

# PERCEIVED READING STRATEGIES USED BY THAI PRE-ENGINEERING STUDENTS

Pornpun Oranpattanachai\*

## บทคัดย่อ

การศึกษานี้สำรวจผลกระทบด้านความชำนาญในการอ่านที่มีต่อกระบวนการอ่านของนักศึกษาวิศวกรรมศาสตร์ในมหาวิทยาลัยแห่งหนึ่งในประเทศไทย กลุ่มตัวอย่างของการศึกษานี้ประกอบด้วยนักศึกษาไทยในระดับเตรียมความพร้อมด้านวิศวกรรมศาสตร์ 90 คน ซึ่งแบ่งออกเป็น 2 กลุ่ม คือ กลุ่มผู้อ่านที่มีระดับความชำนาญสูงและกลุ่มผู้อ่านที่มีระดับความชำนาญต่ำ โดยแบ่งตามคะแนนที่ได้จากการอ่านและผลการเรียนในวิชาภาษาอังกฤษ การเก็บข้อมูลใช้แบบสอบถามด้านความตระหนักในกลยุทธ์การอ่านเพื่อความเข้าใจซับซ้อนเพื่อสำรวจการใช้กลยุทธ์การอ่าน ผลการศึกษาแสดงให้เห็นว่าทั้งผู้อ่านที่มีความชำนาญสูงและต่ำมีความแตกต่างและความคล้ายคลึงกันในการอ่าน ความแตกต่างในการอ่านแบ่งออกเป็น 2 ลักษณะ คือ ความถี่ในการใช้กลยุทธ์ตามที่เข้าใจและความถี่ในการใช้กลยุทธ์แบบบนลงล่างตามที่เข้าใจ ความคล้ายคลึงในการอ่านแบ่งออกเป็น 2 ลักษณะ คือ การลำดับขั้นตอนในการใช้กลยุทธ์การอ่านตามที่เข้าใจและรูปแบบของการเรียบเรียงเนื้อหา

## Abstract

This study investigates the effect of reading proficiency on the reading processes of Thai pre-engineering students at a college in Thailand. The participants of the present study consisted of 90 Thai pre-engineering students. They were categorized into 2 groups, the high and the low proficiency readers, according to their reading scores and their English grades. The metacognitive reading strategy awareness questionnaire was employed to investigate their reading strategy use. The results showed that the high and the low proficiency readers shared both differences and similarities in their reading processes. The differences in their reading

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\*Dr. Pornpun Oranpattanachai is a lecturer of English at King Mongkut's University of Technology North Bangkok in Thailand. She holds a PhD in teaching English as a second language from University of Exeter in the United Kingdom. She completed her Master degree in Applied Linguistics from Mahidol University. In 2006-2008, she was the head of language division at the College of Industrial Technology at King Mongkut's University of Technology North Bangkok. Her area of interest is reading strategies and motivation in second/foreign language learning. She can be reached at her email address: [opornpun@hotmail.com](mailto:opornpun@hotmail.com).

processes were divided into 2 aspects: the frequency of perceived strategy use and the frequency of perceived top-down strategy use. The similarities in their reading processes were also divided into two aspects: the rank ordering of perceived strategy use and the style of text processing.

## **INTRODUCTION**

In Thailand where English is used as a foreign language, reading skill is an important skill to master. It plays a vital role for Thai students in their academic context. For example, Thai engineering students are required to read the engineering textbooks in English although the medium of instruction is in Thai. This is because most of the engineering knowledge comes from sources such as articles published in the international journals, magazines, and the Internet. In addition, it is the skill that the students have high potentials to use even after they have graduated. Most of the new academic knowledge they need to acquire for improving their professional lives is mostly accessible in English. However, several reading researches conducted with Thai students at both the university and high school levels reveal that Thai students have difficulties in reading in English (Jamornmarn & Ruangtakul: 1995; Sutta: 1994; Wiruhayan: 1987; The Department of Educational Techniques: 1995; Rattanapinyopong: 1983).

To help students to handle their difficulties of reading in English, at present reading researchers and educators pay their attention to their reading process (reading strategy use) rather than reading product (reading comprehension) (Anderson: 1991). Knowing the students' reading process or what reading strategy they use and how they use it when they encounter their reading dif-

ficulties can help teachers to know how to assist students to improve their abilities in reading. (Aebersold and Field: 2000).

Research studies using metacognitive reading strategy questionnaires revealed that there is a relationship between the students' reading proficiency and reading strategy use (Barnett: 1988; Carrell: 1989, Monteiro: 1992). There is some evidence that good second language readers can compensate for a lack of language proficiency by using reading strategies during reading to make sense of the reading text (Carrell et al.: 1989 cited in Kolic-Vehovec and Igor Bajanski: 2007). However, to the best of my knowledge, there are no studies that investigate the reading process of Thai pre-engineering students in relation to their reading proficiency. As a teacher of English who would like to assist students in improving their ability of reading in English, I have an opinion that it should be useful to know the difference in the reading strategy use of the high reading proficiency students and the low reading proficiency students in order that I can make the latter aware of the reading strategies of the former and learn how to use them while reading to improve reading comprehension. The current study is therefore conducted with Thai pre-engineering students to look at the differences and similarities in the reading process of the high and the low reading proficiency groups. Also this study has an attempt to extend the literature on reading strategies.

## LITERATURE REVIEW

The terms *skills* and *strategies* can be confusing and the two terms are sometimes overlapping. However a skill is generally accepted to be an acquired ability that operates largely subconsciously, whereas a strategy is a conscious procedure carried out to solve problems in the comprehension process. (Pang: 2008: 6) However, the relationship between these two terms has been expounded (Paris, Wasik, and Turner: 1991 cited in Pang: 2008: 6). That is to say an emerging skill can become a strategy when it is used intentionally (Paris, Wasik, and Turner: 1991 cited in Pang: 2008: 6). Similarly, a strategy can go underground and become a skill (Paris, Wasik, and Turner: 1991 cited in Pang: 2008: 6).

Reading researchers have provided various definition of the term *reading strategy*. Paris, Wasol and Turner (1996: 610 cited in Kolic-Vehovec and Igor Bajanski: 2007: 199) gave a broad definition of reading strategies as ‘tactics that readers use to engage and comprehend text. According to Singhal (2001: 1), reading strategies indicate how readers conceive of a task, how they make sense of what they read, and what they do when they don’t understand.

Oranpattanachai (2004:60) has included the notion of intention and consciousness in her definition of reading strategies. She defined reading strategy as a deliberate action, consciously taken by the readers to enhance their reading comprehension. Pritchard (1990: 275) similarly defined this term as a deliberate action that readers take voluntarily to develop an understanding of what they read. Likewise, Garner (1987: 50 cited in Mokhtari and Reichard: 2002:

250) operationally defined reading strategies as generally deliberate, planful activities undertaken by active learners, many times to remedy perceived cognitive failure.

To capture reading strategies, most of studies (Olshavsky: 1976-7, Steinberg & Chowning: 1991, Kletzien: 1991, Hosenfield: 1984, Block: 1986, Anderson: 1991) widely use think aloud protocols which are techniques asking the readers to verbalize whatever comes to their minds whilst reading (Ericsson and Simon: 1999). Not many studies employed metacognitive reading strategy questionnaire as a major technique to capture reading strategies (Barnett: 1988; Carrell: 1989, Monteiro: 1992).

Barnett (1988) investigated the relationship among actual reading strategy use and perceived general reading strategy use on reading comprehension. Her participants (272 English students) enrolled on a French course (N = 272). In the initial part of the study, the participants were all required to read two unfamiliar French passages and write in English what they remember from the first French passage. In the second part of the study, they were asked to answer a prior-knowledge questionnaire before reading the second passage. In the third part of the study, they were required to read the second passage and choose the multiple choice items provided in a sixteen-item test to continue the ending of the text. The sixteen items tested students’ ability to note and remember context throughout large and small portions of the passages. They were finally asked to answer a questionnaire in English on the reading strategies that best described the way they read.

The findings showed that reading com-

prehension levels were associated with context-related strategy use and perceived general reading strategy use. Comprehension increased as context-related strategies increased. Participants who remember context as they read understand more of what they read than those who employ the strategy less. There was a positive relationship between actual strategy use and perceived strategy use. That is to say, participants who think they employed strategies actually do read through context better and understand better than those who do not think they employ such strategies.

Carrell (1989) conducted a study to investigate the impact of perceived reading strategy use on reading comprehension in both first and second language. Her two groups of participants of varying proficiency levels participated in the study. Group one consisted of 45 native speakers of Spanish whereas group two consisted of 75 native speakers of English. A metacognitive questionnaire was developed and used with the participants to elicit information about their metacognitive reading strategies during silent reading in their first and second language. The participants were tested in both the first and second language sessions. They first read two texts in the language in question and answered ten multiple-choice comprehension questions. All four texts (two texts in the first language, the other two in the second language) were on the general topic of language and were controlled for content schemata. They then completed a metacognitive questionnaire consisting of four different categories of metacognition: 1) confidence 2) repair 3) effective and 4) difficulty. The same metacognitive questionnaire was used for two sessions.

The results revealed that for reading in the first language, local strategies or bottom-up strategies tended to be negatively correlated with reading comprehension. For reading in the second language, 'global' or top-down strategies tended to be positively correlated with reading comprehension. Also, that local strategies tended to correlate negatively with reading comprehension, perhaps because those with the low proficiency may have been dependent on decoding skills.

Monteiro (1992) carried out a study to investigate reading strategy awareness and reading strategy use when reading in their first language (Portuguese) and in a foreign language (English). Twenty-five Portuguese secondary students participated in the study were divided into four groups according to their reading proficiency in both languages (Portuguese and English). Group one consisted of 10 better readers in both English and Portuguese, group two consisted of 3 poor readers in both English and Portuguese; group three consisted of 4 better readers in English and poor readers in Portuguese; and group four consisted of 8 better readers in Portuguese and poor readers in English.

The metacognitive strategies adopted from Carrell (1989) and translated into Portuguese were used to investigate the reading strategy awareness of the participants. The results showed that the 'poor' readers were less aware of the strategies they adopted when reading than the 'better' readers, especially when reading in their native language. In addition, the poor readers in Portuguese and English were the least aware of the strategies they made use of when reading in both languages.

Hassan (1999) investigated the relationship between metacognitive awareness and reading ability as well as actual strategy use in L1 and L2. Her participants were 40 Malay ESL students. A metacognitive questionnaire and a think-aloud protocol are used to obtain data about perceived strategy use, and actual strategy use respectively. For the part of perceived use of reading strategies, it was found that there is a significant positive correlation between reading proficiency and metacognitive awareness for both L1 and L2 ( $p < .05$ ). The more participants claimed that they used top-down strategies, the better their comprehension scores.

Sheorey and Mokhtari (2001) examined differences in the reported use of reading strategies of native and non-native English speakers when reading academic materials. Participants were 150 native-English-speaking US and 152 ESL students. The data on perceived reading strategy use was collected through metacognitive-awareness-of-reading-strategies inventory. The results revealed that the high-reading-ability participants reported higher frequency of the perceived use of reading strategies than low-reading-ability participants. Secondly, the five most reading strategy use and the five least reading strategy use for US and ESL participants were the same. Thirdly, both US and ESL participants showed awareness of almost all of the strategies contained in the survey.

Zhang (2001)'s study carried out in the People's Republic of China (PRC) explored the types of metacognitive knowledge of reading strategy use that Chinese EFL learners at different proficiency levels have while learning to read EFL. Ten Chinese EFL uni-

versity participants were divided into two groups: five high EFL scorers and five low EFL scorers according to the proficiency test. A semistructured interview with questions based on Flavell's (1987) model was used to collect the data about metacognitive strategies. The findings show that both high and low scorers groups revealed the same types of the use of metacognitive reading strategy but high scorers reported the higher frequency use of the strategy than low scorers.

## **METHOD**

### **Participants**

The participants were 90 third-year pre-engineering students from a college of Industrial Technology in Thailand. They were divided into two groups: high reading proficiency group and low reading proficiency group according to their English grades in their second year and reading proficiency scores. Forty-five students who received the grades ranging from As to C+s and their reading proficiency scores ranging from 25-38 out of 50 are classified as high reading proficiency group. The other forty-five students who received the grades ranging from Cs to Ds and their reading proficiency scores ranging from 0-24 are classified as low reading proficiency group.

### **Instrumentation**

A metacognitive reading strategies questionnaire was employed in the present study. The first part of the questionnaire dealt with the participants' background information



(see Appendix 1). The second part dealt with information about the participants' perceived use of reading strategies while reading. The second part of the questionnaire consisted of twenty-nine items (see Appendix 2). The participants answered the questionnaire by rating the degree of frequency they think they usually employ while reading in English on a 5-point Likert type scale from 'very often' to 'never'. All reading strategies contained in the questionnaire are drawn from the study of Oranpattanachai (2004) except the last two reading strategies which are drawn from Carrell (1989). The study by Oranpattanachai (2004) was conducted to investigate reading process of Thai engineering students at the tertiary level using think-aloud protocols as a major method. All these reading strategies are divided into 2 categories: bottom-up and top-down strategies. Bottom-up strategies refer to strategies where readers decode the linguistic features to comprehend the text (Oranpattanachai: 2004: 161), while top-down strategies refer to strategies where readers make use of their previous knowledge and their operational knowledge about how to approach texts to construct the meaning from the text. (Oranpattanachai: 2004: 162). This metacognitive reading strategies questionnaire consisted of eight bottom-up strategies and twenty-one top-down strategies. Table 1 below shows top-down and bottom-up strategies.

To make sure that the major instrument in this study indeed examine what is intended to examine, the construct validity of the questionnaires was checked before piloting through two English teachers in the area of TEFL who affirmed that the items contained in the questionnaire did measure the con-

struct sensibly and acceptably. The questionnaire was then translated from English into Thai by myself and the translation was crosschecked by a Thai teacher of English. The problem of slightly different wording was resolved through discussions.

Prior to the main study data collection half a month, I piloted the translated metacognitive questionnaire with 45 Thai Pre-engineering students. They agreed that all items contained in the questionnaire were comprehensible. Its reliability is .81. For the main study, the questionnaires were distributed to 90 Thai Pre-engineering students during the first semester of the academic year 2008.

The reading proficiency test was a multiple-choice test, consisted of 40 items, all of which were taken from the TOEIC (Test of English for International Communication) test on the part of reading. The total reading proficiency scores is 40 marks, one mark for each item.

### **Data Collection Procedures and Analysis**

The present study had two stages of data collection: 1) participant selection stage (using a background questionnaire and reading proficiency test and 2) reading strategies elicitation stage (using a metacognitive reading strategies questionnaire).

The participant selection stage started after I gained permission from the head of language division to carry out the present study with third-year pre-engineering students at a college of Industrial Technology in Thailand. After that I selected 90 students on the basis of their English grades and contacted them via their mobile phone

**Table 1: The Bottom-up and Top-down Strategies Contained in the Questionnaire**

Bottom-up Strategies	Top-down Strategies
1. skip words or parts I don't understand	1. try to get the main idea
2. work out meanings of words from understanding the parts of the words	2. recognize when I don't understand something.
3. make use of grammatical structure to get at meaning	3. go back to a prior part that I understand to help me work out the bit I can't understand.
4. look up the unknown words in a dictionary	4. predict what will come next.
5. pronounce the words aloud.	5. slow down when I have difficulty in reading
6. use a finger to point while reading	6. use my general knowledge to work out the meaning
7. write down the meaning of unknown words that appear in the dictionary in the text read	7. ask myself questions about what words or phrases mean.
8. need to understand meaning of every vocabulary in the text.	8. re-read what I don't understand.
	9. guess the meaning of the unknown words from the context.
	10. work out a fact that is not mentioned directly in the text to understand what the text implies.
	11. have feelings and reactions emotionally to the text.
	12. go back and correct what I understood earlier.
	13. continue reading even though I don't understand.
	14. link the present information to the other pieces of the text.
	15. form a mental picture of what is read.
	16. question the information in the text.
	17. correct misunderstanding made in reading the text.
	18. assess the degree of understanding the text.
	19. confirm the understanding or the interpretation earlier.
	20. make a survey of the text before reading it such as looking at the pictures and the length of the text, skimming it, etc.
	21. link what is read to my word knowledge

numbers to ask them to come for a reading proficiency test taken from TOEIC test. Based on a combination of their English grades in their second years of studies and TOEIC reading scores, 90 students were chosen to be the participants of the study.

The reading strategy elicitation stage began after the selected students had agreed to participate in the study. This stage started with a metacognitive reading strategies questionnaire that was administered to 90 Thai third-year pre-engineering students at a college of Industrial Technology in Thailand. It was conducted during the first semester of the academic year 2008 half a month after a pilot test of the metacognitive reading strategies questionnaire was carried out. The questionnaires were administered to the participants by the researcher of this present study and teachers of English in the English classes.

In addition, SPSS 11 for Windows was used as follows:

- Descriptive statistics were computed on the participants' responses of the reading strategy use.
- The independent samples test was used to determine whether there was a significant difference between the high and low reading proficiency groups in the total number of perceived reading strategy use and the perceived use of bottom-up and top-down strategies.
- A paired samples t-test was used to determine whether there was a significant difference between the perceived use of bottom-up and top-down strategies within the groups of high and low proficiency readers.

## **Limitations**

There are constraints related to the metacognitive strategy questionnaire and the small sample size of the current study. Although employing a metacognitive awareness questionnaire for reading strategy investigation is less time consuming regarding data collection and analysis, it cannot guarantee that the participants actually engage in the strategies they report using. In addition, employing strategies is not enough, the readers must also be able to know how and when to use strategies to ensure success in reading. In terms of the small sample size, the findings of the present study cannot be generalized to Thai pre-engineering students in other colleges. However, it is hoped that the findings of the present study may be useful to educators, teachers of English and syllabus planners in other similar context. Also, the present study will at least shed light on future research into reading strategies.

## **RESULTS AND DISCUSSION**

The research question for the present study is: ***Do the high and the low proficiency readers differ in their perceived reading strategy use?***

The results showed that the high and the low proficiency readers shared both differences and similarities in their reading processes. The differences in their reading processes were divided into 2 aspects: the frequency of perceived strategy use and the frequency of perceived top-down strategy use. The similarities in their reading processes were divided into two aspects: the rank ordering of perceived strategy use and the style



of text processing.

With regards to the frequency of strategy use, the independent samples test revealed that the difference between the frequency of strategy use of the high proficiency readers ( $M = 73.4889$ ,  $SD = 1.5807$ ) and that of the low proficiency readers ( $M = 66.8444$ ,  $SD = 1.5807$ ) was significant ( $t = 3.131$ ,  $df = 88$ ,  $p = .002$ ). The high proficiency readers employed perceived strategies significantly more frequently than the low proficiency readers. This finding supports that of Sheorey and Mokhtari (2001) conducted their study using metacognitive reading strategy awareness questionnaire as a research instrument with college students found that high reading ability students perceived their use of strategies more frequently than did low-reading ability students. Also similar results were obtained by Mokhtari and Richard (2002), using the metacognitive awareness of reading strategies inventory as a research instrument, which indicated that readers who rated their ability as excellent perceived that they employed strategies more often than readers who rated their reading ability as average or not so good. This finding is also consistent with those of Monteiro (1992), and Kletzien (1991), using think aloud procedures as a research instrument, which indicated that good readers used strategies more frequently than poor readers. However, this study's result is inconsistent with those of Oranpattanachai (2004), and Vann and Araham's (1990) who conducted their studies using thinking aloud procedures as a research instrument found that the low reading proficiency group employed strategies at a higher frequency than the high reading proficiency group.

The conflicting results may lie in the fact

that the characteristics of the high and the low proficiency readers vary from context to context. Since the result indicated that the high proficiency readers were more aware of their frequent use of reading strategies than the low proficiency readers, the latter should be trained to use reading strategies, which they can resort to when they have reading difficulties. In addition, as knowledge about reading strategies cannot guarantee that the readers will be willing to use them, the low proficiency readers should be instructed to gain insight into the effectiveness of each reading strategy in order that they will feel motivated to use strategies.

In relation to the frequency of perceived top-down strategy use, the independent samples test revealed that the difference between the frequency of perceived top-down strategy use of the high proficiency readers ( $M = 48.4444$ ,  $SD = 7.9073$ ) and that of the low proficiency readers ( $M = 43.3111$ ,  $SD = 6.7750$ ) was significant ( $t = 3.307$ ,  $df = 88$ ,  $p = .001$ ). The high proficiency readers perceived that they employed top-down strategies significantly more frequently than did the low proficiency readers.

The result is in agreement with those of Oranpattanachai (2004) and Hassan (1999), who used think-aloud procedures as a research method, in that high proficiency L2 readers used more top-down strategies than low proficiency L2 readers. This is possibly because the high proficiency readers' bottom-up processes are more automatized than the low proficiency readers since they have a better knowledge of English than the low proficiency readers, and therefore they paid less attention to them. Since the

high proficiency readers paid less attention to the bottom-up processes as evidenced by reporting the use of these bottom-up strategies at a lower frequency than the low proficiency readers, they could access top-down processes more easily than the low proficiency readers.

For the similarities in their reading processes, they were divided into two aspects: the rank ordering of perceived strategy use and the style of text processing. Regarding the rank ordering perceived strategy use, the three most frequently used strategies for these two groups of readers were the same: 1) dictionary use 2) recognizing when not understanding 3) writing down the unknown vocabulary meanings in the dictionary in the text read (see Table 2 for details).

This finding is consistent with that of Shoerey and Mokhtari (2001), employing metacognitive reading strategy questionnaire as a research instrument, in that the most five used reading strategies for both high and low reading ability groups were the same: 1) trying to stay focused on reading 2) paying close attention to reading 3) using typographical aids (e.g. italics) 4) adjusting reading rate and 5) rereading for better understanding. This finding also supports that of Oranpattanachai (2004), who used think-

aloud protocols with Thai engineering students, and found that the rank ordering of strategy use of the high and the low proficiency readers is similar across three texts. The most frequently employed strategies for these two groups when reading the engineering text are 1) rereading 2) dictionary use 3) paraphrasing 4) recognizing problems when reading 5) questioning the meaning 6) planning and 7) finger use. Moreover, in Oranpattanachai (2004)'s study, two most frequently used strategies were the dictionary use and recognizing problems of understanding, which are the same strategies used in the present study.

From this finding, it is recommended that the students should be instructed more word-attacking strategies. Relying on the dictionary use and writing down the meaning of unknown words that appear in the dictionary in the text read will interrupt their reading and the flow of their thoughts while making sense of the text. In addition, the students should be trained to use dictionary selectively. From this result, it seems to show that both high and low proficiency groups are word bound because they lack automaticity in word recognition skills, which can be solved by doing extensive reading.

**Table 2: Perceived reading strategies used most by high and low proficiency readers**

	HPR (n = 45)		LPR (n = 45)	
	M	SD	M	SD
1. look up the unknown words in a dictionary.	3.16	1.09	2.82	.78
2. write down the meaning of unknown words that appear in the dictionary in the text read.	3.09	.85	2.76	.88
3. recognize when I don't understand something.	3.07	.75	2.75	.86

**NOTE:** HPR = HIGH PROFICIENCY READER

LPR = LOW PROFICIENCY READER

In terms of the style of text processing, the paired samples t-test revealed that the difference between the frequency of perceived top-down strategy use ( $M = 48.4444$ ,  $SD = 7.9073$ ) and the frequency of perceived bottom-up strategy use ( $M = 25.0444$ ,  $SD = 4.0281$ ) of the high proficiency readers was significant ( $t = -23.383$ ,  $df = 44$ ,  $p = .000$ ). For the low proficiency readers, the paired samples t-test revealed that difference between the frequency of perceived top-down strategy use ( $M = 43.3111$ ,  $SD = 6.7750$ ) and the frequency of perceived bottom-up strategy use ( $M = 23.5333$ ,  $SD = 4.3776$ ) was also significant ( $t = -21.015$ ,  $df = 44$ ,  $p = .000$ ). That is to say, both high and low proficiency readers employed top-down strategies significantly more frequently than the bottom-up strategies ( $p < .000$ ).

This finding is inconsistent with that of Oranpattanachai (2004) and Hassan (1999), who used think-aloud protocols with Thai engineering students, and found that both high and low proficiency readers used bottom-up strategies at a higher frequency than the top-down strategies. This finding is also inconsistent with a number of studies which indicated that non-proficient L1 and L2 readers mainly employed bottom-up strategies more than top-down strategies (Salaci and Akyel: 2002 and Kern: 1989). A possible explanation for these conflicting results may lie in the differences in the research method used and the differences in the characteristics of poor readers and good readers.

From this result, it seems that the reading difficulties of low proficiency readers do not come from the lack of top-down strategies as discussed in the studies of

Oranpattanachai (2004) and Hassan (1999). Poor readers do not lack top-down strategies, but instead they lack sufficient vocabulary and syntactic knowledge in target language (Pang: 2008). To acquire vocabulary and syntactic knowledge, the readers should be encouraged to read extensively.

## CONCLUSION

Taken into consideration all the findings and recommendations of the present study earlier discussed, it can be concluded that English reading syllabus at the pre-engineering level at the college where the present study conducted should include strategy training together with an extensive reading programme.

Researchers and teachers recognize that strategy training is an effective way of improving reading and that good readers are strategic readers (Pang: 2008). As the present study revealed that the perceived use of low proficiency was less than the high proficiency readers, teachers should therefore play a role by training them to use various reading strategies. Also, teachers should train them when, where, why, and how to use strategies appropriately so that the strategies they use are productive in their reading, which in turn, will help them to be more proficient readers.

In addition, regarding the acquisition of vocabulary and syntactic structures in English, teacher should assign students to do extensive reading outside the class because reading provides abundant samples of L2 input, which is needed to improve reading. Extensive reading can also develop auto-

maticity in word and syntactic structures recognition, rapid and accurate reading, which are fundamental requirement for fluent reading (Pang: 2008).

Finally, since the present study looks at the differences and similarities in reading processes of high and low proficiency readers at pre-engineering level in Thailand, a replication of this study with different participants at high-school or university levels in Thailand or other countries learning English as a foreign language (i.e. Taiwan, China, Vietnam) may be interesting.

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## **Appendix 1**

### **A Background Questionnaire**

The following questionnaire is a part of a research study into aspects of reading strategies. Please read the instructions carefully and do as directed. Your response will be treated as confidential.

#### **Students Background Information**

*Please answer the following questions as honestly as possible*

1. Name .....
2. Discipline .....Section .....
3. Mobile Phone Number .....
4. Grades achieved from the English courses in your second year:  
1<sup>st</sup> Term ..... 2<sup>nd</sup> Term .....



## Appendix 2

### A Metacognitive Awareness Questionnaire

The following questionnaire is a part of a research study into aspects of reading strategies. Please read the instructions carefully and answer each question as honestly as possible. Your response will be treated as confidential

**DIRECTIONS:** Please put a tick [/] in the column indicating degree of frequency that best describes your reading behaviour

	Very often	Often	Some times	Seldom	Never
While reading the text in English, I					
1. skip words or parts I don't understand.					
2. work out meanings of words from understanding the parts of the words.					
3. try to get the main idea.					
4. recognize when I don't understand something.					
5. go back to a prior part that I understand to help me work out the bit I can't understand.					
6. predict what will come next.					
7. slow down when I have difficulty in reading.					
8. make use of grammatical structure to get at meaning.					
9. use my general knowledge to work out the meaning.					
10. look up the unknown words in a dictionary.					
11. ask myself questions about what words or phrases mean.					
12. re-read what I don't understand.					
13. guess the meaning of the unknown words from the context.					
14. work out a fact that is not mentioned directly in the text to understand what the text implies.					
15. have feelings and reactions emotionally to the text.					
16. go back and correct what I understood earlier.					
17. continue reading even though I don't understand.					
18. pronounce the words aloud.					
19. link the present information to the other pieces of the text.					

	<b>Very often</b>	<b>Often</b>	<b>Some times</b>	<b>Sel- dom</b>	<b>Never</b>
20. form a mental picture of what is read.					
21. question the information in the text.					
22. correct misunderstanding made in reading the text.					
23. assess the degree of understanding the text.					
24. confirm the understanding or the interpretation earlier.					
25. make a survey of the text before reading it such as looking looking at the pictures and the length of the text, skimming it, etc.					
26. use a finger to point while reading.					
27. write down the meaning of unknown words that appear in the dictionary in the text read.					
28. need to understand meaning of every vocabulary in the text.					
29. link what is read to my word knowledge.					

Thank you for your cooperation

### Appendix 3

Responses on the perceived reading strategy use by high and low proficient readers

	HPR (n = 45)		LPR (n = 45)	
	M	SD	M	SD
1. skip words or parts I don't understand.	2.24	.96	2.60	.86
2. work out meanings of words from understanding the parts of the words.	2.67	.98	2.47	.89
3. try to get the main idea.	3.00	.93	2.51	.92
4. recognize when I don't understand something.	3.07	.75	2.75	.86
5. go back to a prior part that I understand to help me work out the bit I can't understand.	2.91	.92	2.56	.89
6. predict what will come next.	2.24	.86	2.42	.81
7. slow down when I have difficulty in reading	2.76	.98	2.53	1.08
8. make use of grammatical structure to get at meaning.	2.18	1.07	1.82	1.03
9. use my general knowledge to work out the meaning.	2.71	2.22	.89	.85
10. look up the unknown words in a dictionary.	3.16	1.09	2.82	.78
11. ask myself questions about what words or phrases mean.	2.49	.92	2.27	1.05
12. re-read what I don't understand.	2.89	.80	2.51	.87
13. guess the meaning of the unknown words from the context.	2.84	.93	2.31	.82
14. work out a fact that is not mentioned directly in the text to understand what the text implies.	2.40	.91	1.96	.77
15. have feelings and reactions emotionally to the text.	2.18	.96	1.82	.75
16. go back and correct what I understood earlier.	2.62	.94	2.22	.77
17. continue reading even though I don't understand.	2.47	.94	2.53	.79
18. pronounce the words aloud.	1.67	1.02	1.73	.81
19. link the present information to the other pieces of the text.	2.84	.77	2.56	.66
20. form a mental picture of what is read.	2.69	.92	2.27	.89
21. question the information in the text.	2.09	.79	2.11	.68
22. correct misunderstanding made in reading the text.	2.69	.67	2.13	.84
23. assess the degree of understanding the text.	2.00	.83	1.96	.85
24. confirm the understanding or the interpretation earlier.	2.31	.82	2.04	.88
25. make a survey of the text before reading it such as looking at the pictures and the length of the text, skimming it, etc.	2.69	.95	2.29	.89
26. use a finger to point while reading.	1.69	1.20	2.22	.97
27. write down the meaning of unknown words that appear in the dictionary in the text read.	3.09	.85	2.76	.88
28. need to understand meaning of every vocabulary in the text.	2.16	.88	2.18	.98
29. link what is read to my word knowledge.	2.76	.68	2.27	.75

**NOTE:** HPR = HIGH PROFICIENCY READER    LPR = LOW PROFICIENCY READER