compare the rank of the frequency mean scores of the strategy items and offer a clear view, the strategy items are listed from the high use to the low use. As illustrated in Table 2, among the 28 individual strategies, 19 strategies (68%) fell into the high-use level, and 9 strategies (32%) went to the moderate-use level. No strategy was found at the low-use level.

Table 2 also displays the top three used strategies, with one in each of the three subscales, they were Strategy 17 (M = 4.47, SD = .60), Strategy 21 (M = 4.37, SD = .76) and Strategy 6 (M = 4.30, SD = .96). The least used three strategies fell into SUP category as Strategy 22 (M = 3.02, SD = 1.30), Strategy 26 (M = 2.85, SD = 1.01) and Strategy 27 (M = 2.80, SD = 1.19).

4.3. Variation in Frequency of Students' Reported Overall Strategy Use and the Strategy Use in the GLOB, PROB and SUP Categories

Table 3 shows the variation in frequency of the participants' reported overall strategy use, as is demonstrated that no significant difference was found in the frequency of students' overall reading strategy use according to the students' gender and field of study.

Table 4 presents the variations in frequency of the participants' use of reading strategy in the GLOB, PROB and SUP categories concerning students' gender. It is found that the frequency of the participants' use of reading strategy in the three subscales did not vary significantly according to their gender.

Table 5 reveals that the significant difference in the use of reading strategies was only found in the SUP category regarding students' field of study, with the Non-English majors reporting employing the strategies significantly more frequently than the English majors.

4.4. Variation in Frequency of Students' Reported Use of Individual Reading Strategies

As to the students' use of individual reading strategies, the results in Table 6

Table 2. Frequency of students' reported individual strategy use (n = 60).

Strategy Category	Individual Strategy	Mean	SD	Frequency Category
PROB	17. When text becomes difficult, I re-read it to increase my understanding.	4.47	.60	High Use
SUP	21. I underline or circle information in the text to help me remember it.	4.37	.76	High Use
GLOB	6. I use tables, figures, and pictures in text to increase my understanding.	4.30	.96	High Use
GLOB	1. I have a purpose in mind when I read.	4.17	.74	High Use
GLOB	5. I use my prior knowledge (e.g., knowledge about the theme of the text) to help me understand what I read.	4.17	.94	High Use
GLOB	7. I use context clues to help me better understand what I am reading.	4.05	.85	High Use
PROB	14. I adjust my reading speed according to what I am reading.	4.00	.92	High Use
PROB	19. I try to get back on track when I lose concentration.	3.97	.66	High Use
PROB	18. When I read, I guess the meaning of unknown words or phrases.	3.90	.73	High Use
GLOB	2. I think about whether the content of the text fits my reading purpose.	3.82	.85	High Use
SUP	23. I use reference materials (e.g. a dictionary) to help me understand what I read.	3.77	.91	High Use
PROB	13. I read slowly and carefully to make sure I understand what I am reading.	3.77	.91	High Use
GLOB	9. I check my understanding when I come across new information.	3.75	.90	High Use
GLOB	8. I use typographical features like bold face and italics to identify key information.	3.75	1.11	High Use
SUP	20. I take notes of the key expressions and ideas while reading to help me understand what I read.	3.67	.95	High Use
GLOB	10. I try to guess what the content of the text is about when I read.	3.65	.94	High Use
PROB	16. I try to picture or visualize information to help remember what I read.	3.63	.94	High Use
GLOB	4. When reading, I decide what to read closely and what to ignore.	3.62	.94	High Use
SUP	25. I go back and forth in the text to find relationships among ideas in it.	3.58	.72	High Use
GLOB	12. I critically analyze and evaluate the information presented in the text rather than passively accept everything.	3.48	.93	Moderate Use
PROB	15. I stop from time to time and think about what I am reading.	3.43	.79	Moderate Use
GLOB	11. I check to see if my guesses about the text are right or wrong.	3.40	.94	Moderate Use
SUP	28. When reading, I think about information in both English and my mother tongue.	3.28	.98	Moderate Use
SUP	24. I paraphrase (restate ideas in my own words) to better understand what I read.	3.17	.89	Moderate Use
GLOB	3. I review the text first by noticing its characteristics like length and organization.	3.15	.98	Moderate Use
SUP	22. When text becomes difficult, I read aloud to help me understand what I read.	3.02	1.30	Moderate Use
SUP	26. I ask myself questions I like to have answered in the text.	2.85	1.01	Moderate Use
SUP	27. When reading, I translate from English into my native language.	2.80	1.19	Moderate Use

Table 3. A summary of variations in frequency of students' overall reported strategy use according to gender and field of study.

Gender	Male (n = 25)		Female (n = 35)		Comments	
	Mean	**S.D.**	**Mean**	**SD**	**Sig. Level**	**Variation Pattern**
Overall Strategy Use	3.57	.38	3.76	.40	N.S.	--
Field of Study	**Eng. Majors (n = 22)**		**Non-Eng. Majors (n = 38)**		**Comments**	
	Mean	**S.D.**	**Mean**	**S.D.**	**Sig. Level**	**Variation Pattern**
Overall Strategy Use	3.62	.45	3.71	.37	N.S.	--

Table 4. Variations in frequency of strategy use in the GLOB, PROB and SUP categories according to Gender.

	Male (n = 25)		Female (n = 35)		Comments	
	Mean	**SD**	**Mean**	**SD**	**Sig. Level**	**Variation Pattern**
GLOB Strategy Use	3.67	.45	3.85	.56	N.S.	--
PROB Strategy Use	3.79	.36	3.95	.46	N.S.	--
SUP Strategy Use	3.25	.51	3.45	.48	N.S.	--

Table 5. Variations in frequency of strategy use in the GLOB, PROB and SUP categories according to field of study.

	Eng. Majors (n = 22)		Non-Eng. Majors (n = 38)		Comments	
	Mean	**SD**	**Mean**	**SD**	**Sig. Level**	**Variation Pattern**
GLOB Strategy Use	3.80	.67	3.76	.43	N.S.	--
PROB Strategy Use	3.93	.49	3.85	.39	N.S.	--
SUP Strategy Use	3.14	.40	3. 53	.50	$p < .05$	Non-Eng. Majors > Eng. Majors

Table 6. Variation in students' individual strategy use according to gender

Strategy	Male		Female		Comments	
	Mean	**SD**	**Mean**	**SD**	**Sig. Level**	**Variation Pattern**
8. I use typographical features like bold face and italics to identify key information.	3.32	1.18	4.06	.97	$p < .05$	F > M
16. I try to picture or visualize information to help remember what I read.	3.32	.90	3.86	.91	$p < .05$	F > M
22. When text becomes difficult, I read aloud to help me understand what I read.	2.56	1.12	3.34	1.33	$p < .05$	F > M

indicate that female students reported significantly higher use of three strategies than did their male counterparts. They were Strategy 8 "using typographical features like bold face and italics to identify key information" (Mean(FEMALE) = 4.06, Mean(MALE) = 3.32, $p < .05$), Strategy 16 "picturing or visualizing information to help remember" (Mean(FEMALE) = 3.86, Mean(MALE) = 3.32, $p < .05$), and Strategy 22 "reading aloud to help understand when text becomes difficult" (Mean(FEMALE) = 3.34, Mean(MALE) = 2.56, $p < .05$).

Table 7 demonstrates that two individual strategies were reported being

Table 7. Variation in students' individual strategy use according to field of study.

Strategy	Eng. Majors		Non-Eng. Majors			Comments
	Mean	SD	Mean	SD	Sig. Level	Variation Pattern
8. I use typographical features like bold face and italics to identify key information.	4.27	.94	3.45	1.11	$p < .05$	Eng. Majors > Non-Eng. Majors
14. I adjust my reading speed according to what I am reading.	4.36	.85	3.79	.91	$p < .05$	Eng. Majors > Non-Eng. Majors
22. When text becomes difficult, I read aloud to help me understand what I read.	2.50	1.23	3.32	1.25	$p < .05$	Non-Eng. Majors > Eng. Majors
23. I use reference materials (e.g. a dictionary) to help me understand what I read.	3.36	.91	4.00	.84	$p < .01$	Non-Eng. Majors > Eng. Majors
24. I paraphrase (restate ideas in my own words) to better understand what I read.	2.86	.83	3.34	.88	$p < .05$	Non-Eng. Majors > Eng. Majors
27. When reading, I translate from English into my native language.	2.14	.71	3.18	1.25	$p < .01$	Non-Eng. Majors > Eng. Majors

employed more frequently by the English majors than by the non-English majors, which were Strategy 8 "using typographical features like bold face and italics to identify key information" ($\text{Mean}_{\text{(Eng. Majors)}} = 4.27$, $\text{Mean}_{\text{(Non-Eng. Majors)}} = 3.45$, $p < .05$), and Strategy 14 "adjusting reading speed according to what is read" ($\text{Mean}_{\text{(Eng. Majors)}} = 4.36$, $\text{Mean}_{\text{(Non-Eng. Majors)}} = 3.79$, $p < .05$). On the contrary, another four individual strategies were reported being employed more frequently by the Non-English majors than by the English majors. They were Strategy 22 "reading aloud to help understand when text becomes difficult" ($\text{Mean}_{\text{(Non-Eng. Majors)}} = 3.32$ and $\text{Mean}_{\text{(Eng. Majors)}} = 2.50$, $p < .05$); Strategy 23 "using reference materials (e.g. a dictionary) to help understand" ($\text{Mean}_{\text{(Non-Eng. Majors)}} = 4.00$ and $\text{Mean}_{\text{(Eng. Majors)}} = 3.36$, $p < .01$); Strategy 24 "paraphrasing to better understand" ($\text{Mean}_{\text{(Non-Eng. Majors)}} = 3.34$, $\text{Mean}_{\text{(Eng. Majors)}} = 2.86$, $p < .05$); Strategy 27 "translating from English into native language" ($\text{Mean}_{\text{(Non-Eng. Majors)}} = 3.18$ and $\text{Mean}_{\text{(Eng. Majors)}} = 2.14$, $p < .01$).

4.5. Results of the Interviews

According to the results of the interviews, among the top three used strategies, for Strategy 17, when text becomes difficult, they "re-read to increase understanding". Some interview respondents explained the reasons why they always used it: 1) they used it to help understand a text better; 2) they had to go back because of missing some words. A number of respondents reported using Strategy 21 "underlining or circling information in the text to help remember". They gave some explanations for doing it: 1) the underlined or circled parts can be found easily and clearly; 2) main ideas can be focused; 3) new words and key words can be emphasized. With regard to Strategy 6, "using tables, figures, and pictures in text to increase understanding", some respondents reported using this strategy frequently because: 1) it increases understanding; 2) it can be com-

pared with other articles.

Among the least used three strategies, for Strategy 22 "reading aloud to help understand when text becomes difficult", some interview respondents replied: 1) if they read aloud, they would focus on pronunciation instead of content; 2) if they read aloud, it would distract them from the text; 3) they would read aloud to remember new words other than read difficult texts. They explained why rarely used Strategy 26 "asking themselves questions in the text": 1) it was not necessary to ask questions; 2) they just accepted the idea rather than questioned it; 3) they just thought about and imagined the answer instead of asking questions. Regarding Strategy 27 "translating from English into their native language", some respondents said that: 1) it was unnecessary to translate; 2) it would waste time; 3) it would be more complicated or confusing to translate.

5. Discussion and Conclusion

The results of the present study revealed that the overall use of the reading strategies reported by the graduate students under investigation in the Thai university was at the high frequency level, which indicated that the graduate students were skillful readers when dealing with academic materials. This may be because the participants in the present study had strategic awareness when comprehending academic texts. The finding is in line with Chumworatayee's (2012) study on adult graduate EFL learners in another Thai university. Her study explored the students' metacognitive awareness of reading strategies while reading academic texts, and reported a high use of the overall reading strategies. Many previous research studies (e.g., Sheorey & Mokhtari, 2001) have proved that strategic reading is helpful and important to facilitate reading comprehension.

As regards the PROB, GLOB, and SUP reading strategies, students demonstrated a high to moderate use, with problem solving strategies as their prime choice, followed by global strategies and support strategies. The results echoed the findings of Zhang and Wu's (2009) study, which showed the same frequency of problem solving strategy use perceived by Chinese senior high school students. Chumworatayee (2012) also found that Thai adult graduate EFL learners used problem solving strategies most, followed by global and support strategies. Wang et al. (2022) reported findings on Chinese international graduate students' reading for academic purposes in an American university that both their previous instruction and current disciplines impacted academic reading. It seems that the problem solving reading strategies that students used at high school stage could be transferred to graduate stage, and they customarily used the familiar strategies during academic reading. Another possible explanation is that the participants in the present study were advanced learners with over ten years of English learning experience, therefore they would naturally use those strategies that were proved useful in their many years' experience to facilitate their learning.

The top three used strategies were "re-reading to increase understanding",

"underlining or circling information in the text to help remember" and "using tables, figures, and pictures in text to increase understanding". The follow-up interviews provided the reasons for the results. Both the questionnaire and the interview results indicated that the students were capable of adjusting their reading and adopting possible aids to enhance understanding and memorizing, and were able to take actions when comprehension broke down.

The bottom three used strategies belonged to the SUP group, which were "reading aloud to help understand", "asking oneself questions", and "translating from English into one's native language". A possible reason is that the graduate students had a large number of academic reading materials to deal with, so they would focus on comprehending the ideas rather than spending much time on language points or translating. This finding, however, was opposite to Li and Munby's (1996) study on two Chinese graduate students from social science masters programs. They found that translation and self-questioning strategies were frequently used in reading academic materials. They argued that when encountering difficult contents, the participants would translate them into their first language due to their lacking capability of thinking directly in English, and without enough prior knowledge, the participants would stop in reading to question themselves so as to check their understanding.

The results of the present study demonstrated that the participants did not differ significantly in their overall reading strategy use according to their gender and field of study. This finding is interesting as seems be different from many previous studies as reviewed above, which claim female students use more strategies than that of male students. This divergence of results could be the impact of the participants' English proficiency. Unlike the college students under investigation in most studies, many participants in the present study were candidates for doctoral degree with relatively higher English proficiency, therefore, their overall reading strategy use did not demonstrate difference in gender and disciplines.

However, female students differ from male students in using three individual strategies, namely, they used more "typographical features like bold face and italics", "picturing or visualizing information" and "reading aloud" strategies than did male students. This finding establishes support for the findings of Green and Oxford (1995) and Oxford (1993).

As to the use of reading strategy in the GLOB, PROB and SUP subscales according to students' gender and field of study, only Non-English majors reported using SUP strategies significantly differently from English majors, no other differences were found. This may be because Non-English major graduate students depended more on the support facilitates (e.g., a dictionary) than did English majors.

According the students' field of study, six reading strategies were reported being used significantly differently between English and Non-English majors. English majors used more "typographical features like bold face and italics" and "adjusting reading speed" strategies than did the Non-English majors. However,

Non-English majors used "reading aloud", "using reference materials", "paraphrasing" and "translating" strategies more than English majors. It is noted that, in general, the graduate students of English major possessed higher English level than the Non-English majors, therefore, they seldom read difficult sentences aloud to help understand, nor translated English into their native language while reading.

6. Implications for Future Research and Limitations of the Study

The findings of the study may provide some suggestions for students and teachers, therefore, some implications may be drawn with respect to the learning and teaching of English reading. First, students should raise awareness of reading strategy. It is suggested that strategy awareness be embedded at the early stage of learning English language. Second, students should apply strategies in their reading process, finding more chances to use English. Third, reading strategies training is suggested to be integrated into language instruction, so teachers may as well provide practical suggestions for students to use reading strategies effectively.

Some limitations should be taken into consideration when conducting further research. First, the participants of the study were in a limited number, thus they might not represent the whole population group. Larger sample-sized research can be carried out in the future research. Second, the participants were chosen based on convenient sampling, which might decrease the generalizability of the research findings. Therefore, future research based on random sampling is suggested to avoid this limitation. Third, this study focused only on graduate students, more types of learners can be included in the future research. Finally, the present investigation was confined to examine two variables, i.e., gender and field of study, which were not adequate for investigating the whole picture of reading strategy use. Other aspects such as level of students' language proficiency, attitudes, etc., can also be incorporated into further research.

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Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

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