AN INVESTIGATION OF THE MEDIATORS BETWEEN VOCABULARY SIZE AND READING COMPREHENSION OF FIRST-YEAR UNDERGRADUATE STUDENTS

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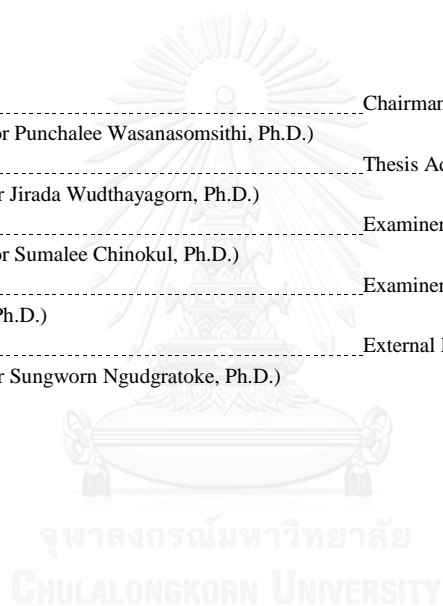
เพ็ญประภา มังกรวงษ์ : การตรวจสอบสื่อกลางระหว่างวงความรู้คำศัพท์ และการอ่าน เพื่อความเข้าใจ ของนักศึกษาระดับปริญญาตรี ชั้นปีที่ 1 (AN INVESTIGATION OF THE MEDIATORS BETWEEN VOCABULARY SIZE AND READING COMPREHENSION OF FIRST-YEAR UNDERGRADUATE STUDENTS) อ.ที่ปรึกษาวิทยานิพนธ์หลัก: ผศ. ดร.จิรดา วุฒตยากรร.น., 260 หน้า.

วงความรู้คำศัพท์และการอ่านเพื่อความเข้าใจนั้นพิสูจน์ได้ว่ามีความสัมพันธ์กัน และเพื่อ จะทำให้ความสัมพันธ์นั้นมากขึ้น สื่อกลางสามารถเข้ามามีบทบาทสำคัญ ดังนั้น งานวิจัยครั้งนี้ มีวัตถุประสงค์ 3 อย่าง คือ 1) เพื่อหาวงความรู้คำศัพท์ของนักศึกษาระดับปริญญาตรี ชั้นปีที่ 1 2) เพื่อตรวจสอบความสัมพันธ์ระหว่างวงความรู้คำศัพท์และการอ่านเพื่อความเข้าใจ และ 3) เพื่อ ตรวจสอบสื่อกลางระหว่างวงความรู้คำศัพท์และการอ่านเพื่อความเข้าใจ โดยสื่อกลางในการศึกษา ครั้งนี้ คือ คำศัพท์เชิงลึก กลยุทธ์ในการอ่าน และกลยุทธ์ในการเรียนรู้คำศัพท์ ผู้เข้าร่วมใน งานวิจัยครั้งนี้ คือ นักศึกษาชั้นปีที่ 1 จำนวน 484 คน จากมหาวิทยาลัยในสังกัดรัฐบาลและเอกชน เครื่องมือวิจัย คือ ข้อสอบวัดวงความรู้คำศัพท์ ข้อสอบวัดความรู้คำศัพท์เชิงลึก ข้อสอบการอ่านเพื่อ ความเข้าใจ แบบสอบถามเรื่องกลยุทธ์ในการอ่าน แบบสอบถามเรื่องกลยุทธ์ในการเรียนคำศัพท์ และการสัมภาษณ์แบบกึ่งมีโครงสร้าง โดยใช้การวิเคราะห์ข้อมูลจากสมการโครงสร้าง (SEM) ผลการวิจัย พบว่า นักศึกษาชั้นปีที่ 1 มีระดับวงคำศัพท์ที่ 4,200 คำ และยังพบว่า วงความรู้คำศัพท์ และการอ่านเพื่อความเข้าใจมีความสัมพันธ์กัน แต่อยู่ในระดับต่ำ นอกจากนี้ ยังพบว่า คำศัพท์เชิง ลึก กลยุทธ์ในการอ่าน และกลยุทธ์ในการเรียนรู้คำศัพท์ สามารถเป็นสื่อกลางระหว่างวงความรู้ คำศัพท์และการอ่านเพื่อความเข้าใจได้ นอกจากนี้ วิธีการสอนคำศัพท์ และงานวิจัยในอนาคตได้ เสนอแนะไว้ในงานวิจัยฉบับนี้

สาขาวิชา   ภาษาอังกฤษเป็นภาษานานาชาติ   ลายมือชื่อนิสิต _____

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KEYWORDS: VOCABUALRY SIZE / READING COMPREHENSION / MEDIATORS / READING STRATEGY / VOCABULARY LEARNING STRATEGY

PENPRAPA MUNGKONWONG: AN INVESTIGATION OF THE MEDIATORS BETWEEN VOCABULARY SIZE AND READING COMPREHENSION OF FIRST-YEAR UNDERGRADUATE STUDENTS. ADVISOR: ASST. PROF. JIRADA WUDTHAYAGORN, Ph.D., 260 pp.

Vocabulary size and reading comprehension are proved to be related. The relationship may get stronger if reading comprehension is mediated by related variables. This study, therefore, aimed to generate three objectives including: 1) to identify the vocabulary size of first-year undergraduate students, 2) to investigate the relationship between vocabulary size and reading comprehension, and 3) to examine the mediators of vocabulary size and reading comprehension. The mediators in this study included vocabulary depth, reading strategies, and vocabulary learning strategies. The participants were 484 first-year undergraduate students from public and private universities. The research instruments were Vocabulary Size Test, Depth of Vocabulary Knowledge Test, Reading Comprehension Test, Reading Strategies Questionnaire, Vocabulary Learning Strategies Questionnaire, and semi-structured interview. The SEM analysis estimated the data by using CFA technique. The result revealed that first-year undergraduate students had around 4,200 word families. It was also found that the correlation coefficient between vocabulary size and reading comprehension was weak, but significant. Moreover, vocabulary depth, reading strategies, and vocabulary learning strategies were proved to be mediators of vocabulary size and reading comprehension. Implications of vocabulary pedagogy and future research are also discussed.

Field of Study:	English as an International	Student's Signature	....
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CHAPTER I
INTRODUCTION

1. Background of the study

Vocabulary knowledge is an essential element in using and learning a language, either a mother language (L1) or a second language (L2). Schmitt (2008) has noted that a learner needs vocabulary knowledge in order to master the second language. McCarthy (1990) addresses that without words, communication cannot happen even though learners know the L2 grammar and sounds well. Many times, teachers may find that learners cannot carry on their conversation, keep on writing, understand listening texts or reading passages because they run out of vocabulary. Cameron (2002) points out that during the process of his study, teachers often mention that the lack of English vocabulary was one of main problems for learners. With insufficient vocabulary knowledge, learners could find languages difficult to use (Asgari & Mustapha, 2011). Thus, it is important for learners to have ample vocabulary to use a language.

From the researcher's English teaching experience, even though most Thai learners have been studying English for at least 9-12 years before attending a university, many of them have not had sufficient vocabulary knowledge. They usually complain that they did not have much vocabulary, and that made them struggle with using all kinds of English language skills. For instance, they did not understand a reading passage because the passage had too many unknown words. They could not keep up with a conversation because they did not know the English word they wanted to say. Vocabulary knowledge seems to be an important problem of Thai learners in an English classroom. Therefore, it is essential that teachers pay attention to how much vocabulary knowledge their learners have at the beginning of a class so that teachers can design lesson plans to fit with their learners' needs.

Regarding Thailand's Basic Education Core Curriculum B.E. 2551 (A.D. 2008) (Office of the Basic Education Commission, 2008), compulsory education

includes 6 years of primary education from Grades 1-6 and 3 years of lower secondary from Grades 7-9. Additionally, 3 years of upper level education Grades 10-12 are required for students who would pursue their education in the undergraduate level. The Basic Education Core Curriculum B.E. 2551 prescribes that Thai students who finish Grade 3, Grade 6, and Grade 9 should have a vocabulary size of around 300-450 word families, 1,050-1,200 word families and 2,100-2,250 word families, respectively. Students who graduate from high school or Grade 12   should have the vocabulary size of around 3,600-3,750 word families (Office of the Basic Education Commission, 2008) which equals to 3,000 word families.

Even though the Basic Education Core Curriculum B.E. 2551 (A.D. 2008) (Office of the Basic Education Commission, 2008) prescribes the exact vocabulary size students need to know when graduating from high school, less is known on how much vocabulary knowledge Thai students carry with them to a university, especially vocabulary size. There have been few studies that mainly focus on vocabulary size of Thai first-year undergraduate students who have studied English for at least 9-12 years. The first study was conducted by Zhiying (2007). One of the study's purposes was to investigate the vocabulary size of Thai first-year undergraduate learners from Prince of Songkha Unversity and Chinese first-year undergraduate learners from South China Agriculture University. The result showed that both Thai and Chinese learner's vocabulary size was above 3,000 word families.

Another study regarding vocabulary size of first-year undergraduate learners was conducted by Pringprom and Obchuae (2011). The subjects were thirty first-year learners from Bangkok University. The result reported that learners did not have sufficient vocabulary size. The researchers explained that undergraduate learners should master at least the 2,000-word level. However, their subjects' scores for the 2,000-word level, based on the interpretation of (Nation, 2008), were only 518 words out of 1,000 words. In other words, learners only had half the amount of vocabulary words they needed in order to cope with their current academic level.

The result from this study is different from the first study by Zhiying (2007) because the subjects in the first study were first- year learners who almost finished their English Foundation II course. Hence, it could be assumed that they had more

vocabulary knowledge added after they passed the English Foundation I course and almost finished English Foundation II course.

With these few studies, it might not be enough to conclude about vocabulary size of first-year undergraduate learners. It is essential to conduct more current studies in order to see a clearer and updated picture of Thai learners' vocabulary size and help them to improve their language abilities. As mentioned, vocabulary knowledge is an important key to master languages.

Reading is the skill that vocabulary knowledge is involved with the most. Hirsh and Nation (1992) state that vocabulary knowledge is an important factor that affects reading comprehension. If learners struggle with many unknown words, their pleasure of reading will be lost. Many studies have proved the relationship between vocabulary knowledge, especially vocabulary size and reading comprehension.

Previous studies were conducted to find the minimum requirement of vocabulary size that learners needed as a basic to comprehend a reading text. Many studies reveal that 3,000 word families are the minimum requirement and considered as a threshold vocabulary (B. Laufer, 1992a, 1997; Nation, 1993; Nation & Waring, 1997). Nation (as cited in B. Laufer, 1997) identifies the actual percentage that "the 3,000 word families are reported to provide a coverage of between 90% and 95% of any text" (p. 24).

B. Laufer (1992a), from her studies with first year university students whose native language was Hebrew or Arabic, revealed that 3,000 word families were the minimum requirement for students to comprehend an academic text at an adequate level. She agrees with Nation that with 3,000 word families, students can reach 95% of text coverage. This result confirms her previous study (B. Laufer, 1989) that 95% of text coverage was needed for satisfactory comprehension. On the other hand, students who did not have vocabulary size large enough to cover 95% of text coverage would not have an adequate level of reading comprehension. Furthermore, B. Laufer (1992a) also found that with the minimum of 3,000 word families, students would be able to transfer their reading strategies from L1 to L2.

Nation (1993) agrees with Laufer (1989) that to know around 95% of academic text coverage, 3,000 word families are necessary. These 3,000 word families are the highest priority that students should be well learned (Nation &

Waring, 1997). The earlier study from Nu and Nation (1985) shows the same result that even with the unsimplified text, 3000 word families are the minimum requirement. The study also reveals that students with 3,000 word families would be able to use a reading strategy of guessing meanings of words by using context clues. If students have the vocabulary size less than 3,000 word families, this strategy might not be effective.

Hirsh and Nation (1992) studied the vocabulary size needed to read unsimplified texts for pleasure like short novels. They found that 5,000 word families were needed to understand the texts. Later, M. Hu and I.S.P. Nation (2000) also found that learners needed 98% of text coverage to understand a fiction text without external support. Many studies agree that 98% of text coverage should ease students with adequate comprehension for unsimplified texts and academic texts (M. Hu & I.S.P. Nation, 2000; Schmitt, Jiang, & Grabe, 2011).

Baleghizadeh and Golbin (2010) found a significant and strong correlation between vocabulary size and reading comprehension. Learners with a larger vocabulary size can comprehend reading passages more than learners with a smaller vocabulary size. They suggested that vocabulary size should receive more attention in a language classroom as it is a factor affecting learners' reading comprehension.

Chen (2011) studies the impact of English as foreign language (EFL) learners' vocabulary size and literal reading comprehension. She found that high proficiency learners who had a certain size of vocabulary found reading easy and would like to enhance the knowledge of vocabulary depth. On the other hand, low proficiency learners who had a small vocabulary size struggled with reading comprehension and had less desire to increase their knowledge of vocabulary depth.

Vocabulary size is also seen as a good predictor of a learners' reading proficiency. For example, B. Laufer (1992a) investigated the relationship between vocabulary knowledge and reading comprehension. She found a strong correlation between vocabulary size tests and reading comprehension tests revealing that vocabulary size has the capability to predict learners' reading comprehension. Qian (1999) studied the roles of vocabulary size in reading comprehension, with his focus on academic reading comprehension. His findings showed a high correlation between vocabulary size scores and reading comprehension scores. Thus, it can be concluded

that vocabulary size is capable of a predicting learners' reading comprehension performance.

Pringprom and Obchuae (2011) conducted a study on the relationship between vocabulary size and reading comprehension of 30 Thai first-year undergraduate students. They found that the scores of vocabulary size and reading comprehension were positively correlated. Pringprom (2012) also conducted another study with 81 second-year undergraduate students. She found the same result as her previous study that vocabulary size and reading comprehension were positively correlated.

It is quite clear that vocabulary size has a strong relationship with reading comprehension. Learners who have larger vocabulary sizes would perform better with reading comprehension than those with a smaller vocabulary size. Nevertheless, in Thailand, there are very few studies conducted on the relationship between vocabulary size and reading comprehension. The studies in Thailand, as mentioned in the last paragraph, were conducted with a small sample size taken from one university only. Thus, the researcher decided to investigate more on the relationship between vocabulary size and reading comprehension in a larger sample size from different universities in order to gain more insight of this relationship in Thai context.

In addition, B. Laufer (1992b) addresses that even though her study confirmed the predicting power of vocabulary size on reading comprehension, it was not necessary that vocabulary size has a direct effect on reading ability. She mentions that there could be some other factors that mediate the relationship between vocabulary size and reading comprehension. The question arising here is if there are any factors that mediate them?

A mediator is a major key that creates or strengthens the relationship among an independent variable and a dependent variable. In this study, vocabulary size is an independent variable while reading comprehension is a dependent variable. Thus only if teachers know a mediator between vocabulary size and reading comprehension, they can help learners to improve their reading comprehension by empowering the mediators. There are studies that provide important information about possible mediators between vocabulary size and reading comprehension.

In this study, from the literature review, three plausible mediators including vocabulary depth, reading strategies, and vocabulary learning strategies are

investigated. Therefore, the next paragraphs provide evidence of the relationship between each mediator, vocabulary size and reading comprehension as well as a discussion about why those mediators have been chosen to be investigated in this study.

The first mediator is vocabulary depth. Vocabulary depth is another major factor that plays a role in reading comprehension, and has a strong relationship with vocabulary size. First of all, Schmitt and Meara (1997) focused their study on the relationship between vocabulary size and depth. The result of the relationship between size and depth showed significant correction in their study. They found that these two variables are interconnected. However, they did not identify how they were interconnected.

Qian (1998) and Milton (2009) agree with the previous study and state that vocabulary size and depth are interrelated. Qian (1999) also reports that the depth of vocabulary has a strong relationship with reading comprehension. It contributes to the prediction of reading proficiency even better than vocabulary size. In other words, leaners with higher levels of vocabulary depth have higher scores on reading comprehension tests. Besides, he also reports that vocabulary size scores, vocabulary depth score, and reading comprehension scores show positive relationship. He concludes that vocabulary size and depth are interconnected.

Vermeer (2001) indicates in her study that "a deeper knowledge of words is the consequence of knowing more words, or that, conversely, the more words someone knows, the finer the networks and the deeper the word knowledge" (p. 222). She explains that to understand the meaning and use a word, a person needs to know other words so that he or she could classify and categorize words to find out the exact meaning of each word. If a person knows more words, he or she could have a large network of words that helps him or her understand the in-depth meaning of a word. Therefore, it could be concluded that vocabulary depth increases when the number of vocabulary size increases.

With the empirical evidence that shows a strong relationship between vocabulary size and vocabulary depth as well as vocabulary depth and reading comprehension, vocabulary depth could be a plausible mediator between the other two variables. That is vocabulary size could influence vocabulary depth and

vocabulary depth then influence reading comprehension. Moreover, it would not be possible that learners would understand a written text if they only have vocabulary size, but not vocabulary depth. Therefore, in this study, vocabulary depth was investigated as one of the mediators between vocabulary size and reading comprehension.

The second mediator is reading strategies. Barnett (1988) identifies reading strategies as tools to help readers solve problems and acquire text information. Reading strategies have close relationship with reading comprehension. They are considers as one important key to help students comprehend reading. Reading strategies are defined in this study as a mediator between vocabulary size and reading comprehension because they have a strong relationship with vocabulary size and reading comprehension. B. Laufer (1997) and Nation (1990) address that in order to apply reading strategies effectively, students need to have a certain level of vocabulary size. This aspect refers to the vocabulary threshold hypothesis that relates to reading comprehension. B. Laufer (1997) explains that according to vocabulary threshold hypothesis, students who do not have sufficient vocabulary size would have struggle with reading comprehension. Moreover, they not only have many unknown words in reading texts, but they also would not be able to apply reading strategies to help them comprehend the reading texts. Even though they have knowledge of reading strategies from their first language, they would not be able to apply their knowledge to help them with second language. If students are not able to apply their reading strategies, their adequate reading comprehension would not be possible.

However, there are few studies conducted on the relationship between reading strategies, vocabulary size, and reading comprehension. The first one was conducted by B. Laufer (1992a). From her study, the result shows that learners need at least 3,000 word families or 5,000 lexical items to be able to transfer their reading strategies from L1. If learners have less than 3,000 word families, the transfer L1 strategies would be difficult.

Another study conducted by Juan, Abidin, and SiewEng (2013) aims at the relationship between vocabulary threshold and word guessing strategy used in reading comprehension learning. The result shows that learners need at least 3,500 words so that they would be able to use the word guessing strategy effectively.

From these studies, it can be seen that vocabulary size plays a role on reading strategies. That is if learners have larger vocabulary size, they are able to apply more reading strategies to help them comprehend a written text better. Reading strategies could be one of important moderators that support the relationship between vocabulary size and reading comprehension. Therefore, in this study, reading strategies were examined to determine if they could be an effective mediator between vocabulary size and reading comprehension.

The last mediator is the vocabulary learning strategies. Vocabulary learning strategies are a popular issue that is related to vocabulary size. Many studies report that vocabulary learning strategies can help both EFL and ESL learners develop their vocabulary size (Gu, 2010; Gu & Johnson, 1996; Kafipor, Yazdi, Soori, & Shokrpour, 2011). In turn, Nation (2001) states that the use of vocabulary learning strategies is contributed to learners' vocabulary knowledge. For example, Nation (2008) points out that guessing meanings of unknown words from context clues is the most useful vocabulary strategies that help leaners with their vocabulary growth and comprehension of a written text. However, in order to use this strategy effectively, learners need to have around 98% of vocabulary knowledge of text coverage. That means if learners have less than 98% of vocabulary knowledge, they would not be able to apply the guessing strategy. However, less is known about this notion since there are very few studies conducted.

Kafipor (2011) also agrees that vocabulary knowledge has an effect on vocabulary learning strategies. He states that in order to use vocabulary learning strategies effectively, learners need a sufficient level of vocabulary knowledge. He explains that some vocabulary learning strategies such as verbal association or word associations require learners to have suitable vocabulary size to be able to apply them. Then, he conducted the study on the relationship between vocabulary learning strategies, vocabulary size, and reading comprehension. The result shows a significant correlation between the three variables. He reports that vocabulary learning strategies contributed to both vocabulary size and reading comprehension. Learners who use more vocabulary learning strategies have a larger vocabulary size and higher scores on the reading comprehension test. His study has shown an important point on the relationship between vocabulary learning strategies and reading comprehension.

However, the result on vocabulary size and vocabulary learning strategies is the same as previous studies showing that vocabulary learning strategies affected the growth of vocabulary size. His study does not focus on the other way around that vocabulary size could affect the use of vocabulary learning strategies as he mentioned earlier. Therefore, the empirical evidence supporting the notion that vocabulary size can influence the use of vocabulary learning strategies, could not be found from his study.

As mentioned earlier, vocabulary learning strategies have strong effects on vocabulary growth, in fact, there is still the notion that states another way around. It could be possible that vocabulary size would affect the use of vocabulary learning strategies and make them as a mediator that creates the relationship between vocabulary size and reading comprehension. Therefore, the researcher believes that it is worthwhile to find out if this relationship is possible. If so, the result would give a useful direction to teachers to help learners improve their reading comprehension.

In conclusion, this study mainly aims at the learners' vocabulary size and its relationship to reading proficiency by investigating the three main mediators, vocabulary depth, reading strategies, and vocabulary learning strategies. Therefore, three research questions were generated.

2. Research Questions

1. How large is the vocabulary size of first-year undergraduate students?
2. What is the relationship between vocabulary size and reading comprehension of first-year undergraduate students?
3. Do vocabulary depth, vocabulary learning strategies, and reading strategies mediate the relationship between vocabulary size and reading comprehension of first-year undergraduate students? If so, how?

3. Research Objectives

1. To examine how large the vocabulary size of first-year undergraduate students is.
2. To examine the relationship between vocabulary size and reading comprehension of first-year undergraduate students.

3. To investigate vocabulary depth, vocabulary learning strategies, and reading strategies that mediate the relationship between vocabulary size and reading comprehension of first-year undergraduate students.

4. Scope of the Study

The study focused on first-year undergraduate students in the first semester of academic year 2014 from both public and private universities in Thailand. The first-year students were chosen because it was important for teachers to know their students' language abilities as soon as possible. On top of that, they had finished their basic education (12 years of formal education). Thus, the study aimed to examine students' vocabulary size after they had studied English for 12 years.

Moreover, less was known about the relationship between vocabulary size and reading comprehension in a Thai context due to a very few evidence provided for the past years; therefore, this study aimed to examine more on this aspect. Finally, the study also aimed to investigate mediators between vocabulary size and reading comprehension. The mediators investigated here were vocabulary depth, reading strategies, and vocabulary learning strategies. The relationship between all variables was shown in a model form using SEM which would help to see a clearer picture of the relationship.

5. Definitions of Terms

1. **Mediators** refer to an intervening mechanism that creates a connection between an independent variable and a dependent variable (Baron & Kenny, 1986). In this study, the mediators refer to vocabulary depth, reading strategies, and vocabulary learning strategies.

2. **Vocabulary size** (VS) refers to the number of words a learner knows their primary meanings (B. Laufer & Nation, 1999; Nation, 2001; Qian, 1999). In this study, it refers to the number of words measured by Vocabulary Size Test developed by Nation and Beglar (2007).

3. **Reading comprehension** (RC) refers to an active process that readers use their prior knowledge, cognitive and metacognitive process in order to

understand meaning of a written text and writers' intention (Johnson, 1983). In this study, reading comprehension is measured by Reading Comprehension Test.

4. **First-year undergraduate students** refer to students in the first semester of Academic Year 2014. In this study, the term "students" is used to refer to this group of the participants.

5. **Vocabulary depth** (VD) refers to the degrees of learner's knowledge of a word emphasizing on how well a learner know about various aspects of a word including relevant concepts and referents, associations, grammatical functions, collocations and constrains on use of given words (Li & MacGregor, 2010) and in this study, it is measured by Depth of Vocabulary Knowledge Test developed by D.D. Qian and M. Schedl (2004).

6. **Reading strategies** (RS) refer to the tools that help readers to solve problems and acquire text information (Barnett, 1988). In this study, reading strategies are the tool to help students to comprehend a reading which is measured by Reading Strategies Questionnaire adapted from Survey of Reading Strategies developed by Mokhtari and Sheorey (2002).

7. **Vocabulary learning strategies** (VLS) refer to techniques or learning behaviors that learners use in order to discover the meaning of a new word, to retain the knowledge of newly-learned words, and to expand their knowledge of vocabulary (Intaraprasert, 2004). In this study, vocabulary learning strategies are the tool to help students learn new words, memorize them, and build their knowledge of words. The strategies are measured by Vocabulary Learning Strategies Questionnaire adopted from N. Schmitt (1997).

6. Significance of the Study

The study provides empirical evidence about first-year undergraduate students' vocabulary knowledge. It would help teachers know their students better and be able to design a lesson plan that suites the students' level. The study also provides empirical evidence to prove the relationship between vocabulary size and reading comprehension of EFL students. This would give a direction for teachers to help students to improve their reading comprehension by starting from developing

students' vocabulary size along with reading comprehension. It also gives more insight on how vocabulary size and reading comprehension are related to each other by focusing on three mediators that are vocabulary depth, vocabulary learning strategies, and reading strategies.

The model of the relationship between vocabulary size, three mediators, and reading comprehension is created to help teaches see a clearer picture of their relationship. The model helps teachers to easily understand how each variable relates to each other. It would be a useful tool that gives teachers ideas to design and improve their lessons in order to help students improve their reading comprehension.

CHAPTER II
LITERATURE REVIEW

This present study aims to investigate the relationship between vocabulary size and reading comprehension, and importantly, potential mediators that provide a strong link between these two variables. This chapter includes studies and research studies in order to build background of the present study. The chapter will provide background information of vocabulary knowledge, describe the importance of vocabulary learning, review studies that relate to the relationship between vocabulary size and reading comprehension, as well as identify three mediators between vocabulary size and reading comprehension with related empirical studies.

1. Vocabulary Knowledge

1.1 Receptive and Productive Vocabulary Knowledge

A common and widely use definition of vocabulary knowledge refers to receptive and productive knowledge (Nation, 2001; Read, 2000). Receptive knowledge means to the ability to understand a word while productive knowledge refers to the ability to use or produce a word (Schmitt, 2000). Receptive knowledge then relates to reading and listening proficiency, and productive knowledge involves with writing and speaking proficiency. Nation (1990) defines receptive knowledge as the ability to recognize a word when hearing or seeing it as well as "having an expectation of what grammatical pattern the word will occur in" (p. 32). He defines productive knowledge as the ability to extend receptive knowledge of a word by being able to pronounce, to write, to spell, to use it with appropriated grammatical patterns, and to be able to substitute it with other words with similar meaning. Nation (2001) further explains that receptive is other people's ideas passing to us as input through our reading and listening. Productive is the forms of writing and speaking we produce in order to convey the messages.

Hiebert and Kamil (2005) define vocabulary as "the knowledge of meanings of words" (p. 3) consisting of two forms, oral and print. They also define vocabulary

knowledge as receptive and productive knowledge. Receptive knowledge refers to the set receptive or recognition vocabulary that learners understand and recognize while productive knowledge is the set of productive vocabulary that learners use in writing and speaking.

The distinction of vocabulary knowledge as receptive and productive types might not seem to be suitable in all cases. Nation (2001) states that productive knowledge also appears along with receptive knowledge. That means while reading or listening, learners also produce meaning. Another point referring to the notion that receptive vocabulary is bigger than productive vocabulary, is that the number of actual- used words is smaller than the number of words we know (Read, 2000). Therefore, the terms 'passive' and 'active' were introduced and have been alternatively used as receptive and productive knowledge (Corson, 1995; B. Laufer, 1998; Meara, 1990). Passive refers to receptive and is used for listening and reading. Active refers to productive and is used for speaking and writing. In other words, passive knowledge refers to the ability to comprehend the input or the form of word, and active knowledge is the ability to retrieve the word forms including spoken and written forms (B. Laufer & Goldstein, 2004).

Meara (1990) defines active vocabulary as a word that can be activated by linking with other words while passive vocabulary can be activated only by hearing or seeing its forms without associating to other words. In Corson's viewpoint (1995) (as cited by Nation, 2001), passive vocabulary consists of active vocabulary and three kinds of vocabulary, that are, "words that are only partly known, low-frequency words not readily available for use and words that are avoided in active use" (p. 25). He mainly focuses on the use of vocabulary, not only on the degrees of knowledge like receptive and productive. He explains that some known vocabularies have never been used. It means that they have never been active. Therefore, in his view, active and passive seem to be more appropriate than receptive and productive when looking at vocabulary distinction.

Relationship between Receptive Vocabulary Size and Productive Vocabulary Size

Generally, it is believed that the receptive vocabulary size is bigger than the productive vocabulary size (Fan, 2000; B. Laufer, 1998; Webb, 2008; Zhou, 2010).

The reason is that learners learn and acquire receptive vocabulary first and then they can produce the language. It is an assumption that receptive knowledge helps learners achieve productive knowledge. As a result, receptive and productive knowledge should be set on a continuum. However, Schmitt (2000) does not quite agree with this assumption. He claims that there are always some exceptions in learning languages. He believes that it is not true at all time that learners learn receptive vocabulary first and later productive vocabulary. He took a sample from his own experience. He claimed that he had used the word "*indict*" fluently in spoken form but not having any idea of its written form.

Nemati (2010) studied the relationship of language proficiency and receptive vocabulary size. She found that learners with a larger vocabulary size had higher proficiency levels. Gallego and Llach (2009) studied the relationship of receptive vocabulary size and learners' abilities in essay writing. Their finding showed the relationship of these two variables. They report that learners with bigger size of receptive vocabulary could produce higher quality of essays.

In this study, the aim is on the learners' reading comprehension; therefore, the receptive vocabulary is the only focused. Receptive vocabulary can be seen as one broad category of vocabulary knowledge that separate learners' different language skills. The other two dimensions that are necessary when talking about reading comprehension are breadth and depth of vocabulary knowledge.

1.2 Breadth and Depth of Vocabulary Knowledge

Breadth and depth are dimensions which are used to indicate vocabulary knowledge. Breadth of vocabulary knowledge refers to vocabulary size or the number of words a learner knows their primary meanings (B. Laufer & Nation, 1999; Li & MacGregor, 2010; Nation, 2001; Qian, 1999; Shen, 2008). Depth of vocabulary knowledge refers to the degrees of learner's knowledge of a word. It emphasizes how well a learner know various aspects of a word including "relevant concepts and referents, associations, grammatical functions, collocations and constrains on use of given words" (Li & MacGregor, 2010, p. 239). Qian (1999), as he focuses on reading comprehension, defines the depth of vocabulary knowledge by using Nation's (1990) and Richards's (1976) frameworks. He addresses that the depth or quality of

vocabulary knowledge should include pronunciation and spelling, meaning, register, frequency, morphological properties and syntactic properties.

Breadth and depth of vocabulary knowledge are important tools in measuring learners' vocabulary knowledge. As they tell teachers how large of vocabulary size learners have and how well learners know a word, they become a tool that provides information to teachers. It might not change the ways of teaching right away, but it helps teachers to understand the language learning processes (Pignot-Shahov, 2012).

Qian (1998) states that vocabulary breadth, or size, and depth are interconnected and interdependent. When read, second language learners need both dimensions to comprehend passages. It is rare that learners can comprehend the passages if they have in-depth knowledge of vocabulary, but a limited size of vocabulary. At the same time, learners with a large size of vocabulary, but shallow in vocabulary depth cannot comprehend much of the reading passages as well. Moreover, from his study about the relationship between depth, breadth, and reading comprehension, Qian (1998) reports that the development of vocabulary breadth and depth is also interdependent. His participants were 41 Korean students and 33 Chinese students who studied English as a second language. The participants took a vocabulary size test, depth of vocabulary knowledge test, and reading comprehension test. The scores from the vocabulary size and depth could predict learners' reading ability. He also found that the scores from the vocabulary size and depth were "closely, and positively, associated (p. 96). The high correlation between the scores of the two dimensions was shown and could be concluded that the development of vocabulary breadth, or size, and depth was interdependent.

Some relationship between vocabulary breadth and depth is shown in Chen's study (2011). Her main study was on the impact of learners' vocabulary size on reading comprehension. However, from her result, she reported that high proficiency learners who had a certain size of vocabulary found reading easy and would like to enhance the knowledge of vocabulary depth. On the other hand, low proficiency learners who had small vocabulary size struggled with reading comprehension and did not desire to increase knowledge of vocabulary depth. From this finding, it might be assumed that if learners have a larger size of vocabulary, they might have a deeper knowledge of vocabulary. However, from the best of my knowledge, there are not

many studies that focus on the relationship between vocabulary size and vocabulary depth. Therefore, it is one of the purposes of this study.

2. The Importance of Vocabulary Learning

Vocabulary has played a crucial role in using and learning a foreign language in all skills. To master the foreign language, vocabulary learning is very important. It is impossible to communicate in foreign language if only few words are known (Rubin & Thompson, 1994). Learners can find languages difficult to use if they have insufficient knowledge of vocabulary (Asgari & Mustapha, 2011). Many times teachers find that learners get stuck when they are trying to communicate in English because they run out of vocabulary. Sometimes they give wrong messages or misunderstand given messages. Cameron (2002) points out that during the process of his study, teachers often mentioned that the lack of English vocabulary was one of the learners' problems in learning English. Roloff, Brosseit, and Carrick (1981) mention that to study effectively and work successfully, an adequate vocabulary is necessary. Learners need a good vocabulary for their study, and when they are no longer in school, they still need vocabulary for their job. Nation (1990, 2001) stresses that language skills rely on learners' vocabulary knowledge. When their vocabulary knowledge is developed, their language learning is better.

However, with the practice of Communicative Language Teaching approach in language classrooms focusing on meaningful communication, vocabulary learning seemed to be neglected. Then it has come to realize that learners might not be able to acquire adequate amount of vocabulary through exposure to language and practice. Schmitt (2000) points out that there is not an enough guide for language teachers to teach vocabulary. Indeed, vocabularies need to be taught because it is as important as grammar. He explains that in fact, vocabulary and grammar are basically related. Learners need vocabulary knowledge to acquire grammar since there are many lexical patterns in a language and "grammar is actually constrained by lexical choices" (p. 14). Therefore, learners need to learn vocabulary along with grammar in order to acquire the second or foreign language.

Kojic-Sabo and Lightbown (1999) add that when vocabulary made its way back to language pedagogy in 1990s, many research studies on vocabulary have been

conducted; however, some important issues on vocabulary do not have enough information. Those are "the conceptualization of the vocabulary acquisition process, the role of context, the importance of direct vocabulary learning techniques, the role of individual differences in lexical acquisition, and the effectiveness of various vocabulary learning strategies" (p. 176). It is suggested that these mentioned issues need more exposure to support vocabulary learning.

It is such an awakening for language teachers that teachers need to teach vocabulary in order for students to learn and develop language skills. Then it comes to a question that how much vocabulary learners need to know in order to be able to comprehend the reading. It is hardly possible for learners to know all words or know as many words as the native speakers. Therefore, many studies, which will be addressed later, were conducted to fulfill the curiosity. Then the next topic is emphasized on how learners' vocabulary knowledge can be assessed.

2.1 Assessing Vocabulary

As mentioned that vocabulary knowledge is an important element that helps learners with their second language learning, the assessing of learners' vocabulary knowledge cannot be overlooked. It is one way that helps teachers to know their learners better. Nevertheless, it is not easy to assess the vocabulary knowledge. Coombe (2011) mentions that teachers often ask themselves "How should I test vocabulary?, Which kind of vocabulary should I test?, Which format(s) should I include?, How many items should I include?, How important is context?, and Are there any tools or resources that can help me?" (p. 113).

Coombe (2011) explains the answer for each question. The first one, she suggests that teachers can test what they have taught in the class. Vocabulary should not be tested as words in isolation, but instead they should be put in context. The second question relates to the kinds of vocabulary should be tested. Heaton (as cited in Coombe, 2011) that teachers should decide to test on vocabulary that they need learners to remember and to able to use. Nation and Hwang (1995) state that the first 2,000 high frequency words are needed to learn for learners who want to pursue their study in higher levels. Therefore, it is important for teachers to be sure that learners are master these words.

The third question, Coombe (2011) suggests that teachers should use formats that learners are familiar with or have an experience with so that they do not need to struggle with a new format when doing the test. This can help learners to perform with their best. Moreover, teachers need to consider test practicality. The test should be easy to mark and easy to interpret the scores.

The fourth question is "How many items should I include?" Coombe (2011) suggests that teachers need to consider the reliability of the test. There are no exact numbers of items in a test. Teachers need common sense to decide the numbers of items. It also depends on the format teachers chosen. For the fifth question, Coombe refers to Read (2000). Context plays an important role in vocabulary assessment. It can help learners to understand the reading by providing some information. However, some contexts may mislead learners' comprehension (B. Laufer, 1997). The last question is "are there any tools or resources that can help me?" Coombe points out that there are many resources that can help with vocabulary assessment. The useful one she found is a website that provides learners with self-access learning and provides tools for teachers to create tests and produce teaching materials.

Another point of view of vocabulary assessment is raised by Read (2004). He put that vocabulary assessment test can be done in two ways. First, teachers can make the test to focus on learners' knowledge of meaning and usage of the words. Second, the vocabulary knowledge is measured in an authentic way by putting it in context of language use. In addition, Read (2004) introduces another three dimensions for vocabulary assessment, namely discrete-embedded, selective-comprehensive, and context-independent-context-dependent.

Discrete-embedded, Read (2004) explains that it is focusing on the construct of the test. A discrete vocabulary measure aims only at vocabulary knowledge separated from other constructs. On the other hand, an embedded vocabulary measure is one part of a larger construct. That means vocabulary knowledge is one point measured in a larger construct such as a writing test or reading test.

Selective-comprehensive dimension is about "the range of vocabulary to be included in the assessment" (Read, 2004, p. 10). Selective vocabulary measure means the target words are selected to be in an assessment task. Comprehensive vocabulary measure focuses on overall vocabulary use that appears in test takers' speaking or

writing. The score does not depend on the use of particular words, but the whole language performance. The last dimension is context-independent-context-dependent. Read (2004) explains that context-independent-context-dependent is the role of context. Vocabulary is used in a sentence, not standing alone. Test takers need context to help them doing a test. Vocabulary measured in writing or speaking is context dependent. Learners need an appropriated word in order to complete the task.

Read (2004) asserts that for the vocabulary assessment format, multiple-choice is widely used and practical. It is convenient, easy to mark, and easy to administer. However, Wesche and Paribakht (1996) claim that there are some limitations of the multiple-choice format. They points out that the multiple-choice is difficult to construct. Learners may use other kinds of knowledge and strategies such as knowledge of distractors in the text and process of elimination to choose the right answers. Furthermore, the multiple-choice can present only small limited sampling of leaners' total vocabulary knowledge. However, they still predict that multiple-choice format will still be popular regarding its mentioned advantages.

In conclusion, developing a vocabulary assessment test is not an easy task to do. Teachers need to consider many aspects before they design the test because they realize that vocabulary assessment is an essential element to help them improve their learners' second language. As mentioned earlier, vocabulary is mainly related to the reading comprehension. Thus, if teachers know student's vocabulary size, they could be able to predict their students' proficiency in reading.

2.2 How Large of the Vocabulary Size is Needed for Reading

As mentioned earlier, vocabulary is related to reading comprehension. Learners might not understand anything when they read if they do not have enough vocabulary knowledge or too small size of receptive vocabulary. With this concern, many research studies were conducted in order to find out how large a receptive vocabulary is needed for reading novels, newspaper, magazine, or any other authentic or academic books. Nation (2006) states that there are many ways to identify the vocabulary size that ESL/EFL learners should possess in order to comprehend any reading without external help. One way is to identify how many English word-families there are and set it as a learning goal. According to Goulden, Nation, and

Read (1990), there were 114,000 word-families in English. It seems to be too large for learners to cope with and even native speakers do not know all of them.

Na and Nation (1985) conducted a study to find the relationship between vocabulary size and reading comprehension. Their participants were 59 ESL teachers in New Zealand who were also ESL students themselves. They were asked to read two English passages, one with 90% vocabulary coverage and another one with 96% vocabulary coverage, and then guessed the meaning of vocabulary in context. The result revealed that participants could guess the meaning of the vocabulary better on the passage with fewer unknown-words. They also found that at least 95% of the vocabulary coverage in a text should be a minimum requirement for the students to understand an academic text. Moreover, for students to know 95% of the vocabulary coverage in a text, a minimum requirement of their vocabulary size should be at least 3000 word families (Nation, 1993).

Laufer (1992, 1996), from her studies with first year university students whose native language was Hebrew or Arabic, confirmed the Liu and Nation's result that 95% of vocabulary coverage in the text was required as a minimum of known-words in order to understand an academic text in an adequate level. She also agrees with Nation (1993) that for student to have known-words of at least 90% to 95% of vocabulary coverage, they needed to have a minimum of 3000 word families.

The studies were conducted more on different types of reading. Hirsh and Nation (1992) studied the vocabulary size needed to read unsimplified texts for pleasure like short novels. They found that 5,000 word-families were needed. Nation and Waring (1997) confirmed the important of vocabulary size again. They stated that L2 learners need words at 3,000 to 5,000 levels in order to comprehend basic English. M. Hu and I.S.P. Nation (2000) conducted a study focusing on the vocabulary size needed to read a fiction text without external support. The result revealed that learners needed up to 98% of text coverage to understand the fiction text without any external supports. In addition, Nation (2006) also found out that to read newspapers, the vocabulary size around 8,000 to 9,000 words is required.

When considering the vocabulary size learners need for reading the second language, it seems that there is such a small chance for learners not to learn the words.

In fact, it seems that learners had better known almost all the words in texts in order to comprehend them.

However, there is one study that shows surprising finding. Gallego and Llach (2009) studied the relationship between receptive vocabulary size and reading comprehension. They mention that the result of this part is surprising. It shows weak correlation between them. It is totally different from the many previous studies that show these two variables have a strong relationship between them. The researchers assume that the test might be higher than learner levels. The reading test was the last test, so learners may be tired and bored as well as knowing that the test score did not affect them. Also, they might not pay much attention while doing the test. The researchers suggest that to make the study's result reliable, some penalties must be applied1to the test takers in order to force them to perform their best for the test. It can be concluded that the researcher still believe that vocabulary size has a relationship with reading comprehension.

In summary, it seems that the best way for learners to be able to comprehend the reading passages effectively as well as be able to better in their other language skills is to know as many words as they can. This reflects back to the earlier point that vocabulary learning is the key to language learning.

As mentioned in Chapter I, there are not many studies of how large Thai undergraduate students' vocabulary size are conducted. Pringprom and Obchuae (2011) conduct a study of on relationship between vocabulary size and reading comprehension. The participants were 30 first-year undergraduate students from Bangkok University who enrolled in the first foundation English course. The result reveals that students scored only 518 words in 2000 word level. This means they know only half of 2,000 word level. Another study (Zhiying, 2007) reported that Thai students' vocabulary size was 3,012 word families. The result from the first study shows that Thai students could not even acquire the 2,000 word level while the second study reveals that Thai students could reach the minimum requirement of vocabulary size. The results are different between two studies; therefore, more insight of Thai undergraduate students' vocabulary size is needed.

In Malaysia, Ibrahim, Sarudin and Muhamad (2016) examined the vocabulary size of 129 pre-university students from International Islamic University, Malaysia

who attended intensive English language program. Vocabulary Level Tests including 2,000, 3,000, 5,000, and 10,000 word level tests were used to measure students' vocabulary size. It was found that around 80% of students acquired 2,000 and 3,000 word level, 54% acquired 5,000 word level and 23% acquired 10,000 word level. Therefore, 20% of students did not make to 2,000 word level.

Harji, Balakrishnan, Bhar and Letchimanan (2015) conducted a study on vocabulary size of 120 Malaysian undergraduate students. Their participants included Chinese, Malay, and Indian students. Vocabulary Level Tests included 2,000, 3,000, 5,000, University Word Level, and 10,000 word level tests were used. The result revealed that from all students, 29.2% acquired 2,000 word level, 17.5% acquired 3,000 word level, 14.2% acquired 5,000 word level, 1.7% acquired University Word Level (above 5,000), and 0.8% acquired 10,000 word level.

Ahmad, Yunus, and Hasan (2016) studied the vocabulary size of thirty-one students from ages 18-21 years old, pre-diploma students at Segamat Campus of Universiti Teknologi MARA (UiTM) Johor. Vocabulary Size Test, 14,000 version developed by Nation and Beglar (2007) was used to measure students' vocabulary size. The results reported the percent of students in each level; 3.2% for below 4,000 word families, 12.9% for 4,000-4,999 word families, 22,6% for 5,000-5,999 word families, 32.3% for 6,000-6,999 word families, 16.1% for 7,000-7,999 word families, 9.7% for 8,000-8,999 word families, 0% for 9,000-9,999 word families, and 3.2% for above 10,000 word families.

Mokhtar et al. (2010) studied the vocabulary size of first-second year university students enrolling in Universiti Teknologi MARA Perlis, Malaysia. The total number of students participating in the study was 360 students. The Passive Vocabulary Test including 2,000 word level, 3,000 word level, 5,000 word level, and University word levels (UWL) developed by Nation (1990) was used. The maximum score is 72; 18 points for each level. Students who gain less than 15 out of 18 of each level are considered as weak. The result reported that numbers of students who are in the weak group of 2,000, 3,000, and UWL that were 324 students, 315 students, and 245 students, respectively. There were only 7 students who passed the 5,000 word level.

In Japan, vocabulary size is also an important aspect. However, McLean, Hogg, and Krame (2014) addressed that there were not many studies of vocabulary size. Less is known about Japanese students' vocabulary size. According to Barrow, Nakanishi, and Nishino (as cited in McLean, Hogg, & Krame, 2014), Japanese university students who were not English major had vocabulary size between 2000 – 2300 word families. The data were collected in 1996 from 1,283 students from various universities using vocabulary familiarity survey.

McLean, Hogg, and Krame (2014) agree that more vocabulary size studies are needed to be conducted. Therefore, they conducted a study on vocabulary size of university students The data were collected from 3,427 undergraduate students from many universities across Japan. They were 1st, 2nd, 3rd, and 4th year students who were studying in English, Science, and Arts majors. The study used Vocabulary Size Test developed by Nation and Beglar (2007). Only the first 8,000 word families were used. The result reported that the mean was 3,715. The minimum score was 500, and maximum score was 7,400. The result from this study was greater than the previous studies.

Shinichi, Yan, and Jie (2014) conducted a study to assess vocabulary size of third-year science-engineering undergraduate students in an ESP program. The total number of students participating was 209. The Vocabulary Size Test with 20,000 word families developed by Nation and Beglar (2007) was used to estimate students' vocabulary size of this group of students. The result revealed that the mean score was 8,600 word families. The maximum and minimum scores were 15,600 word families and 2,000 word families, respectively.

In China, vocabulary size has an important role for university English teaching that aims to develop students' communication competence (Hui, 2004). Hui (2004) indicated that Basic Requirements in College English Syllabus (1999) requires that students should have the vocabulary size of 4200 word families. Hui referred the report of CET committee, from year 2000 to year 2002, only around 50% of Chinese students from main universities could pass the requirement of 4200 word families. Hui stated that in fact, 4200 word families were not a high number of vocabulary size; however, half of Chinese students still could not reach the number.

Zniying (2007) studied the vocabulary size of the first-year undergraduate students of 57 Chinese students and 85 Thai students using the same test adopted from VLT version 1 developed by Schmitt, et al. (2001). The result revealed that the mean score of Chinese students was 3348 word families while the mean score of Thai students was 3021 word families.

Qing and Jiliang (2006) examined the vocabulary size of 76 Chinese first-year undergraduate students and 104 second-year undergraduate students. The instrument was a bilingual Chinese-English version Vocabulary Level Test adopted from the monolingual version of Vocabulary Level Test developed by Nation (1990). The result revealed that the first-year students had the average of vocabulary size at 3834 word families. The second-year students had the average of vocabulary size around 5076 word families. The result showed the students' vocabulary size progress during a year.

Jianbin, Yuedong, and Ying (2007) conducted a study from 914 first-year undergraduate students from three universities. The vocabulary size test included 100 words randomly from 14,585 high frequency words from Collin COBUILD English Dictionary. The average score of students' vocabulary size was 5,617 word families. The average score from two non-key universities was 4,844 word families. The average score from Zhejiang University was 6240 word families.

Na (2015) examined Chinese students' vocabulary knowledge. The total number of students participated was 419 students from four universities. They were second and third year undergraduate students. The Vocabulary Size Test was used to measure students' vocabulary size. The result revealed that the mean score was 6,494 word families. The minimum and maximum scores were 3,400 word families and 11,600 word families.

From many studies in Asia, it shows that Asian students could acquire the minimum requirement of 3,000 word families and some group of students could reach higher levels. Moreover, some studies also demonstrate the students' vocabulary size progress over a year of study. Knowing students' vocabulary size is just a beginning of teachers getting to know their students. The next important step is to find a way to help students expand their vocabulary size and be able to find their way to increase their vocabulary size by themselves as Kamil and Hiebert (2005) state that "The

expansion and elaboration of vocabulary is something that extends across a lifetime"
(p.2). If teachers could not do it, knowing students' vocabulary size could be a useless
tool. Therefore, the next part focuses on teaching and learning vocabulary.

2.3 Vocabulary learning and teaching

As teachers know that vocabulary is an important element for language
learners to master the language, teaching becomes an important tool that helps
learners learn vocabularies, understand deeply about them, and expand their
vocabulary size by themselves when they are not in classrooms. There are many
teaching methods that teachers can use to teach vocabulary. It is not easy for teachers
to decide which methods they are going to use in their classroom. Teachers need
methods that are suitable to students' conditions and needs, and then teaching and
learning can be successful.

Many studies found that direct method and incidental vocabulary learning are
useful and popular methods for vocabulary teaching. The methods have been used for
years. Thus, in this part, direct method and incidental vocabulary learning are
discussed.

2.3.1 Direct Method

Direct method is a method that aims to teach students how to use language to
communicate. Juhaeriyah (2010) explains that direct method helps students to develop
vocabulary and become self-learners who do not need to depend on teachers.
Translation is not allowed in this method because students can learn through
demonstrations, different activities, and visual aids.

According to Marzano (2009), direct method can be divides into three phases
that are: (1) introductory phase, (2) a comparison phase, and (3) a review and
refinement phase. From these three phases, there are six-steps of teaching including:

1. The teacher provides a description, explanation, or example of the new
   term.
2. Students restate the explanation of the new term in their own words.
3. Students create a nonlinguistic representation of the term.

4. Students periodically engage in activities that help them add to their knowledge of the vocabulary term.

5. Periodically, students are asked to discuss terms with one another.

6. Periodically, students are involved in games that allow them to play with the terms.

(Mazano, 2009, p.23)

From these steps, it can be seen that students learn vocabularies through various activities. It is also seen that teachers have an important role to facilitate students. Teachers need to prepare different kinds of activities that help and motivate students to learn. Students also work and interact with each other through the way of learning. It seems to be that direct method stimulates students to work together and learn by themselves. Teachers become facilitators that provide help to students when they need and not act like a center of classrooms anymore. Addressed by Juhaeriryah (2010), with the direct method, students can become self-learners and learn to develop their vocabulary by themselves, and do not need to rely on their teachers.

Many studies were conducted on the use of direct method for vocabulary learning and teachings (e.g. Coyne et al., 2010; Juhaeriyah, 2010; McKeown, Beck, & Sandora, 2012; Pany, Jenkins, & Schreck, 1982; Subon, 2016). Some studies are taken to be discussed in the following paragraphs.

Juhaeriyah (2010) conducted a study on the influence of the direct method in vocabulary teaching. She points out that vocabulary is an important key to achieve in other language skills such as reading and writing. Teaching vocabulary is not an easy thing to do. She mentioned that direct method has been applied to vocabulary teaching for decades. Therefore, her study aims to investigate the influence of the direct method by comparing to grammar translation method. Her participants were 80 first-year students of junior high school. The direct method was used in an experimental class while grammar translation method was used in a controlled class. Pre-test and post-test were used as research instruments. The results revealed that students in the experimental class outperformed the controlled class. It means that direct method has more effective in teaching vocabulary than grammar translation method.

Subon (2016) conducted a study on direct method focusing on systematic and structured proposed contextualized word family model. The participants were 143 secondary-school students. The Productive Vocabulary Level Test: Test A and Test B developed by Laufer and Nation (1999) were used to measure vocabulary size in this study. Students were divided into three groups (advanced, intermediate, and beginners) based on their English proficiency. Test A was used as a pre-test and Test B was used as a post-test. After students took the pre-test, the direct method was applied to their classroom. After that, students took the Test B. The result revealed that students' vocabulary size in all groups of students were higher. It can prove that the direct method helps students to improve their vocabulary size.

From these two sample studies, we can see that direct method has positive effect on vocabulary learning. It helps students to learn vocabulary better and improve vocabulary size. The method can also be used with students in different levels. Therefore, it is a good method that teachers can use and adapt it to suite their students.

2.3.2 Incidental Vocabulary Learning

Another mentioned method is the incidental vocabulary learning. Incidental vocabulary learning is to learn vocabulary through reading. With incidental vocabulary learning, J. Ahmad (2012) explains that student guess the meaning of a new word from context clues. When reading, students often find new words and learn them faster from the context clue. He also addresses that incidental vocabulary learning can promote students' mental processing because when students find a new word, they need to think and rethink about the meaning of that word by using the context clues from reading. To guess the meaning of a word, students cannot look at that word alone. They need to focus on the group of words surrounding that unknown word. Students can learn deeper about that word such as how it is used in a sentence, which words can be used with that unknown word.

Many studies investigate the effect of incidental vocabulary learning (e.g. J. Ahmad, 2012; Batia Laufer & Rozovski-Roitblat, 2011; Yoshii, 2006). Thus, in the following paragraphs, some samples of studies are provided.

The first study was conducted by J. Ahmad (2012). He studied the impact of direct vocabulary learning and incidental vocabulary learning focusing on guessing

the meaning of new words through the contextual clues. His participants were 20 Saudi ESL students. The students were divided into 2 groups. One group took the Intentional Vocabulary Test. The items in the test were presented by their synonyms, substitution of words, definition of words and crossword puzzles. The second group took the Incidental Vocabulary Test. The items in the test were the same as the Intentional Vocabulary Test, but they were presented through paragraph and provided contextual clues for the meaning. Students, therefore, needed to infer the meaning of words through contextual clues. The result revealed that students had better scores on the Incidental Vocabulary Test than the Intentional Vocabulary Test. This result refers that incidental vocabulary learning can help students to learn vocabulary better. Hence, it seems to be a good method for teachers to teach students vocabulary.

Another sample study was conducted by Brown, Waring, and Donkaewbua (2008). The study examined the incidental vocabulary learning through reading, reading while listening, and listening to stories. The participants were 35 Japanese undergraduate students, ages ranged from 18-21 years old. They were asked to read and listen to three stories in the graded-reader form, with approximately 5,500 words long. They were informed that they needed to try to use their background knowledge, context, and co-context to guess the meaning of unknown words. The test items were included in the reading and listening texts. Students needed to complete the test After that, they wrote some comments on their impression and feeling about the stories.

The result showed that the scores of reading only and reading while listening was similar but the scores of listening only were lower. Brown et al. (2008) stated that listening should be the most difficult mode for students to learn vocabulary. They suggested that students can learn more vocabulary from reading than from listening when incidental vocabulary learning was applied.

Consequently, incident vocabulary learning by using reading can be a useful tool for teachers to help students to improve their vocabulary knowledge. It not only helps students to improve their vocabulary knowledge, but it also improves students' mental process. Students need to think and rethink in order to cope with the context clues in reading in order to use them to guess the meaning of unknown words. Therefore, incident vocabulary learning seems to be a good method for vocabulary learning and teaching.

Next, in order to see more insight of the relationship between vocabulary size and reading comprehension, the next topic provides various relevant studies that show the clearer picture of their relationship.

3. The Studies on Vocabulary Size/Breadth and Reading Comprehension

Many studies have conducted on the relationship between vocabulary size and reading comprehension. Some studies use the term vocabulary breadth to refer to the term vocabulary size. The results from various studies mentioned below confirm the relationship between vocabulary size and reading comprehension.

Stæhr (2008) investigated the relationship of vocabulary size and skills of listening, reading, and writing. He found that reading was the skill that relayed most on vocabulary size. The reading score showed the high correlation of 0.83 with the vocabulary size score. He stated that if learners had large vocabulary size, they would be able to comprehend the given texts.

Shen (2008) reviewed some studies related to the relationship between depth and breadth of vocabulary knowledge and reading performance. She made a conclusion that depth and breadth of vocabulary knowledge had high correlation with reading performance. Another study conducted by Weil (2008) examining the relationship between vocabulary size, background characteristics and reading skill of Korean students. He found that students with more hours of English study had larger vocabulary size. Also, the larger vocabulary size students could read the text more quickly and did not rely much on a dictionary.

Baleghizadeh and Golbin (2010) studied the effect of vocabulary size on reading comprehension with 83 Iranian first-year university EFL learners. The result showed high correlation between the two variables. It confirmed that vocabulary size can affect learners' reading comprehension. The researchers concluded that vocabulary size needed to have more attention from teachers.

Pringprom and Obchuae (2011) studied the relationship between vocabulary size and reading comprehension. Vocabulary Levels Test in Thai version was used to measure the first-year university learners' vocabulary size. Then a multiple-choice-question-format reading test was used to assess the learners' reading comprehension performance. The result showed positive correlation between vocabulary size and

reading comprehension. Pringprom (2012) conducted another study of vocabulary size and its relationship with reading comprehension. She collected data from second-year university learners. She found that learners did not have enough vocabulary size to comprehend the written texts. She also compared the vocabulary size of the present study with her previous study. She found that the learners' vocabulary size in both studies were the same. The last point she reported confirmed vocabulary size and reading comprehension performance had a strong relationship with each other. The learners with high vocabulary size test scores had high reading comprehension test scores. She made a conclusion that vocabulary size assessment should be done regularly in order to help improve learners' English skills.

Chou (2011) compared the effects between vocabulary knowledge and background knowledge on reading comprehension. His participants were 159 Taiwanese students. The participants were divided into two groups. One group received a list of vocabulary to study before the test while the other group needed to rely on their background knowledge. The result showed that students with vocabulary knowledge outperformed the group with background knowledge. Thus, he concluded that the more vocabulary students have, the better they read. Vocabulary knowledge would help them to decode and comprehend the reading.

Milton and Treffers-Daller (2013) studied the link between vocabulary size and academic achievement. The participants were three178 undergraduate students from three UK universities, age ranges from 18 to 19. They found that students had smaller vocabulary size than they should have. Therefore, regarding reading comprehension, many students with small vocabulary size must have problems with understanding university level texts.

In conclusion, we have seen that vocabulary size and reading comprehension are related. However, as mentioned in Chapter 1, the reason why these two variables are related to each other is still skeptical because of the lack of empirical research, especially in an EFL context like a Thai contxt. There might be some factors that contribute to vocabulary size and empower reading comprehension. The factors here can serve as mediators between vocabulary size and reading comprehension. Therefore, the next topics are emphasized on mediators and other related issues.

4. Other factors affecting reading comprehension

It is undeniable that there are research studies confirming the relationship between the three mentioned variables in this study, especially the strong relationship between vocabulary size and reading comprehension. That is reading comprehension relies on the vocabulary size. However, as of the researcher's concern, there are other factors affecting reading comprehension. Therefore, in this part of Chapter II, the reading comprehension factors that are related to the present study are students' prior knowledge, inference and motivation.

4.1 Prior knowledge

Prior knowledge or background knowledge is interchangeable terms (Campbell & Campbell, 2009). In general, prior knowledge is defined as knowledge that learners already have before entering the classroom. Biemans and Simons (as cited in Campbell, 2009) define prior knowledge as all knowledge that learners already have and ease them to be able to acquire new knowledge when they come to the class. Peregoy and Boyle (1997) indicate that prior knowledge in reading comprehension refers to prior knowledge of written texts' topic and contents. They explain that prior knowledge on texts' topic and contents helps learners to predict what will happen in a text and help them understand the text better. If a written text contains a less familiar or unfamiliar topic or content, second language learners may face difficulty in understanding the text. They give an example from the learners' knowledge of a fairy tale "Snow White." With the familiar story, it helps learners to understand contents of the story more and be able to predict what is going on in the story.

There are various studies confirm the relationship between prior knowledge and reading comprehension. Stevens (1980) conducted a study with 108 ninth grade students. She assessed students' knowledge by using 100 items of a multiple choice quiz. Her students also completed the two reading comprehension tests; McCall-Crabbs Standard Test Lessons in Reading and Nelson-Denny Reading Test. The first test was used to assess students' prior knowledge and reading comprehension. Then the second test was used to group students as high, medium, and low ability group.

The result reveals that prior knowledge affected reading comprehension in all three groups of different abilities as well as levels of students' abilities also affected reading comprehension. However, prior knowledge had a greater effect on reading comprehension than abilities. Therefore, teachers should aim to aid students with their prior knowledge before giving them a reading text.

Prior knowledge can also be called as world knowledge (Urquhart & Weir, 1998). For reading comprehension, R.C. Anderson and Pearson (1984) explain that comprehension involves with learners' existing knowledge of the world. That is the learners' world knowledge can influent their reading comprehension.

Huang (2006) studied factors that motivated learners to read. His subjects were 212 EFL college business students. The subjects were asked to choose their own preferred reading topics that could motivate them to read. He found that the subjects chose topics they were interested in and familiar with because those topics would be easy for them to understand. The effect of prior knowledge of texts' topics was also found in two studies of Adunarittigun (1996, 2002). His subjects on both studies were Thai graduate students. The results of these two studies were the same that learners had difficulties to understand a written text because they lacked of prior knowledge of the texts they were reading. Therefore, to help learners understand any reading texts better, teachers should begin by giving learners some prior knowledge. Consequently, there is no doubt that prior knowledge is one of the important factors affecting reading comprehension.

However, only prior knowledge or world knowledge alone may not be able to effectively help learners with their reading comprehension. Droop and Verhoeven (1998) indicate that learners also need vocabulary knowledge. Then there could be some connection between vocabulary knowledge and prior knowledge. Anderson and Freebody (1982) proposed three vocabulary knowledge hypotheses. One of the hypotheses is knowledge hypothesis pointing out that vocabulary knowledge and reading comprehension indirectly relate to each other through world knowledge. Kafipour (2011) agrees with this hypothesis and further explains that readers with larger vocabulary size could have more world knowledge since they are able to receive information more easily than the readers with smaller vocabulary size. When readers have less world knowledge, it will be more difficult for them to make guess

from reading passages. That means they could comprehend reading passages less than the readers who have more world knowledge. Moreover, Langer (1981)) addresses that to adequately understand a written text, learners need both sufficient vocabulary and sufficient prior knowledge or world knowledge of the written text's content.

Even though prior knowledge is an important factor for reading comprehension, it is not possible for teachers to instill all knowledge about all things in the world for their students in such a short time. After class, students need to help themselves to fill in their knowledge. It is a teacher job to guide them how to find the knowledge. Therefore, for this present study, prior knowledge was included as one of the reading strategies. The study focuses on students' awareness of using their prior knowledge and how differences of frequency use among students with different proficiency.

4.2 Inference

Inference is one main factor that affects reading comprehension. It is a process or a skill that enables readers to use hints in a text, go beyond surface details and read between the lines to gather information and understand reading better. It is also seen as one of reading strategies. McNamara (2007) states that inference and reading comprehension have shown causal relations to each other. Inference can be divided into two types that are text connecting inferences and gap-filling inferences. Text connecting inferences are the information gathered from different parts of the text while gap-filling inferences involve with information outside of the text that readers bring in to help them understand the text.

Many studies confirm the relationship between reading comprehension and inference (e.g. Kispal, 2008; Silagi, Romero, Mansur, & Radanovic, 2014). Cain and Oakhill (1999) studied the differences between good and poor comprehenders in using their inference skills. The subjects were 7-8 years old children. They were asked to read short stories and answered four inference questions. The result showed that poor comprehenders were poorer at answering the inference questions than the good comprehenders.

Yuill and Oakhill (2006) conducted a study on effects of inference awareness training on poor reading comprehenders. Their subjects were also 7-8 years old

children who had poor reading comprehension. Children had been trained to make inferences from texts and generating questions for 4 weeks. The result showed that children with poor reading comprehension skills could improve more after they were trained to use the inference skills.

Another study conducted by Cromley and Azevedo (2007). They studies different factors of comprehension. Their result showed the three main factors that affected comprehension were background knowledge, inference and vocabulary. Importantly, they addressed that inference would not work well if learners were lack of vocabulary. That is without knowing the meaning of the words, inference skills would be wasted.

As mentioned earlier, inference is one of cognitive techniques in reading strategies, the researcher included inference strategies in the questionnaire of reading strategies.

4.3 Motivation

Learning motivation has played a crucial role on both ESL and EFL learners. In fact, there has been no or little agreement on exact meaning of "motivation" (Oxford & Shearin, 1994) . Generally, Dornyei and Otto (1998) address that the study of motivation is based on the study of human behavior why they do what they do. Since motivation is a broad concept, many motivation theories have been developed by selected a specific variable of motivation as their principle components. This is also applied on conducting a motivation research, it is necessary for researchers to select a theory that could suit their research purpose.

Kimura, Nakata, and Okumura (2001) state that stared around the end of 1980s to the early 1990s, motivation studies paid more attention on the differences between ESL learners and EFL learners. From the studies, the researchers recommended that for EFL environment, instrumental motivation should be a main focus for EFL motivation studies (Dornyei, 1996; Oxford, 1996). According to, to study a language, instrumental orientation is one level of motivation. He divides motivation for language learning into two levels; integrative motivation and instrumental motivation. Integrative motivation involves with the learners' positive view to members of target languages and their desire to communicate or integrate

with those native languages. Instrumental motivation relates to the reasons of learning a language and a belief of a good outcome from learning a language such as a good job or an opportunity to pursue higher education.

Another well-known motivation theory is intrinsic and extrinsic motivation. Donyei (1994) addresses that this motivation theory is the most general one. He explains that extrinsic is the motivation from outside factors such rewards or punishment which affect learners' behavior. On the other hands, intrinsic is the motivation from learners themselves as an internal reward such as to satisfy their curiosity or to enjoy themselves. Moreover, he also states that results from numbers of studies showed that the extrinsic requirement for a task could cause students to lose their intrinsic motivation.

Long, Ming, and Chen (2013) state that when students have learning motivation, they would pay more attention in learning in order to master the target language. Al-Qahtani (2013) also found that students' motivation correlated to their achievement of learning. She reports that both integrative and instrumental motivations were used by her students as they realized the important role of English language.

5. Mediator: Definitions and related issues

Mediators are intervening variables or generative mechanisms that help independent variables to influent dependent variables (Baron & Kenny, 1986). The independent variables can be called the predictors while the dependent variables can be called criteria. A mediator is a variable that explains how and why a relationship between a predictor and dependent variable exists (Holmbeck, 1997). Shadish and Sweeney (1991) point out that "the independent variable causes the mediator which then causes the outcome" (p. 883). Here is the diagram that explains the relationship between these three variables:
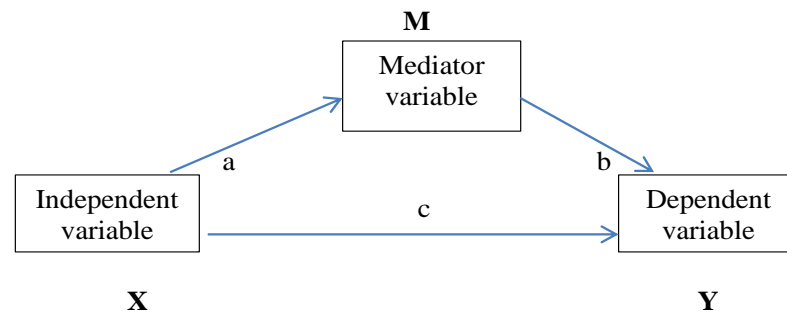
From the diagram, Baron and Kenny (1986) explain that path "c" is the direct effect between X and Y. X and Y effect can be mediated by M, then the paths "a" and "b" shows the indirect effect between X and Y. The M as a mediator is called intervening or process variable. In the case that variable M is controlled and cause variable X no longer affects variable Y, then path "c" becomes zero (c'), this is called *complete mediation.* In another case that even variable M is controlled but variable X still affects variable Y, this is called partial mediation. Moreover, a mediator could only cause the outcome, not vice versa.

In order to establish the mediation, Barron and Kenny (1986) state that the effect of variable X to variable Y needs to be proved first by using regression equation. Variable X will be used as a predictor while variable Y will be used as criteria. If the result shows the causal relation between the two variables, then it could be presumed that there might be a mediator between these two variables. The next step is to prove if M can be a mediator between variables X and Y. So M will be set as criteria and X will be set as a predictor. After that, both variables X and M will be used as predictors while variable Y will be used as criteria. The last step is to confirm if M could be a mediator by controlling the effect of variable M on variables X and Y. The result from the last step could show that M could be a complete mediator or partial mediator.

Baron and Kenny (1986) also add that a mediator could also act as a moderator. They explain that a moderator is a qualitative or quantitative variable that strengthen the effect between independent and dependent variables. Even though there is no moderator, the relationship between independent and dependent variables still exists.

Moreover, Muller, Judd, and Yzerbyt (2005) have introduced five models that relate a mediator or a moderator. Those models are moderated mediation. Moderated mediation occurs when there are other variables that affect the relationship between an independent variable and a mediator variable or the relationship between a mediator variable and a dependent variable. Those variables are called a moderator.

The first model is when the independent variable is also a moderator between a mediator and a dependent variable. The second model is a new variable becomes a moderator between an independent variable and a mediator. The third model is a new variable becomes a moderator between a mediator and a dependent variable. The fourth model is a new variable becomes a moderator of both the relationship between an independent variable and a mediator as well as the relationship between a mediator and a dependent variable. The last model is two new variable become moderator of two different relationship. That is one new variable moderates the relationship between an independent variable and a mediator while the other new variable moderates the relationship between a mediator and a dependent variable.

It is concluded that mediation and moderation could be related to each other. Besides, a mediator also acts as a moderator or becomes a moderator in some relationship of independent and dependent variables. It is also clear that a mediator acts as a link between an independent variable and dependent variable, and for this study, vocabulary size is the independent variable while reading comprehension is the dependent variable. Therefore, the key for this study is to find out what factors that can be mediators between these two variables. Finally, after reviewing the literature, the researcher has included the three factors as mediators for this study that are:

    (1) vocabulary depth,

    (2) reading strategies, and

    (3) vocabulary learning strategies.

6. Three Mediators between Vocabulary Size and Reading Comprehension

6.1 Vocabulary Depth and its Relation to Vocabulary Size and Reading

 Comprehension: Definition and Related Studies

As mentioned previously, vocabulary depth is one of vocabulary knowledge emphasizing on the quality of vocabulary knowledge or how well learners know the words (Qian, 1999). In this topic, related studies are provided.

Kaivanpanah and Zandi (2009) focused their study only on the role of vocabulary depth in reading comprehension. The result of this study showed that vocabulary depth was significantly related to reading comprehension.

Farvardin and Koosha (2011) conducted a study on the relationship of vocabulary breadth and depth on reading comprehension. The result from the study showed that firstly, the depth and breadth of vocabulary knowledge were positively correlated. They played important role to reading comprehension as they held the power to predict learners' reading comprehension performance. However, the result revealed one different point – vocabulary breadth was a stronger predictor than the vocabulary depth. Moreover, when combining the depth and breadth, a better result for learners' performance was shown.

Mehrpour, Razmjoo, and Kian (2011) aimed to investigate the relationship between vocabulary depth and breadth, role of vocabulary depth and breadth with reading comprehension, and the relationship between learners' gender with reading comprehension and vocabulary knowledge. The result showed that vocabulary depth and breadth had positive correlation, and they could be used to predict learners' reading proficiency. The researchers also reported differently from the previous one that "vocabulary depth is a stronger predictor of reading comprehension performance than vocabulary breadth is" (p. 121). Learners' gender did not have any impact on both vocabulary knowledge and reading comprehension. Moinzadeh and Moslehpour (2012) also focused their study on the relationship between depth and breadth of vocabulary knowledge and reading comprehension. Their result supported Farvardin's and Koosha's (2011) study that there was a positive relationship among depth and breadth. Vocabulary breadth was a better prediction for reading comprehension

performance. Moreover, the very recent study conducted by Kameli and Baki (2013) also supports these previous studies.

These studies have shown that there are positive relationship between the vocabulary size, depth, and reading comprehension. It is obvious that vocabulary knowledge, size and depth, contribute the reading comprehension. However, the relationship between vocabulary size and depth is not so clear. Qian (1998, 1999) and Schmitt and Meara (1997) agree that vocabulary size and depth are interrelated and interdependent. That means they support each other. However, Vermeer (2001) identifies that learners know more words first and then they will be able to know them in depth. Moreover, Chen (2011), from her study, also found that leaners with larger vocabulary size seem to enhance their knowledge on vocabulary depth. Consequently, this study aimed to investigate this certain point of the relationship between vocabulary size and depth by proving if vocabulary depth can play a role as a mediator between vocabulary size and reading comprehension.

The next topic focuses on the second mediator between vocabulary size and reading comprehension. That is reading strategies.

6.2 Reading Strategies and its Relation to Vocabulary Size and Reading
      Comprehension: Definition, Classification, and Related Studies

Reading comprehension is an active process that readers consciously and unconsciously use various strategies including prior knowledge, cognitive and metacognitive process, and clues between the lines in order to infer writers' intention (Johnson, 1983). Various strategies here refer to reading strategies as one important element involving in reading process. Therefore, reading strategies can refer to a tool that learners use to solve problems and acquire new information from a text (Barnett, 1988). They are a psychological process that learner use to complete a reading task (Cohen, 1990). Block (1986) indicates that reading strategies involve "how readers conceive a task, what textual cues they attend to, how they make sense of what they read, and what they do when they do not understand" (p. 465). She adds that good readers are aware of the use of strategies and can flexibly use them. On the contrary, poor readers are not aware of their own strategies use and cannot be able to adjust the use of strategies.

In order to capture what reading strategies L2 learners use are, Block (1986) assures that process-oriented research is required. She describes that process-oriented research involving with two types of verbal reports that are retrospective and introspective. Introspective reports gather information obtained during reading. Therefore, they present a clear picture of what happens while learners are reading. Thorndike (as cited in Block 1986) addresses that "reading may also be considered a kind of problem-solving activity" (p. 464).

Reading strategies, generally, are classified into two main categories that are cognitive and metacognitive (Ozek & Civlek, 2006). Cognitive strategies are used to help construct meaning from a written text (Sani, Chik, Nik, & Raslee, 2011). The cognitive strategies include "repetition, directed physical response, translation, grouping, note-taking, deduction, recombination, imagery, auditory representation, key words, contextualization, elaboration, transfer and inference" (O'Malley & Chamot, 1990 p. 40).

Phakiti (2006) established a model of cognitive and metacognitive use in EFL learners. His participants were 358 Thai undergraduate students who studied in a government university. The result revealed that cognitive strategies involve with three main strategies, namely comprehending strategies, retrieval strategies, and memory strategies. Comprehending strategies related to meaning, translating, identifying main points, skimming and scanning. Retrieval strategies consisted of using grammar, using prior knowledge, using multi-strategies, and connecting relevant information. Memory strategies related to memorize information and tasks by making notes, devoting time, repetition, and understanding and remember tasks.

Metacognitive strategies, as defined by R. L. Oxford (1990), are "actions which go beyond purely cognitive devices, and which provide a way for learners to coordinate their own learning process" (p. 136). Baker and Brown (1984) refer the term "metacognition" to learners' knowledge and control used with their thinking and learning activities. It consists of two main components, namely 1) an awareness of skills, strategies, and resources needed to perform a task; and 2) ability to use self-regulatory mechanisms such as checking the outcome, evaluating the action, testing, revising, and remediating in order to ensure that learners perform an activity successfully (p. 22). O'Malley and Chamot (1990) identify metacognitive strategies as

higher strategic skills involving with cognitive strategies that include processes and regulation of cognition, self-management, planning for learning, monitoring and self-evaluating after completing a task. Thus, they classify metacognitive strategies into planning, monitoring, and self-evaluation. Phakiti (2003) agrees that metacognitive strategies involve with monitoring and regulation of cognitive process. He indicates that metacognition is "the notion of thinking about thinking" (p. 29). In his study, he classifies metacognitive strategies into planning and monitoring strategies.

Mokhtari and Sheorey (2002) developed a reading strategy questionnaire in order to measure ESL learners' metacognitive awareness and perceived use of reading strategies. In order to develop this particular questionnaire, they classified metacognitive strategies into three main categories consisting of global reading strategies, problem solving strategies, and support strategies. Each category is explained below:

- Global Reading Strategies (GLOB) are those 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. These are localized, focused techniques used when problems developed in understanding textual information; examples include adjusting one's speed of reading when the material become difficult or easy, guessing the meaning of unknown words, and rereading 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, underlining, or highlighting textual information. (Mokhtari & Sheory, 2002, p. 4)

Mokhtari's and Sheory's classification of metacognitive strategies is clear, easy to understand and covers the wide range of metacognitive strategies. Therefore, in this present study, this framework is used to adapt the reading strategies questionnaire.

As the definitions and classifications of reading strategies already given, it is essential to investigate how reading strategies are important, especially in this study, how they related to reading comprehension and vocabulary size. Can they possible be a mediator between vocabulary size and reading comprehension? Consequently, the next topics present notions and previous studies related to relationship of these three variables.

6.2.1 The Studies on Relationship between Reading Strategies and Reading Comprehension

Many studies that confirm the relationship between reading strategies and reading comprehension (e.g. Barnett, 1988; Oyetunji, 2011;Phakiti, 2003; Zhang & Seepho, 2013). They reveal that reading strategies positively affect learners' reading comprehension. Some sample studies are presented here to confirm their relationship.

Barnett (1988) studied reading strategies used that affected L2 reading comprehension. The participants were 278 fourth-semester French students. The research divided students into two groups. One group was trained with reading strategies while the other one was not. The result showed that students who were trained with reading strategies had higher ability to read through contexts and understand contexts better. Moreover, students in the reading strategies training tended to use more strategies and enjoy learning about strategies.

Phakiti (2003) compared the relationship between cognitive and metacognitive strategies and EFL reading comprehension. Similar to Barnett's study (1988), the result from his study confirmed the relationship among reading strategies and reading comprehension even though only cognitive and metacognitive strategies were used in this study. His participants were 384 Thai undergraduate students whose ages ranged from 17 to 21. The research instruments were a cognitive and metacognitive questionnaire and reading comprehension test. He found that the use of cognitive and metacognitive strategies had shown a positive correlation with reading

comprehension. Besides, the result showed that highly successful students used higher metacognitive strategies than the moderately successful one, and moderately ones reported to use higher metacognitive strategies higher than unsuccessful ones.

Another kind of reading strategies was invested by Oyetunji (2011). The study investigated the effects of reading strategy intervention. One of her main objectives was to examine the relationship between strategy intervention and reading comprehension. Her participants were thirty-two ESL second-year college students at Lobatse Colledge of Education in Bostswana. They were divided into two classes; a control class and an intervention class. The research instruments included reading strategies questionnaire adopted from Mokhtaru and Reichard's questionnaire (2002) and a reading comprehension test. The finding revealed that students in the intervention class outperformed the control class on their comprehension test comparing the scores of two classes before the intervention. The research concluded that strategy intervention improved students' reading comprehension as well as their strategies use.

Similar to Phakiti (2003), Zhang and Seepho (2013) investigated the relationship between metacognitive strategies and academic reading achievement. The participants were thirty-three EFL third-year undergraduate students studying English major at Guizhou University in Southwest China. The instruments they used were Metacognitive Strategy Questionnaire, semi-structure interview, and reading comprehension test. The result showed positive correlation between metacognitive reading strategies and reading comprehension achievement. That was students who used more metacognitive strategies scored more on reading comprehension. Moreover, students with different proficiency levels applied metacognitive strategies differently. The result from this study is similar to Phakiti's study (2003) that metacognitive strategies positively affect reading comprehension.

Gilakjani and Sabouri (2016) reviewed various studies on reading comprehension skills and reading strategies of EFL learners. They found that reading strategies had strong effect on reading comprehension. That was reading strategies helps learners to understand texts easier. However, learners needed different reading strategies to help them during their reading process. They needed to be able to select an appropriate reading strategy to help them comprehend a reading text.

In conclusion, according to the results from research studies above, it is proved that reading strategies have a strong connection on reading comprehension. Reading strategies are an essential element that possibly helps learners to improve their reading comprehension. The line that connects between reading strategies and reading comprehension is quite clear. Now, in order to improve learners' reading comprehension even better, it is necessary to refer back to the learners' vocabulary size as it definitely has a high impact on reading comprehension. However, a question raising here is whether vocabulary size could have any effect on reading strategies and then turns reading strategies into a mediator between vocabulary size and reading comprehension. The next sections are described their relationship and related studies.

6.2.2 The Studies on Relationship between Vocabulary Size, Reading Strategies
    and Reading Comprehension

First of all, Nation (1990) and B. Laufer (1997) address that vocabulary size is related to the application of reading strategies. According to a threshold hypothesis proposed by Cumming (1976), he indicates that there may be a threshold level of linguistic competent that affects L2 learners' cognitive function and benefits learners who have adequate L2 skills. Therefore, vocabulary also has its threshold. With the relation to reading strategies, Laufer (1997) mentions that a vocabulary threshold or threshold vocabulary refers to how many words learners need to know in order to apply higher reading strategies. She explains that not only learners with the threshold level below struggle with comprehension of reading, but they also are not capable of applying higher reading strategies to help them cope with the reading. Even though learners may possess effective reading strategies in their first language, with their limited vocabulary size, they would not be able to transfer those strategies to use with L2 reading.

On the other hand, Laufer (1997) asserted that learners with vocabulary threshold level above would not have any problem of using reading strategies as well as understanding a reading text. Hence, B. Laufer (1992a) had conducted a study earlier and found that learners needed at least 3,000 word families or 5,000 lexical items to be able to transfer their reading strategies from L1. If learners had less than 3,000 word families, the transfer L1 strategies would be difficult.

Ting (2011) investigated the relationship between vocabulary size, reading strategies, reading attitude, reading comprehension, and writing. His participants were 111 EFL Taiwanese senior-high school learners. He divided learners into three groups consisting of less proficient (G1), intermediate proficient (G2), and high proficient (G3). Nation's Vocabulary Level Test at 1,000 to 3,000 word level was used as well as a reading awareness and reading attitude questionnaire. The result of the study showed that G3's vocabulary size score outperformed G2 and G1, and G2 outperformed G1. For the relationship with reading comprehension, learners with higher vocabulary size scores also had higher reading comprehension scores. Besides, the use of reading strategies also showed significant relationship with reading comprehension scores. High proficient learners used more strategies than the less proficient learners; thus, their reading comprehension scores were higher. In conclusion, vocabulary size affects learners' proficiency while learners' proficiency affects reading strategies use. Furthermore, the reading strategies continue to affect reading comprehension. The study clearly provides the link between vocabulary size, reading strategies, and reading comprehension.

Juan et al. (2013) conducted a study aiming at the relationship between vocabulary threshold and word guessing strategy used in reading comprehension learning. His participants were eighty pre-university Chinese students in Malaysia. The Schmitt's Vocabulary Level Test was used in the study. The result showed that learners needed at least 3,500 words level in order to use the word guessing strategy effectively.

From the above studies, it definitely can see some relationship between vocabulary size, reading strategies, and reading comprehension. However, there are just a few studies focusing on this area. Therefore, the researcher believes that it is essential to gain more insight on reading strategies and its relationship to vocabulary size and reading comprehension with learners in higher levels or different groups. In fact, for the best of my knowledge, there is not a study on the relationship between these three variables in Thailand. Consequently, this study aims to explore more on different kinds of reading strategies and to prove if reading strategies can be a mediator between vocabulary size and reading comprehension.

Then the next topic will emphasize on the last mediator, vocabulary learning strategies, and its related studies.

6.3 Vocabulary Learning Strategies and its Relation to Vocabulary Size and
     Reading Comprehension: Definition, Classification and Related Studies

Vocabulary learning strategies (VLS) are various definitions given by many scholars. First of all, vocabulary learning strategies are considered as a subcategory of language learning strategies (Jurkovic, 2006; Kafipor, 2010 ; Nation, 2001). Rubin (1994) defines VLS as "the process by which information is obtained, stored, retrieved, and used" (as cited in Schmitt, 1997, p. 203).N. Schmitt (1997) adopts Rubin's and defines that "VLS could be any which affect this rather broadly-defined process" (p. 203). Cameron (2001) refers VLS as "action that learners take to help themselves understand and remember vocabulary (p. 92). Asgari and Mustapha (2011) state that VLS are steps that language learners take in order to acquire new vocabulary. The last definition taken from Intaraprasert (2004) defines VLS as "any set of techniques or learning behaviors, which language learners reported using in order to discover the meaning of a new word, to retain the knowledge of newly-learned words, and to expand their knowledge vocabulary" (p. 9).

Furthermore, VLS are also classified in different ways by different scholars. First, Cohen (1990) classifies VLS into three categories that are strategies for remembering words, semantic strategies, and vocabulary learning and practicing strategies. Rubin and Thompson (1994) classify VLS as direct approach, use mnemonics, and indirect approach. Gu and Johnson (1996) classify VLS into eight categories that are: (1) beliefs about vocabulary learning, (2) metacognitive regulation, (3) guessing strategies, (4) dictionary strategies, (5) note-taking strategies, (6) memory strategies, (7) activation strategies. Lawson and Hogben (1996) have four main categories that are repletion, word feature analysis, simple elaboration, and complex elaboration. Weaver and Cohen (1997) classify VLS in six categories including categorization, keyword mnemonics, visualization, rhyme, language transfer, and repetition. In the same year, Schmitt (1997, 2000) developed VLS taxonomy based on Oxford's language learning strategies (R. L. Oxford, 1990). The taxonomy includes discovery strategies and consolidation strategies.

Later, Hegde (2000) provides two main categories of VLS that are cognitive strategies and metacognitive strategies. Cook (2001) also divides VLS into two categories, namely strategies for getting meaning and strategies for acquiring words. In the same year, Nation (2001) introduces VLS taxonomy referring to planning, sources, and processes. The last one is from Intaraprasert (2004). VLS are classified into three main categories consisting of strategies to discover the meaning of new vocabulary items, strategies to retain the knowledge of newly-learned vocabulary items, and strategies to expand the knowledge of vocabulary items.

In this study, Schmitt's taxonomy of vocabulary learning strategies (1997, 2000) is used as a framework for vocabulary learning strategies questionnaires. Therefore, the next paragraphs are given a summary of the taxonomy.

6.3.1 Schmitt's Taxonomy of Vocabulary Leaning Strategies

The taxonomy was developed based on Oxford's language learning strategies (1990) as mentioned previously. The taxonomy classifies VLS into two main categories; discovery strategies and consolidation strategies. Discovery strategies are used to discover meaning of new words. The strategies consist of determination strategies and social strategies. Determination strategies include guessing meaning from learners' own structural knowledge of the language, guessing from an LI cognate, guessing from context, and using reference material. Social strategies are asking someone else who knows the words.

Schmitt (2000) explains that learners' structural knowledge of language refers to their knowledge about words' part of speech, root, or affixes. LI cognates are words form learners' first language. If their LI is close to their target language, they are some similarities that learners could use their LI knowledge in guessing meaning of new words in the target language. Guessing form context refers to "inferring a word's meaning from the surrounding words in a written text" (p. 209). However, in order to use this strategy, learners are required to have sufficient language proficiency and be able to decode orthographical form of new words accurately (Ryan, as cited in Schmitt, 2000). They also need background knowledge and strategic knowledge to help them with the inferring process. At last, using reference material is another strategy to help learners discover meaning of new words. Scholfield (as cited in

Schmitt, 2000) addresses that dictionaries are a primary source to discover meanings of new words. Both monolingual and bilingual dictionaries are used in this strategy.

Language learners also turn to the social strategies to discover meaning of new words. Schmitt (2000) explains that social strategies refer to asking someone like teachers, classmates, or friends to tell them meaning of new words. He states that teachers are often the main source in this fostering strategy. However, answers from teachers who know learners' first language may create some errors. The fact is that meaning of a word in a target language may not be able to translate into learners' LI exactly in only one word. Therefore, Schmitt points out that "some erroneous knowledge may be transferred" (p. 210). Likewise, this problem can also happen when learners ask words' meaning from their classmates or friends.

The other main VLS from Schmitt's taxonomy is consolidation strategies. These strategies are used to learn or practice words that have been encountered. They contain social strategies, memory strategies, cognitive strategies, and metacognitive strategies

Schmitt (2000) explains that social strategies used to learn and practice new words involve with group works, teachers, or native-speakers. For memory strategies, learners may use pictures, related words, unrelated words, word grouping, words' orthographical or phonological forms, or a structural analysis of words. Cognitive strategies, in fact, are similar to the memory strategies, but they focus on repetition, using mechanical means, and using study aids. Metacognitive strategies are strategies learners use to control and evaluate themselves. These are strategies that learners use to exposure their target language such as reading newspaper, watching movies, or interacting with native-speakers.

With the summary of Schmitt's VLS taxonomy above, it shows that the taxonomy covers a very wide range of VLS. It would contain high potential to capture fineness data on VLS. As a result, the research has decided to adapt VLS questionnaire based on Schmitt's VLS questionnaire.

6.3.2 The Studies on Relationship between Vocabulary Learning Strategies, Vocabulary Size, and Reading Comprehension

As mentioned in Chapter I, vocabulary learning strategies can be one important mediator between vocabulary size and reading comprehension. Firstly, there are many studies that confirm the relationship between VLS and vocabulary size (e.g.Asgari & Mustapha, 2011; Gu, 2010; Gu & Johnson, 1996; Kafipor et al., 2011). Those studies report that VLS can help learners learn and increase their vocabulary size. For example, Gu (2010) conducted a study on the changes of VLS and how they were related to vocabulary development. His participants were 100 Chinese EFL undergraduate students from fourteen universities who were going to attend a university in Singapore. They needed to take a six-month English program to prepare themselves for English-medium instruction in a Singapore university. VLS questionnaires and Nation's Vocabulary Level Test were used. At the end of the program, the result showed that the vocabulary size increased along with the changes of VLS use.

Another example is taken from Kafipor, Yazdi, Soori, and Shokrpour (2011). Their study was on relationship between vocabulary level and VLS. His participants were EFL junior undergraduate Iranian students. They found that the vocabulary level and VLS were significant correlated. Vocabulary level increased with higher number of VLS. The result showed the direct effect of VLS to learners' vocabulary levels.

In turn, Nation (2001) states that vocabulary size can also contribute to the use of vocabulary learning strategies. Kafipor (2011), according to the dual coding theory (Paivio, 1971 as cited in Kafipor, 2011), agrees that vocabulary knowledge has an effect on vocabulary learning strategies. In order to use vocabulary learning strategies effectively, learners need sufficient vocabulary knowledge level. In the study, he investigated the effect of VLS on vocabulary size and reading comprehension. His participants were 250 EFL second-year undergraduate Iranian students. The result showed positive correlation between VLS, vocabulary size, and reading comprehension. For the relationship between VLS and vocabulary size, his study also reported the same result as previous studies that VLS contributed to vocabulary size. His study did not focus on the other way around as he previously referred to the dual coding theory. Furthermore, his study also revealed the relationship between VLS and

reading comprehension. He found that 23 VLS were positively related to reading comprehension. That means these VLS could help learners with their reading comprehension.

Kafipor's study (2011) seems to be the only study that investigates the relationship between VLS, vocabulary size, and reading comprehension. Therefore, this study aims to explore more on their relationship. That are whether vocabulary size could encourage VLS, whether VLS can contribute to reading comprehension, and whether VLS can mediate between vocabulary size and reading comprehension.

In conclusion, from the entire literature review in this chapter, the main aim is to draw the attention to the importance of the relationship between all five variables; vocabulary size, vocabulary depth, reading comprehension, reading strategies, and vocabulary learning strategies. In order to see clearly about their relationship, the researcher intends to establish a model that represents the relationship of these variables. Therefore, Structural Equation Modeling (SEM) will be used to create the model.

7. Structural Equation Modeling (SEM)

In order to investigate the mediators between vocabulary size and reading comprehension, SEM will be used to analyze the data. These mediators are vocabulary depth, vocabulary learning strategies, and reading strategies. The model will be created to show a clearer picture of their relationship. Consequently, Structural Equation modeling (SEM) is a statistic technique used to analyze the causal relations of the data and create the model.

The researcher has decided to use SEM because SEM is a powerful technique that helps in analyzing causal relationship of a variety of independent and dependent variables at the same time (Purpura, 1997). The model uses a combination of different statistical data to analyze data. Bentler (1992) identifies SEM as "useful methodology for specifying, estimating and testing hypothesized interrelationships among a set of substantively meaningful variables" (p. ix). Lei and Wu (2007) state that "SEM can be used to study the relationships among latent constructs that are indicated by multiple measures" (p. 33). It can be used to both confirmatory and exploratory modeling. SEM can adjust a model to fit with the empirical data.

Tseng and Schmitt (2008) explain that in order to establish an SEM model, the first step is to identify variables that will be included in the model. This is based on literature review. After reviewing literature, a hypothesized model needs to be proposed and submitted for its empirical test.

Lei and Wu (2007) address that SEM involves with two main models that are *the path model* and *the measurement model*. A path model is the path analysis that involves with various multiple regression models. This characteristic of SEM could make an effective way to modeling indirect effects, mediation, and other complex relationship between various variables. Thus, the path analysis can also be called a causal modeling. The mediator effect happens in the path analysis. In SEM, a mediator is a variable that serve as both independent variable and dependent variable in a causal hypothesis.

For the measurement model, Lei and Wu explain that the measurement model observes the latent variables. The statistic technique that is widely used for the measurement model is factor analysis in both confirmatory and exploratory.

Like Tseng and Schmitt (2008), Lei and Wu (2007) state that the first step of SEM analysis is to specify the model. When the model is specified, it will go to data collection, model estimation, model evaluation, and finally model modification.

Consequently, in the present study, various variables are included. From the literature review, there are five variables including vocabulary size, reading comprehension, vocabulary depth, reading strategies, and vocabulary learning strategies. The independent variable is vocabulary size while dependent variables are reading comprehension. Vocabulary depth, reading strategies, and vocabulary learning strategies could also be both independent and dependent variables. That is they are dependent because they are influenced by vocabulary size; in fact, they also are independent as they influence reading comprehension. Thus, they could be served as mediators between vocabulary size and reading comprehension.

As mentioned previously, the aim of the study is to investigate the relationship between these five variables. Moreover, the model developed in this study is considered as an exploratory model because there is not any prior hypothesis for the model. The model will be adjusted to fit with the empirical data. As a result, regarding these specifications of the present study, SEM is a suitable statistic method.

8. Chapter Summary

In summary, this chapter provided essential information regarding vocabulary size, reading comprehension, vocabulary depth, reading strategies, and vocabulary learning strategies including the method to analyze the data—SEM. Vocabulary size is the main key that has effects to other variables. First of all, it mainly relates to reading comprehension as it help students to understand reading better. It also relates to vocabulary depth. If vocabulary size is larger, vocabulary depth is better as well. When students have better vocabulary depth, their reading comprehension can be more effective as well. For reading strategies and vocabulary learning strategies, vocabulary size enables students to use more strategies effectively. Students who can use reading strategies and vocabulary learning strategies effectively, their reading comprehension can also be better.

This chapter also points out that to be better in reading comprehension, vocabulary size may not be an only factor that affects reading comprehension. There seems to be other factors namely vocabulary depth, reading strategies, and vocabulary learning strategies that can mediate the relationship between vocabulary size and reading comprehension. It means that they can help vocabulary size to work more effective with reading comprehension. In order to prove the causal relationship among these variable, the SEM analysis is the method that is widely used to analyze the casual relationship among various variables. It is also a suitable method for mediation analysis.

CHAPTER III
RESEARCH METHODOLOGY

This chapter provides a description of research methodology employed in the present study. Details are provided on the context of the study, ethical issues, participants of the study, research instruments, procedures of data collection, and procedures of data analysis.

3.1 Context of the study

Based on my teaching 17 years of teaching experience, academic reading skills seem to be a main problem that students face with because they cannot understand what they are reading. In the academic environment, students need to read a lot of English textbooks. Most of the time, a reason of not being able to understand reading comes from not knowing meaning of many words in a reading passage. Developing students' reading is one of the main purposes of the fundamental English class because students need to read many English texts while they are in university and also in their future. As Thai students do not have many chances to contact to English native speakers, the researcher believes that reading can also be a tool that brings students closer to English since students can read anywhere and anytime.

In order to help students improve reading, as mentioned in Chapter II that reading is mainly related to vocabulary size, the main key is to know students' vocabulary size first. As also mentioned in Chapter II, there are other factors affecting reading comprehension and possibly mediating the relationship among vocabulary size and reading comprehension as well. The researcher believes that teachers know only vocabulary size of students could not be enough, but it could be seen as the first step of helping students. Teachers need to consider some other factors as mediators between vocabulary size and reading comprehension as well. Therefore, teachers should aim to increase students' vocabulary size as well as instill or improve the mediators among vocabulary size and reading comprehension.

As a result, the purposes of this study are to examine vocabulary size and its relationship to reading comprehension as well as to investigate mediators between

vocabulary size and reading comprehension. The mediators focused on in the study are vocabulary depth, reading strategies, and vocabulary learning strategies. These variables are selected based on the research synthesis which can be seen in Chapter II.

3.2 Ethical issues

Since the present research study involved with human subjects (participants), their right is an important issue that needs to be concerned. The researcher followed the research ethics of International Language Testing Association (ILTA) (2000) in order to protect and not to violate the research participants' right. In general, Fouka and Mantzorou (2011) address that "ethics involve requirements on daily work, the protection of dignity of subjects and the publication of the information in the research" (p. 4). Indeed, for language testers, International Language Testing Association (ILTA) (2000) identifies 9 fundamental principles of the Code of Ethics.

International Language Testing Association (2000) explains the principles that mainly relate to research participants. First of all, language testers need to respect participants' humanity and dignity by not discriminating against or exploiting participants' background information. Participants' information is confidential. If they need to share participants' information, it must be on their professional judgment. Sexual relation is unethical.

Furthermore, participants have their right for their decision to participate or refuse to participant in a research study. Before participating in a research, participants need to be informed that they are free to refuse or withdraw from participation at all time and their refusal to participate does not affect the quality of language testers' service as well as themselves. They also need to be informed about all research details and procedures in order to help them making decision to participate or not participate the research.

During doing a research study, if the research brings some risks or makes discomfort to participants, it needs to be stopped or modified. Moreover, language testers need to be sure that their publication of research results is accurate and does not reveal the participants' identifications.

From these participants' right issues, Fouka and Mantzorou (2011) state that informed consent is an essential ethical issue. Informed consent means to promote

participants' right to participate in a research. Participants can decide to voluntary participate in a research only if they understand what a research is conducted for and how a research is conducted as well as know what risks and benefits might happen. They also know that refusal and withdrawal from a research will not affect them anything. Then participants need to sign a consent form in order to confirm that they understand what they are going to do and voluntary participate in a research.

3.3 Participants of the study

In order to generalize the result of the study, the stratified random sampling technique was used to select the sample. Stratified random sampling was used when a study requires to have samples from different sub-divisions, but share the same attributes or characteristics. The process started from identifying sampling frame, and then strata (groups) were chosen. The number of samples was calculated to get a proportional number of sub-groups in the strata. After the number of samples in each sub-group was identified, the researcher used the simple random technique to select the samples from the strata.

Therefore, in this study, the researcher started from identifying the sampling frame that was Thai first-year-undergraduate students who studied in Thai universities across Thailand. The participants were both male and female students whose ages ranged from 18 to 20 years old with holding nine to fifteen or more years of English learning experience. Their first language was Thai. Then the main strata chosen in this study was the type of universities including public and private universities in Thailand.

As this study decided to use SEM for data analysis; therefore, SEM as it was a large sample technique, generally, the sample size should not be least than 200, but at least 400 are preferable (Lei & Wu, 2007). The number of samples was calculated based on the total number of the first year students from year 2012, which was the latest information from Office of the higher Education Commission. The total number was 314,144 students. There were 249,997 students who were studying in public universities and 64,147 students who were studying in private universities. Therefore, the number of each sub-group including private and public universities, was calculated to get a proportional number. The result from the calculation showed that

public university students were 79.58% of all first students, and private university students were 20.42% of all first year students. When calculated from the total sample size of 400 students (for public universities; (400x79.58) ÷ 100, and for private universities; (400x20.42) ÷100), the result showed that the samples from public universities should be at least 318 students. The samples from private universities should be at least 82 students. In total, there are 400 students.

Therefore, the simple random sampling was use as the last stage of stratified random sampling. The total of public universities in Thailand was 32 universities and the total of private universities was 49 universities. Then four public and three private universities were randomly selected. With the awareness of possibly losing some participants at the end of the study, the researcher decided to collect data from more than 400 students. Hence, the total number of the samples was 484 students; 106 students from three private universities, and 378 students from public universities.

After the data were analyzed, 30 students were selected for semi-structured interview. Based on their vocabulary size, students were divided into three groups: 1) the vocabulary size of lower than 3,000 word families, 2) the vocabulary size of 3,000 word families, and 3) the vocabulary size of above 3,000 word families. The first, second and third groups were categorized as low, middle and high level groups, respectively. The researcher randomly selected 10 students from each level group.

3.4 Research design and procedures

The study was a quantitative research in combination of qualitative data based on the semi-structured interview to add on more details in order to provide clearer information for the research questions. The study aimed to investigate the first-year undergraduate students' vocabulary size, the relationship among vocabulary size and reading comprehension, and the mediators among vocabulary size and reading comprehension.

The study consisted of two phrases.

Phrase 1: Developing the research instruments

Phrase 1 aimed to develop the research instruments. The instruments were developed to find the results for the three research questions. The developed instruments were first validated by three experts and revised. After that, the pilot

study was conducted to try out the instruments for their validity and reliability. Before started trying out, participants were informed of their right to attend the research and to withdraw their participation at all time. Then they were asked to sign the consent form (see Appendix A) to prove that they understood about their right and voluntary participated in the present research. After the trying out finished, the instruments were analyzed for their reliability and were revised again before using with the main study.

Phrase 2: Main study

For the main study, the data were collected from selected samples during the first semester of academic year 2014. The data were collected from four public universities and three private universities. The data from each university were collected in different time during the first and second months of the first semester of academic year 2014. The participants were also informed for their right and asked to sign the consent form. The participants were encouraged to do their best in order to test themselves on their English proficiency. The research instruments were distributed to participants one at a time.

3.5 Research instruments

There were six research instruments in this study:

1) Vocabulary Size Test (I.S.P. Nation & D. Beglar, 2007),

2) Depth of Vocabulary Knowledge Test (D.D. Qian & M. Schedl, 2004),

3) Reading Comprehension Test (developed by the researcher),

4) Reading Strategies Questionnaire adapted from Schmitt (1997),

5) Vocabulary Learning Strategies Questionnaire adapted from Mokhtari and Sheorey (2002) and Phakiti (2006), and

6) Semi-structured interview.

The development of research instruments are described in the paragraphs below.

3.5.1 Vocabulary Size Test (Bilingual Version)

The Vocabulary Size Test (VST) using in this study was developed by Nation and Beglar (2007). The test contains 100 items in a 4-multiple-choice format. The original test consisted of 140 items in a 4-multiple-choice format. It was divided into fourteen levels. Each level contained ten items. Nation and Beglar developed the test based on the British National Corpus's word family frequency lists (Nation, 2006). The list provides words that were frequency used and language learners should know in order to be able to comprehend reading. The first level included the first ten items representing the first 1,000 frequently word use. The next level contained more difficult words. The degree of difficulty would increase as the level increased.

Each item contained a word with a sentence using that word. The sentence did not give any clue to the word in order to see that students really knew that word without any help from contexts. Students needed only their vocabulary knowledge to complete the test. Moreover, in order to avoid students' guessing, students were instructed first that they must answer only the items that they truly knew the meaning. They could skip the ones that they did not know the meaning.

Nation and Beglar (2007) explain that the test contained 140 items and each item was worth 1 point, so the total score of the test was 140. When calculating the score, the score was multiplied by 100 to find the learners' total vocabulary size. For example, if a learner had a score of 30 out of 140, it meant that the learner's vocabulary size was 3,000 word families.

The Vocabulary Size Test developed by Nation and Beglar (2007) have been used by many studies earlier in order to predict students' language abilities especially reading abilities. Elgort (as cited in Nation and Beglar, 2007) found that the bilingual version test would allow students to gain a better score up to 10% higher because test takers did not need to struggle with grammar used in English definition. Test takers may choose a wrong answer because they did not understand English definition choices.

Therefore, in this study, the choices of VST were translated into Thai. Before the bilingual version was used, it was verified by three experts who were in the field of English language instruction and professional translator. The test was evaluated

regarding its content and translation from English to Thai of each item. Each item was rated on -1 to 1 scales using the following criterion:

-1 = inappropriate,

0 = not sure,

1 = appropriate.

The items that had the mean score below 0.5 were revised. The results from the experts' judgment showed that most items regarding its content and translation were acceptable with the IOC index ranging from 0.66 - 1.00; however, some items were revised based on the experts' suggestion. An example below was taken from the 3,000 level of the test.

Original: 8. **Dash**: They **dashed** over it.

a. moved quickly เคลื่อนที่อย่างเร็ว

b. moved slowly เคลื่อนที่อย่างช้าๆ

c. fought ต่อสู้

d. looked quickly มองดูอย่างเร็ว

Experts' suggestion: 8. **Dash**: They **dashed** over it.

a. moved quickly เคลื่อนที่อย่างรวดเร็ว

b. moved slowly เคลื่อนที่อย่างช้าๆ

c. fought ต่อสู้

d. looked quickly กวาดตาดูอย่างรวดเร็ว

In this item, there were 2 points that were changed. The first point was the Thai translation of Choice A. It was changed from "เคลื่อนที่อย่างเร็ว" to "เคลื่อนที่อย่างรวดเร็ว." The second point is Choice D changed from "มองดูอย่างเร็ว" to "กวาดตาดูอย่างรวดเร็ว."

Then the Vocabulary Size Test: Bilingual Version (see Appendix C) was tried out first with 40 students. The researcher used purposive sampling to choose the samples for the pilot study. These 40 students were in the ages range between 17-20 years old, graduated from high schools and would be the first year students in the first semester of 2014 the same as the participants in the main study. Kuder-Richardson Formula 20 was used to measure the internal consistency reliability. The result of the test was 0.976. Even though the test was widely used, when using in Thai context, the

researcher analyzed the test items for item difficulty and item discrimination. Then, 40 items from the Vocabulary Size Test were removed as they were too difficult and too easy. Those items were the following:

First 1000, items 1, 2, 5, and 7;

Second 1000, items 2, 8, 9, and 10;

Third 1000, items 1 and 7;

Fourth 1000, items 5, 7, and 8;

Fifth 1000, items 5 and 9;

Sixth 1000, item 8;

Seventh 1000, items 2 and 9;

Ninth 1000, items 6, 7, 9 and 10;

Tenth 1000, items 2, 6, 8 and 9;

Eleventh 1000, items 6, 7, and 9;

Twelfth 1000, items 9 and 10,

Thirteen 1000, items 1, 3, 4, 5 and 10; and

Fourteen 1000, items 4, 6, 7 and 9

Therefore, 100 items were left and used for the main study (see Appendix D).

Table 1 shows some samples of the revised test:

Table 1

Samples of revised Vocabulary Size Test: Bilingual Version

English Version (original version)	Bilingual Version (Thai version)
Level 1	
Figure: Is this the right <**figure**>?	**Figure**: Is this the right <**figure**>?
a. answer	a. คำตอบ
b. place	b. สถานที่
c. time	c. เวลา
d. number	d. ตัวเลข
Level 2	
Upset: I am **upset**.	**Upset**: I am **upset**.
a. tired	a. เหนื่อย
b. famous	b. มีชื่อเสียง
c. rich	c. รวย
d. unhappy	d. ไม่มีความสุข

These two samples show that each item aims to measure only the vocabulary knowledge by avoiding students to use other skills to choose the correct answer of each item. The bilingual version is parallel to the original one.

The scores of the test were interpreted using instruction from Nation and Beglar (2007). The result of students' vocabulary size was reported by dividing vocabulary size into ten levels regarding students' vocabulary scores. Based on Nation and Beglar (2007), the scores in this study were interpreted using the following criteria:

0 – 9 points	= less than 1,000 word families	50 – 59 points	= 5,000 word families
10 – 19 points	= 1,000 word families	60 – 69 points	= 6,000 word families
20 – 29 points	= 2,000 word families	70 – 79 points	= 7,000 word families
30 – 39 points	= 3,000 word families	80 – 89 points	= 8,000 word families
40 – 49 points	= 4,000 word families	90 – 99 points	= 9,000 word families

For the further analysis for the research question 3, students were divided into three different proficiency levels including low, middle, and high proficiency. According to, Laufer (1992), Liu and Nation (1985) and Nation and Waring (1997),

students needed to know at least 3,000 word families as a minimum to comprehend for the unsimplified text. Moreover, regarding, the requirement of Thailand's Basic Education Core Curriculum B.E. 2551 (A.D. 2008) prescribing that Thai students who graduated from the high school or Grade 12 (Education of Thailand, 2008) should have vocabulary size of around 3,600 – 3,750 word families which falls in the range of 3,000 word families. Therefore, students who had the vocabulary size less than 3,000 word families were categorized as low level students. Students with 3,000 – 3,999 word families were categorized in the middle level and 4,000 and more word families were categorized as the high level.

3.5.2 Depth of Vocabulary Knowledge Test

Depth of Vocabulary Knowledge Test (DVT) used in this study was developed by D.D. Qian and M. Schedl (2004). This test had been proved its reliability by comparing its scores with the TOEFL vocabulary items and reading comprehension part. The scores from the test were correlated with scores of TOEFL vocabulary items and reading comprehension part.

The depth of vocabulary refers to how deep students know about a word. It is not only the meaning of a word (Moghadam, Zainal, & Ghaderpour, 2012). In fact, it relates to pronunciation, spelling, syntactic and semantic relationship with other words such as collocation, synonym and hyponym (Chapelle, 1998). Therefore, the Depth of Vocabulary Knowledge Test (DVT) was developed to measure students' vocabulary depth knowledge. The test consisted of 40 items which headwords were adjectives (see Appendix E). Each item had eight choices that only four choices were the correct answers relating to the headwords. Thus, the total score was 160 points. Each item did not provide any clues in order to capture students' real knowledge and avoid the use of other skills such as reading skills or strategies.

The eight choices of each item were divided into two columns to measure different aspects of vocabulary depth. The left-hand column contained a synonym or antonym of the headword. The right-column contained some related words to the headword. Students needed to choose four correct answers from eight options. The answers could be in both columns or only one column. Again, to complete the DVK, students were instructed that they answered only the items that they were sure of and

skip the ones they did not know. They did not need to guess the answer. This was to be assured that the students' scores did not come from their guessing.

Here are some examples of the test:

1. **Sound**

(A) logical	(B) healthy	(E) snow	(F) temperature
(C) bold	(D) solid	(G) sleep	(H) dance

The answers are A, B, D, and G. That is "logical," "health," and "solid" sharing the meaning of "sound." In the left-hand column, "sleep" is the only word that can be said with the word "sound."

2. **fake**

(A) fabulous	(B) imitation	(E) fur	(F) experience
(C) splendid	(D) counterfeit	(G) attraction	(H) identity

The answers are B, D, E, and H. That is "imitation," and "counterfeit," sharing the meaning while "fur" and "identity" are related words with "fake."

3. **accurate**

(A) exact	(B) helpful	(E) error	(F) event
(C) responsible	(D) reliable	(G) memory	(H) estimate

The answers are A, D, G, and H. That is "exact" and "reliable" sharing the meaning while "memory" and "estimate" can be used with "accurate."

In order to do the DVT, students need to use their knowledge of vocabulary depth. Students need to know more than the meaning of the headwords in order to answer each item correctly. They need to know the headwords' synonym or antonym, related words, as well as recognize word spelling. Therefore, the DVK was not translated into Thai. This English version was used.

Before using, the test was validated for its content and construct validities by three experts in the field of English language instruction. The mean scores of the index of consistency (IOC) of 40 items ranged from 0.66 – 1.00. The items that had 0.66 were items 7, 12, 31, 37, and 38. The experts stated that some choices were not appropriate and items 37 and 38 were too difficult for the first-year undergraduate students. However, the researcher decided to make any change to those items since their mean scores were higher than 0.55. Moreover, the experts noted that students may not be familiar with the format of the test. It needed to be sure that students understand what to do to complete the test. Therefore, the researcher needed to explain the test's instruction well before let the student do the test.

After that DVK was piloted with the same group of students who took the VST. The test was analyzed for its reliability using Cronbach's alpha coefficient to measure the internal consistency reliability. The result of the test was 0.938. Each item was analyzed for item difficulty and item discrimination. From that, 5 items were taken out including items 3, 26, 34, 37, and 38. Therefore, the revised DVK contained 35 items with the total score of 140 points (see Appendix F).

3.5.3 Reading Comprehension Test

Reading Comprehension Test (RCT) was developed by the researcher. The test had 40 items consisted of six reading passages with different length; 2 short passages, 2 medium passages, and 2 long passages. Each passage was calculated for text readability based on Coleman-Liau index. All passages ranged from Grade 10 to Grade 13 (college level). The readability index calculated the text based on the grade levels of students in the United State. The grade levels were based on students' ages. If students were over 17 years old, they were in the college level. Hence, for this study, since students were around 17 – 20 years old and were not English native speakers, their English proficiency would not be as equal as the native. Therefore, the reading passages in the test were ranged from Grade 10 to Grade 13, the entry level of college. Passages 1, 3, and 6 were Grade 10, passages were Grade 12, and passage 4 and 5 were Grade 13.

The first developed RCT consisted of 45 items (see Appendix G). Passages 1 and 2 contained 6 items each. Passages 3 and 4 contained 10 items each. Passages 5

contained 9 items, and finally, Passage 6 contained 4 items. The test was in in multiple-choice format as it was familiar to all students. Moreover, it was also a practical method to administer and score for a large number of test takers. Before using, the test was validated from three experts who were in the English instruction field for its content and construct validity to be sure that each item in the test could reflect students' reading ability. Table 2 demonstrates the result of experts' evaluation of RCT.

Table 2

Mean scores of experts' evaluation of RCT

Items	Objectives	Mean
Passage 1		0.66
1	Reading for specific information	1.00
2	Reading for specific information	1.00
3	Inference	1.00
4	Guessing unknown word	1.00
5	Synthesizing	1.00
6	Identifying a main idea	1.00
Passage 2		1.00
7	Synthesizing	0.66
8	Reading for specific information	1.00
9	Identifying meaning of a key word	1.00
10	Synthesizing	0.66
11	Reading for specific information	0.66
12	Identifying a main idea	1.00
Passage 3		1.00
13	Synthesizing	1.00
14	Identifying the meaning of a key word	1.00
15	Reading for specific information	1.00
16	Synthesizing	1.00
17	Guessing the meaning of unknown words	1.00
18	Reading for specific information	1.00
19	Summarizing	1.00
20	Summarizing	0.66
21	Identifying a main idea	1.00
22	Identifying the title	1.00
Passage 4		1.00
23	Identifying a main idea	1.00
24	Guessing the meaning of unknown words	1.00
25	Summarizing	1.00
26	Reading for specific information	1.00
27	Synthesizing	1.00
28	Reading for specific information	1.00
29	Guessing the meaning of unknown words	1.00
30	Identify the title	1.00
31	Summarizing	1.00
32	Synthesizing	1.00
Passage 5		0.66
33	Synthesizing	1.00
34	Reading for specific information	1.00
35	Identifying a main idea	1.00
36	Summarizing	1.00
37	Guessing the meaning of unknown words	1.00
38	Reading for specific information	1.00
39	Guessing the meaning of unknown words	1.00
40	Synthesizing	1.00
41	Identifying the title	0.66
Passage 6		1.00
42	Identifying the meaning of a key word	1.00
43	Reading for specific information	1.00
44	Summarizing	1.00
45	Identifying the meaning of unknown words	1.00

The test was revised upon the experts' suggestion, mostly on the choices of each item. Then the RCT was piloted with the same group of students who took VST and DVK. Kuder-Richardson Formula 20 was used to measure the internal consistency reliability. The result was 0.99. The test items were calculated for items difficulty and item discrimination. Five items were removed from the test as they

were very difficult. Those items were items 2, 5, 10, 16 and 38 (See Appendix H). Finally, RCT contained 40 items in total.

Here are some sample questions of the Reading Comprehension Test, the questions taken from Passage 2:

6. From the passage, what is not Thai people's occupation?

   a. farmer   b. landlord

   c. fisherman   d. rubber tapper

7. What is the meaning of "**staple**"?

   a. unique   b. good quality

   c. routinely eaten   d. growing easily

8. Which influence of being Theravada Buddhists does not appear in the   passage?

   a. Thai people believe in faith.

   b. Monks are everywhere in Thailand.

   c. Many temples are built in Thailand.

   d. There are many Buddhist festivals in Thailand.

These three questions were taken from the reading passage 2. The main aim of these items was to capture students' reading comprehension. For questions 6 and 8, students needed to be able to identify specific information from the reading. For question 7, students needed to be able to guess the meaning of the word. Students gained 1 point for each correct answer; thus, the total score of RCT was 40 points.

3.5.4 Vocabulary Learning Strategies Questionnaire

Vocabulary Learning Strategies Questionnaire (VLSQ) was adopted from Schmitt (1997) which was a widely use questionnaire for many studies for both EFL and ESL students, especially in Asian countries. The questionnaire developed under five strategies that were determination strategies, social strategies, memory strategies, cognitive strategies, and metacognitive strategies. From the literature review, Schmitt's VLSQ seemed to cover a very wide range of vocabulary learning strategies.

The first part of the questionnaire asked students to provide their demographic background including their name, genders, ages, high school information, and the

length of English study. Then the next part, as the main, contained 43 items on students' vocabulary learning strategies using a 5-point Likert scale (never, seldom, sometimes, often, always) as an answer for each question. Items 1 to 10 were determination strategies, items 11 to 13 and 14 to 17 were social strategies, items 18 to 32 were memory strategies, items 33 to 39 were cognitive strategies, and items 15, and 40 to 43 were metacognitive strategies. After students finished the main part, the questionnaire provided an open-ended question for students to add their comments and suggestion at the end.

However, in order to use VLSQ in Thai context, some items needed to be adapted. Furthermore, the VLSQ was translated into Thai to avoid students' misunderstanding the meaning of items. If students misunderstand any items, it could affect the result of the study. Therefore, the Thai version VLSQ was used.

VLSQ was translated into Thai, and was validated by three experts who were in English language instruction filed and professional translator for content validity and accuracy of translation. The questionnaire was revised following the experts' suggestion. The mean scores of the experts' evaluation were 0.66-1.00. The items 4, 19, 21, 29, 43, and 47 had the mean score of 0.66 regarding their translation. Therefore, they were revised based on the experts' suggestion. The questionnaire contained 43 items and was piloted with the same pilot group. The result was analyzed for its reliability using Cronbach Alpha Coefficient. The alpha coefficient for the 43 items was 0.94, interpreting that the items had high internal consistency (see Appendix I). Table 3 demonstrates some sample items from the VLSQ:

Table 3

Samples of vocabulary learning strategies

Statements	Never	Seldom	Sometimes	Often	Always
A. When I find a new English word that I don't know, I …... เมื่อฉันพบคำศัพท์ใหม่ที่ฉันไม่รู้ความหมาย ฉันจะ.....					
1. Use an English-English dictionary to discover the meaning of new vocabulary items ใช้พจนานุกรมอังกฤษ-อังกกฤษ เพื่อค้นหาความหมายของศัพท์ใหม่					
2. Ask classmates or friends to discover the meaning of new vocabulary items. ถามเพื่อนร่วมชั้น หรือ เพื่อน เพื่อค้นหาความหมายของศัพท์ใหม่					
B. When I want to remember new words, I…... เมื่อฉันต้องการที่จะจำคำศัพท์ใหม่ ฉัน......					
3. Say a single vocabulary item with its meanings repeatedly to retain the knowledge of newly-learned vocabulary items. ท่องศัพท์คำนั้นพร้อมกับความหมายของมันหลายๆ ครั้ง เพื่อจะได้จำคำศัพท์ใหม่นั้นได้					

3.5.5 Reading Strategies Questionnaire

Reading Strategies Questionnaire (RSQ) was adapted from Survey of Reading Strategies (SORS) developed by Mokhtari and Sheory (2002). This questionnaire has been used in many studied conducted on students' reading strategies. Reading strategies mainly rely on students' cognitive and metacognitive strategies. SORS is the questionnaire that contains a various aspects of cognitive and metacognitive reading strategies. It was developed to capture students' reading strategies by dividing reading strategies into three main categories, namely Global Reading Strategies, Problem Solving Strategies, and Support Reading Strategies (see Appendix J).

Some items in the questionnaire were adapted to fit with Thai students as well as some items were added in order to make the questionnaire valid. The questionnaire was translated into Thai as it was easy for Thai students to understand and

appropriately answer each item. For validity issue, the questionnaire was validated was validated by three experts who were in English language instruction filed and professional translator for content validity and accuracy of translation. The mean scores of the experts' evaluation ranged from 0.66-1.00. The items that had the mean score of 0.66 were items 3, 5, 8, 14, 18, 20, 28, and 33. The correction for their translation was made based on the experts' suggestion. Then, the questionnaire was piloted in order to confirm its reliability using Cronbach Alpha Coefficient. The alpha coefficient for the 56 items was 0.85. Table 4 demonstrates some samples of Reading Strategies Questionnaire:

Table 4

Samples of Reading Strategies Questionnaire

Type	Strategies	Never	Seldom	Some times	Often	Always
SUP	I take notes while reading to help me understand what I read. ฉันจะจดโน๊ตขณะอ่านเพื่อช่วยให้ฉันเข้าใจสิ่งที่อ่าน					
GLOB	I think about what I know to help me understand what I read. ฉันคิดถึงสิ่งที่ฉันรู้จักเพื่อที่จะช่วยฉันให้เข้าใจสิ่งที่อ่าน					
PROB	I read slowly but carefully to be sure I understand what I'm reading. ฉันอ่านช้าๆ แต่อย่างระมัดระวัง เพื่อให้แน่ใจว่าฉันเข้าใจสิ่งที่กำลังอ่าน					

3.5.6 Simi-structure Interview

A semi-structured interview was conducted to gain more insight about students' reading strategies and vocabulary learning strategies. The interview questions were developed to recheck students' answer of their strategies (see Appendix K). The questions were validated by three experts who were in the English language instruction field. Table 5 illustrates the experts' evaluation of the semi-structure interview questions.

Table 5

Mean scores of experts' evaluation of the semi-structure interview

Items	Mean
1. คุณรู้สึกอย่างไรเกี่ยวกับการอ่าน	0.66
(How do you feel about reading?)	
2. คุณใช้ความพยายามแค่ไหนในการอ่าน	0.66
(How much effort do you put when reading ?)	
3. กลยุทธ์ในการอ่านใดที่คุณชอบใช้ที่สุด	0.66
(What is your favorite reading strategy?)	
4. อะไรคือสิ่งแรกที่คุณทำเมื่อเริ่มอ่าน	1
(What is the first thing you do when you start to read?)	
5. คุณจะทำอย่างไร เวลาที่คุณไม่รู้คำศัพท์ในเวลาที่อ่าน	1
(What do you do when you do not know the meaning of words when you read?)	
6. เมื่อคุณพบว่าเรื่องที่คุณอ่านนั้นยากขึ้น คุณจะทำอย่างไร	1
(When the text becomes difficult, what do you do?)	
7. กลยุทธ์ในการเรียนรู้คำศัพท์ใดที่คุณชอบใช้	0.66
(What is your favorite vocabulary learning strategy?)	
8. เมื่อคุณพบคำศัพท์ใหม่ที่คุณไม่รู้ คุณจะทำอะไรเป็นสิ่งแรก	1
(When you find a new word that you do not know, what is the first thing that you do?)	
9. คุณมีวิธีในการจำคำศัพท์อย่างไร	1
(What do you do to remember a new word?)	
10. คุณมีวิธีในการเพิ่มความรู้คำศัพท์ของคุณอย่างไร	1
(How do you build your vocabulary?)	

The test was revised based on the experts' suggestion. After analyzed the results from Vocabulary Size Test and Reading Comprehension Test, some questions were revised (see Appendix L).

Thirty students were selected and interviewed by the researcher. The students were chosen based on their vocabulary size scores. Thus, ten students from high proficiency, 10 students from average proficiency, and 10 students from below average proficiency were interviewed by phone upon their convenience.

4. Data collection

The main study began in the first semester of year 2014. The research instruments that were adapted from the pilot study were used. The procedure of the main study was the same as the pilot study.

The data were collected from three private universities and four public universities. The total number of student from private universities was 106 students. Two private universities were located in Bangkok. One private university was located in Pathum Thani. The total number of students from four public universities was 378 students. Three public universities were located in Bangkok and one from the southern part of Thailand.

Frist, the researcher explained the objectives of the study and how important of the study was. Then the researcher asked students to sign the consent form first to confirm that they understood the purpose and whole process of the study. The students were asked to complete VS, DVK, and RC first. Then they were asked to fill in VLSQ and RSQ later.

Before doing each test, the researcher explained how to complete each test first and gave some time to them to ask questions before doing the test. After that VS was distributed first, followed by DVK and RC. After they finished the tests, they completed the VLSQ and RSQ.

After the scores of all tests and the answers from the questionnaires were analyzed, 10 students from each level, including low, middle and high, were chosen for interview focusing on their use of reading strategies, vocabulary learning strategies, and effort of doing the reading test. The interview was done by phone. The levels of students were based on their vocabulary size. Students with less than 3,000 word families were placed in the low level group. Students with 3,000 – 3,999 word families were placed in the middle level group while student with 4,000 or higher word families were placed in the high level group. During the interview, some questions were added based on their answer on the questionnaire. Some students had different questions added in order to find if they gave an honest answer in the questionnaire.

After the interview, the data were analyzed by content analysis regarding the frequency use of strategy use of students from different proficiency levels.

Moreover, after the data were collected, the research instruments were analyzed for their reliability again. KR 20 formula was used to analyze VS, DVK and RC. The result of VS, DVK, and RC was 0.91, 0.89, and 0.94, respectively. Then

Cronbach Alpha Coefficient was used to measure the reliability of VLSQ and RSQ. The result of VLSQ and RSQ was 0.92 and 0.94, respectively.

5. Data analysis

The data analysis is described below:

5.1 The data from Vocabulary Size Test (VS), Depth of Vocabulary Knowledge Test (DVK), and Reading Comprehension Test (RC) were put in the Statistical Packages for Social Sciences (SPSS) program. The data were analyzed for their descriptive statistics in order to obtain their means score ranges, and standard deviation. The purpose was to find out the intercorrelations among learners' scores on the three different tests. Moreover, it was to examine to what extent scores on each test contribute to each other. Pearson product-moment was used to analyzed the data. The strength of the correlation coefficient is interpreted based on Evan's guide (1996) as follows:

.00 - .19 = very weak

.20 - .39 = weak

.40 - .59 = moderate

.60 - .79 = strong

.80 – 1.0 = very strong

5.2 The data from Reading Strategies Questionnaire (RSQ) and Vocabulary Learning Strategies Questionnaire (VLSQ) were typed in the SPSS program. The program analyzed for frequency use of strategies. The purpose was to find out how different strategies related to learners' vocabulary size and reading comprehension.

In order to see a clearer picture, a model was created. The researcher used the Structure Equation Model (SEM) to build a model of the relationship between vocabulary size and reading comprehension. SEM is a useful effective technique. Tseng and Schmitt (2008) point out that SEM is a "multivariate statistical technique that allows a set of relationships to be examined simultaneously" (p. 360). Therefore, it is a technique that fits to the study with various variables.

The proposed model in this study was a confirmatory model that was analyzed by SEM using the Mplus program. The data were taken from the SPSS program as a data file manager. The SEM defined latent variables and established the relationship between each latent variable. A model was created to show the relationship between the independent variable and dependent variable with their three mediators. The expected relationship was in four different paths. The first one was the direct effect between vocabulary size and reading comprehension. The other three paths was the indirect effect between the independent variable, dependent variable, and moderators that are:

1) vocabulary size → vocabulary depth → reading comprehension,

2) vocabulary size → reading strategies → reading comprehension, and

3) vocabulary size → vocabulary learning strategies → reading comprehension.

Observed variables were analyzed to confirm the construct validity of latent variables. To measure the observed variable, single-level confirmatory factor analysis (CFA) was used to analyze the construct validity. To analyzed the construct validity of latent variables, the goodness of fit of the model was measured using the Mplus Version 6.1. The observed variables that were not significant were removed before the model of latent variables was adjusted to fit the empirical data based on modification indices. For this study, the criteria for empirical data and model fit was taken from Kwan and Walker (2003) and Handen, Rosen, and Gustafsson (2004). The criteria are demonstrates on Table 6the following.

Table 6

Criteria of model fit

Goodness of fit index	Criteria
1. χ^2/df	*<2.00*
2. *Trucker-Lewis Index (TLI)*	*>0.96*
or Non-Normed Fit Index (NNFI)	
3. *Comparative Fit Index (CFI)*	*>0.96*
4. *Root Mean Square Error of*	*<0.050 = good*
Approximation (RMSEA)	*0.051-0.080 = moderate*
	0.081-0.100 = weak

	>0.100 = very weak
5. Standardized Root Mean Square	*<0.050*
Residual (SRMR and SRMRB)	

The model was modified to improve fit by rotating the factor matrix. The modification indices were used as a guide for modification.

5.3 For semi-structured interview, the responses from the semi-structured interview regarding the subjects' views on the use of reading and vocabulary learning strategies were later analyzed to confirm the use of strategies.

6. Proposed model

The figure below was an proposed model for this study. However, it was adjusted later to better fit with the empirical data.
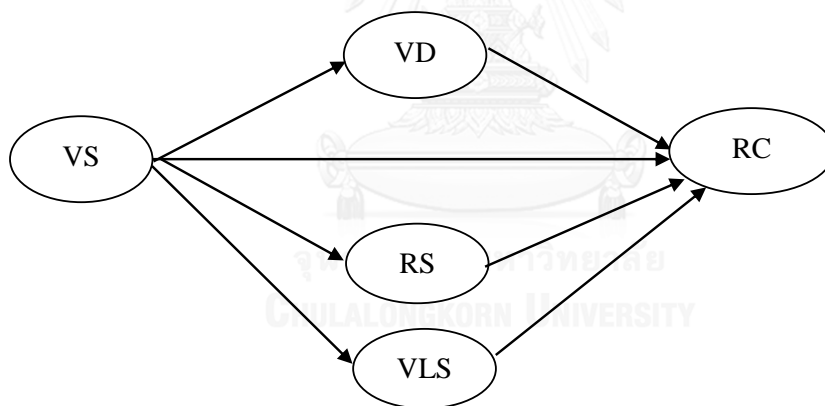
VS = Vocabulary size, RC = Reading comprehension, VD = Vocabulary depth, RS = Reading strategies, VLS = Vocabulary learning strategies

Figure 1

Proposed model of mediators between vocabulary size and reading comprehension

This proposed model was created from the literature review regarding the pair relationships. This is because less is known about the mediators between vocabulary size and reading comprehension. Therefore, the model was created based on the pair relationship of all variables including:

(1) vocabulary size and reading comprehension,

(2) vocabulary size and vocabulary depth,

(3) vocabulary depth and reading comprehension,

(4) vocabulary size and reading strategies,

(5) reading strategies and reading comprehension,

(6) vocabulary size and vocabulary learning strategies, and

(7) vocabulary learning strategies and reading comprehension.

Therefore, this model was a confirmatory model. From the model, VS was the independent variable and reading comprehension was the dependent variable. VD, RS, and VLS were latent variables that served as mediators between VS and RC. The observed variable of VS was the Vocabulary Size Test including 100 items. The observed variable of RS was the Reading Comprehension Test consisting of 40 items. The observed variable of VD was the Depth of Vocabulary Test consisting of 35 items. Then for the observed variables of RS and VLS were a set of Reading Strategies Questionnaire consisting 56 items and Vocabulary Leaning Strategies consisting of 46 items. The model demonstrated the direct effect of VS to RC and indirect effect of VS to RC by passing VD, RS, and VLS.

8. Chapter Summary

Chapter III emphasizes on the research methodology. The chapter describes context of the study in order to give in-detail information why this study needs to conduct. Then subjects of the study and research instruments are explained and justified. Furthermore, data collection and data analysis are also described. Finally, the chapter ends with the proposed model.

CHAPTER IV

RESULTS

This chapter demonstrates the results of the present study. The results answer the three research questions posted in Chapter I. The chapter is divided into four parts. The first part reports the demography information of the first-year undergraduate students who participated in this study. The next part reports the result for the research question 1, followed by the results for the research question 2 and researcher question 3.

Part I: Demographic Information

The data presented in this study were collected from 484 first-year undergraduate students from four public universities and three private universities. The demographic information includes genders, ages, types and regions of high schools, and yeas of English study. Table 7 demonstrates the data of their demography information.

Table 7

Distribution of first-year undergraduate students' demographic information in terms of genders and ages (n=484)

Genders	n	Percent	Ages	n	Percent
Females	326	67.4	17 years old	21	4.3
Males	158	32.6	18 years old	282	58.3
			19 years old	153	31.6
			20 years old	28	5.8

From Table 7, the first-year undergraduate students participating in this study were 326 females and 158 males. Most of them were 18 years old (58.3%) and 19 years old (31.6%). Only 58.8% were 20 years old.

Table 8

Distribution of first-year undergraduate students' demographic information in terms of types of high schools and locations of high schools (n=484)

Types of high school	n	Percent	Regions of high school	n	Percent
Public	378	78.1	Bangkok	179	37.0
Private	106	21.9	Other provinces	305	63.0

Table 8 describes that three hundred and seventy-eight students graduated from public high school (78.1%) while one hundred and six students (21.9%) graduated from private high schools. One hundred and seventy-nine high schools (37%) were located in Bangkok, and three hundred and five high schools (63%) were located in other provinces across Thailand.

Table 9

Distribution of first-year undergraduate students' demographic information in terms of years of English study (n=484)

Years of English study	n	Percent
Less than 9 years	26	5.4
9 years	18	3.7
10 years	25	5.2
11 years	3	0.6
12 years	125	25.8
13 years	36	7.4
14 years	36	7.4
15 years	127	26.2
More than 15 years	88	18.2
Total	484	100.0

Table 9 demonstrates that the majority of students studied English for 15 years (26.2%), followed by 12 years (25.8%) and more than 15 years (18.2%).The number of years of English study is different because students started learning English in a

different school grade. For example, students who studied English for more than 15 years began their English studied since kindergarten. In contrast, students who studied English less than 9 years would begin their English study when they were in a secondary school. Therefore, students have different years of English study.

Next, the following parts demonstrate the result of this study based on the three research questions starting from research question 1, 2, and 3, respectively.

Part II: Research Question 1

Research Question 1: How large is the vocabulary size of the first-year undergraduate students?

Table 10 demonstrates the mean score of first-year undergraduate students' vocabulary size of this present study.

Table 10

Mean score of first-year undergraduate students' vocabulary size (n=484)

	Mean	SD	Minimum	Maximum
Vocabulary size	42.72	17.88	4	94

From Table 10, the mean score of students' vocabulary size is 42.72 points or 4,272 word families. The minimum score is 4 points or 400 word families. The maximum score is 94 points or 9,400 word families.

The result answers the research question 1 that first-year undergraduate students' vocabulary size is around 4,272 word families which are placed in the 4,000 word level. This result shows that students were able to pass the 3,000 word level that is the minimum requirement for basic reading comprehension (B. Laufer, 1989, 1992a; Nation, 1993; Nation & Waring, 1997; Nu & Nation, 1985).

Part III: Research Question 2

Research Question 2: What is the relationship between vocabulary size and reading comprehension of first-year undergraduate students?

To find the relationship between vocabulary size and reading comprehension, Reading Comprehension Test was used as a research instrument to collect the data. There were 40 items with the total score of 40 points. The result shows in Figure 1.
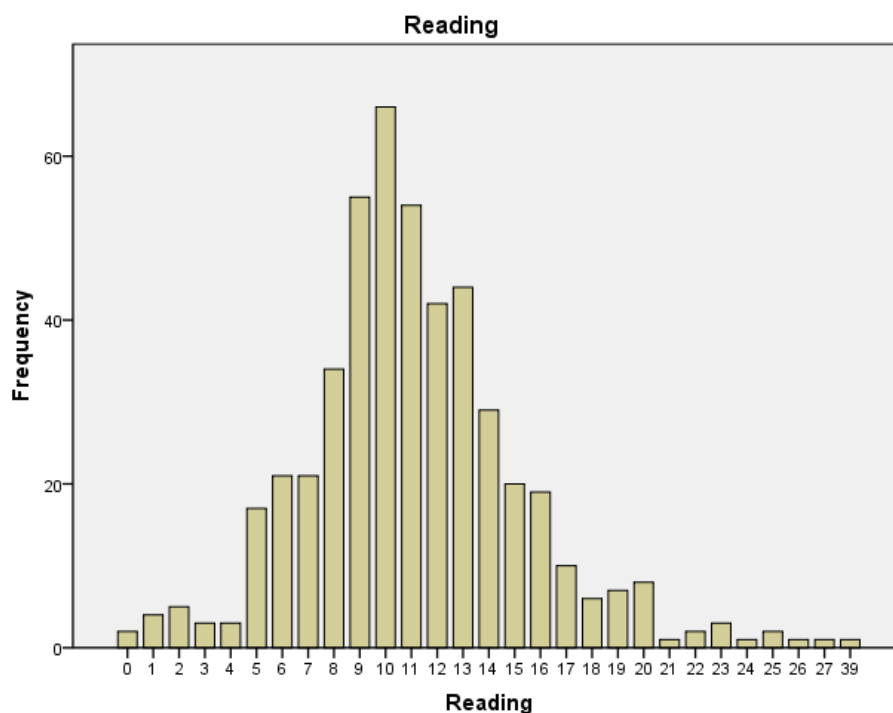
Figure 2
Reading comprehension scores of first-year undergraduate students

The data of reading comprehension were based on 482 first-year undergraduate students because the two students (out of 484 students) did not complete the test. From Figure 1, the reading comprehension scores spread from 0 to 39 points. The mean score is 11.14 points (27.85%). The largest number of student earns 10 points. The second and third large groups earn 9 points and 11 points, respectively. The Figure 1 also demonstrates the gap from 27 points to 39 points. There are no students getting the score from 28 - 38 points. There is only one student who scores 39 points. No one got the full score.

Table 11 reports the result of the relationship between vocabulary size and reading comprehension.

Table 11
Correlation between vocabulary size and reading comprehension

	Vocabulary Size	Reading Comprehension
Vocabulary Size	_	.191[**]

**$p < 0.01$

From Table 11, the correlation coefficient between vocabulary size and reading comprehension is .191 which is weak, but significant. It means that vocabulary size accounts for 3.6 percent of the reading comprehension.

From the result of research question 2, the semi-structured interview was conducted to gain more insight of students' attitude towards reading and the reading test that does not affect students' scores. This interview aims to examine why the students had low reading comprehension score when their vocabulary size was not in a low level. Below is the result from the semi-structured interview.

<u>Result from the semi-structured interview for reading comprehension</u>

This part reports the result from the semi-structured interview from 30 students. Students were divided into three groups consisting of low, middle, and high levels as mentioned in Chapter III. In this report, the letter "L" stands for low level students, "M" stands for middle level students, and "H" stands for high level students. Each level included 10 interviewees labeling from 1 to 10. The results are the following:

Question 1   "How do you feel about reading?

The first question focuses on students' attitude towards reading. The result shows that there are three different attitudes towards reading of low, middle, and high level students that are positive, moderate, and negative attitudes.

First, many students have positive attitude about reading. They report that they like reading. Some of them think that reading is useful and challenging. The followings are the samples from students' reports.

L1   *I like English because it is fun even though I am not good at reading.*

L8   *For me, reading is fun.*

M1   *I think reading is difficult but it is also challenging.*

H3   *I like reading. I choose to read a story that can give me more knowledge.*

H7   *I think reading is challenging.*

H10   *I think reading is difficult but it is useful.*

Second, it is found that students have moderate feeling about reading that means they sometimes like and sometimes do not like read. Some of them report that they would try and continue reading if a reading is fun and interesting. The followings are the samples of their reports.

L2   *I will try to read if the text is fun and interesting, but if it is not, I will ski it.*

L5   *I both like and dislike reading. Actually, I like it sometimes. I do not like it when I have to read a long passage. It makes me tired.*

L10   *If a story is interesting, I will feel like I want to read more.*

M5   *I don't mind reading a long passage if it is interesting. I will choose to read the passage I am interested in first.*

M6   *I am ok with reading. I don't like it but I also don't hate it. It is just so so.*

One noticeable from the second point is that there is no answer from high level students. There are only answers from low and middle level students.

Third, some students have negative attitude towards reading. They report that they do not like reading because it is difficult or too long which makes them tired and frustrated. Here are some samples.

M2   *I think reading is difficult and I don't want to read it.*

H6   *I don't like reading because I have to read a lot and it is too long. I feel like I waste my time when I read.*

H7   *I don't like reading because it is long. I am a slow reader and I have to spend a very long time to read.*

From the samples above, students do not like to read if it is too difficult and too long. One of the sample also states that she likes the reading sometimes. That means students do not totally dislike reading.

In summary, for the question 1, three main points from the semi-structured interview are described. The interviewed students demonstrate mixed attitude towards reading. It seems like no unified patterns, but this phenomenon can be considered that students vary in terms of their levels of English proficiency. First, students have positive attitude towards reading as it is useful and challenging. Second, students have moderate feeling about reading that is students like and dislike reading sometimes. Third, students do not like reading at all because it is too long, difficult, and tiring. From this result, it could see most students do not have negative feeling about reading. Many of them feel good about reading. Some of them might feel bad about reading in a specific circumstances but not all the time. Only few numbers of students do not like reading at all. The result tends to be more on positive side. The next part is the results of question 2.

Question 2   "How much effort do you put when you do a reading test when the test does not affect your score or grade?

This question was revised after analyzing the result of reading comprehension because students' reading scores were low as reported earlier on the research question 2. Even though students had adequate vocabulary size, their reading score was still low. Thus, the question 2 was revised to find out how much students put their effort in doing the test.

First, it was found that there are three students report that they put all effort in doing the test even though the test does not affect their grade. The following statements are the answers of three students.

M4   *I put 100% effort on doing the test.*

M5   *I do my best for the test. When it is harder, I still do my best. Guessing the answer is my last choice of doing the test.*

H3   *I give myself 100% for doing the test.*

Second, the total of 19 students reports that they put some effort of around 60% to 80% in doing the test. However, when the test becomes more difficult, they would try to finish it by guessing or may put more effort. Samples are the followings.

L6   *I think I do my best but if I get some points from the test, I will put even more effort.*

L8   *For my effort, I try to do as much as I could. I give myself 70% or 80% for the effort. I think I give 80%.*

M1   *I do the easy ones first, and then I finally guess the answer for the hardest one.*

M3   *I give myself 70% for the effort, and I will guess for the questions that I don't know the answer.*

H4,   *I give myself 70% for the effort of doing the test.*

H5   *I put around 70% of my effort to do the test*

H9   *I think I give myself 80% of effort on doing the test. When the test gets more difficult, I may put more effort.*

The last result of the interview is the group of students who have less effort on doing the test. This group of students, including 8 students, report that they do not put much effort on doing the test since the test does not affect their score or grade. However, they still put some effort to do the test even though it sounds to be less than the second group. Here are some samples from their answers.

L3   *I don't put much effort on doing the test. I will put more effort to the test that gives me many scores.*

L5   *I give myself only 40% of effort because the reading is too long and too many.*

L10   *I do as much as I could, but if a passage is too hard, I usually give up. I don't care about it. But if a passage is interesting, I will like to do more.*

M6   *I will do the test but when it is hard, I will give up or guess the answer.*

H6   *I don't like reading test because it is too long and too much. I put less effort on the test if it is not important to me. I think reading is waste of time. Vocabulary test is easier because I don't need to read much.*

H7   *For the reading test, if it has too many reading passages, I wouldn't want to read. I will just guess the answer.*

From the result, even though the test was a low-stake test that did not affect their score or grade, all students still put their effort on doing the test more or less. Over all, it can be seen that the effort is in the moderate level that is the result shows the mix of students' effort levels from high to less. Even the less effort students also report that they still put some effort. For the less group, it could also see that students would have less effort on some circumstances such as the length of passages, the difficulty of passages, how interesting of passages, and the mood of students when doing the test.

So far, the result shows that few students have negative attitude towards reading while most of them have positive attitude towards reading. The result from the question 1 seems to have an effect on the question 2 that most students put effort, more or less, on doing the test even the test does not affect their classes' score or grade. Even though some students had the negative attitude towards reading, they still put some effort on doing the test.

The next part is the result of research question 3.

Part IV: Research Question 3

Research Question 3: Do vocabulary depth, vocabulary learning strategies, and reading strategies mediate the relationship between vocabulary size and reading comprehension of first-year undergraduate students? If so, how?

To answer this question, Depth of Vocabulary Knowledge Test, a set of Vocabulary Learning Strategies Questionnaire, and a set of Reading Strategies Questionnaire were distributed to the students. The results are the following.

The first result demonstrates the score from the Depth of Vocabulary Knowledge Test. The result is reported on Table 12.

Table 12

First-year students' vocabulary depth's score

	Mean	SD	Minimum	Maximum
Vocabulary depth	43.79	22.34	0	100

With the total score of 140 points, the mean score is 43.79 points. The minimum score is 0 point from a student who completed the test but all of her answers were incorrect. There is no student gaining the full score. The maximum score is 100 points.

The next part is the result from Reading Strategies Questionnaire and Vocabulary Learning Strategies Questionnaire.

Reading Strategy Questionnaire and Vocabulary Learning Questionnaire were administrated to students after they finished the tests. The questionnaires are a 5-point Likert scale ranging from 1 to 5. The meanings of scores are the following:

The score 1 means never,

The score 2 means seldom,

The score 3 means sometimes,

The score 4 means often, and

The score 5 means always.

Results of Reading Strategies

The results of reading strategies are divided into two parts. The first part is the result from the questionnaire and the second part is the result from semi-structured interview. The first part is reported on Table 13 – Table 19. The tables report different strategies of reading that are used by first-year undergraduate students who have different level of English proficiency based on their vocabulary size as mentioned in Chapter III. The two main strategies are metacognitive strategies and cognitive strategies. The strategies under metacognitive strategies include global strategies, problem solving strategies, and support strategies. Cognitive strategies include comprehending strategies, retrieval strategies, memory strategies, and inference strategies. The results of each strategy report on Table 13 – Table 19 separately

starting from metacognitive strategies and followed by cognitive strategies. The results are the following:

Metacognitive strategies: Global Strategies

The first strategy is global strategies including eleven items. The result is demonstrated on Table 13.

Table 13

Distribution for global strategies among low, middle, high level students based on vocabulary size

Metacognitive Strategies	Low Level (%)					Middle Level (%)					High Level (%)				
Global	1 Never	2 Seldom	3 Some times	4 Often	5 Always	1 Never	2 Seldom	3 Some times	4 Often	5 Always	1 Never	2 Seldom	3 Some times	4 Often	5 Always
1. I have a purpose in mind when I read.	5.3	8.8	68.4	14.0	3.5	4.0	12.6	71.3	12.2	3.5	3.6	14.3	55.0	19.3	7.9
2. I think about what I know to help me understand what I read.	3.5	15.8	48.2	25.4	7.0	3.5	15.7	49.6	23.9	7.4	2.9	15.0	48.6	26.4	7.6
3. I take an overall view of the text to see what it is about before reading it.	2.6	16.7	30.7	32.5	17.5	1.7	13.9	43.5	26.5	14.3	2.1	10.7	41.4	28.6	17.1
4. I think about whether the content of the text fits my reading purpose.	1.8	18.4	49.1	26.3	4.4	1.7	12.6	51.7	30.0	3.9	1.4	15.7	50.7	24.3	7.9
5. I review the text first by noting its characteristics like length and organization.	7.0	13.2	40.4	32.5	7.0	5.2	10.9	41.3	36.5	6.1	7.9	13.6	38.6	30.7	9.3
6. When reading, I decide what to read closely and what to ignore.	3.5	11.4	48.2	27.2	9.6	2.6	11.7	54.3	20.9	10.4	5.0	14.3	49.3	17.9	13.6
7. I use context clues to help me better understand what I am reading.	0.9	16.7	46.5	25.4	10.5	2.6	15.2	45.7	25.2	11.3	0.7	15.7	40.7	27.9	15.0
8. I critically analyze and evaluate the information presented in the text.	0.9	3.5	65.8	28.9	0.9	2.2	8.7	65.2	21.7	2.2	3.6	11.4	57.9	22.9	4.3
9. I check my understanding when I come across new information.	0.9	4.4	81.6	13.2	0.0	1.3	4.3	76.1	17.0	1.3	2.1	3.6	67.1	27.1	0.0
10. I try to guess what the content of the text is about when I read.	0.0	2.6	51.8	33.3	12.3	0.0	3.5	47.0	35.7	13.9	1.4	2.2	47.1	28.6	20.7
11. I check to see if my guesses about the text are right or wrong.	0.0	7.9	59.6	9.6	22.8	0.0	10.9	53.0	14.8	21.3	0.0	17.1	56.4	12.1	14.3

From Table 13, there are similarities of the use of global strategies among low, middle, and high level students on items 2 and 4 to 9. Students have the same pattern of frequency that is the highest frequency is on "sometimes" and followed by "often," "seldom," "always," and "never," respectively. For example, item 2, *"I think about what I know to help me understand what I read,"* has the highest frequency on "sometimes" for low (48.2%), middle (49.6%), and high (48.6%) level students. Then the second frequency rank is on "often" for low (25.4%), middle (23.9%) and high (26.4%) level students. The third rank is on "seldom" for low (15.8%), middle (15.7%) and high (15%) level students. The fourth rank is on "always" for low (7%), middle (7.4%) and high (7.6%) level students. Then the least frequency is on "never" for low (3.5%), middle (3.5%) and high (2.9%) level students. Moreover, item 9, *"I check my understanding when I come across new information,"* on the "sometimes" use has the highest frequency of all items from low (81.6%), middle (76.1%), and high (67.1%) level students. Item 11, *"I check to see if my guesses about the text are right or wrong,"* is also used from all three level students as the 0% is shown on the "never" use column.

However, there are some items that show the different use among low, middle and high level students. First, item 1, *"I have a purpose in mind when I read,"* is used similarly among low and high level students, but differently from middle level students. Low and high students have the similar pattern of this strategy use that is the highest frequency is on "sometimes," followed by "often" and "always," respectively. However, even though middle level students have the highest frequency on "sometimes," their second and third ranks of frequency are on "seldom" and "never," respectively.

There are two items that low and middle level students use similarly, but differently from high level students. The items are item 10, *"I try to guess what the content of the text is about when I read"* and item 11, *"I check to see if my guesses about the text are right or wrong."* For item 10, all low and middle level students use it while a few high level students (1.4%) do not use it. For item 11, low and middle level students have the same pattern of frequency use that is the highest frequency is on "sometimes," followed by "always" and "often" while high level students also have the highest frequency on "sometimes" but the second and third frequency ranks

are on "seldom" and "often," respectively. Besides, middle and high level students also share the similar pattern on item 3, "*I take an overall view of the text to see what it is about before reading it*" while low level students use this strategy differently. The top three frequency ranks of middle and high level students are "sometimes," "often" and "always." For low level students, the highest frequency is on "often," followed by "sometimes" and "always."

From the result of items 3, 10, and 11, it can be seen that high level students know what strategies they should use more or less. For items 10 and 11, some high level students do not use them at all while every low and middle level students use them. For item 3, middle and high level students "sometimes" use it but low level students "often" use it. From these three items, one noticeable point is that in some strategies, middle level students are coming closer to high level students while low level students still stand in the same position.

In summary, from the results of global strategies, it can be seen that low, middle, and high level students share similar use of most strategies, as mentioned, items 2 and 4 – 9. Nevertheless, some strategies are used similarly by two specific levels such as low similar to high level students for the use of item 1 or middle similar to high level students for the use of item 3.

The next part is the result of metacognitive strategies focused on support strategies.

Metacognitive strategies: Support strategies

Support strategies consist of eleven items. Table 14 demonstrates the result of the strategy use among low, middle, and high level students.

Table 14

Distribution for support strategies among low, middle, high level students based on vocabulary size

Metacognitive Strategies	Low Level (%)					Middle Level (%)					High Level (%)				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Support strategies	Never	Seldom	Some times	Often	Always	Never	Seldom	Some times	Often	Always	Never	Seldom	Some times	Often	Always
1. I take notes while reading to help me understand what I read.	2.6	14.0	55.3	27.2	0.9	1.7	21.3	58.3	17.4	1.3	2.9	20.7	50.7	24.3	0.7
2. When text becomes difficult, I read aloud to help me understand what I read.	3.5	7.0	43.0	28.9	17.5	3.0	9.6	45.2	31.7	10.4	5.0	15.7	37.9	30.0	11.4
3. I underline or circle information in the text to help me remember it.	0.9	3.5	26.3	43.0	26.3	2.2	4.3	37.0	39.1	17.4	1.4	6.4	32.9	40.0	19.3
4. I use a English-Thai dictionary to find the meaning of the words.	0.0	26.3	62.3	10.5	0.9	0.0	25.2	61.7	11.3	1.7	0.0	16.4	67.1	15.7	0.7
5. I use an English-English dictionary to find the meaning of the words.	0.9	1.8	95.6	1.8	0.0	2.2	3.5	88.7	3.5	2.2	3.6	1.4	87.1	5.7	2.1
6. I paraphrase (restate ideas in my own words) to better understand what I read.	0.0	3.5	70.2	24.6	1.8	0.0	5.7	68.7	24.8	0.9	0.0	7.1	72.1	17.1	3.6
7. I go back and forth in the text to find relationship among ideas in it.	1.8	3.5	73.7	20.2	0.9	2.6	6.1	70.0	19.6	1.7	5.0	7.1	62.9	23.6	1.4
8. When reading, I translate from English into my native language.	0.0	24.6	41.2	15.8	18.4	0.9	25.2	41.3	12.6	20.0	1.4	18.6	50.7	11.4	17.9
9. When reading, I think about information in both English and my mother tongue.	0.0	31.6	63.2	4.4	0.9	0.0	0.9	35.2	58.7	5.2	2.1	33.6	58.6	5.0	0.7
10. When reading, I think about information in English.	3.5	0.9	71.1	4.4	20.2	6.1	5.2	62.6	5.7	20.4	9.3	5.7	60.0	8.6	16.4
11. When reading, I think about information in Thai.	0.9	45.6	34.2	15.8	3.5	1.3	40.4	40.0	17.4	0.9	2.1	35.7	40.7	21.4	0.0

From Table 14, low, middle and high level students share the similar pattern of strategy use on three items that are item 4, "*I use a English-Thai dictionary to find the meaning of the words,*" item 6, "*I paraphrase (restate ideas in my own words) to better understand what I read,*" and item 7, "*I go back and forth in the text to find relationship among ideas in it.*"

For item 4, low, middle, and high level students share the same pattern of frequency use that are "sometimes," "seldom," "often," "always," and "never." The frequency of "never" is 0% meaning that all of them use this strategy. For items 6 and 7, their highest frequency is on "sometimes," followed by "often," "seldom," "always," and "never." Similar to item 4, all students use item 6 as it has 0% for the "never" column.

Item 1, "*I take notes while reading to help me understand what I read,*" is the only strategy that low and high level students share their similarity of strategy use. The highest frequency of low level students is on "sometimes" (55.3%), followed by "often" (27.2%), "seldom" (14%), "never" (2.6%), and "always" (0.9%). The same ranking is also on high level students that is "sometimes" (50.7%), "often" (24.3%), "seldom" (20.7%), "never" (2.9%), and "always" (0.7%). Middle level students use item 1 differently from low and high level students. Even though alike low and high level students, they have chosen "sometimes" (58.3%) the highest , their second and third ranks are on "seldom" (21.3%) and "often" (17.4%) which are ranked differently from low and high level students.

Besides, there are two items that low and middle level students share the similar pattern of strategy use. The first item is item 2, "*When a text become difficult, I read aloud to help me understand what I read.*" Low level students have the highest frequency on "sometimes" (43%), and the second and third ranks are "often" (28.9%) and "always" (17.5%). Middle level students also have the similar result that is the highest frequency is on "sometimes" (45.2%), followed by "often" (31.7%) and "always" (10.4%). High level students also show the similar use of the first and second ranks of frequency that are "sometimes" (37.9%) and "often" (30%); however, their third rank is on "seldom" (15.7%) which is different from low and middle level students.

Next, the second item of similar used strategies among low and middle level students is item 11, *"When reading, I think about information in Thai."* Low level students answer "seldom" (45.6%) as the highest frequency, followed by "sometimes" (34.2%) and "often" (15.8%). Middle level students also have the similar answer that is the highest frequency is on "seldom" (40.4%), followed by "sometimes" (40%), and "often" (17.4%). High level students are different from low and middle level students. They have chosen "sometimes" (40.7%) as the highest frequency, followed by "seldom" (35.7%) and "often" (21.4%). Moreover, there is no high level student "always" (0%) using item 11.

In addition, there are three items that middle and high level students share the similar pattern of strategy use. The items are item 3, *"I underline or circle information in the text to help me to remember it,"* item 8, *"When reading, I translate from English into my native language,"* and item 10, *"When reading, I think about information in English."*

For item 3, the frequency ranks among middle and high level students are all the same. For middle level students, the highest frequency is on "often" (39.1%), followed by "sometimes" (37%) and "always" (17.4%). High level students also have the same result that are the highest frequency is on "often" (40%), followed by "sometimes" (32.9%) and "always" (19.3%). Low level students also have the highest frequency on "often" (43%), but "sometimes" (26.3%) and "always" (26.3%) are their second rank of frequency which is different from middle and high level students.

For item 8, *"When reading, I translate from English into my native language,"* in fact, low, middle, and high level students have the same five frequency ranks that are "sometimes," "seldom," "always," "often," and "never," respectively. However, the difference is on the "never" column. It appears to be that only low level students, every one of them uses item 8 (0% on "never") while some middle (0.9%) and high (1.4%) level students have never used it. Therefore, it seems that middle and high level students are more similar to each other than low level students.

Middle and high level students also share their similar pattern of item 10, *"When reading, I think about information in English."* For middle level students, their highest frequency is on "sometimes" (62.2%), followed by "always" (20.4%) and "never" (6.1%). High level students also have the same ranks that starting from

"sometimes" (60%), followed by "always" (16.4%) and "never" (9.3%). Low level students also have the same first and second frequency ranks that are "sometimes" (71.1%) and "always" (20.2%), but their third rank is on "often" (4.4%).

Of all items, item 5, *"I use an English-English dictionary to find the meaning of the words,"* on the "sometimes" use has the highest number of frequency for low (95.6%), middle (88.7%), and high (87.1%) level students. It is also noticed that none of low level students "always" (0%) use this strategy. Besides, very few middle (2.2%) and high (2.1%) level students report of using this strategy.

Furthermore, for item 9, *"When reading, I think about information in both English and my mother tongue,"* it was found that all low and middle level students use this item (0% on "never"). However, for other frequency uses, low and high level students are more similar. Low level students have the first and second frequency ranks on "sometimes" (63.2%) and "seldom" (31.6%), respectively. Like low level students, high level students also have the fire frequency rank on "sometimes" (58.6%) and the second rank on "seldom" (33.6%). Middle level students are different. Their first frequency rank is on "often" (58.7%) and followed by "sometimes" (33.6%).

From the result of support strategies, we could see that only a few strategies are used similarly among all three level students. However, it is not that they all use totally different frequency of strategies. Their similar uses still exist, but they appear among two specific levels of students, not all three levels. For example, low and high level students share the similar use of item 1 or middle and high level students share the similar use of item 10.

The next part is the result from problem solving strategies.

Metacognitive strategies: Problem solving strategies

Problem solving strategies include seven items. Table 15 demonstrates the result of the strategy use among low, middle, and high level students.

Table 15

Distribution for problem solving strategies among low, middle, and high level students based on vocabulary size

Metacognitive Strategies	Low Level (%)					Middle Level (%)					High Level (%)				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Problem Solving	Never	Seldom	Some times	Often	Always	Never	Seldom	Some times	Often	Always	Never	Seldom	Some times	Often	Always
1. I read slowly and carefully to make sure I understand what I am reading.	3.5	22.8	47.4	21.9	4.4	3.9	23.0	41.3	25.7	6.1	4.3	22.1	45.0	17.9	10.7
2. I try to get back on track when I lose concentration.	3.5	6.1	39.5	37.7	13.2	1.3	6.5	44.3	35.7	12.2	2.9	9.3	40.0	34.3	13.6
3. I adjust my reading speed according to what I am reading.	0.9	16.7	46.5	28.1	7.9	2.2	14.8	47.0	24.8	11.3	1.4	11.4	50.7	22.9	13.6
4. When text becomes difficult, I pay closer attention to what I am reading.	1.8	6.1	45.6	32.5	14.0	0.4	7.8	51.3	27.0	13.5	2.1	10.7	35.7	28.6	22.9
5. I stop from time to time and think about what I am reading.	0.0	59.6	35.1	4.4	0.9	0.9	54.8	35.7	6.5	2.2	2.9	54.3	34.3	3.6	5.0
6. I try to picture or visualize information to help remember what I read.	0.0	26.0	64.0	9.6	0.0	0.0	26.0	65.7	8.3	0.0	0.0	20.7	65.0	11.4	2.9
7. I ask myself questions I like to have answers in the text.	0.9	8.8	36.8	52.6	0.9	0.0	13.5	31.3	51.3	3.9	1.4	20.7	36.4	38.6	2.9

From Table 15, there are three items that low, middle, and high level students share the similar pattern of strategy use. Those items are item 2, *"I try to get back on track when I lose concentration,"* item 4, *"When the text becomes difficult, I pay closer attention to what I am reading,"* and item 7, *"I ask myself questions I like to have answers in the text."*

The result from item 2 and item 4 reveals the similar pattern of strategy use among low, middle and high level students regarding their frequency use of strategies. The frequency ranking of all three level students is in the same order from the highest to lowest that is "sometimes," "often," "always," "seldom" and "never."

For item 7, the similar pattern appears in top three ranks of frequency of low, middle and high level students. For low level students, the highest frequency is on "often" (52.6%), followed by "sometimes" (36.8%) and "seldom" (8.8%). For middle level students, the highest frequency is also on "often" (51.3%), followed by "sometimes" (31.3%) and "seldom" (13.5%). The same result is showing on high level students as well. Their highest frequency is on "often" (38.6%), followed by "sometimes" (36.4%) and "seldom" (20.7%). Middle level students have one different point from low and high level students that all of them use item 7 (0% on "never"). Besides, low level students also have equal numbers of frequency for "never" (0.9%) and "always" (0.9%).

The result also reveals that of all seven items, low and middle level students share more similar pattern of strategy use to each other than to high level students. The items they share are item 3, *"I adjust my reading speed according to what I am reading,"* item 5, *"I stop from time to time and think about what I am reading,"* and item 6, *"I try to picture or visualize information to help remember what I read."*

For item 3, low and middle level students share the same pattern of all five frequency ranks of strategy use. The ranking order from the highest to the lowest frequency is "sometimes," "often," "seldom," "always," and "never." High level students also have the same first and second top ranks that are "sometimes" and "often," but their third, fourth, and fifth ranks are different from low and middle level students. The ranks are on "always," followed by "seldom" and "never."

The result from item 3 shows that high level students most of them know when they should adjust their reading speed as their result from the questionnaire

tends to go on the positive side ("often" and "always") while low and middle level students jump from "often" to "seldom" and come back to "always." It seems that low and middle level students still figure out the appropriate ways.

Item 5, *"I stop from time to time and think about what I am reading,"* is a strategy that low, middle, and high level students share their similar use on the first and second highest frequency ranks that are "seldom" and "sometimes." Low and middle level students also have the same ranks of the third and fourth ranks that are "often" and "always" while high level students have the third and fourth ranks on "always" and "often," respectively. Moreover, it also reveals that all low level students use item 5 strategy (0% on "never").

The last item for this part is item 6, *"I try to picture or visualize information to help remember what I read."* The top three ranks of frequency use of strategies among low, middle, and high level students are the same. The highest frequency is on "sometimes," followed by "seldom" and "often." The result also reveals that all students use item 6 (0% on "never" of all levels of students). Besides, low and middle level students never "always" use item 6. Table 9 shows 0% on the "always" column on item 6 of both low and middle level students. Therefore, low and middle level students are more alike to each other than to high level students.

From the result of item 6, the result the different use of strategy of high level students from low and middle level students. It shows that high level students have seen this strategy useful because not only all of them are using this strategy, but also some of them "always" use it. On the other hand, none of low and middle level students "always" use this strategy. It seems that they think this strategy is useful because all of them use this strategy, but it is not always useful for them to use this strategy to aid reading comprehension.

In conclusion of problem solving strategies, low, middle, and high level students share similar pattern on the use of some strategies; however, low and middle level students seem to be mare similar to each other than to high level students. That is because high level students might be more aware of the usefulness of some strategies than low and middle level students.

The next parts are the results of cognitive strategies including comprehending strategies, memory strategies, retrieval strategies, and inference strategies.

Cognitive strategies: Comprehending strategies

Comprehending strategies include six items. Table 16 demonstrates the result from low, middle, and high level students.

Table 16

Distribution for comprehending strategies among low, middle, and high level students based on vocabulary size

Cognitive Strategies	Low Level (%)					Middle Level (%)					High Level (%)				
Comprehending strategies	1 Never	2 Seldom	3 Some times	4 Often	5 Always	1 Never	2 Seldom	3 Some times	4 Often	5 Always	1 Never	2 Seldom	3 Some times	4 Often	5 Always
1. I tried to understand the texts and questions regardless of my vocabulary knowledge.	0.9	10.5	12.3	73.3	2.6	3.0	12.6	17.0	65.2	2.2	5.0	15.7	17.9	60.7	0.7
2. I tried to find topics and main ideas by skimming.	0.9	3.5	34.2	58.8	2.6	1.3	2.2	33.0	61.3	2.2	2.9	1.4	37.9	55.7	2.1
3. I tried to find topics and main ideas by scanning.	0.0	1.8	20.2	77.2	0.9	0.0	2.6	24.3	70.4	2.6	0.0	2.9	29.3	63.3	4.3
4. I attempted to identify main points of the given reading texts and tasks.	0.9	25.4	58.8	14.0	0.9	1.7	19.6	57.8	20.4	0.4	2.9	21.4	50.7	23.6	1.4
5. I use the major points of the text to increase my understanding of the text.	0.0	25.4	47.4	27.2	0.0	0.0	21.7	46.5	30.0	1.7	0.0	22.9	45.7	30.7	0.7
6. I do not like to 'spoil' my textbooks so I do not write notes in them or underline sentences.	0.0	5.3	86.0	5.4	3.5	1.3	4.8	82.6	9.1	2.2	2.1	5.7	76.4	13.6	2.1
7. When I read, I guess the meaning of unknown words or phrases without using a dictionary.	0.0	17.5	52.6	26.3	3.5	0.0	11.3	58.7	20.9	9.1	0.0	10.0	60.0	23.6	6.4

Comprehending strategies include seven items. The result shows that low, middle, high level students share the similar pattern of strategy use in three items. Those items are item 1, *"I tried to understand the texts and questions regardless of my vocabulary knowledge,"* item 6, *"I do not like to 'spoil' my textbook so I do not write notes in them or underline sentences,"* and item 7, *"When I read, I guess he meaning of unknown words or phrases without using a dictionary."*

For item 1 , low, middle, high level students have the same top three ranks of frequency use that are "often," sometimes," and "seldom, " respectively. However, middle and high level students are similar in the ranks of "never" and "always" use. It is also found that high level students have the highest frequency of "never" (5%) use of item 1.

For item 6 and 7, the top three ranks of frequency use of low, middle, and high level students are similar that are "sometimes," "often" and "seldom," respectively. The result also shows that among seven items, the "sometimes" use of item 6 has the highest frequency for low (86%), middle (82.6%), and high (76.4%) level students. Besides, all low level students use this strategy as none of them answers "never" (0%) while few middle (1.3%) and high (2.1%) level students answer "never" for this strategy. For item 7, not only all three level students have the similar ranks of frequency use, but all of them also use this strategy as none of them answer "never" (0%) for this item. Moreover, low, middle, and high level students also have the same response on item 5, *"I use the major points of the text to increase my understanding of the text"* that item 5 is used by every student of all three levels.

Another item that all students use is item 3, *"I tried to find topics and main ideas by scanning."* Low, middle, and high level students only share their similar use of strategies on the first and second ranks of frequency that are "often" and "sometimes." The highest number of "often" use is on low level students (77.2%), followed by middle level students (70.4%) and high level students (63.3%).

Item 2, *"I tried to find topics and main ideas by skimming,"* is also shared its first and second ranks of frequency use that are "often" and "sometimes" among low, middle, and high level students. The highest number of "often" use is on middle level students (61.3%), followed by low level students (58.8%) and high level students (55.7%). Moreover, the result also reveals the differences of the third, fourth and fifth

ranks among low, middle and high level students. For low level students, their third, fourth and fifth ranks are "seldom" (3.5%), "always" (2.6%), and "never" (0.9%). For middle level students, their third rank includes "seldom" (2.2%) and "always" (2.2%) and their fourth ranks is "never" (1.3%). For high level students, their third rank is on "never" (2.9%) followed by "always" (2.1%) and "seldom" (1.4%). The ranks of high level students from the third to the fifth ranks are different from low and middle level students.

The last two items are item 4, *"I attempted to identify main points of the given reading texts and tasks"* and item 5, *"I use the major points of the text to increase my understanding of the text*." These items show that the patterns of strategy use among middle and high level students are similar to each other than to low level students. Their frequency of strategy use ranking from the highest to the lowest for item 4 is "sometimes," "often," "seldom," "never," and "always." For low level students, even though their highest frequency is on "sometimes" as same as middle and high level students, their other ranks are different. Their second and third ranks are "seldom" (25.4%) and "often" (14%). Then the least frequency includes "never" (0.9%) and "always" (0.9%). For item 5, middle and high level student have the first and second ranks on "sometime" and "often" while low level students have their first and second ranks on "sometimes" and "seldom." Low level students also report that none of them (0%) "always" uses this strategy while a few of middle (1.7%) and high (0.7%) level students report that they "always" use this strategy.

For comprehending strategies, low, middle, and high level students share the total similar use of only two strategies, item 6 and item 7. Middle and high level students also share their total similar pattern of strategy use on item 4 and item 5. Moreover, students also report that all of them use strategies on item 3 and item 7. However, low level students seem to show more differences of strategy use from middle and high level students.

The next part is the result of memory strategies which include eight items. The result of low, middle, and high level students' strategy use is demonstrated on Table 17.

Table 17

Distribution for memory strategies among low, middle, and high level students based on vocabulary size

Cognitive Strategies	Low Level (%)					Middle Level (%)					High Level (%)				
Memory strategies	1 Never	2 Seldom	3 Some times	4 Often	5 Always	1 Never	2 Seldom	3 Some times	4 Often	5 Always	1 Never	2 Seldom	3 Some times	4 Often	5 Always
1. I skip the words that I don't know the meaning.	7.0	14.9	51.8	21.9	4.4	4.8	20.0	50.4	18.3	6.5	7.1	15.7	47.1	20.0	10.0
2. I find it time consuming to use a dictionary to look up words that I do not know. It slows down my reading speed.	3.5	22.8	42.1	31.6	0.0	5.2	16.1	53.0	23.0	2.6	8.6	17.9	44.3	24.3	5.0
3. I read the texts and questions several times to better understand them.	9.6	16.7	49.1	24.6	0.0	12.6	13.0	50.0	22.6	1.7	15.0	12.1	42.1	28.6	2.1
4. I go back and read things over when I don't understand what I'm reading.	2.6	17.5	49.1	20.2	10.5	2.2	13.0	51.3	15.7	17.8	3.6	13.6	52.9	17.9	12.1
5. Once I start reading, I continue till I come to the end. I do not like to interrupt my reading by going back and re-reading parts of the text.	3.5	28.9	37.7	26.3	3.5	5.7	17.4	46.5	21.3	9.1	7.9	17.9	50.7	10.7	12.9
6. I skip the part I don't understand when I'm reading.	2.6	21.9	37.7	26.3	11.4	5.7	15.7	43.9	23.9	10.9	5.7	12.9	45.0	25.0	11.4
7. I check my understanding when I come across conflicting information.	0.9	11.4	67.5	17.5	2.6	0.4	10.9	68.3	17.4	3.0	1.4	13.6	56.4	25.0	3.6
8. I underline main idea of the text.	0.0	52.6	33.3	13.2	0.9	0.0	47.4	38.7	13.5	0.4	0.0	45.7	34.3	19.3	0.7

Table 17 demonstrates the use of memory strategies including eight items. There are four items that low, middle, and high level students share the similar pattern of strategy use. The four strategies are item 2, *"I find it time consuming to use a dictionary to look up words that I don't know. It slows down my reading speed,"* item 6, *"I skip the part I don't understand when I'm reading,"* item 7, *"I check my understanding when I come across conflicting information,"* and item 8, *"I underline main idea of the text."* Low, middle, and high level students report the same ranks of the use of these strategies. For example, item 8 has the same five ranks from highest to lowest frequency among low, middle and high level students that are "seldom," "sometimes," "often," "always," and "never," respectively. Moreover, this item is used by all of them as the result shows 0% on the "never" column.

Another important point found in this strategy use is that low and high level students share more similar use of strategies to each other than to middle level students. That is they are sharing the same ranks of frequent use of strategies. The similarity among them was found on item 1, *"I skip the words that I don't know the meaning,"* item 4, *"I go back and read things over when I don't understand what I'm reading,"* and item 5, *"Once I start reading, I continue till I come to the end. I do not like to interrupt my reading by going back and re-reading parts of the text."*

Furthermore, item 3, *"I read the texts and questions several times to better understand them,"* also shows the similarity of strategy use among low and middle level students. Even though the first and second ranks of low, middle, and high level students are the same which are "sometime" and "often," the third and fourth ranks of low and middle level students are "seldom" and "never" but the third and fourth ranks of high level students are "never" and "seldom."

Another noticeable point is that none of low level students "always" use item 2 (0%), *"I find it time consuming to use a dictionary to look up words that I don't know. It slows down my reading speed,* and item 3 (0%), *"I read the texts and questions several times to better understand them."*

To sum up, some memory strategies are used similarly among low, middle, high level students. Moreover, low level students also have more similar strategy use to high level students than to middle level students.

The next part is the result of retrieval strategies including four items. Table 18 reports the result of strategy use among low, middle, and high level students.

Table 18

Distribution for retrieval strategies among low, middle, and high level students based on vocabulary size

Cognitive Strategies	Low Level (%)					Middle Level (%)					High Level (%)				
Retrieval strategies	1 Never	2 Seldom	3 Some times	4 Often	5 Always	1 Never	2 Seldom	3 Some times	4 Often	5 Always	1 Never	2 Seldom	3 Some times	4 Often	5 Always
1. To avoid confusion, I don't bring what I know into what I'm reading.	3.5	19.3	36.0	29.8	11.4	1.7	10.1	38.7	30.8	12.6	3.6	11.4	41.4	30.0	13.6
2. I bring my knowledge of the world into what I'm reading to better understand the text.	1.8	9.6	43.0	33.3	12.3	1.3	12.6	37.4	34.8	13.9	2.1	10.0	40.7	30.7	16.4
3. I use my own English structure knowledge to comprehend the text.	3.5	12.3	48.2	29.8	6.1	1.7	14.3	43.9	34.3	5.7	3.6	13.6	40.7	31.4	10.7
4. I use my own text structure knowledge to comprehend the text.	9.6	20.2	44.7	21.9	3.5	3.0	19.1	41.7	33.0	3.0	4.3	23.6	36.4	31.4	4.3

From Table 18, retrieval strategies consist of four items. Surprisingly, middle and high level students are sharing similar patterns of all four items of retrieval strategies. That means they have same frequency ranks of strategy use in every item. For example, item 1, *"To avoid confusion, I don't bring what I know into what I'm reading,"* has the similar ranking order of frequency use among middle and high level, from highest to lowest, that is "sometimes," "often," "always," "seldom," and "never," respectively. Moreover, low level students also share the similar pattern with middle and high level students on item 2, *"I bring my knowledge of the world into what I'm reading to better understand the text,"* and item 3, *"I use my own English structure knowledge to comprehend the text."* For item 1, low level students only share the similarity with middle and high level students on the first and second ranks which are "sometimes" and "often." For item 4, *"I use my own text structure knowledge to comprehend the text,"* low level students share the similar pattern of the top three frequency use with middle and high level students. The top three ranks are "sometimes," "often," and "seldom."

From the result, the retrieval strategies rely on students' knowledge either knowledge of the world or English structure. It can be summarized that middle and high level students know what to manage their knowledge better than low level students. They know what they know and use it, but know what they do not know so, never use it which is opposite to low level students. Low level students seem to be not sure what they should do with their knowledge that is why they only share some similar use of their strategies to middle and high level students.

Therefore, for retrieval strategies, it can be concluded that middle and high level students have more similar pattern of strategy use to each other than to low level students.

The next part is the last part of reading strategies that is inference strategies. The inference strategies include nine items. Table 19 demonstrates the result among low, middle, and high level students.

Table 19

Distribution for inference strategies among low, middle, and high level students based on vocabulary size

Cognitive Strategies	Low Level (%)					Middle Level (%)					High Level (%)				
Inference Strategies	1 Never	2 Seldom	3 Some times	4 Often	5 Always	1 Never	2 Seldom	3 Some times	4 Often	5 Always	1 Never	2 Seldom	3 Some times	4 Often	5 Always
1. I use facts in the text and my previous knowledge to help me understand the text.	1.8	16.7	52.6	26.3	2.6	1.7	22.2	52.6	22.2	1.3	2.9	17.1	45.0	33.6	1.4
2. I use previous knowledge to guess what is not explicitly stated in the text.	0.9	15.8	47.4	25.4	10.5	4.3	19.6	48.3	22.6	5.2	3.6	12.1	45.7	29.3	9.3
3. I use information in the text to understand what is not directly stated.	7.9	16.7	35.1	30.7	9.6	7.8	7.8	43.0	33.5	7.8	8.6	11.4	37.1	32.9	10.0
4. I always read the title and subheadings to help me understand the text.	3.5	14.0	36.0	36.0	10.5	3.5	10.0	40.4	35.7	10.4	6.4	10.0	35.0	36.4	12.1
5. When I do not understand what a sentence means I think about the other sentences in the paragraph to help me understand it.	0.9	8.8	31.6	32.5	26.3	2.6	7.4	38.3	35.7	16.1	0.7	7.9	34.3	38.6	18.6
6. I use context clues to help me better understand what I'm reading.	0.9	16.7	46.5	25.4	10.5	2.6	15.2	45.7	25.2	11.3	0.7	15.7	40.7	27.9	15.0
7. I use context clues to help me guess the meaning of unknown words.	1.8	8.8	49.1	33.3	7.0	3.5	12.6	47.4	24.8	11.7	4.3	12.9	42.1	23.6	17.1
8. I skip reading tables, graphs, diagrams, flowcharts, etc. because they slow down my reading and distract me.	4.4	4.4	51.8	29.8	9.6	3.0	4.3	55.7	26.5	10.4	6.4	7.9	39.3	31.4	15.0
9. I read tables, graphs, diagrams, flowcharts and pictures in the text to increase my understanding.	5.3	17.5	39.5	34.2	3.5	2.6	10.0	49.6	29.1	8.7	5.0	10.0	44.3	30.7	10.0

From Table 19, with nine items of inference strategies, it was found that low, middle, high level students share the similar pattern of frequency use of strategies on item 2, *"I use previous knowledge to guess what is not explicitly stated in the text,"* item 3, *"I use information in the text to understand what is not directly stated,"* item 6, *"I use context clues to help me better understand what I'm reading,"* and item 8, *"I skip reading tables, diagrams, flowcharts, etc. because they slow down my reading and distract me."* Take an example from item 2, the similar pattern, ranking from the highest to lowest frequency of strategy use, is applied for low, middle, and high level students, and the ranking is "sometimes," "often," "seldom," "always," and "never."

The similarity among low and middle level students appears on item 7, *"I use context clues to help me guess the meaning of unknown words."* Both low and middle level students have the similar frequency pattern of strategy use that is "sometimes," "often," "seldom," "always," and "never," respectively. In fact, high level students also share the first, second, and last ranks; however, their third and fourth ranks are "always" and "seldom." Moreover, even though item 8, as mentioned in the last paragraph, has the similar pattern among all level students, the percent of strategy use on "sometimes," "often," and "always" between low and middle level students is closer than high level students. The percent of "sometimes," "often" and "always" of low, middle and high level students is the following; 51.8%, 29.8%, and 9.6% for low level students, 55.7%, 26.5%, and 10.4% for middle level students, and 39.3%, 31.4%, and 15% for high level students.

For item 9, *I read table, diagram, flowchart and pictures in the text to increase my understanding,"* It was found that the pattern of the top three ranks of low, middle, and high level students is similar, "sometimes," "often," and "seldom," however, "always" is the last rank of low level students while it is the fourth rank of middle and high level students. It was also found that low level students seem to use less of item 9 than middle and high level students when considering the percentage of "never," "seldom," and "always." The percent of "never," "seldom," and "always" of low level students is 5.3%, 17.5%, and 3.5%, respectively. For middle level students, the percent of these frequencies is 2.6%, 10%, and 8.7%, respectively. For high level students, they are 5%, 10%, and 10%. These results show that low level students have

the highest percent on "seldom" and lowest percent on "always" when compared with middle and high level students.

Furthermore, low and high level students also share their similar pattern of frequency use of strategies on item 5, *"When I do not understand what a sentence means I think about the other sentences in the paragraph to help me understand it."* The five ranks of this item are the same on both low and high level students. For example, the top three ranks of low level students are "often" (32.5%), "sometimes" (31.6%) and "always" (26.3%), respectively. For high level students, the top three ranks are also "often" (38.6%), "sometimes" (34.3%) and "always" (18.6%), respectively. The differences among middle level students and the other two level students appear in this item. Middle level students have the first and second ranks on "sometimes" (38.3%) and "often" (35.7%). Their third rank is "always" (16.1%) as same as low and high level students. Even though low and high level students have the similar frequency pattern of strategy use, the percent on "often" and "sometimes" of high level students is higher than low level students. However, the percent of "always" of low level students is higher than high level students. It was also found that among middle and high level students, the percent of "always" use is closer.

Another interesting point is on item 4, *"I always read the title and subheadings to help me understand the text."* The first and second ranks of low, middle, and high level students are different. For low level students, "sometimes" and "often" have the same amount of frequency which is 36% and they also come as the first rank. Then the second rank is "seldom" (14%). For middle level students, the first and second ranks are "sometimes" (40.4%) and "often" (35.7%). For high level students, the first and second ranks are "often" (36.4%) and "sometimes" (35%). Even though the first and second ranks of low, middle, and high level students are different, they also share some similarity in some frequent use of strategies. It could see that the percent of "never" and "always" of low and middle level students are similar. First, 3.5% of low and middle level students answer "never" and second, 10.5% of low and 10.4% of middle level students answer "always." Besides, among middle and high level students, 10% of them answer "seldom" on item 4. Therefore, from these result, there are some students in each level that are sharing similar frequent use of item 4.

In summary, low, middle, and high level students also share some similar pattern of inference strategies. It was also found that low level students are more similar to high level students than to middle level students as they share more similar patterns of strategy use. The strategies that they share are related to their background knowledge, and information in the text including context clues, diagrams, pictures and sentences. This result can imply that low and high level students have some similar ideas of using reading strategies. Therefore, it is a good sign that low level students would be able to improve their reading if they use the reading strategies effectively.

To gain more understanding about reading strategies and to confirm the results of the questionnaire, the semi-structured interview was conducted. The results are the following.

Results from the semi-structured interview for reading strategies

The next part is the results from questions 3 – 7 focusing on reading strategies. The questions include; 3) "What is the first thing you do when your start reading?" 4) "What strategies do you usually use when you read?" 5) "What would you do when you find an unknown word while you read?" 6) "What would you do when you do not understand the reading?" and 7) "When the text becomes difficult, what do you do?" The results are the following:

Question 3: What is the first thing you do when you start reading?

Most students report that when they start reading, they usually read the whole passage first in order to understand the story. After that, they would look closely for some specific paragraph to find information they need to know. There are two low level students, four middle level students, and two high level students who have the same answer. Samples from students' report are the following.

L1 *When I start reading, I usually read the whole passage first.*

L4 *I start by reading the passage slowly till the end.*

M2 *I usually read the whole passage first for one time and mark unknown words to find out the meaning later.*

M6 *I usually read the whole passage first, and skip the part I don't understand.*

H7   *I usually read the whole passage first because it helps me to understand the story.*

H8   *I read the whole passage first to get all details. Then I will look for specific details later.*

This answer is the memory strategy on item 5, *"Once I start reading, I continue till I come to the end. I do not like to interrupt my reading by going back and re-reading parts of the text."* The result from the questionnaire reveals that low and high level students have the similar patterns of this strategy. Mainly, the percent of frequency use among low and high level students tends to be from "sometimes" to "seldom" while the percent of frequency use of middle level students tends to be from "sometimes" to "often." This can be the reason that is why there are more middle level students than low and high level students report that they use this strategies when start reading.

The next group of students reports that they skim the passage first and they would read for more details later. Students who report of using skimming strategy are three low level students, three middle level students, and two level students. The followings are some samples of students' report.

L6   *When I read, I skim through the passage first to find some key words, and topics.*

L8   *I always skim through the passage and also look for the "bold" words in the reading.*

M7   *When I start reading, I skim through the passage to try to figure out the main messages from the passage. Then I will look for more details later when I read the whole passage again.*

M5   *After I choose the story to read, I start by skimming first and also try to imagine the story.*

H1   *When I start reading, I will read to end of the passage by skimming first. Then I try to think what the story in that passage is about.*

H9 *When I start reading, I will skim through the passage and find key words to help me understand the story of the passage.*

From students' reports, it can be seen that students use skimming first for their reading with two main reasons that are to find the key words and to figure out what a story is mainly about. Then students will read for more details later. Skimming is the item 2 of comprehending strategies (Table 11), *"I tried to find topics and main ideas by skimming."* The highest frequency use of item 2 from the questionnaire is on "often" of low (58.8%), middle (61.3%), and high (55.7%) level students. The results from the interview and questionnaire confirm that some low, middle, and high level students use the skimming strategy to when begin reading even though they might use the strategy in different purposes. This could say that low, middle, and high level students share the similar strategy when they start reading.

The next strategy use when start reading is scanning. There are one middle level student and three high level students who report that they use scanning when they start reading; however, there is not any low level student reporting of using scanning strategy. Here are their reports.

M1 *When I start reading, I will scan through the passage. I usually focus on some important paragraph like the first and last paragraph. The n I will look for more details later.*

H5 *I will scan the passage quickly for the first time and then I will pay more attention on important parts.*

H6 *I don't like reading, so I will scan through the passage first in order to find the main idea. If I don't have much time, I will only read the first and the last paragraph.*

H10 *I will scan through the whole passage at first, and then I will read slowly for the second time so that I could find the main idea and understand the story of the passage.*

Scanning is the item 3 of comprehending strategies, *"I tried to find topics and main ideas by scanning.* From the result of questionnaire, it was found that the highest frequency of this strategy use is on "often" of all three level students. The result also shows that the highest percent of strategy use is on low level students (77.2%),

followed by middle level students (70.4%), and high level students (63.3%). Moreover, the result from the questionnaire also shows that every student from low, middle and high level students use scanning strategies. The result from the questionnaire is opposite to the interview because there is no low level student reporting on the interview that they use scanning strategy. Only one middle level student reports of using scanning, but high level students have the most number of using scanning strategy. Since the result from the questionnaire and interview is different, the researcher, first, thought that the interview question asked students too specific for the strategy use when they start reading. However, when the researcher kept talking to students and asking them for other strategies they use such as for finding main ideas, for searching for specific details, or for getting more information about the story, none of low level students mention the scanning strategy as well as the middle level students. Therefore, it could be that students might not give a true answer when they were interviewed or might not pay full attention in doing the questionnaire. That is why the results from two research instruments are different.

The next group reports that they find the meaning of unknown words first when start reading. This answer comes from three low level students, one middle level student, and one high level student. Therefore, the most number of students who report that they find the meaning of unknown words first when start reading is low level students. Here are some samples of students' answer.

L2   *I use the dictionary to find the meaning of the unknown words first when I read. ……I use an English –Thai dictionary from my phone to find meaning of the words.*

L7   *I need to find the meaning of words first. If I don't have a dictionary, I will guess the meaning from the context…..I use an English-Thai dictionary.*

L8   *I always skim through the passage and also look for the "bold" words in the reading. Then I find the meaning of those words because I know that they are important to the story......Yes, I use an English-Thai dictionary to find meaning of the words. Sometimes, I use an English-English dictionary.*

M3   *I always guess the story by looking at the meaning of word. If I don't know the meaning of words, it will be hard for me to understand the story….I use an English-Thai dictionary book and dictionary applications on the phone.*

H3   *I definitely find the meaning of words first. Usually, I use an English-Thai dictionary.*

This strategy emerges from the interview, but it becomes one of strategies that students use as their regular strategy. It could infer that some groups of students rely on their vocabulary knowledge than other reading strategies they could use. Then they also report that all of them use an English-Thai dictionary to find the meaning of words. Using dictionary is the item 4 of support strategies, *"I use an English-Thai dictionary to find the meaning of the words."* The result from this item shows that all low, middle and high level students use this strategy. The result from questionnaire is similar to the interview.

Another large group of students reports that they look at the key word of the story first because it gives them ideas of what they are going to read. There are three low level students and two high level students who use this strategy when they start reading. The followings are some samples from their answer.

L5   *When I read, a key word is the first thing I look for. After that, I will skim through the passage.*

L6   *When reading, a key word is the first thing I look for. Then I will figure out the meaning of the key word.*

H5   *What I often do when start reading is to find a key word of the passage to see what the key word is about and find the information in the passage that relates to the key word.*

H9   *When I start reading, I start with finding a key word first and after that I will skim through the passage.*

This strategy also emerges from the interview. There are only low and high level students who use this strategy. It can be concluded that low and high level

students could share more similar use of strategies to each other than to high level students.

The last strategy that low, middle and high level students use when they start reading is to consider the title of the story. One student of each level is using this strategy.

L9   *When I start reading, I look at the title to see if the story will be about* and then I will find the key words and keep reading slowly.

M4   *When I start reading, I look at the title of the story before doing anything else.*

H4   *The first thing I do when I read is to read the title of the story.*

This strategy is included in inference strategies on item 4, *"I always read the title and subheadings to help me understand the text."* When consider the percent of students in each level who answer "often" and "always" use of this strategy, it was found that the percent of low, middle and high level students is close to each other. The percent of "often" and "always" answered by low level students is 36% and 10.5%, by middle level students is 35.7% and 10.4%, and by high level students is 36.4% and 12.1%, respectively. Therefore, the results from the questionnaire and interview show the similarity of strategy use among low, middle, and high level students.

The next part is the result from Question 4.

Question 4: What strategies do you usually use when you read?

The first strategy that many students from low, middle and high level students use is the inference strategies (Table 13) on item 9, *"I read table, graphs, diagrams, flowcharts and pictures in the text to increase my understanding."* The total of nineteen students reports to use this strategy to help them understand a reading passage. The students who use this strategy include seven low level students, five middle level students, and seven high level students. Samples of students' report are the following.

L6   *I always use graphs and pictures. They help me a lot when I read.*

L7   *I use pictures and graphs every time when I read. I use them a lot.*

L8   *Pictures and graphs help me a lot in reading.*

M1   *I use pictures, graphs and diagrams to help me understand.*

M2   *I always look at the picture first and try to imagine the story.*

M3   *I use pictures, graphs, diagrams to help me understand the reading.*

H1   *I use tables, graphs, or pictures in the passage because they help me understand the passage.*

H3   *Diagrams, graphs and pictures help me to understand a passage better.*

H8   *When I read, I also pay attention in pictures and graphs if they are provided.*

The result from the interview reveals that low, middle and high level students see that pictures and graphs appearing in a passage are useful and help them to understand. The result from the questionnaire also reports the same that low, middle and high level students have the similar pattern of this strategy use. That is their top three ranks, including "sometimes," "often" and "seldom," are the same. The percent of frequency use of each level is the following: 39%, 34.2% and 17.5% for low level students, 49.6%, 29.1% and 10% for middle level students, and 44.3%, 30.7%, and 10% for high level students, respectively.

The second strategy is using own experience or knowledge of the world and English structure. Many students from low, middle, and high level students share this strategy. They report that their strategy helps them to understand the reading more. Some samples are demonstrated below.

L5   *I often use experience to help me when reading.*

L6   *I always use sentence structure to help me when I don't understand.*

L9   *Experience helps me to understand, it is not confused me.*

M1   *I definitely use my experience in reading.*

M3   *I normally use my background knowledge. Most of the time, it helps me to understand the reading.*

H5 *I often use my experience to help me understand the reading.*

H9 *My experience helps me to better understand the reading.*

H10 *I always use experience and sentence structure to help me understand the reading.*

  This strategy is the retrieval strategies that students use their knowledge of the world and language background to help them understand the reading. The retrieval strategies include four items and the result from those items shows the similar use of strategies among low, middle and high level students. Therefore, the results from the interview confirm the results from the questionnaire. That is low, middle and high level students share similar use of retrieval strategies.

  The next strategy is using the title to guess the story. This result from the interview shows that low and high level students are more similar to each other than to middle level students. It was found that 6 low and 7 high level students use the title, but only 1 middle student reports of using it. Some samples are the following.

L4 *I sometimes use the title to help me understand the reading.*

L8 *I look at the title when I read…*

L9 *I look at the keyword and title first when I read.*

M4 *I will consider the title first when I read.*

H4 *Titles are the first thing I read.*

H5 *Titles help me to understand the reading.*

H6 *I use titles to help me with reading.*

H10 *I can guess the story from its title.*

Middle level students report in the opposite way.

M2 *Titles don't help me to understand the reading, but they could help a bit sometimes.*

M7 *Titles don't help me much in reading.*

  Using the title is the item 4 of inference strategies. The result from the interview confirms the result from the questionnaire that high level students see the usefulness of the title. Their interview's reports are very positive and their

questionnaire also shows the highest frequent use of "often." However, the opposite result is on the middle level students. From the result of questionnaire, they tend to use more of titles but only 1 of them report of using the title from the interview. For low level students, the result from the interview show that they are similar to high level students in using the title; however, from the questionnaire, low level students use the title in a moderate level tending to "seldom" use. When considered the percent of the frequent use, both low and high level students have the close number of percent for "sometimes" and "often." For "sometimes," low and high level students have 36% and 35%, respectively. For "often," low and high level students have 36% and 36.4%, respectively. Therefore, it can be concluded that some low and high level students share the similar use of this strategy when they read.

The last strategy reported from the interview is re-reading. The result is from four low, five middle, and five high level students. They report that they re-read and go back and forth to read the part they do not understand. Some samples are presented.

L1   *I always re-read many times when I don't understand*

L6   *I re-read the parts I don't understand.*

M1   *I re-read to make myself understand more.*

M6   *I re-read many times if I have parts that I don't understand.*

H6   *I often re-read when I don't understand.*

H8   *I re-read to find the connection of sentences.*

This strategy is included in the memory strategies, item 3, *"I read the text and question several times to better understand them"* and item 4, *"I go back and read things over when I don't understand what I'm reading."* The result from the questionnaire is similar to the interview that is low, middle, and high level students are similar in using these strategies.

The next is the result of Question 5.

Question 5: What would you do when you find an unknown word while you read?

There are two main strategies that students report the most use. The first one is using context clues and situation of the story. The reports are from eight low, four middle, and five high level students. Some samples are described below.

L1   *I sometimes use context clues before using a dictionary.*

L6   *I use context clues to guess the meaning of unknown words.*

M4   *I try to use less of dictionary so I always use context clues.*

M5   *I sometimes use context clues.*

H5   *I use context clues to guess the meaning of unknown words*

H6   *I usually use both sentence structure and context clues.*

This strategy is included in the comprehending strategies (Table 11), item 7, "*When I read, I guess the meaning of unknown words or phrases without using a dictionary.*" The result from the questionnaire is also the same as the interview that low, middle and high level students use this strategy, mainly the context clue. The result from the questionnaire reports that all students use this strategy which is the same as the result from interview that the largest group of students report of using context clues instead of using a dictionary.

The second important strategy is using an English-Thai dictionary. The reports are from five low, three middle and four high level students. Some samples are demonstrated below.

L2   *I usually find the meaning of the unknown word from a dictionary.*

L4   *I will use a dictionary first when I don't know the meaning of the word.*

M2   *When I find an unknown word, I find the meaning from a dictionary first.*

M7   *I find the meaning of the unknown word by using a dictionary.*

H3   *Dictionary is the first thing I use to find the meaning of the unknown word.*

H10   *I use the dictionary from my phone to find the meaning of the words*

This strategy is included in the support strategies on item 4, *"I use an English-Thai dictionary to find the meaning of the words."* Again, the result from questionnaire and interview shows that low, middle, and high level students have similar use of this strategy. The result from questionnaire reports that all students use this strategy.

The results from the interview in this question also confirm the result from the questionnaire that low, middle, and high level students share some similar strategies when they read.

The next part is the result from Question 6.

Question 6: What would you do when you do not understand the reading?

There are two main strategies that most students use to help them when they do not understand the reading.

The first strategy is using the sentence structure. There are three low, four middle, and four high level students using this strategies. The samples from the interview are shown below.

L9   *I sometimes use sentence structure to help me understand the reading.*

L10   *I use sentence structure to help me understand when I read.*

M2   *If I don't understand, sentence structure can help me understand the reading.*

M3   *Sentence structure can somehow help me to understand the reading.*

H8   *I try to find the connection between sentences when I don't understand the reading.*

H10   *I use the sentence structure like the transition words to help me with the reading.*

This strategy is included in retrieval strategies (Table 13), item 3, *"I use my own English structure knowledge to comprehend the text."* From the result of questionnaire, the frequency pattern of low, middle, and high level students are the same. The result is also the same in the interview that most students in each level are using this strategy. The result of the interview confirms the result of the questionnaire that low, middle, and high level students share some strategy uses.

The next strategy is skip and come back to read again. There are three low, four middle, and three high level students using this strategy. The interview reports are the following.

L5 *I skip the parts I don't understand and come back to re-read them.*

L6 *I sometimes skip the parts I don't understand first and I usually mark where I don't understand so I can come back and read where I marked.*

M2 *I skip the parts I don't understand and come back to read again later.*

M6 *When I find a part I don't understand, I skip it first and come back to read it later.*

M5 *I skip the part I don't understand and come back to read or guess the meaning of that part.*

This strategy is the memory strategy, item 6, *"I skip the part I don't understand when I'm reading."* The result from the questionnaire shows the similar pattern of frequency use of this strategy among low, middle, and high level students. The result from the interview also shows the close number of students among low, middle, and high level students who use this strategy.

The next part is the result from Question 7.

Question 7: When the text becomes difficult, what do you do?

There are three answers from this question. The first answers have the most students reporting of using them. The result is the following.

The first answer is when students find the text getting more difficult, they feel discouraged but they still try to read it. The answer was from most students of low, middle, and high levels. Here are the samples.

L1 When the text becomes difficult, I feel discouraged but I try to finish it any way.

L4 I sometimes feel discouraged when the reading is difficult, but I still try to read it.

M2 When the text becomes difficult, I feel a little bit despondent, but I try to read it.

M3 Even though the text is difficult, I try to finish reading it any way.

H3   When the text becomes difficult, I feel a bit discouraged, but I still

keep reading it.

H10   When the text becomes difficult, I will try to read it. If I still don't

understand, I will finally skip it.

The second answer is when the text becomes difficult, students feel discouraged and don't want to read any more. The answers were from 3 low, 2 middle and 3 high level students. Here are some samples.

L5   When the reading is difficult, I feel tired and discouraged. I don't want

to read it.

M6   If the reading is difficult, I will give up. If I need to read for the test, I

will guess the answer.

H1   I feel despondent when reading is difficult. I don't want to read it but if

it is for a test, I will just guess the answer.

The last answer is when the text becomes difficult, they will try harder. The answers were from 2 low, 2 middle, and 2 high level students. The samples are the following.

L6   When the text becomes difficult, I try harder. I try my best.

M5   When the text becomes harder, I will try my best. If I still don't

understand the reading, I will finally guess the meaning.

H6   When the text becomes harder, I will try harder. I will pay more

attention on it.

From the results of Question 7, most students tried to read even though they found that the text was difficult. Students in low, middle, and high levels had the similar feelings, tired and despondent, when they faced with the difficult reading. Most of them tried to understand the reading. Some of them accepted that they did not want to read or they would give up reading. Also, some to them tried harder to do their best in reading. It does not matter that students are in different proficiency levels.

They show that they have similar feeling when facing with difficult texts and also, solve this problem in similar ways.

So far, the results from the interview show the similarity of the use of reading strategies among low, middle, and high level students in all questions. This confirms the results from the questionnaire that low, middle, and high level students use some similar strategies when they read.

The next part of this chapter is the result from vocabulary learning strategies. Vocabulary learning strategies consist of two main parts: 1) Part A: "When I find a new word that I don't know, I……" and 2) Part B: "When I want to remember new words and build my vocabulary, I……." The results are reported on Table 20 – Table 24.

Table 20

Distribution for vocabulary learning strategies among low, middle, and high level based on vocabulary size

A. When I find a new word that I don't know, I........	Low Level (%)					Middle Level (%)					High Level (%)				
	1 Never	2 Seldom	3 Some times	4 Often	5 Always	1 Never	2 Seldom	3 Some times	4 Often	5 Always	1 Never	2 Seldom	3 Some times	4 Often	5 Always
Determination															
1. Check new word's form (verb, noun, adjective).	0.9	13.2	67.5	16.7	1.8	0.4	15.7	60.9	20.9	2.2	2.1	20.7	55.7	18.6	2.9
2. Look for any word parts (im-, un-, -able, -ful, -ment, ex-).	1.8	18.4	56.1	23.7	0.0	0.9	10.1	51.3	27.8	0.9	3.6	23.6	40.0	32.9	0.0
3. Check if the word is also a Thai word.	5.3	11.4	47.4	24.6	11.4	3.5	11.3	55.2	22.2	7.8	6.4	12.9	46.4	22.9	11.4
4. Use any pictures in the text to help me guess the meaning.	1.8	12.3	33.3	37.7	14.9	2.2	8.3	43.0	33.5	13.0	2.9	14.3	36.4	35.7	10.7
5. Guess its meaning from context.	1.8	11.4	33.3	33.3	20.2	2.2	6.1	43.0	36.1	12.6	2.9	9.3	40.0	37.9	10.0
6. Use a Thai-English dictionary.	2.6	17.5	37.7	30.7	11.4	3.0	14.8	39.6	30.4	12.2	2.9	15.0	43.6	25.7	12.9
7. Use an English- English dictionary.	4.4	22.8	41.2	25.4	6.1	7.0	19.1	38.7	26.1	9.1	7.9	21.4	42.1	21.4	7.1
8. Use Thai-English Talking-Dictionary.	7.0	9.6	40.4	31.6	11.4	6.5	11.3	39.6	28.3	14.3	7.9	7.9	42.9	27.9	13.6
9. Use English-Thai Talking-Dictionary.	5.3	11.4	38.6	32.5	12.3	3.5	10.0	38.3	34.8	13.5	1.4	8.6	40.7	35.7	13.6
10. Use Internet to search for meaning.	0.9	3.5	34.2	35.1	26.3	1.3	3.5	34.3	37.0	23.9	2.1	6.4	30.0	37.9	23.6
Social Strategies															
11. Ask teachers to give me the definition or a sentence	0.9	12.3	56.1	21.9	8.8	1.3	11.3	52.2	19.9	16.1	2.1	12.9	42.9	29.3	12.9
12. Ask teachers to give me a sample sentence.	1.8	10.5	57.0	22.8	7.9	1.7	12.2	49.6	24.8	11.7	4.3	13.6	43.6	27.1	11.4
13. Ask my classmate for the meaning.	2.6	7.0	50.9	28.1	11.4	0.9	4.3	46.5	32.2	16.1	0.7	4.3	43.6	32.9	18.6
Metacognitive															
14. Skip or pass the new words.	5.3	11.4	50.9	24.6	7.9	3.9	13.9	53.9	17.4	10.9	4.3	11.4	42.1	30.7	11.4

From Table 20, determination strategies consist of ten items. Low, middle and high level students share similar use of 9 out of 10 strategies. For example, item 1, *"I check new word's form (verb, noun, adjective),"* the pattern of frequency use of low, middle and high level strategies is the same that is starting from "sometimes," followed by "often," "seldom," "always," and "never." Another sample is item 2, *"Look for any word parts (im-, un-, -able, -ful, -ment, ex-)"* This item also shows the similar pattern among low, middle and high level students as mentioned; however, there is one noticeable point of the differences between middle level students and others. The difference appears on the "always" use. It shows that both low and high level students never "always" use item 2 since the frequency percent shows 0%, but there are few middle level students around 0.9% use item 2. Another important item is item 4, *"Use any pictures in text in text to help me guess the meaning."* This strategy shows the different pattern of strategy use among low, middle and high level students. Take the top three ranks of each level as an example. For low level students, their top three ranks are "often" (37.7%), "sometimes" (33.3%), and "always" (14.9%), respectively. For middle level students, their top three ranks are "sometimes" (43%), "often" (33.5%) and "always" (13%), respectively. For high level students, their top three ranks are "sometimes" (36.4%), "often" (35.7%), and "seldom" (14.3%). It could also see that middle and high level students are sharing the first and second ranks but low level students are totally different from middle and high level students.

Therefore, for the determination strategies, it can be concluded that low, middle, and high level students use most of determination strategies to find the meaning of a new word. Even though there is one different item (item 4), middle and high level still share their first and second ranks of strategy use. This could be inferred that middle level students might be moving close to high level students but low level students seem to be going in the opposite way.

The next strategy is social strategies. There are three items included in Part A. The result shows that item 12, *"Ask teacher to give me a sample sentence"* and item 13, *"Ask my classmate for the meaning"* are used similarly among low, middle, and high level students. They have the similar patterns of frequency use of these strategies. Take an example from item 13. The top three ranks of this strategy among low, middle and high level students are "sometimes," "often" and "always."

For item 11, *"Ask teachers to give me the definition or a sentence,"* low, middle and high level students share only the first and second ranks; however, the pattern of frequency use among middle and high level students are the same. That is "sometime," "often," "always," "seldom" and "never."

The last strategy for Part A is metacognitive strategies. There is only one strategy of metacognitive strategies in this part that is *"Skip or pass the new word."* Again, the result shows that low, middle and high level students share the similar pattern of strategy use. For example, the top three ranks of them are "sometimes," "often" and "seldom." Even though the third rank of high level students are both "seldom" and "always," it can be considered that all levels of students are sharing the similar pattern since the third ranks of high level students can also be "seldom."

In conclusion, it can be seen that students in all levels use similar strategies in finding the meaning of new words since the result appears that low, middle and high level students share the similar pattern of frequency of strategy use. It can also be seen that middle and high level students are more similar to each other than to low level students in the use of few strategies. Thus, it can be concluded that middle level students may begin to move forward to the higher level.

The next part is the Part B of vocabulary learning strategies. The result is demonstrated from Table 21 to Table 24.

Table 21 is the result of social strategies including three items.

Table 21

Distribution for vocabulary learning strategies focusing on social strategies among low, middle, and high level students based on vocabulary size.

	Low Level (%)					Middle Level (%)					High Level (%)				
	1 Never	2 Seldom	3 Some times	4 Often	5 Always	1 Never	2 Seldom	3 Some times	4 Often	5 Always	1 Never	2 Seldom	3 Some times	4 Often	5 Always
B. When I want to remember new words and build my vocabulary, I….															
Social Strategies															
15. Study the word with my classmate.	4.4	10.5	60.5	18.4	6.1	3.0	6.5	72.2	9.1	9.1	2.1	8.6	62.9	16.4	10.0
16. Ask teachers to check my definition.	0.9	10.5	67.5	19.3	1.8	0.9	10.0	66.2	20.4	3.5	0.0	15.7	50.7	29.3	4.3
17. Talk with native speakers.	10.5	19.3	42.1	22.8	5.3	7.0	15.7	45.2	26.5	5.7	10.0	21.4	39.3	23.6	5.7

Table 21 shows the results of social strategies including three items. The result shows that low, middle and high level students share the similar pattern of strategy use on item 16, *"Ask teachers to check my definition,"* and item 17, *"Talk with native speakers."* Take an example from the top three ranks of item 16. It shows that the top three ranks of low, middle, and high level students are "sometimes," "often," and "seldom." For item 15, "*Study the word with my classmate,'* low, middle, and high level students share only the first and second ranks that are "sometimes" and "often." However, similarity is also seen among middle and high level students that their use of this strategy tends to be on the positive way. It can see that their frequency use moves from "often" to "always" instead of "seldom" as low level students do. Therefore, it could be concluded that low, middle, and high level student share their similar use of strategies, but middle and high level students are more similar to each other than to low level students.

Then the next part is the memory strategies. The result is reported on Table 22.

Table 22

Distribution for vocabulary learning strategies focusing on memory strategies among low, middle, and high level students based on vocabulary size

Memory Strategies	Low Level					Middle Level					High Level				
	1 Never	2 Seldom	3 Some times	4 Often	5 Always	1 Never	2 Seldom	3 Some times	4 Often	5 Always	1 Never	2 Seldom	3 Some times	4 Often	5 Always
18. Draw a picture of the word to help remember it.	7.0	29.8	36.0	22.8	4.4	7.8	22.2	42.2	20.0	7.8	8.6	28.6	39.3	18.6	5.0
19. Make a mental image of the word's meaning.	9.6	22.8	50.0	14.0	3.5	5.7	17.8	46.5	22.6	7.4	7.9	17.1	51.4	18.6	5.0
20. Connect the word to a personal experience.	3.5	18.4	53.5	12.3	12.3	2.6	16.1	54.8	12.6	13.9	4.3	20.0	45.0	22.9	7.9
21. Remember the words that follow or precede the new word.	0.9	7.0	51.8	28.1	12.3	1.7	7.0	57.8	23.9	9.6	5.0	7.9	47.1	29.3	10.7
22. Connect the word to other words with similar meanings.	0.0	12.3	44.7	33.3	9.6	0.0	16.5	46.1	26.1	11.3	0.0	22.1	40.7	28.6	8.6
23. Connect the word to other words with opposite meanings.	4.4	19.3	26.3	41.2	8.8	3.5	23.0	37.8	29.1	6.5	1.4	33.6	29.3	30.0	5.7
24. Use new words in sentences.	4.4	25.4	43.0	21.1	6.1	3.9	22.6	51.7	14.8	7.0	6.4	33.6	37.9	18.6	3.6
25. Group words together to study them.	3.5	22.8	43.0	23.7	7.0	3.0	23.5	45.2	20.9	7.4	6.4	20.7	40.7	27.9	4.3
26. Study the spelling of the words.	1.8	21.1	41.2	26.3	9.6	2.6	24.8	50.0	14.3	8.3	2.9	21.4	47.9	21.4	6.4
27. Write paragraphs using new words.	1.8	14.0	46.5	29.8	7.9	3.5	19.6	49.1	21.7	6.1	5.0	17.9	48.6	25.7	2.9
28. Study the sound of the words.	2.6	6.1	46.5	29.8	14.9	3.0	8.7	50.4	23.5	14.3	3.6	10.0	47.9	30.7	7.9
29. Remember the words in scales.	0.0	14.9	40.4	25.4	19.3	0.0	13.9	40.0	28.7	17.4	0.0	12.1	45.7	28.6	13.6
30. Say the words aloud when I first meet them.	6.1	20.2	44.7	14.0	14.9	7.4	16.5	46.1	13.9	16.1	6.4	12.9	50.0	17.9	12.9
31. Remember the word using its parts. (im-, un-, -able, -ful, -ment, ex-)	0.9	17.5	44.7	28.1	8.8	1.3	22.6	42.2	25.2	8.7	0.7	28.6	42.9	19.3	8.6
32. Remember the word using its word form (verb, noun, adjective).	2.6	13.2	50.0	27.2	7.0	2.6	17.8	53.0	18.3	8.3	2.1	25.7	42.9	22.9	6.4

From Table 22, there are 6 out of 15 items that low, middle and high level students share some similar pattern of frequency use. Those items are items 18, 21, 22, 24, 27, and 28. Take an example from item 22, "*Connect the word to other words with similar meanings.*" The top three ranks of low, middle, and high level students are "sometimes," "often," and "seldom." They also report that all of them use this strategy. None of them answers "never" (0%).

Another main point from the memory strategies is that there are many items that low and middle level students share their similar pattern with each other, but not with high level students. Those items are items 20, 28, 30, 31, and 32. An example from item 28, "*Study the sound of the word,*" shows the similar pattern of strategy use among low and middle level students. The pattern is "sometimes," "often," "always," "seldom," and "never." High level students use item 28 differently. Even though they share the same first and second ranks, their third rank is on "seldom" and fourth is on "always." It could see that some high level students tend to use less of this strategy while low and middle tend to use more of this strategy regarding their direction of frequency use.

Therefore, the result from this strategy show that low and middle level students share the similar pattern of strategy use with each other more than with high level students. It can be seen that the total of item sharing among them is 11 out of 15 items. That is low and middle level students share 6 items with high level students and they also share 5 items with each other. As result, low level students seem to be able to move up to the middle level but still might not reach the high level. Besides, middle level students might be able to move up to the high level or stay in their position.

The next part is the result of cognitive strategies. The cognitive strategies include six items. Table 23 demonstrates the result.

Table 23

Distribution of cognitive strategies of vocabulary learning strategies among low, middle, and high level students based on vocabulary size

B. When I want to remember new words and build my vocabulary, I....

Cognitive Strategy

	Low Level (%)					Middle Level (%)					High Level (%)				
	1 Never	2 Seldom	3 Some times	4 Often	5 Always	1 Never	2 Seldom	3 Sometimes	4 Often	5 Always	1 Never	2 Seldom	3 Some times	4 Often	5 Always
33. Repeat the words aloud many times.	2.6	14.0	49.1	25.4	8.8	3.5	13.0	52.2	23.0	8.3	2.1	17.9	50.0	22.1	7.9
34. Write the words many times.	0.9	17.5	45.6	28.1	7.9	0.9	14.8	49.1	27.8	7.4	0.7	19.3	39.3	31.4	9.3
35. Make lists of new words.	5.3	14.9	48.2	21.9	9.6	4.3	11.3	52.6	23.9	7.8	3.6	10.0	51.4	22.9	12.1
36. Highlight the new words.	0.9	15.8	49.1	27.2	7.0	0.9	14.8	47.0	27.4	10.0	2.9	11.4	42.1	30.0	13.6
37. Keep a vocabulary notebook	4.4	19.3	57.0	13.2	6.1	6.1	16.5	53.9	18.7	4.8	1.4	17.9	50.7	18.6	11.4
38. Use flashcard to record new words	4.4	17.5	53.5	21.1	3.5	7.4	14.8	53.5	20.9	3.5	1.4	16.4	56.4	22.9	2.9
39. Put English labels on objects.	12.3	15.8	51.8	19.3	0.9	12.6	15.7	51.7	18.3	1.7	9.3	16.4	51.4	20.7	2.1

Cognitive strategies (items 33-39). Low, middle and high level students share their similar pattern on 6 out of 7 items. For example, item 33, "*Repeat the words aloud many times,*" low, middle and high level students have the similar pattern of strategy use such as their top three ranks including "sometime," "often," and "seldom." The item that is different is item 36, "*Highlight the new words.*" This item has only low and middle level students sharing the similar pattern; for example, their top three ranks are "sometimes," "often" and "seldom" while high level students' top three ranks are "sometimes," "often," and "always." Therefore, this is obviously seen that low, middle and high level students have share many similar pattern of strategy use.

The last part of vocabulary learning strategies is the metacognitive strategies including four items. The result is on Table 24.

Table 24

Distribution of metacognitive strategies of vocabulary learning strategies among low, middle, and high level students based on vocabulary size.

	Low Level (%)					Middle Level (%)					High Level (%)				
	1 Never	2 Seldom	3 Some times	4 Often	5 Always	1 Never	2 Seldom	3 Some times	4 Often	5 Always	1 Never	2 Seldom	3 Some times	4 Often	5 Always
B. When I want to remember new words and build my vocabulary, I.....															
Metacognitive Strategies															
40. Use English-language media.	2.6	12.3	57.9	13.2	14.0	4.8	11.7	56.5	16.1	10.9	2.1	17.1	50.7	16.4	13.6
41. Test myself with word tests.	5.3	19.3	46.5	24.6	4.4	6.1	23.5	44.8	20.0	5.7	2.9	15.7	49.3	21.4	10.7
42. Review new words many times.	2.6	15.8	43.9	28.1	9.6	6.5	15.7	47.8	19.1	10.9	2.1	15.7	40.7	24.3	17.1
43. Use spaced word practice.	2.6	14.0	53.5	27.2	2.6	7.4	9.6	51.7	27.0	4.3	2.1	12.1	46.4	30.7	8.6

From Table 24, the similar pattern among low, middle, and high level students is only shown in item 43, *"Use spaced word practice."* They share only the top three ranks that are "sometimes," "often," and "seldom." For item 40, *"Use English-language media,"* middle and high level students have the similar pattern while low and high level students have the similar pattern on item 41, *"Test myself with word tests."* Finally, item 42, *"Use spaced word practice,"* appears to be that low and middle level students are sharing the similar pattern.

From the result of the metacognitive strategies, there is only one strategy that all of them share the pattern. However, the sharing of strategy uses still shown in pairs such as middle and high level students or low and middle level students.

In conclusion of the use of vocabulary learning strategies among low, middle, and high level students, we can see that students, even though, are in different levels of vocabulary size, they show many similarities of strategy use.

In order to confirm the results from the questionnaire, the semi-structured interview were conducted. The results are the following.

Results from semi-structured interview of vocabulary learning strategies

The next part is Question 8 focusing on vocabulary learning strategies. The Question 8 is "What kind of vocabulary learning strategies that you like to use?" This question consists of 3 sub-questions that are:

8.1) When you find a new word, what would you do?

8.2) What do you do to remember a new word?

8.3) How do you build your vocabulary knowledge?

The results of these questions are reported below.

Question 8.1: When you find a new word, what would you do?

Most students of low, middle and high level students report that they will find the meaning of the word first mostly by using an English-Thai dictionary. They use a dictionary book, Internet and some applications on their phone to find meanings. The followings are samples of their reports.

L2   *I find the meaning of the word by using the dictionary application on my phone. It is an English-Thai dictionary.*

L9   *I find the meaning of the word by using a dictionary book and applications on my phone. I use an English-Thai dictionary first, and sometimes, I use an English-English dictionary.*

M2   *I always find the meaning by using a dictionary. I don't guess the meaning of the word.*

M3   *I will find the meaning of the word first by using an English-Thai dictionary from my phone and also from a dictionary book.*

H4   *I search the meaning of the word from the Internet.*

H5   *When I find a new word, I will find the meaning from a dictionary book, Internet, and also applications on my phone.*

Moreover, they also report that they prefer to ask their friends for meaning of the word rather than asking teachers. Here are some samples.

L6   *I always ask my friend for the meaning of a word.*

L9   *I will ask my friend first, or try to find the meaning by myself before I ask my teachers.*

M3   *I ask my friend first.*

M6   *I usually ask my friend first.*

H8   *I usually ask my friend who are good at English.*

H9   *I ask my friend for the meaning often but seldom ask my teachers.*

The students' answers from the interview are similar to the answer from the questionnaire on the determination strategies, item 9, *"I use an English-Thai Talking dictionary,"* item 10, *"I use Internet to search for meaning,"* and item 12, *"I ask my classmate for the meaning."* These three strategies are shared their used among low, middle, and high level students.

According to the answer that students preferred to ask their friends for meaning, not teachers, the researcher asked for the reasons why they preferred doing that. Students answered that asking their friends was easier and more comfortable. They had chances to ask their friends more than to ask their teachers. This is why friend were their first choice.

Question 8.2:   What do you do to remember a new word?

The first strategy that most low, middle and high level students use is to review a new word many times to memorize it. This strategy is a metacognitive strategy, item *42, "Review new words many times."* Students use both verbal repeating and written repeating to memorize the new words. Most students use verbal repeating. The samples are the following.

L4   *To memorize a word, I usually verbally repeat it many times.*

L6   *I usually verbally repeat new words to memorized them.*

M2   *I usually verbally repeat a new word aloud by myself.*

M6   *I review a new word by verbal repeating it.*

H6   *I memorize a new word by verbal repeating it aloud many times.*

H8   *I use verbal repeating to memorize a new word.*

Some students use written repeating when reviewing a word in order to memorize it. Most of them are low and high level students, but only one middle level student reports of using written repeating. The samples are the following.

L1   *I usually try to write a new word many times to memorize it.*

M3   *I write a new word many times on my notebook.*

H1   *I usually write a word down many times to memorized it.*

The second popular strategy that low, middle, and high level students are using to memorize a new word is writing in down in a notebook or post-it, but not keeping a vocabulary notebook. d that five low level students use this strategy while three middle and two high level students use it. Below statements are the samples of students' reports.

L2   *When I find a new word, I usually write it down on the post-it.*

L9   *I write a new word down in my notebook and review them often.*

M1   *I often write a new word down in my notebook.*

M3   *I write a new word down in my notebook.*

H3　　*I write a new word down on my notebook, but I don't keep a vocabulary notebook.*

H4　　*I write a new word does on my phone.*

This strategy is not included in the questionnaire. However, it can still see that all three level students use the same strategy to help them remember a new word.

The next strategies illustrate the similar result with the questionnaire that some strategies are used similarly among two levels of students, not all threes. For example, low and middle level students use a similar strategy with each other but differently from high level students. The samples are the following.

Low and high level students report that they connect the word with similar meaning, but none of middle level students reports of using this strategy. This strategy is the item 22 of memory strategies, *"Connect the word to other words with similar meaning."* From the questionnaire, even though all three level students have the same frequency ranks of this strategy use, but the numbers of students who answered "often" and "always" of low and high level students are closer to each other than to middle level students, but none of low level students reports of using this strategy. Instead, low level students only choose to remember words that are often used. The following statements are samples from the interview.

L5　　*I remember a new word by trying to match them with other words that have similar meanings.*

L7　　*I match a new word with other words that have similar meanings to remember it.*

H3　　*I remember a new word by connecting it with other words with the similar meaning.*

H4　　*I remember a new word by matching it with other similar meaning words.*

Even though this strategy is not included in the questionnaire, the result is also similar to the result from the questionnaire that some strategies may be used similarly among two levels of students, not all threes.

The last part of the interview is the report on the Question8.3.

Question 8.3: How do you build your vocabulary knowledge?

There are two main strategies that most low, middle, and high level students report of using them. The first popular one is watching the movies and the second one is listening to music. These strategies are the metacognitive strategies. They are included in item 40, *"Use English-language media."* The samples are the following.

L5 *Watching movies help me build more vocabulary.*

L6 *I watch movies and listen to songs to build my vocabulary.*

L9 *I watch movies to build my vocabulary.*

M5 *I usually build my vocabulary by watching movies and listening to music.*

H3 *I sometimes listen to music to build more vocabulary*

H7 *I like to watch movies to learn a new vocabulary.*

H8 *If I want to build more vocabulary, I will watch movies.*

The next strategy is learning from online sources. The similarity of using this strategy appears among middle and high level students, but none of low level students report of using it. Here are some samples.

M1 *I usually learn new vocabularies from watching clips from 'youtubes.'*

M4 *I play on-line games that use English as medium.*

H4 *I learn new vocabularies from Webpages.*

H7 *I play on-line games that use English as medium.*

The last strategy is reading an article. This strategy shows the similarity among low and high level students even though there is only one of students in both levels report of using it. The result is from L10 and H8.

L10 *I build my vocabulary by reading an English article.*

H8 *I build my vocabulary by reading an English article from the Facebook.*

From the results of the semi-structured interview, the conclusion can be confirmed with the results from the questionnaire that low, middle and high level students share similar uses of vocabulary learning strategies. Some strategies are

shares among only two level students such as low and middle, low and high, or middle and high.

The next part is the result from SEM analysis.

Structural equation modeling analysis

In order to answer the Research Question 3, *Do vocabulary depth, vocabulary learning strategies, and reading strategies mediate the relationship between vocabulary size and reading comprehension of first-year undergraduate students? If so, how*?, a mediation model of the relationship between vocabulary size and reading comprehension was created. Structural equation modeling (SEM) was employed to estimate the mediation model by using Mplus program, version 6.11.

To estimate the mediation model using SEM, there were two parts that needed to be measured: 1) measurement model and 2) structural model. The measurement model related observed variables to latent variables. The structural model related latent variable to one another.

The measurement model

The model in this study consisted of five latent variables including vocabulary size (VS), reading comprehension (RC), vocabulary depth (VD), reading strategies (RS), and vocabulary learning strategies (VLS). The observed variables of vocabulary size, reading comprehension, and vocabulary depth were the Vocabulary Size Test (Bilingual Version) (VST), Reading Comprehension Test (RCT), and Depth of Vocabulary Knowledge Test (DVT), respectively. The observed variables of RS were reading strategies including 56 items. The observed variables of VLS were vocabulary strategies including 43 items. To measure the observed variables, single-level confirmatory factor analysis (CFA) was used to analyze the construct validity. However, the observed variables of VS, RC, and VD were the tests that had already measured for their validity and reliability before used; therefore, the result was confirm that they could be observed variables of the mentioned latent variables. Moreover, for SEM, to analyze the construct validity, the goodness of fit of the model was needed to be considered. By using the Mplus program, the model was adjust to fit the empirical data based on modification indices. For this study, the criteria for

empirical data and model fit was taken from Kwan and Walker (2003) and Hansen, Rosen, and Gustafsson (2004). The results are demonstrated on Tables 25 - 27.

Table 25 demonstrates the construct validity of reading strategies including 56 items. The symbols of items in reading strategies listed below.

Symbols	Statement
R1	I have a purpose in mind when I read.
R2	I take notes while reading to help me understand what I read.
R3	I think about what I know to help me understand what I read.
R4	I take an overall view of the text to see what it is about before reading it.
R5	When a text becomes difficult, I read aloud to help me understand what I read.
R6	I think about whether the content of the text fits my reading purpose.
R7	I read slowly and carefully to make sure I understand what I am reading.
R8	I review the text first by noting its characteristics like length and organization.
R9	I try to get back on track when I lose concentration.
R10	I underline or circle information in the text to help me remember it.
R11	I adjust my reading speed according to what I am reading.
R12	When reading, I decide what to read closely and what to ignore.
R13	When text becomes difficult, I pay closer attention to what I am reading.
R14	I stop from time to time and think about what I am reading.
R15	I paraphrase (restate ideas in my own words) to better understand what I read.
R16	I try to picture or visualize information to help remember what I read.
R17	I critically analyze and evaluate the information presented in the text.
R18	I go back and forth in the text to find relationship among contents and ideas in it.
R19	I check my understanding when I come across new information.

R20	I try to guess what the content of the text is about when I read.
R21	I ask myself questions I like to have answered in the text.
R22	I check to see if my guesses about the text are right or wrong.
R23	When reading, I translate from English into Thai.
R24	When reading, I think about information in both English and Thai.
R25	When reading, I think about information in English.
R26	When reading, I think about information in Thai.
R27	I attempted to identify main points of the given reading texts when I read.
R28	I tried to find topics and main ideas by skimming.
R29	I tried to find specific information by scanning.
R30	I tried to understand the text regardless of my vocabulary knowledge.
R31	I use the major points of the text to increase my understanding of the text.
R32	I underlined main ideas of the text.
R33	I do not like to 'spoil' my textbooks so I do not write notes in them or underline sentences.
R34	I use a Thai-English dictionary to find the meaning of the words.
R35	I use an English-English dictionary to find the meaning of the words.
R36	When I read, I guess the meaning of unknown words or phrases without using a dictionary.
R37	I skip the words that I don't know the meaning.
R38	I find it time consuming to use a dictionary to look up words that I do not know. It slows down my reading.
R39	I read the texts several times to better understand them.
R40	I go back and read things over when I don't understand what I'm reading.
R41	Once I start reading, I continue till I come to the end. I do not like to interrupt my reading by going back and re-reading parts of the text.
R42	I skip the part I don't understand when I'm reading.
R43	I check my understanding when I come across conflicting information.

R44	I use facts in the text and my previous knowledge to help me understand the text.
R45	I use previous knowledge to guess what is not explicitly stated in the text.
R46	To avoid confusion, I don't bring what I know into what I'm reading.
R47	I bring my knowledge of the world into what I'm reading to better understand the text.
R48	I use my own English structure knowledge to comprehend the text.
R49	I use my own text structure knowledge to comprehend the text.
R50	I use information in the text to understand what is not directly stated.
R51	I always read the title and subheadings to help me understand the text.
R52	When I do not understand what a sentence means I think about the other sentences in the paragraph to help me understand it.
R53	I use context clues to help me better understand what I'm reading.
R54	I use context clues to help me guess the meaning of unknown words.
R55	I skip reading tables, diagrams, flowcharts, etc. because they slow down my reading and distract me.
R56	I read tables, diagrams, flowcharts and pictures in the text to increase my understanding.

Table 25

Construct validity of reading strategies (RS)

Items	Factor loading (β)	SE	Z	R^2
R1	0.732	0.025	29.461	0.536
R2	0.304	0.024	12.444	0.092
R3	0.434	0.021	20.468	0.188
R4	0.436	0.021	20.636	0.190
R5	0.539	0.020	27.533	0.290
R6	0.556	0.025	22.057	0.310
R7	0.676	0.017	40.078	0.457
R8	0.333	0.041	8.044	0.111
R9	0.804	0.012	68.873	0.646
R10	0.631	0.021	29.983	0.398
R11	0.640	0.023	28.429	0.410
R12	0.352	0.024	14.959	0.124
R13	0.556	0.020	28.250	0.310

Items	Factor loading (β)	SE	Z	R²
R14	0.818	0.020	40.776	0.668
R15	-0.035	0.024	-1.483	0.001
R16	-0.062	0.021	-2.931	0.004
R17	-0.073	0.020	-3.629	0.005
R18	0.086	0.025	3.510	0.007
R19	0.103	0.021	4.900	0.011
R20	0.038	0.022	1.704	0.001
R21	0.013	0.027	0.493	0.000
R22	-0.038	0.021	-1.778	0.001
R23	-0.004	0.023	-0.184	0.000
R24	0.010	0.024	0.426	0.000
R25	-0.030	0.022	-1.314	0.001
R26	-0.109	0.017	-6.394	0.012
R27	-0.030	0.023	-1.313	0.001
R28	-0.009	0.021	-0.424	0.000
R29	0.027	0.021	1.303	0.001
R30	-0.037	0.022	-1.653	0.001
R31	0.015	0.024	0.626	0.000
R32	-0.107	0.021	-4.965	0.011
R33	-0.106	0.021	-5.086	0.011
R34	-0.087	0.022	-3.881	0.007
R35	-0.213	0.023	-9.116	0.046
R36	-0.036	0.023	-1.592	0.001
R37	-0.048	0.021	-2.312	0.002
R38	0.012	0.025	0.493	0.000
R39	0.027	0.023	1.186	0.001
R40	-0.024	0.023	-1.059	0.001
R41	-0.039	0.017	-2.272	0.002
R42	-0.006	0.020	-0.306	0.000
R43	-0.042	0.022	-1.922	0.002
R44	0.020	0.021	0.971	0.000
R45	-0.010	0.020	-0.512	0.000
R46	0.014	0.023	0.619	0.000
R47	-0.011	0.022	-0.486	0.000
R48	0.036	0.022	1.621	0.001
R49	0.051	0.020	2.507	0.003
R50	0.047	0.022	2.147	0.002
R51	0.006	0.021	0.277	0.000
R52	0.012	0.021	0.562	0.000
R53	-0.053	0.020	-2.703	0.003
R54	0.061	0.021	2.875	0.004
R55	0.073	0.019	3.786	0.005
R56	0.024	0.021	1.118	0.001

χ^2 **= 1133.863 , df = 568, p = 0.000   CFI = 0.990, TLI = 0.972, RMSEA = 0.023, SRMR = 0.032**

|Z|> 1.96= p< .05, |Z|> 2.58 = p< .01

From Table 25, the result shows the factor loading for 56 items in the measurement model that measure the latent variable, that is, reading strategies. Even though many items have low loading such item 21 (β = 0.013) and item 24 (β = 0.010)

that mean these items have low effect on the latent variable, the researcher decided to keep them as the model had already adjusted to fit the data based on the fitness index. The model shows the good model fit with the following result: χ^2 = 1133.863 , df = 568, p = 0.000   CFI = 0.990, TLI = 0.972, RMSEA = 0.023, SRMR = 0.032 and χ^2/df = 1.996. Therefore, 56 items are observed variables of reading strategies.

From the result, there are six variables that have high factor loading that means they have strong effect to RS than other variables. Those six variables ranked from the highest loading are R14 (β = 0.818), "*I stop from time to time and think about what I am reading,*" R9 (β = 0.804), "*I try to get back on track when I lose concentration,*" R1 (β = 0.732), "*I have a purpose in mind when I read,*" R7 (β =0.676), "*I read slowly and carefully to make sure I understand what I am reading,*" R11 (β =0.640), "*I adjust my reading speed according to what I am reading,*" and R10(β = 0.631), "*I underline or circle information in the text to help me remember it,*" respectively. R14, R9, R7, and R11 are problem solving strategies. R1 is a global strategy and R10 is a support strategy. These strategies are included in metacognitive strategy. This could be inferred that students use metacognitive strategies more than cognitive strategies. That is why the factor loading of these items are higher than other items.

The next part is the measurement model for the construct validity of VLS strategies. VLS is divided into two parts. Part A is items for "*When I find a new word that I don't know, I.....*" including 14 items. Part B is items for "*When I want to remember new words and build my vocabulary, I...*" including 29 items. The result is demonstrated on Table 21 - Table 23. The symbols of items in vocabulary learning strategies are listed below.

Symbols   **Statement**

Part A

A1   Check new word's form (verb, noun, adjective).

A2   Look for any word parts (im-, un-, -able, -ful, -ment, ex-).

A3   Check if the word is also a Thai word.

A4   Use any pictures in the text to help me guess the meaning.

A5   Guess its meaning from context.

A6   Use a Thai-English dictionary.

A7	Use an English- English dictionary.
A8	Use Thai-English Talking-Dictionary.
A9	Use English-Thai Talking-Dictionary.
A10	Use Internet to search for meaning.
A11	Ask teachers to give me the definition or a sentence
A12	Ask teachers to give me a sample sentence.
A13	Ask my classmate for the meaning.
A14	Skip or pass the new words.

Part B

B1	Study the word with my classmate.
B2	Ask teachers to check my definition.
B3	Talk with native speakers.
B4	Draw a picture of the word to help remember it.
B5	Make a mental image of the word's meaning.
B6	Connect the word to a personal experience.
B7	Remember the words that follow or precede the new word.
B8	Connect the word to other words with similar meanings.
B9	Connect the word to other words with opposite meanings.
B10	Use new words in sentences.
B11	Group words together to study them.
B12	Study the spelling of the words.
B13	Write paragraphs using new words.
B14	Study the sound of the words.
B15	Remember the words in scales.
B16	Say the words aloud when I first meet them.
B17	Remember the word using its parts. (im-, un-, -able, -ful, -ment, ex-)
B18	Remember the word using its word form (verb, noun, adjective).
B19	Repeat the words aloud many times.
B20	Write the words many times.
B21	Make lists of new words.
B22	Highlight the new words.
B23	Keep a vocabulary notebook.

B24	Use flashcard to record new words
B25	Put English labels on objects.
B26	Use English-language media.
B27	Test myself with word tests.
B28	Review new words many times.
B29	Use spaced word practice.

Table 26 below demonstrates the result of construct validity of VLS with two main observed variables including VLS: Part A and VLS: Part B.

Table 26

Construct validity of VLS

Observed variables	Factor loading (β)	SE	Z	R^2
VLS: Part A	0.526	0.058	9.081	0.536
VLS: Part B	0.705	0.049	14.287	0.668

x^2=730.509, df = 476, p = 0.7160, CFI = 0.974, TLI = 0.951, RMSEA = 0.033, SRMR = 0.054

|Z|>1.96 = $p < 0.05$, |Z| > 2.58 = $p < 0.01$

From Table 26, the result shows that there are statistically significant of two observed variables. VLS: Part A has a factor loading of 0.526 while VLS: Part B has a factor loading of 0.705 on the latent variable, VLS. The loadings reveal that these observed variables affect the latent variable. The model was also adjusted to fit data based on the earlier mentioned fitness index. The result is the following: χ^2 = 730.509, df = 476, p = 0.7160, CFI = 0.974, TLI = 0.951, RMSEA = 0.033, SRMR = 0.054 and χ^2/df = 1.535. With the good model fit, VLS: Part A and VLS: Part B are observed variable of VLS.

The next part reports the result for the construct validity of VLS: Part A and VLS: Part B. The results are demonstrated on Table 27 and Table 28.

Table 27

Construct validity of VLS: Part A

Items	Single level CFA model			
A. When I find a new word that I don't know, I........	**Factor Loading (β)**	**SE**	**Z**	**R²**
A1	0.195	0.055	3.555	0.038
A2	1.022	0.086	11.860	0.523
A3	0.893	0.085	10.466	0.798
A4	-0.151	0.054	-2.815	0.023
A5	-0.015	0.011	-1.316	0.009
A6	0.039	0.031	1.267	0.002
A7	0.058	0.044	1.298	0.003
A8	0.003	0.042	0.078	0.005
A9	0.047	0.035	1.347	0.002
A10	0.026	0.024	1.094	0.001
A11	0.016	0.045	0.366	0.007
A12	0.007	0.044	0.158	0.008
A13	5.576	4.326	1.289	0.656
A14	-0.024	0.053	-0.448	0.001

$\chi^2 = 33.983$, df = 21, p = 0.0050   CFI = 0.991, TLI = 0.964, RMSEA = 0.029, SRMR = 0.029

$|Z| > 1.96 = p < .05$, $|Z| > 2.58 = p < .01$

From Table 27, the result shows the factor loadings for 14 items in the measurement model that measure the VLS: Part A. The loadings rank from -0.0151 to 5.576. The model was already adjusted to fit the data based on the fitness index. The model shows the good model fit with the criteria based on Kwan and Walker (2003) and Hansen, Rosen and Gustafsson (2004). The result is the following: $\chi^2 = 33.983$, df = 21, p = 0.0050   CFI = 0.991, TLI = 0.964, RMSEA = 0.029, SRMR = 0.029 and $\chi^2/df = 1.618$. Therefore, the model of VLS: Part A was accepted. The 14 items are the observed variables of VLS: Part A.

When considering the factor loading of 14 items, it is found that only four items, A1 –A4, are statistically significant. From four items, the items ranked from highest factor loadings are A2 (β = 1.022), *"Look for any word parts,"* A3 (β = 0.893), *"Check if the word is also a Thai word,"* A1 (β = 0.195), *"Check new word's form (verb, noun, adjective),"* add A4 (β = -0.151), *"Use any pictures in text to help me guess the meaning'"* respectively. These strategies are included in determination strategies.

The next result is the result of construct validity of VLS: Part B. The observed variables consist of 29 items. Table 28 demonstrates the result.

Table 28

Construct validity of VLS: Part B

Items	Single Level CFA Model			
B. When I want to remember new words and build my vocabulary, I….	Factor Loading (β)	SE	Z	R²
B1	0.584	0.046	12.784	0.341
B2	0.378	0.051	7.406	0.143
B3	0.254	0.058	4.382	0.065
B4	0.312	0.049	6.431	0.097
B5	0.284	0.044	6.518	0.080
B6	0.402	0.043	9.380	0.162
B7	0.596	0.035	16.991	0.355
B8	0.547	0.037	14.862	0.299
B9	0.379	0.040	9.569	0.143
B10	0.132	0.051	2.585	0.018
B11	0.391	0.046	8.473	0.153
B12	0.518	0.034	15.172	0.268
B13	0.566	0.040	14.229	0.320
B14	0.309	0.055	5.622	0.095
B15	0.506	0.044	11.526	0.256
B16	0.298	0.055	5.390	0.089
B17	0.397	0.054	7.399	0.157
B18	0.538	0.035	15.414	0.289
B19	0.489	0.041	11.949	0.239
B20	0.189	0.061	3.115	0.036
B21	0.460	0.044	10.492	0.211
B22	0.659	0.033	19.894	0.434
B23	0.699	0.033	21.476	0.489
B24	0.526	0.042	12.607	0.277
B25	0.661	0.044	14.963	0.437
B26	0.656	0.045	12.585	0.319
B27	0.502	0.043	11.573	0.252
B28	0.194	0.052	3.763	0.038
B29	0.297	0.062	4.833	0.088
$\chi^2 = 241.490$, df = 147, p = 0.000 CFI = 0.986, TLI = 0.962, RMSEA = 0.036, SRMR = 0.045				

$|Z| > 1.96 = p < .05,$ $|Z| > 2.58 = p < .01$

From Table 28, the result shows the factor loadings for 29 items as observed variables in the measurement model that measure the VLS: Part B. All 29 items are statistically significant. The model was adjusted to fit the empirical data based on the fitness index. The result is following: $\chi^2 = 241.490$, df = 147, p = 0.000   CFI = 0.986, TLI = 0.962, RMSEA = 0.036, SRMR = 0.045 and $\chi^2/df = 1.643$. Therefore, the model of VLS: Part B was accepted. The 29 items are the observed variables of VLS: Part B.

When considering the factor loadings of 29 items, the five highest loadings are B23 (β = 0.699), "*Keep a vocabulary notebook*," B22 (β = 0.659), *"Highlight the new words*," B25 (β = 0.661), *"Put English labels on objects*," B26 (β = 0.656), "*Use English-language media*," and B7 (β = 0.596), "*Remember the words that follow or precede the new word*," respectively. B22, B23 and B25 are cognitive strategies while B7 is a memory strategy and B26 is a metacognitive strategy.

When the measurement model confirmed the construct validity of latent variables, the data were measured by the structural model. The next part reveals the result from the structural model.

<u>The structural model</u>

The structural model was used to measure the causal relationship among latent variables. In this study, the aim is to create a model of mediators between vocabulary size and reading comprehension. To create the model, Vocabulary Size (VS) was set as an exogenous variable which was always the independent variable. Reading Comprehension (RC), Vocabulary Depth (VD), Reading Strategies (RS), and Vocabulary Learning Strategies (VLS) were endogenous variable which could become dependent and independent variables for different equations within the same SEM equation (Gunzler, Chen, Wu, & Zhang, 2013). However, RC in this study was set as the dependent variable. VD, RS, and VLS were set as mediators among VS and RC. The proposed model was demonstrated in Chapter III based on literature review. Therefore, when the data were analyzed using SEM, the model was adjusted to fit the empirical data.

Before this final model, another model was created as explained in Chapter III, in the measurement model process, that any items of observed variables that were not significant were removed before the data were used to analyze for structural modeling. Therefore, the total number of 19 items from reading strategies was removes as they were not significant. Also, 4 items from vocabulary learning strategies were removes as they were not significant. The total number of observed variables that was removed was 23 items. Then the data were analyzed and adjusted based on suggestion of modification index. However, the outcome model showed none significant relationship among various variables. Therefore, the research decided

to keep all items of the observed variables and analyzed the data again. The model was adjusted based on the modification index. Finally, the final model of mediators between vocabulary size and reading comprehension is illustrated by Figure 2.
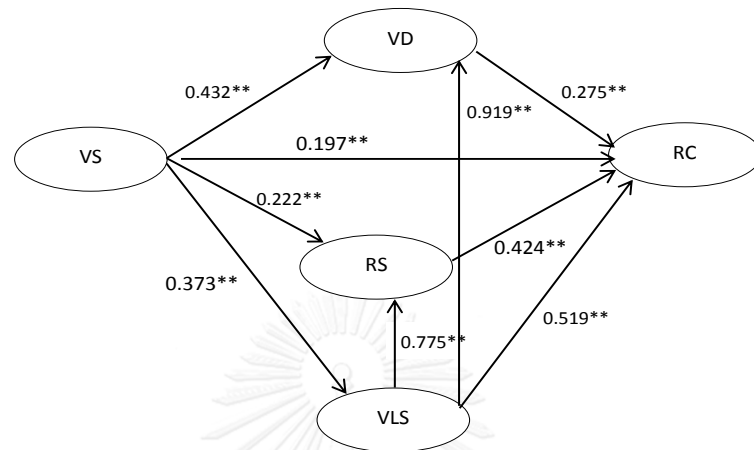
$$\chi^2 = 0.271 \text{ , df=1 , p=0.000 , CFI=0.989 TLI} = 0.989 \text{ , RMSEA=0.066 , SRMR=0.002}$$

Note: VS=Vocabulary size, VD=Vocabulary depth, RS=Reading strategies, VLS=Vocabulary learning strategies, RC=Reading comprehension

Figure 3

Model of mediators between vocabulary size and reading comprehension

Figure 3 presents the result model of mediators between vocabulary size and reading comprehension. The loadings of all paths including direct and indirect effects from vocabulary size (VS) to reading comprehension (RC) are significant that means vocabulary depth, reading strategies, and vocabulary learning strategies are mediators among vocabulary size and reading comprehension. The result confirms the proposed model from Chapter III. Besides, there are two additional paths existing that are the paths from VLS to VD and VLS to RS. Table 29 demonstrates direct and indirect effects between vocabulary size and reading comprehension.

Table 29

Direct and indirect effects of variables from the model of mediators between
vocabulary size and reading comprehension

Variables	Direct effect	Indirect effect	Total effect
VS→RC	0.197**	-	0.197**
VS→VD	0.432**	-	0.432**
VS→RS	0.222**	-	0.222**
VS→VLS	0.373**	-	0.373**
VS→VD→RC	0.197**	0.119**	0.316**
VS→RS→RC	0.197**	0.094**	0.291**
VS→VLS→RC	0.197**	0.194**	0.391**
VS→VLS→VD→RC	0.197**	0.094**	0.291**
VS→VLS→RS→RC	0.197**	0.123**	0.320**
VD→RC	0.275**	-	0.275**
RS→RC	0.424**	-	0.424**
VLS→RC	0.519**	-	0.519**
	R-square=0.691		

$**p < 0.01, \ *p < 0.05$

Table 29 shows the direct and indirect effects of variables from the model. The
loadings of all paths including direct and indirect paths are statistically significant at
the 0.01 level. The direct effect from vocabulary size (VS) to reading comprehension
(RC) is 0.197 that means vocabulary size affects reading comprehension. The table
also shows that among all variables, vocabulary size affects vocabulary depth the
most (0.432) and followed by vocabulary learning strategies (0.373).

When considered the indirect effects, the result confirms that vocabulary
depth, reading strategies, and vocabulary learning strategies are mediators of
vocabulary size and reading comprehension as shown on Table 24. The path
coefficients of VS to RC by passing through VD, RS, and VLS are 0.316, 0.291, and
0.391, respectively. These results show that when VS passes through these variables,
its indirect effect to reading comprehension is stronger than the direct effect. It means
that these variables are mediators of vocabulary size and reading comprehension. The
total effect of each mediator also shows that VLS is the strongest mediator among
three mediators as it has the highest total effect.

As mentioned, there are two additional paths emerging that are the paths from
VLS to VD (0.919) and VLS to RS (0.775). These two paths show that vocabulary
learning strategies could affect reading strategies and vocabulary depth. With the

loadings of 0.919 and 0.775, it means that vocabulary learning strategies have strong effect towards vocabulary depth and reading strategies.

So far, the final model can answer the research question 3 that vocabulary depth, reading strategies, and vocabulary learning strategies can mediate vocabulary size and reading comprehension. Vocabulary learning strategies also are the strongest mediator among three mediators.

Vocabulary depth, reading strategies, and vocabulary learning strategies are partial mediators because vocabulary size still has the direct effect on reading comprehension even without them. However, with these three mediators, the relationship between vocabulary size and reading comprehension is strong.

With the SEM analysis, the causal relationship between vocabulary size and reading comprehension is confirmed. The results also confirm the causal relationship between the independent variable—vocabulary size, the dependent variable—reading comprehension, and all three mediators—vocabulary size, reading strategies, and vocabulary learning strategies. The SEM analysis confirms that vocabulary size affects the ability of students' reading comprehension. The vocabulary size can also affect the depth of vocabulary knowledge. It also affects the ways students use reading strategies and vocabulary learning strategies.

Moreover, it is confirmed that by passing through all three mediators, the effect from vocabulary size on reading comprehension is stronger. This means that students' reading comprehension can be better if they have effective vocabulary depth, reading strategies, and vocabulary learning strategies to support their vocabulary size.

Chapter summary

This chapter reports the result from of three research questions. First, it was found that the first-year undergraduate students in Thailand have the vocabulary size of 4,000 word families, beyond the threshold level (3,000 word families) which could be able to comprehend reading texts better than the basic requirement; however, it is still not enough to fully understand the reading. Second, the result reveals the positive relationship among vocabulary size and reading comprehension; however, the relationship is very weak. Third, the use of reading strategies and vocabulary learning

strategies among low, middle and high level students reveal that all level students share some similar use of strategies. Finally, the model of mediators between vocabulary size and reading strategies was created. The final model confirms the proposed model that all variables in the model have causal relationship to each other. VD, RS, and VLS can be mediators linking VS to RC. It was also found that VLS is the strongest mediator among threes. Moreover, the model also created two more lines that did not appear in the proposed model. The two lines show the strong effect of vocabulary learning strategies to vocabulary depth as well as vocabulary learning strategies to reading strategies. The results from this chapter are discussed and implications of the results are provided.

CHAPTER V

DISCUSSION AND CONCLUSION

This chapter presents the discussion and conclusions based on the result from the last chapter. The discussion begins with the vocabulary size of the first-year undergraduate students and its relationship with reading comprehension and vocabulary depth followed by the use of reading strategies and vocabulary learning strategies. Then, the discussion continues to the model of mediators between vocabulary size and reading comprehension. Finally, the conclusion includes implications for pedagogy and future research recommendations.

1. The vocabulary size of the first-year undergraduate students

The results from this study indicate that Thai first-year students have a vocabulary size of 4,272 word families which is ranged in the level of 4,000 word families. Their vocabulary size is beyond the threshold level of 3,000 word families which is the basic requirement for adequate comprehension and ability to guess the meaning of unknown words from context (B. Laufer, 1989, 1992a; L. Na & Nation, 1985; Nation & Waring, 1997). It is also higher than the requirement of Thailand's Basic Education Core Curriculum B.E. 2551 (A.D. 2008) prescribing that Thai students who graduate from the high school grade 12 (Education of Thailand, 2008) should have a vocabulary size of around 3,600 – 3,750 word families which is ranged in 3000 word families.

Further studies reveal that 98% of text coverage should ease students to comprehend texts even without assistance from any sources (Hirsh & Nation, 1992; M. Hu & I.S.P. Nation, 2000; Schmitt et al., 2011). Hirsh and Nation (1992) found that 97% - 98% of text coverage is the second threshold. They identified that students need to know 5,000 word families in order to have 98% of text coverage for unsimplified texts such as short novels, including The Pearl, Alice in Wonderland, and The Haunting all of which they used as examples of unsimplified texts in their study. Later, Nation (2006) suggested for 98% of text coverage, students need 8,000-

9,000 word families to deal with wider ranges of unsimplified texts such as fictional books or newspapers. Indeed, not only are 8,000 – 9,000 word families at such a high level, but also it is possible that the vocabulary size of 5,000 word families would be adequate to reach 98% of text coverage (Hirsh & Nation, 1992; M. Hu & I.S.P. Nation, 2000; Nation, 2006). Therefore, the possible goal for student should be at 5,000 word families.

The result from this study shows that Thai first-year undergraduate students are on their way to approaching the 5,000 word families necessary for 98% coverage of unsimplified texts. Thai students have passed the first threshold, 3,000 word families, and are moving forward to the second threshold, 5,000 word families. The result shows a good sign for students' vocabulary size.

Even though the result shows a good sign of Thai students' vocabulary size, it is also necessary to know about students from other Asian countries so that Thai teachers know where their students' position is in comparison to other Asian countries and how much Thai students need to improve their English in order to compete with students from other Asian countries.

First of all, let us look at English native speakers' vocabulary size, Goulden et al. (1990) measured native speakers' vocabulary size by giving them a checklist test. The participants were twenty university students. The results revealed that their vocabulary size was around 17,000 basic words. D'Anna, Zechmeister, and Hall (1991) also found that university students' had less than 20,000 words of vocabulary size. It is unlikely that Thai students would have the same vocabulary size as their native counterparts.

Next, let us compare Thai students' vocabulary size with other Asian countries.

The first country for comparison is Malaysia. Mokhtar et al. (2010) studied the vocabulary size of 360 first-second year university students by using the Passive Vocabulary Test including 2,000 word level, 3,000 word level, 5,000 word level, and University word levels (UWL) developed by Nation (1990). They found that 324 students were in the weak group of 2,000 word families, 315 students were in the weak group of 3,000 word families, and 245 students were in the weak group of UWL. Only seven students were in the 5000 word level group.

Harji, Balakrishnan, Bhar, and Letchumanan (2015) conducted a study on the vocabulary size of 120 Malaysian undergraduate students. The results revealed that from all students, 29.2% acquired 2,000 word level, 17.5% acquired 3,000 word level, 14.2% acquired 5,000 word level, 1.7% acquired University Word Level (above 5000), and 0.8% acquired 10,000 word level. Therefore, around 17% of students in this study had vocabulary size between 5,000 – 10,000 word families, and the rest of the students had a vocabulary size between 2,000 – 3,000 word families.

Ibrahim, Sarudin, and Muhamad (2016) examined the vocabulary size of 129 pre-university students from International Islamic University in Malaysia who attended an intensive English language program. They found that around 80% of students acquired between 2,000 and 3,000 word levels and 20% of students did not make it to the 2,000 word level. They identified that 54% acquired the 5,000 word level and 23% acquired the 10,000 word level. This study shows that most students possess a vocabulary size between 5,000 – 10,000 word families.

Ahmand, Yunas, and Hasen (2016) conducted another study with thirty-one pre-diploma students aged 18-21 years old from Segamat Campus of Universiti Teknologi MARA (UiTM) Johor. The results reported that only 3.2% of students had a vocabulary size below 4,000 word families and 12.9% of students had a vocabulary size of 4000-4999 word families. There were 22.6% of students with 5,000-5999 word families, 32.3% for 6,000-6,999 word families, 16.1% for 7,000-7,999 word families, 9.7% for 8,000-8,999 word families, 0% for 9,000-9,999 word families, and 3.2% above 10,000 word families.

From the above studies, Thai students have a larger vocabulary size when compared with the first study conducted in 2010 and the second study conducted in 2015. The first study shows that most Malaysian students were in the weak group of 2,000 and 3,000 word levels. The second study shows the similar result that most Malaysian students had a vocabulary size between 2,000 – 3,000 word families. Therefore, their vocabulary size is lower than Thai students.

When compared with the two latest studies in 2016, it was found that Malaysian students have a larger vocabulary size. The studies show that most students could reach 5,000 word families. The study conducted by Ibrahim et al. (2016) show only 20% of students could not reach 2,000 word families. The study conducted by

Ahmad, Yunus, and Hasan (2016) show that only 3.2% of students could not reach 4,000 word families. Therefore, most of their students have higher vocabulary size than Thai students according to the most recent studies.

So far, it is evident that Malaysian students show improvement in their vocabulary size. Their vocabulary size was lower than Thai students in the past year, but in 2016, they have a higher vocabulary size than Thai students. However, the data from this study were collected before 2016. To compare with the result of Malaysian students, more studies on vocabulary size of Thai students should be conducted. Then teachers would see if Thai students increase their vocabulary size over time similar to Malaysian students. For now, based on this study, Thai students have a smaller vocabulary size than Malaysian students.

Similar to Thailand, Japan does not have many studies of students' vocabulary size (McLean, Hogg, & Kramer, 2014). The study conducted by Barrow, Nakanishi, and Nishino in 1996 (as cited in McLean, Hogg, & Krame, 2014) reported that Japanese, non-English-major undergraduate students had vocabulary sizes between 2,000 – 2,300 word families. The data were collected from 1,283 students from various universities using a vocabulary familiarity survey.
Then McLean, Hogg, and Krame (2014) conducted a vocabulary size study by collecting the data from 3,427 undergraduate students who studied in the first, second, third and fourth years from many universities across Japan. The results reported that the mean was 3,715.20 word families. The minimum score was 500, and the maximum score was 7,400.

Shinichi, Yan, and Jie (2014) conducted another study with 209 third-year science-engineering undergraduate students in an ESP program using the Vocabulary Size Test with 20,000 word families developed by I.S.P. Nation and D. Beglar (2007). The results revealed that the mean score was 8,600 word families. The maximum and minimum scores were 15,600 word families and 2,000 word families, respectively. From these studies of Japan, compared to Thai students, Japanese undergraduate students have a lower vocabulary size from the first and second studies but a larger size from the third study. The first and second studies collected the data from a large number of Japanese undergraduate students from many Japanese universities. The

data were also collected from first through fourth year students. The result shows that Thai students have larger vocabulary size than they do.

When compared to the last study which collected data only from the third year, science-engineering students in an ESP program, the mean score of this group was very high with a maximum score as high as 15,600 word families. This study revealed different results from the previous studies even though those two studies included the third and fourth year students in their studies. The reason seems to be that the last study included the science-engineering students studying in an ESP program. This group of students was expected to have a higher vocabulary size. This is evident because the researchers used the Vocabulary Size Test with 20,000 word families in their study. Therefore, the results were different from the previous studies. Indeed, it might not be accurate to use this study to compare with Thai students as this study tested a narrow group of students in a different level of proficiency. However, this appears be useful information to let us know that Japanese students in some specific programs have higher proficiencies in English and, clearly not all students in the same academic level have the same proficiency level.

The results from the Japanese studies shed some light to Thai teachers that even though many Japanese students have smaller vocabulary size than Thai students, there are also some groups of Japanese students that are at a higher level than Thai students. That is, they appear be able to reach the higher requirement of 8,000 word families. Therefore, some Japanese students are able to comprehend more difficult readings such as newspapers or fiction with ease. As a result, teachers need to keep in mind that Thai students need to keep improving their vocabulary sizes all the time.

Other than Japan, China is another interesting Asian country since the population is the largest. China Basic Requirements in College English Syllabus (Syllabus, 1999) requires Chinese students to have the vocabulary size of 4200 word families. This number is higher than the requirement of Thailand' Basic Education Core Curriculum B.E. 2551 (A.D. 2008) that requires students who graduated from high school going to a university to have vocabulary size around 3600 – 3750 word families (Ministry of Educaion of Thailand, 2008). The report of the CET committee from years 2000 to 2002 shows that only around fifty percent of Chinese students could pass the requirement of 4,200 word families (Hui, 2004). This means that half

of Chinese students still could not reach China's requirement as set by China Basic Requirement in College English Syllabus.

Qing and Jiliang (2006) examined the vocabulary size of Chinese first and second year undergraduates. The results revealed that the first-year students had an average vocabulary size at 3,834 word families while the second-year students had an average vocabulary size around 5,076 word families. This would imply that students' vocabulary size progressed throughout the first year of college.

Zhiying (2007) studied the vocabulary size of Chinese and Thai first-year undergraduate students. The result revealed that the mean score of Chinese students was 3,348 word families while the mean score of Thai students in this study was 3,021. Again, in the same year, Jianbin, Yuedong, and Ying (2007) conducted a study from 914 first-year undergraduate students from three universities. The average score of students' vocabulary size was 5,617 word families.

Then Na (2015) examined Chinese second and third year undergraduate students' vocabulary knowledge from four universities. The result revealed that the mean score was 6,494 word families. The minimum and maximum scores were 3,400 word families and 11,600 word families. It can be concluded that most Chinese students have quite high

When compared to China, first, the requirements for vocabulary size of Thai students who enter a university is less than China. This can make the difference between Thai and Chinese students' vocabulary sizes. According to the mean scores of each study, the first-year undergraduate students from China have reached the minimum requirement of 3,000 word families. Therefore, the first-year undergraduate Thai students have a higher vocabulary size (4,272 word families) than the first-year undergraduate Chinese students in some universities. In fact, Thai students pass the requirement of China Basic Requirements in College English Syllabus. However, from a study by Jianbin et al. (2007), Thai students have much smaller vocabulary size from students in those universities. Moreover, it appear that Chinese students increase their vocabulary size when they are in the second and third years of universities as the results show in the mentioned studies.

From the Chinese studies, first-year students from China in some universities had a smaller vocabulary size than Thai students and some universities had a larger

vocabulary size. Further, second and third year Chinese students had higher vocabulary size than the first-year Chinese students. The results confirm that Chinese students improved their English vocabulary size from year to year.

From many studies of vocabulary size in different countries, it is concluded that Thai first year students are still in a good position. This means that Thai students still have a high enough vocabulary size to compete with other Asian countries. However, it is important to keep in mind that if Thai students stop improving their vocabulary size, they could fall behind other Asian countries as there are many studies from those Asian countries showing an increase of vocabulary size in second and third years of universities. Thus, Thai students need to learn more and build their vocabulary size.

The next part is the discussion of the results of the research question 2.

2. The relationship between vocabulary size and reading comprehension of first-year undergraduate students

The results from this study confirm the relationship between vocabulary size and reading comprehension. This is, the higher the vocabulary size, the better the reading comprehension. Although their relationship is weak, it is still significant. This result contradicts most previous studies (e.g Baleghizadeh & Golbin, 2010; Hirsh & Nation, 1992; Pringprom, 2012) that vocabulary size has from a moderate to a strong relationship with reading comprehension, meaning the larger the vocabulary size, the better the reading comprehension.

For example, Chen (2011) found that students with high vocabulary size could find reading easy. Stæhr (2008) addressed that reading skills rely mostly on vocabulary size. Baleghizadeh and Golbin (2010) similarly found that vocabulary size affects reading comprehension. This research suggested that teachers needed to focus more attention on teaching vocabulary size.
With regard to the strong relationship among vocabulary size and reading comprehension, B. Laufer (1991) states that vocabulary size could be a predictor of students' reading proficiency. Farvardin and Koosha (2011) and Mehrpour et al. (2011) also agreed with the result that vocabulary size is a strong predictor to reading

comprehension. It means that if teachers know students' vocabulary size, they can accrrately predict their students' ability to comprehend the reading passages.

Similar to this study, Gallego and Llach (2009) conducted a study on vocabulary size and reading comprehension. Their participants were 6th grade, EFL, Spanish students. They found weak correlation among vocabulary size and reading comprehension. However, one issue they discussed was that their test level might be higher than the students' level. Another explanation was that students may have been tired and bored when they took the test.. This is because the reading test was the last thing the students did. Moreover, the test did not affect their score which made them put less effort towards doing the test.

In the current study, even though students have a large vocabulary size, their reading comprehension scores are not as high as predicted. M. Hu and I.S.P. Nation (2000) and Schmitt et al. (2011) state that even though students know 98% to 100% of text coverage, it did not guarantee that students would understand 100% of reading. Some factors for this include students' experience in English reading and their background knowledge of English (Hu & Nation, 2000). These factors could affect the score of reading comprehension.

The result of reading comprehension scores of the current study being lower than predicted despite large vocabulary size may be explained by reasons similar to Gallego and Llach (2009). That is the test was too difficult or students might not put in their full effort while taking a test.

Motivation might be one of the reasons affecting students' efforts while taking a test. When a test does not provide any scores to students and not affect their grade, students might not put full effort in doing the test. According to Gardner (1985), there are two levels of motivation; namely integrative motivation and instrumental motivation. Integrative motivation is the positive view of learners to a target language and desire to communicate with native speakers. Instrumental motivation is learners' reasons and believes of learning a foreign language such as to get a good job or and an opportunity to pursue higher education.

With the test that does not provide any scores and affect students' grade, the concept of instrumental motivation can be applied. In this study, this means when taking a test, students might not have enough reasons to do the test; thus, they did not

put full effort to complete the test. However, it was found that they had put some efforts to do the test because they knew that their scores affected the results of the study. Some of them put a lot of effort to do the test because they liked English and also would like to test themselves English abilities. It can be concluded here that motivation pays some important role for students in taking a test.

With regard to difficulty, students would not have been able to do well in the reading test if the test was too difficult. In fact, the Reading Comprehension Test was created based on students' education level. The reading passages were based on Grade 9 to Grade 13 levels. The Grade 13 level was at the university level. However, the test also used some passages that were lower than students' education level as explained in Chapter III. Experts also validated the test and analyzed it for its reliability by statistical programs. The format of the test was multiple choices which the students were familiar with. Therefore, if the students still did not do the test well, it may have been that their reading proficiencies were lower than supposed to be. Furthermore, even though the students had a large vocabulary size, they still might lack essential reading skills needed to comprehend reading. From this problem, it seems to be clear that between vocabulary size and reading comprehension, there appears to be some other factors affected their relationship.

3. The use of reading strategies of first-year undergraduate students

The result from the study shows the use of reading strategies of low, middle, and high level students. Noticeably, low, middle, and high level students share some similar patterns of using reading strategies as well as some different uses of strategies.

The metacognitive strategies include global, support, and problem solving strategies. For the global strategies, the pattern of frequency of low, middle, and high level students are similar. That is the highest frequency of the use of reading strategy is "sometimes" and the second highest is "often" for all levels. For example, the global strategy, item 10, "I check my understanding when I come across new information," support strategy, item 5, "I use an English-English dictionary to find the meaning of the words," and problem solving strategy, item 6, "I try to picture or visualize information to help remember what I read."

Both "never" and "always" shows the smaller number of frequencies of all levels of students; however, the number of "always" is a little higher than "never." This shows a good sign that all level students use almost all metacognitive reading strategies. The results also show that some strategies are used by all levels of students such as global strategy, item 12, "I check to see if my guesses about the text are right or wrong." Moreover, item 11, "I try to guess what the content of the text is about when I read," is also used by all low and middle level students. For support strategies, item 4, "I use a Thai-English dictionary to find the meaning of the words," and item 6, "I paraphrase (restate idea in my own words) to better understand what I read" are used by all levels of students. Also, item 9, "When reading, I think about information in both English and my mother tongue" are used by all low and middle level students. For problem solving strategies, item 6, "I try to picture or visualize information to help remember what I read" is used by all levels of students.

Problem solving strategies share the most similar use among low, middle, and high level students. The frequency of use of all three levels of students is almost the same in most items -- for example, item 2, 'I try to get back on track when I lose concentration," item 4, "When text becomes difficult, I pay closer attention to what I am reading," and item 7, "I ask myself questions I like to have answer in the text." Moreover, all level students have chosen item 7 as the first rank of "often" used strategies.

The cognitive strategies include comprehending strategies, memory strategies, retrieval strategies, and inference strategies. The results of the use of cognitive strategies are the same as metacognitive strategies. That is low, middle, and high level students share similar use of strategies among each other. The pattern of strategy use among three different levels of students is similar and therefore, most items are sometimes used and often used.

Surprisingly, for comprehending strategies, the top two ranks of frequency use of "seldom," "sometimes," and "often' are identical. The result also shows that item 3, "I tried to find topics a main ideas by scanning," and "When I read, I guess the meaning of unknown words or phrases without using a dictionary" are used by all levels of students.

Moreover, another similarity appears in retrieval strategies. All levels of students have the same pattern in all items. Retrieval strategies include four items. Two items are item 2, "I bring m knowledge of the world into what I'm reading to better understand the text" and item 4, "I use my own text structure knowledge to comprehend the text." Item 2 is "always" used by all levels of students while item 4 is "seldom" or "never" used by all three levels of students.

Inference strategies seem to be the most different among low, middle, and high level of students. They still share the pattern of frequency use of each item. That is the most frequency is "sometimes" and the second is "often." The result also shows that the frequency of "always" use of some items is high. For example, item 5, "When I do not understand what a sentence means I think about the other sentences in the paragraph to help me understand it" has 26.3% of "always" use from low level students. Moreover, middle and high level students also use item 5 as their most often use.

In addition, the uses of reading strategies of high level students that are different from middle and low level students also show in this study. There are many items from reading strategies that are ranked in the top three of frequency among high level students that do not appear in the ranks of low and middle level students. For example, from global strategy, item 8, "I use context clues to help me better understand what I am reading" is ranked as the third ranks of "always" use strategies of high level students while it is not in the top three ranks of low and middle level students. Another example is the problem solving strategies, item 1, "I read slowly and carefully to make sure I understand what I am reading" is the third ranked in the "always" use item of high level students, but again, not ranked in the top three of low and middle level students. Again, the result here shows some different uses of strategies of high level students from low and middle levels students.

Therefore, students in all low, middle, and high levels share some similar usage of their reading strategies. Although the pattern of frequency use is similar, some items may not be used in the same frequency. The results of this study are similar to Zhang and Seepho (2013) who studied the metacognitive reading strategies of Chinese undergraduate students. Their results also reveal that low and high proficiency students use some similar and different strategies while unfortunately

neglecting to mention middle level students. Nacera (2010) states that students with different proficiencies use different reading strategies. She found that students with large vocabulary size use reading strategies differently from students with low vocabulary size. She explains that different strategies need different amount of efforts from students. This aspect is true according to Laufer (1997) that specific vocabulary size is necessary for students capable of applying higher reading strategies. She also explains that students with less than 3000 word families could find it hard to transfer their L1 strategies to help with reading. Juan et al. (2013) also addresses that for guessing strategy, students need at least 3500 word families to for effective usage.

Moreover, Ting (2011) also found that students of low, middle and high proficiency levels used different numbers of reading strategies base on their vocabulary sizes. He found that overall high proficiency students used more reading strategies than lower proficiency students.
The results from some previous studies show similar results to the current study that although students in different levels can share similarities in the use of reading strategies. The differences among low, middle, and high level students are apparent. The current study also reveals the different frequent use of reading strategies among three levels of students. It is true that the numbers of reading strategy use of Thai students of different levels are different.

Furthermore, Ting (2011) indicates that high proficiency students used more strategies than lower ones. The result differs from the current study which claims that low and middle level students use more metacognitive and comprehending reading strategies than high level students. For example, low and middle level students use one item of global strategies more than high level students, which is item 11, "I try to guess what the content of the text is about when I read" For support strategies, middle level students use one item more than high level students which is item 9, "When reading, I think about information in both English and my mother tongue." Low level students use one item more than middle levels students that is item 8, "When reading, I translate from English into my native language." Low level students use two items more than high level students that are items 8 and 9.

Hence, it can be concluded that Thai students share some similarities of reading strategy usage among low, middle and high level students in all kinds of

metacognitive strategies (global strategies, problem solving strategies, and support strategies) and cognitive strategies (comprehending strategies, retrieval strategies, memory strategies, and inference strategies. However, some items in each kind of strategies are used differently in frequency among low, middle, and high level students. These results show similarity to previous studies. However, one different result from this study to the previous studies is that referring to the previous paragraph, low level students used more strategies than middle and high level students while the previous studies found that high level students use more kinds of strategies than low level students. From this different result, further studies are necessary.

4. The use of vocabulary learning strategies of first-year undergraduate students

The results of vocabulary learning strategies are similar to reading strategies. That is students in low, middle, and high levels share similar strategies. For determination strategies, the result shows similar pattern among low, middle, and high level students. The highest frequency is "sometimes" use, then "often" use, and last of all "always" use. For example, item 10, "Use Internet to search for meaning" has the most frequency of "always" use for low (26.3%), middle (23.9%) and high (23.6%) level students. Item 1, "Check new word's form (verb, noun, adjective)" is the highest frequency of "sometimes" use for low (67.5%), middle (60.9%), and high (55.7%) level students.

The obvious similar pattern between low and middle level students appears in the social strategies that are used to remember new words and build vocabulary. Low and middle level students have the highest frequency of "never," "seldom," "often," and "always" on item 1, "Study the word with my classmate," and item 3, "Talk with native speakers." Moreover, middle level students also are similar to high level students in the use of items 1 and 3 as well. The similarity between them is on "never," seldom," "sometimes," and "always." Therefore, middle level first-year undergraduate students are similar to both low and high level students.

The similar pattern between the three levels of students also shows even more with regard to memory strategies. The answer again has the highest frequency on "sometimes" use and then "often" use. However, the frequency of use is more on "seldom" use than "always" use. The number of frequencies spreads across all items.

That means students use various strategies to learn vocabulary. Only in the memory strategies, there are two items that are used by all levels of students. They are item 8, "Connect the word to other words with similar meanings," and item 29, "Remember the words in scales."

For cognitive strategies, low, middle, and high level students share many items. All of them share item 34, "Write the words many times," for "often" use strategies to remember new words and build vocabulary. They also share item 38, "Use flashcard to record new words" for "sometimes" use strategies.

So far we see that low, middle, and high level students use some similar strategies to each other. Noormohamadi and Amirian (2015) also found the same result from Iranian students. Students based on their academic performance use similar strategies and some strategies even in the same frequency ranks.

Yunhao (2011) also reports the same result that low and high level students use some similar and different strategies. The similar uses of vocabulary strategies in his study are using a pocket dictionary, guessing the meaning of a word, and associating new words with known word. The result from the current study also shows that all levels of students have high frequent use of "guessing meaning of the word."

In concluding, from the result, low, middle, and high level students share some similar strategies in all kinds of vocabulary learning strategies. That is they have the same pattern of frequency use and most of them use most strategies in "sometimes" and then "often." The next frequency uses are both "always" and seldom." From the results, it can be concluded even though students are in different levels of proficiency, they still show the similarity when they decide to use vocabulary learning strategies. However, even though students in all levels have similar patterns of vocabulary learning strategy usages, their scores of reading comprehension are still different. The low and middle level students still have lower scores than high level students. Therefore, the reason might be how effective low and middle level students use those strategies. This issue is needed to be further investigated.

5. The model of mediators of the relationship between vocabulary size and reading comprehension of first-year undergraduate students

First of all, the result confirms that vocabulary depth, reading strategies, and vocabulary learning strategies are the mediators that link vocabulary size to reading comprehension. The details of each equation of the model are discussed in the following paragraphs.

The first point is that the result from this study confirms the relationship between vocabulary size and vocabulary depth. Students with large vocabulary size are able to enhance vocabulary depth (Chen, 2011). This relationship is also confirmed in Thai context even it is in a moderate level. It agrees with Vermeer (2001) that students need to know more words before they can go in depth. However, when looking at the relationship between vocabulary depth and reading comprehension, the result shows very weak relationship and an even weaker relationship than vocabulary size. This result disagrees with Mehrpour, Razmjoo, and Kian (2011) that vocabulary depth can predict students' reading performances better than vocabulary size.

In this model, it also shows the direct relationship between vocabulary size and reading strategies. As Laufer (1997) states, in order to use reading strategies effectively, students need a specific vocabulary size as mentioned earlier. Unfortunately, less is known about the relationship between vocabulary size and reading strategies. Ting (2011) confirms that students with large vocabulary size are capable of using more reading strategies. Ting's result supports the current study's result even though the relationship between vocabulary size and ability to use more reading strategies is relatively weak.

The model also shows the direct relationship between vocabulary size and vocabulary learning strategies. In fact, many studies confirm that vocabulary learning strategies have direct effect on vocabulary size (e.g. Asgari & Mustapha, 2011; Gu, 2010, Gu & Johnson, 1996). However, in turn, Nation (2001) addressed that vocabulary size can contribute to the use of vocabulary learning strategies. Kafipor (2011) notes that in order to use vocabulary learning strategies effectively, students

need sufficiently large vocabulary size. Therefore, the result of this study proved this aspect as vocabulary size shows direct effect on vocabulary learning strategies.

From the model, reading strategies have a direct effect on reading comprehension at a moderate level. Many previous studies show the positive relationship between reading strategies (e.g. Barnett, 1988; Phakiti, 2003; Zhang & Seepho). This means that using reading strategies can help students to comprehend more.

The model further shows that vocabulary learning strategies have the strongest direct effect on reading comprehension comparing to vocabulary depth and reading strategies. The result from this study is similar to Naeimi and Foo (2013) who studied the effect of direct vocabulary learning strategies on reading comprehension. They found that vocabulary learning strategies enhanced reading comprehension. Heidari, Karimi, and Imani (2012) also found the result that vocabulary learning strategies affect reading comprehension as well as vocabulary achievement. Jia (2011), however, found the opposite result. He studied the effect of vocabulary learning strategies on reading comprehension with intermediate Chinese students and found that vocabulary strategies have no effect on reading comprehension.

The model also creates two more lines that show the relationship between vocabulary learning strategies and reading strategies at high level and between vocabulary learning strategies and vocabulary depth at very high level. The result from the first line, vocabulary leaning strategies and reading strategies, can be interpreted to show that vocabulary learning strategies affects the use of reading strategies. From the best of my knowledge, there is not any previous study that supports this finding. Therefore, this finding sheds new light to the vocabulary learning strategies that if students have better use of vocabulary learning strategies, they can also improve their use of reading strategies at the same time. Therefore, vocabulary learning strategies are needed to be highlighted in an English classroom.

The other new created line is the relationship between vocabulary learning strategies and vocabulary depth. There are studies supporting the relationship between these two variables. Shirazi and Yamini (2011) found that vocabulary learning strategies could contribute to vocabulary depth. They also found that high proficiency students could use strategies more effectively than the lower proficiency students.

High proficiency students tend to use metacognitive strategies most often and followed by cognitive strategies and then determination strategies. The lower proficiency students tend to use memory strategies the most. Putra, Priyono, and Arifuddin (2015) found the same result that vocabulary learning strategies are related to vocabulary depth. However, they also found that only determination strategies are connected to vocabulary depth. Bangngu (2017) also found the effect of vocabulary learning strategies on vocabulary depth, especially, determination, social, and metacognitive strategies while cognitive and memory strategies do not have any effect on vocabulary depth. He also states that the more frequent use of vocabulary learning strategies, the higher the vocabulary depth.

Rahimi (2014) studies the effect of vocabulary learning strategy instruction on vocabulary depth of Iranian undergraduate students. She had thirteen sessions of vocabulary learning strategy instructions. At the end, students took the vocabulary depth test. She found that vocabulary learning strategy instructions have positive effects on vocabulary depth. Therefore, it is possible that students who know how to use vocabulary learning strategies can be better in their vocabulary depth.

Hence, the result of relationship between vocabulary learning strategies and vocabulary depth from this study is not different from the above mentioned studies. Vocabulary learning strategies and vocabulary depth are related. The frequency use of vocabulary learning strategies could enhance students' vocabulary depth. In addition to this knowledge of vocabulary depth could also affect the use of vocabulary learning strategies.

From this study, vocabulary size has a relatively weak correlation to reading comprehension that is opposite to many previous studies; therefore, it implies that vocabulary size, in the Thai context, seems not directly help students to comprehend reading much. Nevertheless, vocabulary depth, reading strategies, and vocabulary learning strategies show support to reading comprehension as mediators. The indirect effect between vocabulary size and reading comprehension has been created through these three mediators. The model shows that vocabulary learning strategies are the most effective mediator. The second most effective mediator is reading strategies and the least effective mediator is vocabulary depth. In addition to vocabulary learning strategies being the most effective mediator, they also have a high effect on reading

strategies as well as a very strong relationship with vocabulary depth. This infers that the use of vocabulary learning strategies can help students be better in vocabulary depth as well as reading strategies.

In summary, the model in this study shows the casual relation of vocabulary size to all variables including reading comprehension, vocabulary depth, reading strategies, and vocabulary learning strategies. It has a positive effect on these variables. This means if students have a larger vocabulary size, their reading comprehension can be better and their vocabulary depth can also be larger. They would be able to use reading strategies and vocabulary learning strategies more effective as well. Moreover, when we consider the model that shows the direct and indirect effects from vocabulary size to reading comprehension, it was found that the indirect effect path from vocabulary size to reading comprehension by passing through vocabulary learning strategies is the strongest path. It seems that vocabulary learning strategies are the best mediator when compared to vocabulary depth and reading strategies.

In conclusion, the SEM analysis shows that vocabulary is a must as a foundation to bring about good reading comprehension. It confirms the causal relationship between five variables in this study. Vocabulary size is the independent variable that has its effect on all dependent variables in this, namely reading comprehension, vocabulary depth, reading strategies, and vocabulary learning strategies. It means the larger vocabulary size, the better reading comprehension, the deeper vocabulary depth, and the more effective use of reading strategies and vocabulary learning strategies.

The results also confirm that the vocabulary size also needs vocabulary depth, reading strategies, and vocabulary learning strategies to mediate vocabulary size to reading comprehension. It can be concluded that these variables are mediators between vocabulary size and reading comprehension. The SEM analysis also reveals that vocabulary learning strategies are the most powerful mediator. It means among three mediators, vocabulary learning strategies work best with vocabulary size in helping students to comprehend reading.

In addition, vocabulary learning strategies have strong effects on vocabulary depth and reading strategies. The confirmation of their causal relation proves that

vocabulary learning strategies help students with their vocabulary depth. It means vocabulary learning strategies helps students to know vocabulary deeper. They also affect the reading strategies meaning that vocabulary learning strategies help students to improve their use of reading strategies.

In conclusion from this study, it is undeniable that to improve reading comprehension, vocabulary size is the most important foundation. Vocabulary depth, reading strategies, and vocabulary learning strategies are important mediators students need to possess along with vocabulary size as supporters to reading comprehension. Indeed, vocabulary learning strategies are the most important mediator that should be emphasized as they are proved to be the strongest mediator and to be the factor affecting the two other mediators—vocabulary depth and reading strategies. Therefore, in the classroom, vocabulary size and vocabulary learning strategies should be highlighted.

Based on the results and discussion in this chapter, implications for pedagogy and future research recommendations are presented in the next section.

Implication for pedagogy

From the results and discussion, the implications for pedagogy are the following.

First, universities need to prescribe the requirement of vocabulary size for graduates. The results from this study demonstrate the importance of vocabulary size as it is the beginning element to other language variables namely reading comprehension, vocabulary depth, reading strategies, and vocabulary learning strategies. Vocabulary size is an important element that students need to urgently improve. For the first-year undergraduate students, universities need to assure that students acquire the first basic threshold of 3,000 word families as the basic. Further, while students are studying in university, their vocabulary size should improve. This means that after students acquire the first 3,000 word families, the next important step is to reach 5,000 word families. This is the next threshold that allows students to adequately comprehend reading with ease and without dictionary assistance. Universities need to prescribe at least 5,000 word families as a requirement of vocabulary size for students who graduate from them. They need to be sure that

graduates possess at least 5,000 word families or 8,000 word families when they graduate.

In order for universities to know if their students' vocabulary size improves while they are studying, universities should have students take the vocabulary size test at the end of every academic year. The result of students' vocabulary size would help universities and teachers know how much vocabulary students gain during an academic year and how much more vocabulary students need. Finally, universities should set the policy for students to pass at least the 5,000 word families vocabulary test in order to graduate. From this requirement, students would put more effort on vocabulary learning because they know that they need to acquire a certain size of vocabulary to graduate from universities. Even though they may not take an English class every semester, they will still need to keep up with vocabulary learning by themselves as they do not have teachers to help them all the time. The major responsibility is for teachers who not only need to help students to improve their vocabulary size in class, but also need to prepare students to be able to learn and build their own vocabulary by themselves. Therefore, the second implication is for teachers.

Second, for in class teaching, first of all, teachers should know their students' vocabulary size first. Teachers should begin their class by testing their students' vocabulary size in order to know what levels their students' vocabulary size are in. As mentioned in Chapter III, bilingual versions of vocabulary size tests should be used to measure students' vocabulary sizes because students can gain 10% higher scores than on the monolingual version. Then teachers can decide what levels of vocabulary size they should focus on at first. In order to know what vocabulary students need to know, teachers can use the British Nation Corpus as a reference. The British Nation Corpus gathers all word families and put them in various frequency levels. Nation and Beglar (2007) developed the Vocabulary Size Test based on frequency levels of the British Nation Corpus. After teachers have the results of their students' vocabulary size test, they can then decide what words they need to teach based on the British Nation Corpus.

To teach vocabulary, many studies reveal that incident vocabulary learning is an effective method for vocabulary learning (e.g. Day, Omura, & Hiramatsu, 1991; Jenkins, Stein, & Wysocki, 1984). Incident vocabulary learning is the way that

students incidentally learn new words from reading. Krashen (1982) states addresses that "competence in vocabulary is most efficiently attained by comprehensible input in the form of reading" (p.21). Students need to cope with the reading that is a little beyond their current level in order to acquire new words. Teachers need reading texts that are in an appropriate level of students.

Since students need to take the vocabulary size test at the beginning of the class, choosing a reading text would be easier as teachers would know the levels of their students' vocabulary size. If a classroom contains students with various levels of vocabulary sizes, teachers would then need to group students with others at the same levels. Teachers can then provide different kinds of reading texts for them appropriate to their vocabulary size. Moreover, in order to motivate students to read, teachers should let students choose what stories they would like to read.

As mentioned in Chapter II, motivation is important to reading. If students have a chance to choose what they like to read and know about, they would put more effort into reading. The same result from the semi-structured interview showed that students would keep reading if they were interested in the topics and they preferred to read the texts that they were interested in first. Therefore, teachers should offer students various kinds of texts and topics as well as keep in mind that the texts need to be at the appropriate level for their students. In this way, students can learn more new vocabulary from texts.

When new vocabulary is introduced from the text, it is necessary that teachers need to help their students to gain more understanding on those new words. Not only is the meaning of the vocabulary important, but also students need to know the depth of the vocabulary as well. Therefore, another method should be used to help students acquire the meaning of vocabulary and expand vocabulary depth is the direct instruction.

The direct instruction can be used to teach both vocabulary size and vocabulary depth. It seems to be appropriate to both basic and advanced vocabulary. Marzano (2009) divides the direct instruction into three phases that are: 1) introductory phase, 2) a comparison phase, and 3) a review and refinement phase. From these three phases, he described six-steps of teaching including:

1. The teacher provides a description, explanation, or example of the new term.

2. Students restate the explanation of the new term in their own words.

3. Students create a nonlinguistic representation of the term.

4. Students periodically engage in activities that help them add to their knowledge of
   the vocabulary term.

5. Periodically, students are asked to discuss terms with one another.

6. Periodically, students are involved in games that allow them to play with the terms.

(Mazano, 2009, p.23)

After students read the texts and identify which vocabulary they do not know, teachers can apply the direct instruction. Teachers can directly explain the meaning of the word to students. Then students try to give the meaning of the words by themselves and do more activities that allow them to practice using the new vocabulary. Many activities can be added to help students deeply understand the word and be able to use it. This can help student to memorize the new vocabulary easily.

After this, it is important that students need to know beyond the definition of the vocabulary. This means they need to know deeply about the new vocabulary in order to expand more vocabulary knowledge such as know other forms of the word, some related words, and synonyms or antonyms of the word. Stahl and Kapinus (2001)stated that "When children 'know' a word, they not only know the word's definition and its logical relationship with other words, they also know how the word functions in different context" (p.1). This statement claims that truly knowing a word means knowing every aspect of the word. Therefore, teachers need to fill students with all aspects of a word that they need to know.

It is not possible that students are always in the classroom and have teachers to help them to improve their vocabulary size. Students still need to expand their vocabulary size even though they are not in class. With larger vocabulary size, their reading comprehension can be improved as well.

Third, the results in the final model of this study show that vocabulary learning strategies are the most important key to help students with reading as well as with vocabulary depth and reading strategies. Therefore, it is important for teachers to show students how to use the vocabulary learning strategies. It is expected that when students can effectively use vocabulary learning strategies, their reading comprehension, reading strategies and vocabulary depth will improve.

Vocabulary learning strategies focus on learning a new word, memorizing it, and then building more vocabulary knowledge. Vocabulary learning strategies can be taught in the class along with vocabulary learning. Importantly, teachers should give students awareness of how important vocabulary is and why students must learn how to use vocabulary learning strategies.

At the beginning, teachers introduce in the class the different vocabulary learning strategies that can be used in different purposes, namely to learn a new word, to memorize a new word, and to build vocabulary knowledge in both size and depth. Related to the second recommendation of pedagogy, the vocabulary learning strategies of how to learn a new word can be applied first. For example, students can use different kinds of dictionaries to help them find the meaning of new words. They can ask friends and teachers for help. They can also use contexts to guess the meaning.

Next, when students know the meaning of the words, the next step is to remember them. Teachers can introduce various strategies to students in order to help them memorize the new word. Students need to be taught and need to practice of using strategies. For example, connecting the word to other words with similar meaning or with opposite meaning (Vocabulary learning strategies, items 22 and 23). Teachers can let students do group works in class. Then students can help each other find similar and opposite meanings of a word. Then they can do further tasks such as using the words in a sentence (item 24) and then writing a paragraph using the words (item 27). Teachers can also ask students to draw a picture of the meaning of the words (item 17). Teachers need to give more opportunities for students to explore different strategies so that they can decide which strategies that they prefer and help them the most in memorizing words.

Toward the end, as mentioned in the earlier paragraph even though some students do not study in an English class anymore, they still need to improve their vocabulary sizes. Therefore, students need to learn how to build their vocabulary knowledge by themselves. To help students, teachers can introduce them to vocabulary learning strategies of building a new word. There are many strategies that students can use to build their vocabulary. For example, they can use media such as watching movies with an English soundtrack, listening to English music, or reading

an English magazine. Teachers can introduce some websites where students can practice their vocabulary online. Students may do the online activities in class so that teachers can help them to learn how do them effectively. Therefore, teachers need to help students by providing more sources in order that students can later practice by themselves.

Moreover, the results show that different levels of students use different frequencies of strategies. Therefore, to help students in low and middle levels to be better in reading, they should learn how high level students use the strategies. Bonsa and Wolde-Mariam (2014) found that high level students use all strategies including determination, social, memory, cognitive and metacognitive strategies more frequently than lower level students. Moreover, they also found that high level students have greater perspectives on English vocabulary learning. This means that high level students see vocabulary learning as more important than lower level students. In order to help lower level students to improve their vocabulary learning strategies, teachers should provide a learning environment in which high level students can help lower level students practicing using vocabulary learning strategies.

Therefore, in the classroom, teachers should first of all instill the benefit of vocabulary learning in students. Students need to know how important vocabulary is. Then they should have a chance to explore more vocabulary learning strategies. That is low level students should have a chance to work with high level students. Teachers should encourage students to work together and help each other in learning. Then they could ask high level students to share their use of strategies and help lower students to practice new strategies. Consequently, low level students would then be able to use more vocabulary learning strategies and be encouraged to use more strategies in order to improve themselves.

To enhance high level students to help low and middle level students, teachers could give scores for the students. Teachers can create a project that requires students to work together and gain scores from their progress. The project needs to provide an opportunity to low and middle level students to learn from high level students and for high level students to help low and middle level students.

In conclusion, the researcher believes that vocabulary size of students is needed to be at least 5,000 word families and to further deeper. The direct instruction

method is proved to be very helpful for student to learn deeply about a new word. Vocabulary learning strategies can be taught along with the direct instruction method in order to give support to one another. Moreover, teachers need to try to have high level students help their classmates who are in low and middle levels.

Future research recommendation

Future research can be done in many aspects.

First, the comparison study of vocabulary sizes between different years of undergraduate students should be conducted. Both the vocabulary size of first-year students and the progress they make each year in universities is important. This study can help develop teaching and curriculum.

Second, the comparison study of vocabulary size of undergraduate students across regional parts of Thailand should be conducted in order to gain more and deep insight of Thai students' vocabulary size. The result from this further study should provide a clearer picture of Thai students' vocabulary size in different parts of Thailand. It would reflect the effective of Thai education across Thailand.

Third, the study could investigate more on the relationship between vocabulary size and reading comprehension in Thai context. There are many studies on this relationship in other countries, but Thailand has a very few studies conducted on this issue. Most previous studies from other countries and two previous studies from Thailand have proved the strong relationship among vocabulary size and reading comprehension. In contrast, the result of the present study shows the weak relationship among them. As a result, more studies in Thai context should be conducted to assure their relationship.

Fourth, regarding the third recommendation, if there are more results showing a weak relationship among vocabulary size and reading comprehension, the further studies should focus on factors affecting the relationship among them in Thai context.

Fifth, the study on the relationship between vocabulary depth and vocabulary size should be conducted more in Thailand. From the best of my knowledge, there is no study on this issues conducted in Thailand. Therefore, less is known about their relationship in Thai context. As previous studies in other countries including the

present study proved the positive relationship among vocabulary size and vocabulary depth, knowing more insight on vocabulary depth is essential.

Sixth, as mentioned, there is no study conducted on the relationship among reading strategies and vocabulary learning strategies. In the present study, vocabulary learning strategies show a very strong connection to reading strategies. Therefore, the study on their relationship should be conducted.

Seventh, the same research design can be conducted with students in other countries. It would be interesting to see if the model could be replicated to students in different context. It is also interesting to see if students in different contexts will share the same mediators as Thai students and to see which mediator is the strongest mediator in different contexts.

The researcher believes that these recommended further studies can add more insight on vocabulary size, reading comprehension, vocabulary depth, reading strategies, and vocabulary learning strategies. The results from these studies can provide more important information to teachers to prepare appropriate lessons to their English classrooms.

Conclusion

This study sheds some light on vocabulary size study of the first-year undergraduate students as well as its relationship with reading comprehension. Vocabulary size is the most important key to reading comprehension. Larger vocabulary size leads to better reading comprehension. The SEM analysis confirms the causal relationship among vocabulary size, reading comprehension, vocabulary depth, reading strategies, and vocabulary learning strategies. The indirect effects from vocabulary size to reading comprehension passing through vocabulary depth, reading strategies, and vocabulary learning strategies are confirmed. This proves that vocabulary depth, reading strategies, and vocabulary learning strategies are mediators between vocabulary size and reading comprehension. It also reveals that vocabulary learning strategies are the strongest mediator and are a very effective tool to enhance reading strategies and vocabulary depth. Therefore, in the classroom, to improve students' reading comprehension, vocabulary size needs to be highlighted as the important language foundation. Moreover, teachers need to teach students vocabulary

learning strategies along with vocabulary size because they give effective supports to all variables, namely vocabulary size, reading comprehension, vocabulary depth, and reading strategies.

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APPENDIX

Appendix A
Informed Consent Form

ใบยินยอมด้วยความสมัครใจ

การวิจัยเรื่อง <u>การตรวจสอบสื่อกลางระหว่างความรู้คำศัพท์ และการอ่านเพื่อความเข้าใจ</u>
<u>ของนักศึกษาระดับปริญญาตรี ชั้นปีที่ 1 (An Investigation of the Mediators between Vocabulary</u>
<u>Size and Reading Comprehension of First-Year Undergraduate Students)</u>

วันให้คำยินยอม วันที่....................เดือน.......................................พ.ศ...................................

ก่อนที่จะลงนามในใบยินยอมให้ทำการวิจัยนี้ ข้าพเจ้าได้รับการอธิบายจากผู้วิจัยถึงวัตถุประสงค์
ของการวิจัย วิธีการวิจัย ผลกระทบที่จะเกิดจากการวิจัย รวมทั้งประโยชน์ที่จะเกิดขึ้นจากการวิจัย
อย่างละเอียด และมีความเข้าใจดีแล้ว

ผู้วิจัยรับรองว่าจะตอบคำถามต่างๆที่ข้าพเจ้าสงสัยด้วยความเต็มใจ ไม่ปิดบัง ซ่อนเร้นจน
ข้าพเจ้าพอใจ ข้าพเจ้ามีสิทธิที่จะบอกเลิกการเข้าร่วมในโครงการวิจัยนี้เมื่อใดก็ได้ และเข้าร่วม
โครงการวิจัย
นี้โดยสมัครใจและการบอกเลิกการเข้าร่วมการวิจัยนี้ จะไม่มีผลใดๆต่อข้าพเจ้า

ผู้วิจัยรับรองว่าจะเก็บข้อมูลเฉพาะเกี่ยวกับตัวข้าพเจ้าเป็นความลับ และจะเปิดเผยได้เฉพาะใน
รูปที่เป็นสรุปการวิจัย หรือการเปิดเผยข้อมูลต่อผู้ที่มีหน้าที่ที่เกี่ยวข้องกับการสนับสนุนและกำกับ
ดูแลการวิจัย
ผู้วิจัยรับรองว่าหากเกิดปัญหาใดๆ จากการวิจัยดังกล่าว ข้าพเจ้าสามารถติดต่อผู้วิจัยได้ตลอดเวลา
โดยบุคคลที่รับผิดชอบเรื่องนี้คือ <u>นางเพ็ญประภา มังกรวงษ์ อาจารย์ประจำมหาวิทยาลัยกรุงเทพ</u>
<u>และนักศึกษาระดับปริญญาเอก จุฬาลงกรณ์มหาวิทยาลัย</u>
<u>ที่อยู่ 2244/1 ถนน ลาดพร้าว แขวง พลับพลา เขต วังทองหลาง กรุงเทพมหานคร 10310</u>
หมายเลขโทรศัพท์ <u>087-0222565</u>

ข้าพเจ้าได้อ่านข้อความข้างต้นแล้ว และมีความเข้าใจดีทุกประการ และได้ลงนามในใบยินยอม

นี้ด้วยความเต็มใจ

ลงนาม..ผู้
ยินยอม

หมายเลขโทรศัพท์……………………………………….

Appendix B
Test Specification

Reading Comprehension Test

1. Purpose: Reading Comprehension Test is designed to evaluate learners' reading performance

   in order to identify their reading ability.

2. Test takers: First-year undergraduate students

3. Test level: beginner, intermediate, advanced

4. Administration: individual, paper-based test

5. Time: 1 hour

6. Task types: Multiple choices with 4 options

7. Total score: 40 points (1 point / each item)

8. Contents: 40 items

     - 6 passages: 4 short passages, 2 long passages

     - Focused reading skills

     - Scanning and skimming for general and specific information

     - Guessing meaning of unknown words

     - Identifying the meaning of key vocabulary items

     - Identifying the main idea or purpose of a passage

     - Identifying the title of the text or appropriate heading

     - Synthesizing information

     - Summarizing the content

Appendix C

Vocabulary Size Test (Thai Version)

ข้อสอบวัดวงคำศัพท์ เป็นข้อสอบที่ออกแบบโดย เพื่อวัดระดับความรู้คำศัพท์ของนักศึกษา มี

ทั้งหมด 14 ระดับ ไล่จากระดับ 1,000 ถึง 14,000 คำศัพท์ในระดับต่ำที่สุด คือ คำศัพท์ที่พบบ่อย

ที่สุด และคำศัพท์ในระดับสูงที่สุด คือ คำศัพท์ที่พบน้อยที่สุด ดังนั้น ขอให้นักศึกษาตั้งใจทำ

ข้อสอบ เพื่อที่นักศึกษาจะสามารถรู้ได้ว่า นักศึกษามีความรู้คำศัพท์ในระดับใด และพัฒนาตนเอง

ให้มีความรู้ด้านคำศัพท์มากยิ่งขึ้น

<u>**คำชี้แจง**</u>

1) ข้อสอบวัดวงความรู้คำศัพท์มีทั้งหมด 14 ระดับ 140 ข้อ

2) ให้นักศึกษากากบาท (X) ข้อที่ถูกที่สุดลงในกระดาษคำตอบ

3) **หากนักศึกษาไม่ทราบ หรือไม่แน่ใจคำตอบข้อใด ขอให้เว้นไว้**

4) นักศึกษามีเวลาในการทำข้อสอบ 1 ชั่วโมง 30 นาที

<u>ตัวอย่าง</u> ข้อสอบทุกกข้อจะมีลักษณะ ดังต่อไปนี้
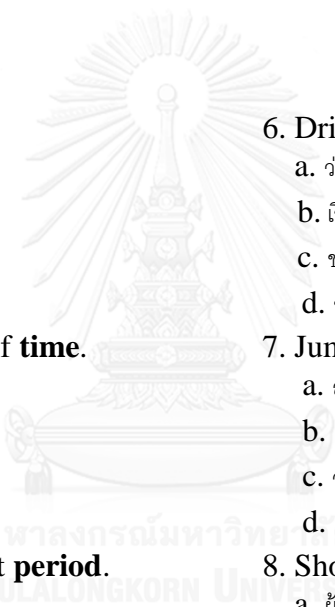
<u>คำสั่ง</u> ให้เลือกคำตอบที่มีความหมายตรงกับคำที่กำหนดให้

Huge: This fish is **huge**.

a. น่ากลัว

b. ใหญ่มาก

c. หายาก

d. แปลกประหลาด

<u>คำตอบ</u> b. ใหญ่มาก   ให้นักศึกษาทำเครื่องหมายกากบาท (X) ที่ตัวเลือก b ในกระดาษคำตอบ

First 1000

1. See: They **saw** it.
  a. ตัด
  b. รอคอย
  c. มองเห็น
  d. เริ่มต้น

2. Time: They have a lot of **time**.
  a. เงิน
  b. อาหาร
  c. เวลา
  d. เพื่อน

3. Period: It was a difficult **period**.
  a. คำถาม
  b. ช่วงเวลา
  c. สิ่งที่ต้องทำ
  d. หนังสือ

4. Figure: Is this the right **figure**?
  a. คำตอบ   a. ส้นรองเท้า
  b. สถานที่
  c. เวลา
  d. ตัวเลข

5. Poor: We are **poor**.
  a. ไม่มีเงิน
  b. มีความสุข
  c. รู้สึกสนใจมาก
  d. ไม่ชอบทำงานหนัก

6. Drive: He **drives** fast.
  a. ว่ายน้ำ
  b. เรียนรู้
  c. ขว้างลูกบอล
  d. ขับรถ

7. Jump: She tried to **jump**.
  a. ลอยตัวบนน้ำ
  b. กระโดด
  c. จอดรถริมทาง
  d. เคลื่อนตัวอย่างเร็ว

8. Shoe: Where is your **shoe**?
  a. ผู้ปกครอง
  b. กระเป๋าสตางค์
  c. เครื่องเขียน
  d. รองเท้า

9. Standard: Her **standards** are very high.

  b. คะแนนจากโรงเรียน
  c. เงินที่ขอไว้
  d. มาตรฐาน

10. Basis: This was used as the **basis**.
  a. คำตอบ
  b. สถานที่พักผ่อน
  c. ขั้นต่อไป
  d. ส่วนหลัก

Second 1000

11. Maintain: Can they **maintain** it?

    a. เก็บรักษาไว้อย่างเดิม

    b. ทำให้ใหญ่ขึ้น

    c. เอาอันใหม่ที่ดีกว่า

    d. เอามาได้

12. Stone: He sat on a **stone**.

    a. หิน

    b. เก้าอี้ชนิดหนึ่ง

    c. วัตถุนิ่มๆ ที่อยู่บนพื้น

    d. ส่วนหนึ่งของต้นไม้

13. Upset: I am **upset.**

    a. เหนื่อย

    b. มีชื่อเสียง

    c. รวย

    d. ไม่มีความสุข

16. Nil: His mark for the question was **nil**.

    a. แย่มาก

    b. ศูนย์

    c. ดีมาก

    d. อยู่ตรงกลาง

7. Pub: They went to the **pub**.

    a. สถานที่สำหรับดื่มและคุยกัน

    b. ธนาคาร

    c. ห้างสรรพสินค้า

    d. ที่สำหรับว่ายน้ำ

18. Circle: Make a **circle**.

    a. รูปภาพหยาบๆ

    b. พื้นที่ว่างเปล่า

    c. ทรงกลม

    d. หลุมใหญ

14. Drawer: The **drawer** was empty.

    a. ลิ้นชัก

    b. โรงรถ

    c. ตู้เย็น

    d. บ้านของสัตว์

15. Patience: He has **no patience**.

    a. ไม่อดทน

    b. ไม่มีเวลาว่าง

    c. ไม่มีความศรัทธา

    d. ไม่รู้จักความยุติธรรม

19. Microphone: Please use the **microphone**.

    a. เครื่องอุ่นอาหาร

    b. เครื่องที่ทำให้เสียงดังขึ้น

    c. เครื่องที่ทำให้สิ่งของดูใหญ่ขึ้น

    d. โทรศัพท์แบบพกพา

20. Pro: He's a **pro**.

    a. ผู้เชี่ยวชาญ

    b. คนโง่

    c. นักหนังสือพิมพ์

    d. นักกีฬาอาชีพ

Third 1000

21. Soldier: He is a **soldier**.

    a. นักธุรกิจ

    b. นักเรียน

    c. คนที่ใช้โลหะ

    d. ทหาร

22. Restore: It has been **restored**.

    a. พูดซ้ำอีกครั้ง

    b. ให้คนอื่นไป

    c. ลดราคา

    d. ทำให้ใหม่อีกครั้ง

23. Jug: He was holding a **jug**.

    a. เหยือกน้ำ

    b. การอภิปรายแบบไม่เป็นทางการ

    c. หมวกนุ่มๆ

26. Strap: He broke the **strap**.

    a. สัญญา

    b. ฝาปิด

    c. จานก้นไม่ลึก

    d. วัตถุที่ยึดสิ่งของเข้าด้วยกัน

27. Pave: It was **paved**.

    a. ถูกกั้นไว้ไม่ให้ผ่าน

    b. ถูกแยกออก

    c. ถูกทำให้ขอบเป็นสีทอง

    d. ถูกปิดด้วยพื้นผิวแข็งๆ

28. Dash: They **dashed** over it.

    a. เคลื่อนที่อย่างรวดเร็ว

    b. เคลื่อนที่อย่างช้าๆ

    c. ต่อสู้

d. อาวุธที่ระเบิดได้

d. กวาดตาดูอย่างรวดเร็ว

24. Scrub: He is **scrubbing** it.

  a. หั่นลงไปตื้นๆ

  b. ซ่อมแซม

  c. ขัดถูให้สะอาด

  d. วาดรูปมันอย่างง่ายๆ

29. Rove: He couldn't stop **roving.**

  a. เมา

  b. เดินทางไปทั่ว

  c. ฮัมเพลง

  d. ทำงานหนัก

25. Dinosaur: The children were pretending

  to be **dinosaur**.

  a. โจรสลัด

  b. เทพธิดา

  c. มังกร

  d. สัตว์ที่สูญพันธ์ุไปนานแล้ว

30. Lonesome: He felt **lonesome**.

  a. อกตัญญู

  b. เหนื่อยมาก

  c. โดดเดี่ยว

  d. เต็มไปด้วยพลังงาน

Fourth 1000

31. Compound: They made a new **compound**.

  a. ข้อตกลง

ใดสิ่งหนึ่ง

  b. สิ่งที่ทำจากชิ้นส่วนสองชิ้น หรือมากกว่า

  c. กลุ่มคนที่ร่วมกันทำธุรกิจ

  d. การคาดเดาจากประสบการณ์ในอดีต

36. Input: We need more **input**.

  a. ข้อมูลม อำนาจ และอื่นๆ ที่ใส่เข้าไปในสิ่ง

  b. คนงาน

  c. สิ่งสังเคราะห์สำหรับอุดรูไม้

  d. เงิน

32. Latter: I agree with the **latter**.

  a. บาทหลวง

  b. เหตุผล

  c. ข้อสุดท้าย

  d. คำตอบ

37. Crab: Do you like **crabs**?

  a. ปู

  b. เค้กชิ้นเล็กๆ บางๆ

  c. ปกเสื้อที่แน่น และแข็ง

  d. จิ้งหรีด

33. Candid: Please be **candid.**

more

38. Vocabulary: You will need

  vocabulary.

a. ระมัดระวัง

b. แสดงความสงสาร

c. แสดงความยุติธรรมให้ทั้งสองฝ่าย

d. พูดอย่างที่คิดจริงๆ

a. คำศัพท์

b. ทักษะ

c. เงิน

d. ปืน

34. Tummy: Look at my tummy.

a. ผ้าคลุมผม

b. ท้อง

c. สัตว์ขนปุยตัวเล็กๆ

d. นิ้วโป้ง

39. Remedy: We found a good remedy.

a.วิธีแก้ปัญหา

b. ร้านอาหาร

c. วิธีเตรียมอาหาร

d. กฎเกณฑ์เกี่ยวกับตัวเลข

35. Quiz: We made a quiz.

a. กระบอกบรรจุลูกธนู

b. ความผิดร้ายแรง

c. ข้อสอบ

d. กล่องสำหรับให้นกทำรัง

40. Allege: They alleged it.

a. อ้างโดยไม่มีหลักฐาน

b. ขโมยความคิดของคนอื่น

c. เตรียมข้อมูลจริงสำหรับการพิสูจน์

d. โต้แย้งต่อความจริงที่นำมาสนับสนุน

Fifth 1000

41. Deficit: The company had a large deficit.

a. ใช้จ่ายมากกว่ารายได้

b. ราคาตกลงไปมาก

c. มีแผนสำหรับการใช้จ่ายที่ต้องใช้เงินมาก

d. มีเงินจำนวนมากในธนาคาร

46. Cube: I need one more cube.

a. ของแหลมคมที่ใช้ยึดติดสิ่งของ

b. กลองแข็งสี่เหลี่ยมจัตุรัส

c. แก้วทรงสูงที่ไม่มีจานรอง

d. กระดาษพับครึ่ง

42. Weep: He wept.

a. จบหลักสูตร

b. ร้องไห้

c. ตาย

d. กังวล

47. Miniature: It is a miniature.

a. อันที่เล็กมากๆในจำพวกเดียวกัน

b. เครื่องมือที่ใช้ดูวัตถุชิ้นเล็กๆ

c. สิ่งมีชีวิตที่เล็กที่สุด

d. เส้นสั้นๆ ที่ใช้เชื่อมตัวหนังสือเวลาเขียน

43. Nun: We saw a **nun.**

   a. สิ่งมีชีวิตตัวยาว บาง ที่อาศัยอยู่ในโลก

   b. อุบัติเหตุที่แย่มาก

   c. แม่ชี

   d. แสงสว่างบนท้องฟ้าที่ไม่สามารถอธิบายได้

44. Haunt: The house is **haunted.**

   a. เต็มไปด้วยของประดับ

   b. ถูกเช่า

   c. ว่างเปล่า

   d. ถูกผีสิง

45. Compost: We need some **compost.**

   a. การสนับสนุนที่หนักแน่น

   b. ความช่วยเหลือเพื่อให้รู้สึกดีขึ้น

   c. วัตถุแข็งที่ทำจากหินและทรายติดเข้าด้วยกัน

   d. ปุ๋ยหมัก

48. Peel: Shall I **peel** it?

   a. แช่ไว้ในน้ำนานๆ

   b. ปลอกเปลือก

   c. ทำให้ขาว

   d. หั่นให้เป็นชิ้นบางๆ

49. Fracture: They found a **fracture**.

   a. รอยแตกหัก

   b. ชิ้นส่วนเล็กๆ

   c. เสื้อโค๊ตตัวสั้น

   d. อัญมณีหายาก

50. Bacterium: They didn't find a single **bacterium**.

   a. เชื้อโรค

   b. ต้นไม้ที่มีดอกสีแดงหรือส้ม

   c. สัตว์ที่บรรทุกน้ำไว้บนหลังของมัน

   d. ของที่ถูกขโมยและนำไปขายที่ร้าน

Sixth 1000

51. Devious: Your plans are **devious.**

   a. มีเล่ห์เหลี่ยม

   b. ทำขึ้นมาอย่างดี

คดี

   c. ไม่เข้าท่า

   d. แพงเกินความจำเป็น

52. Premier: The **premier** spoke for an hour.

56. Thesis: She has completed her **thesis.**

   a. วิทยานิพนธ์

   b. การกล่าวของผู้พิพากษาในตอนสุดท้ายของ

   c. ปีแรกของการว่าจ้างในฐานะครู

   d. การขยายช่วงเวลารักษาในโรงพยาบาล

57. Strangle: He **strangled** her.

a. คนที่ทำงานในศาล

b. อาจารย์มหาวิทยาลัย

c. นักผจญภัย

d. หัวหน้ารัฐบาล

a. ฆ่าโดยการบีบคอ

b. ให้ทุกอย่างที่ต้องการ

c. ลักพาตัว

d. ชื่นชมอย่างมาก

53. Butler: They have a **butler.**
manner.

a. คนรับใช้ที่เป็นผู้ชาย

b. เครื่องตัดต้นไม้

c. ครูส่วนตัว

d. ห้องใต้ดิน

58. Cavalier: He treated her in a **cavalier**

a. ไม่ได้ดูแล

b. อย่างสุภาพ

c. อย่างกระอักกระอ่วน

d. ราวกับว่าเป็นพี่ชาย

54. Accessory: They gave us some **accessories.**
is still
felt.

a. วีซ่า

b. คำสั่งอย่างเป็นทางการ

c. ข้อคิดในการเลือก

d. เครื่องประดับเสริม

59. Malign: His **malign** influence

a. ที่เลวร้ายเหมือนปีศาจ

b. ที่ดี

c. ที่สำคัญมาก

d. ที่เป็นความลับ

55. Threshold: They raised the **threshold**.

a. ธง

b. จุด หรือเส้น ที่เกิดการเปลี่ยนแปลง

c. หลังคาใต้ตึก

d. ดอกเบี้ย

60. Veer: The car **veered**.

a. แฉลบไปอีกทางอย่างกระทันหัน

b. แล่นไปอย่างสั่นๆ

c. ทำเสียงดังมาก

d. ไถลไปข้างทาง โดยไม่ได้หมุนพวงมาลัย

Seven 1000

61. Olive: We bought **olives.**
bloc.

a. ผลไม้ที่ใช้สกัดน้ำมัน

b. กลิ่นของดอกไม้สีชมพูหรือแดง

c. ชุดว่ายน้ำของผู้ชาย

66. Bloc: They have joined this

a. กลุ่มนักดนตรี

b. แก๊งโจร

c. ทหารกองหน้า

d. เครื่องมือสำหรับขุดวัชพืช

เดียวกัน

d. กลุ่มประเทศที่รวมกันเพื่อจุดประสงค์

เดียวกัน

62. Quilt: They made a **quilt**.

67. Demography: This book is about

demography.

a. พินัยกรรม

a. การศึกษารูปแบบของการใช้พื้นที่

b. สัญญาของบริหาร

ของตัวเลข

b. การศึกษาการใช้รูปภาพเพื่อแสดงข้อมูลจริง

c. ผ้าคลุมเตียง

c. การศึกษาการเคลื่อนที่ของน้ำ

d. ปากกาขนนก

d. การศึกษาเกี่ยวกับประชากร

63. Stealth: They did it by **stealth.**

68. Gimmick: That's a good **gimmick**.

a. การใช้เงินจำนวนมาก

a. สิ่งที่ใช้ยืนเวลาทำงานในที่สูง

b. การทำให้ผู้อื่นบาดเจ็บอย่างมากจนต้องยอมชดเชยให้ตามที่ขอ

b. สิ่งของชิ้นเล็กๆที่มีกระเป๋าสำหรับใส่สตางค์

c. การเคลื่อนย้ายอย่างลับๆ ด้วยความระมัดระวังและเงียบอย่างที่สุด

c. การกระทำหรือสิ่งของที่ทำให้คนอื่นเกิด

ความสนใจ

d. การไม่สังเกตเห็นปัญหาที่เกิดขึ้น

d. แผนหรืออุบายที่ฉลาด

64. Shudder: The boy **shuddered**.

pretty.

69. Azalea: This **azalea** is very

a. พูดด้วยเสียงต่ำๆ

a. ต้นไม้ต้นเล็กๆ ที่มีดอกไม้ขึ้นอยู่เป็นกลุ่มๆ

b. เกือบจะตก

b. วัตถุน้ำหนักเบาทำจากด้ายธรรมชาติ

c. สั่น

c. ส่าหรีของผู้หญิงอินเดีย

d. ตะโกนเรียกดังๆ

d. หอยทะเลที่รูปร่างเหมือนพัด

65. Bristle: The **bristles** are too hard.

disgusting.

70. Yogurt: This **yogurt** is

a. คำถาม

a. โคลนสีเทาที่พบใต้แม่น้ำ

b. ขนสั้น แข็ง

b. แผลเปิด ที่ดูไม่ดี

c. เตียงพับได้

รสชาดต่างๆ

d. ส่วนใต้ของรองเท้า

c. นมเปรี้ยว ข้น มักผสมด้วยน้ำตาลและ

d. ผลไม้สีม่วงลูกใหญ่ที่มีเนื้อนิ่ม

Eighth 1000

71. Erratic: He was **erratic.**

   a. ปราศจากความผิด

   b. เลวมาก

   c. สุภาพมาก

   d. โลเล

72. Palette: He lost his **palette**.

of **locusts**.

   a. ตะกร้าใส่ปลา

   b. ความอยากอาหาร

   c. เพื่อนที่เป็นหญิงสาว

   d. จานผสมสีของจิตรกร

73. Null: His influence was **null.**

   a. มีเหตุผลที่ดี

   b. ไม่ได้ช่วยอะไร

   c. ไม่มีผลกระทบ

   d. อยู่ได้นาน

74. Kindergarten: This is a good.

   kindergarten.

   a. กิจกรรมที่ทำให้ลืมความกังกล

   b. โรงเรียนอนุบาล

   c. เป้สะพายหลัง

   d. ห้องสมุด

76. Marrow: This is the **marrow**.

   a. สัญญลักษณ์ที่นำความโชคดีมาให้แก่ทีม

   b. ไขกระดูกที่อยู่ตรงส่วนกลาง

   c. เครื่องควบคุมการร่อนเครื่องบิน

   d. การเพิ่มเงินเดือน

77. Locust: There were hundreds

   a. แมลงมีปีก

   b. อาสาสมัคร

   c. คนที่เป็นมังสวิรัต

   d. ดอกไม้ป่าสีสดใส

78. Authentic: It is **authentic**.

   a. จริง

   b. เสียงดังมาก

   c. เก่า

   d. เหมือนกับทะเลทราย

79. Cabaret: We saw the **cabaret**.

   a. ภาพวาดบนผนัง

   b. การแสดงทั้งร้องและเต้น

   c. แมลงตัวเล็กๆ

   d. นางเงือก

75. Eclipse: There was an **eclipse**.

mumble.

   a. ลมแรง

   b. เสียงดังจากการที่มีสิ่งของตกลงน้ำ

   c. การฆาตกรรมหมู่

   d. สุริยุปราคา

80. Mumble: He started to

   a. คิดอย่างลึกซึ้ง

   b. สั่นอย่างควบคุมตัวเองไม่ได้

   c. ยืนอยู่ห่างๆ ข้างหลังคนอื่น

   d. พูดพึมพำ

Ninth 1000

81. Hallmark: Does it have a **hallmark**?

   a. แสตมป์บอกวันหมดอายุ

   b. เครื่องหมายแสตมป์แสดงคุณภาพสิ่งของ

   c. เครื่องหมายที่แสดงว่าได้รับการยอมรับจากราชวงศ์

   d. เครื่องหมายที่ติดไว้เพื่อป้องกันการลอกเลียนแบบ

82. Puritan: He is a **puritan**.

   a. คนที่ชอบให้ผู้อื่นสนใจ

   b. คนที่ยึดมั่นในศีลธรรมอย่างเคร่งครัด

   c. คนที่อาศัยในบ้านเคลื่อนที่

   d. คนที่ไม่ชอบการใช้จ่ายเงิน

83. Monologue: Now he has a **monologue.**

   a. แว่นขยาย

   b. บทพูดเดี่ยว

   c. ตำแหน่งที่คุมอำนาจทั้งหมด

   d. รูปภาพที่วาดโดยใช้ตัวอักษรมาผสมผสานกัน

84. Weir: We looked at the **weir**.

fens.

   a. คนที่ทำตัวแปลกประหลาด

   b. สถานที่ที่เป็นโคลน เปียก เต็มไปด้วยต้นไม้น้ำ

86. Perturb: I was **perturbed**.

   a. ทำการตกลง

   b. รู้สึกกังวล

   c. งงมากๆ

   d. เปียกโชก

87. Regent: They chose a **regent**.

   a. คนที่ไม่มีความรับผิดชอบ

   b. ผู้จัดประชุม

   c. ผู้สำเร็จราชการแทนพระมหากษัตริย์

   d. ตัวแทน

88. Octopus: They saw an **octopus**.

   a. นกตัวใหญ่ที่หากินกลางคืน

   b. เรือดำน้ำ

   c. เฮลิคอปเตอร์

   d. ปลาหมึก

89. Fen: The story is set in the

   a. พื้นที่ต่ำที่ถูกปกคลุมด้วยน้ำเป็นบางส่วน

   b. พื้นที่ราบสูงที่มีต้นไม้เล็กน้อย

c. เครื่องดนตรีเก่าแก่ที่ทำจากโลหะ เล่นโดยการเป่า

d. เขื่อน

c. ชุมชนของบ้านเสื่อมโทรมในเมืองหลวง

d. เวลาที่ผ่านมานานแล้ว

85. Whim: He had lots of **whims**.

  a. เหรียญทองเก่าๆ

  b. ม้าเพศเมีย

  c. ความคิดเพ้อฝัน

  d. ก้อนเนื้อสีแดงที่ทำให้เจ็บ

Tenth 1000

90. Lintel: He painted the **lintel**.

  a. ขื่อที่อยู่เหนือประตูหรือหน้าต่าง

  b. เรือลำเล็กที่ใช้พายเข้าฝั่งจากเรือลำใหญ่

  c. ต้นไม้สวยงามที่แผ่กิ่งก้านและ มีผลสีขียว

  d. บอร์ดสำหรับแสดงฉากตัวอย่างในภาพยนต์

91. Awe: They looked at the mountain with **awe**. **cranny**!

  a. ความกังวล

  b. ความสนใจ

  c. ความสงสัย

  d. ความน่าเกรงขาม

96. Cranny: We found it in the

  a. สถานที่ขายของไม่ใช้แล้ว

  b. ช่องที่เปิดไว้แคบๆ

  c. ห้องใต้หลังคา

  d. กล่องไม้กล่องใหญ่

92. Peasantry: He did a lot for the **peasantry**. **pigtail**?

  a. คนท้องถิ่น.

  b. สถานที่สำหรับสักการะบูชา

  c. คลับสำหรับนักธุรกิจ

  d. ชาวนาที่ยากจน

97. Pigtail: Does she have a

  a. ผมเปีย

  b. ผ้าติดด้านหลังชุด

  c. ต้นไม้ที่มีดอกสีชมพูห้อยตามกิ่งสั้นๆ

  d. คนรัก

93. Egalitarian: This organization is **egalitarian**.

  a. ไม่ค่อยให้ข้อมูลของตัวเองต่อสาธารณะ

  b. ไม่ชอบการเปลี่ยนแปลง

  c. ซักถามศาลบ่อยๆเกี่ยวกับการตัดสินคดี

ปลอม

  d. ปฏิบัติต่อคนงานทุกคนอย่างเท่าเทียมกัน

98. Crowbar: He used a **crowbar**.

  a. ชแลงเหล็ก

  b. ชื่อปลอม

  c. เครื่องมือคมๆสำหรับเจาะรูเครื่องหนังชื่อ

  d. ไม้เท้าที่ทำจากโลหะเบาๆ

94. Mystique: He has lost his **mystique**. **ruck**.

99. Ruck: He got hurt in the

a. ร่างกายที่แข็งแรงสมบูรณ์

b. วิธีการลับที่ทำให้คนอื่นคิดว่าเขามีอำนาจหรือทักษะพิเศษ

c. ภรรยาน้อย

d. หนวด

a. สะดือ

b. การดันและการขุด

c. กลุ่มผู้เล่นมารุมล้อมรอบลูกฟุตบอลในการแข่งขัน

d. การแข่งขันข้ามลานหิมะ

95. Upbeat: I'm feeling really **upbeat** about it.

a. เสียใจ

b. ดี

c. เจ็บ

d. สับสน

100. Lectern: He stood at the **lectern**.

a. โต๊ะอ่านหนังสือแบบสูง

b. โต๊ะใช้สำหรับการสวดมนต์ในโบสถ์

c. สถานที่สำหรับซื้อเครื่องดื่ม

d. ปลายขอบ

Eleventh 1000

101. Excrete: This was **excreted** recently. them concern.

a. ผลักออกไป หรือส่งออกไป

b. ทำให้ชัดเจน

c. ค้นพบจากการทดลองทางวิทยาศาสตร์

d. บันทึกไว้ในรายการของสิ่งผิดกฎหมาย

106. Pallor: His **pallor** caused

a. อุณหภูมิร่างกายที่สูงผิดปกติ

b. การขาดความสนใจในทุกๆอย่าง

c. กลุ่มเพื่อน

d. ความซีดของสีผิว

102. Mussel: They bought **mussels**.

a. ลูกแก้วที่ใช้เล่นเกม

b. หอย

c. ผลไม้ผลใหญ่สีม่วง

d. ผ้ากันเปื้อน

107. Aperitif: She had an **aperitif**.

a. เก้าอี้นอนยาว

b. ครูสอนร้องเพลงส่วนตัว

c. หมวกใบใหญ่ปักขนนก

d. เครื่องดื่มก่อนอาหาร

103. Yoga: She has started **yoga.**

108. Hutch: Please clean the **hutch**.

a. งานถักที่ทำด้วยมือ

b. การออกกำลังกายชนิดหนึ่งที่ช่วยทั้งร่างกายและจิตใจ

c. แบดมินตัน

d. การเต้นรำชนิดหนึ่งของประเทศทางตะวันออก

a. ตะแกรงดักขยะในท่อน้ำ

b. กะบะเก็บของท้ายรถ

c. เฟืองจักรยาน

d. กรงสำหรับสัตว์ตัวเล็กๆ

104. Counterclaim: They made a **counterclaim.**

a. ข้อเรียกร้องทางกฎหมายจากฝ่ายหนึ่งฝ่ายใด

b. การขอให้ร้านค้ารับคืนของที่ชำรุด

ตะวันออก

c. ข้อตกลงระหว่างสองบริษัทในการแลกเปลี่ยนการทำงาน

d. ผ้าคลุมหัวเตียง

109. Emir: We saw the **emir**.

a. นกที่มีขนหางงอ และยาว

b. ผู้หญิงที่เป็นพี่เลี้ยงเด็กในประเทศ

c. หัวหน้าเผ่าทางตะวันออก

d. บ้านที่สร้างจากก้อนน้ำแข็ง

105. Puma: They saw a **puma**.

hessian.

a. บ้านหลังเล็กๆ ที่ทำจากอิฐดินเหนียว

b. ต้นไม้จากประเทศที่ร้อนและแห้ง

c. ลมพายุหมุน

d. เสือชนิดหนึ่ง

110. Hessian: She bought some

a. ปลาสีชมพูที่มันเยอะ

b. สิ่งที่ช่วยทำให้จิตใจเป็นสุข

c. ผ้าเนื้อหยาบ

d. รากต้นไม้ที่ช่วยเสริมรสชาดอาหาร

Twelfth 1000

111. Haze: We looked through the **haze**.

refectory.

a. หน้าต่างกลมที่อยู่ในเรือ

b. อากาศอึมครึม

กฎหมาย

c. ไม้ หรือพลาสติกที่ ใช้ปิดหน้าต่าง

d. รายชื่อ

116. Refectory: We met in the

a. ห้องอาหาร

b. ห้องทำงานที่ใช้สำหรับเซ็นสัญญาทาง

c. ห้องนอนแบบรวม

d. เรือนกระจกสำหรับปลูกต้นไม้

112. Spleen: His **spleen** was damaged.

of

caffeine.

117. Caffeine: This contains a lot

of

caffeine.
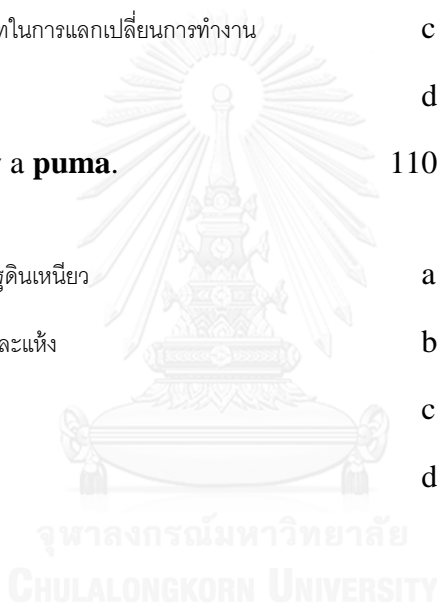
a. กระดูกหัวเข่า

b. ม้าม

c. ท่อน้ำทิ้ง

d. การเคารพตนเอง

a. สารที่ทำให้หลับ

b. ด้ายจากใบไม้ที่เหนียวๆ

c. ความคิดที่ไม่ถูกต้อง

d. สารที่ทำให้ตื่นตัว

113. Soliloquy: That was an excellent **soliloquy**.

a. เพลงจากผู้ร้อง 6 คน

b. คำสุภาษิต

c. ความบันเทิงที่ใช้แสง และดนตรี

d. การกล่าวสุนทรพจน์แบบเดี่ยว

118. Impale: He nearly got **impaled.**

a. ถูกกล่าวหาว่ากระทำผิดร้ายแรง

b. ถูกขังคุก

c. ถูกทะลุด้วยของมีคม

d. พัวพันในเรื่องโต้แย้ง

114. Reptile: She looked at the **reptile**.

a. หนังสือเก่าที่เขียนด้วยลายมือ

b. สัตว์เลื้อยคลาน

c. คนขายของตามบ้าน

d. รูปภาพที่ทำจากกระดาษหลายๆ สีติดกัน

119. Coven: She is the leader of a **coven**.

a. นักร้องกลุ่มเล็กๆ

b. ธุรกิจที่คนทำงานเป็นเจ้าของ

c. สมาคมลับ

d. กลุ่มของผู้หญิงเคร่งศาสนาที่รวมตัวกัน

115. Alum: This contains **alum**.

a. สารพิษจากพืช

b. วัสดุเนื้อนิ่มทำจากด้ายสังเคราะห์

c. ผงยาสูบที่ใส่เข้าทางจมูก

d. สารสังเคราะห์ที่ใช้กับอลูมิเนียม

120. Trill: He practiced the **trill**.

a. เสียงร้องรัวที่เพิ่มสีสรรค์ในดนตรี

b. เครื่องดนตรีแบบสายชนิดหนึ่ง

c. วิธีการขว้างลูกบอล

d. ท่าเต้นที่หมุนตัวด้วยปลายเท้าอย่างเร็ว

Thirteenth 1000

121. Ubiquitous: Many weeds are **ubiquitous**.

a. ยากที่จะกำจัด

b. มีรากยาว และแข็งแรง

c. พบได้ในประเทศส่วนใหญ่

126. Plankton: We saw a lot of **plankton**.

a. วัชพืชมีพิษที่ขยายพันธ์อย่างรวดเร็ว

b. สัตว์ หรือพืชเล็กๆ ที่พบในน้ำ

c. ต้นไม้ที่ใช้ผลิตไม้เนื้อแข็ง

d. ตายในฤดูหนาว

d. ดินเหนียวสีเทาที่ทำให้ลื่น

122. Talon: Just look at those **talons**.

127. Skylark: We watched a
skylark.

   a. ยอดสูง ของภูเขา

   a. การแสดงการขับเครื่องบิน

   b. เล็บอันแหลมคมของนกนักล่า

   b. ดาวเทียม

   c. เสื้อเกราะ

   c. นักมายากล

   d. คนที่เป็นตัวตลกทำให้คนอื่นหัวเราะโดยไม่รู้ตัว

   d. นกเล็กๆ ชนิดหนึ่งที่ชอบบินและร้องเพลง

123. Rouble: He had a lot of **roubles.**

128. Beagle: He owns two
beagles.

   a. หินสีแดงที่สวยงามงาม

   a. รถเปิดประทุน

   b. สมาชิกครอบครัวที่อยู่ไกลๆ
รวดเร็ว

   b. ปืนกระบอกใหญ่ที่สามารถยิงคนได้อย่าง

   c. เงินรัสเซีย

   c. สุนัขตัวเล็ก หูยาว

   d. ศีลธรรม หรือ สิ่งยากๆที่อยู่ในใจ

   d. บ้านพักตากอากาศ

124. Jovial: He was very **jovial**.

129. Atoll: The **atoll** was
beautiful.

   a. อยู่ในระดับชั้นต่ำของสังคม

   a. เกาะรูปวงแหวนที่เกิดจากปะการัง

   b. ชอบที่จะวิจารณ์ผู้อื่น

   b. งานรูปภาพศิลปะที่ทำจากการถักเส้นไหม

   c. เต็มไปด้วยความสนุก
หญิงสวมในตอนเย็น

   c. มงกุฎเล็กๆ ประดับด้วยอัญมณี สำหรับผู้

   d. เป็นมิตร
ก้อนใหญ่ๆ

   d. ที่ที่แม่น้ำไหลผ่านช่องแคบ ที่เต็มไปด้วยหิน

125. Communique: I saw their **communique'**.

130. Didactic: The story is very
didactic.

   a. รายงานเชิงวิเคราะห์เกี่ยวกับองค์กร
บางอย่าง

   a. พยายามอย่างหนักเพื่อจะสอนบางสิ่ง

   b. สวนสาธารณะ

   b. ยากที่จะเชื่อ

c. สิ่งพิมพ์สำหรับโฆษณา

d. ประกาศอย่างเป็นทางการ

ความหมายของเรื่อง

c. เกี่ยวกับเรื่องราวที่น่าตื่นเต้น

d. ถูกเขียนในทิศทางที่ทำให้ผู้อ่านสับสนใน

Fourteenth 1000

131. Canonical: These are **canonical** example.

  a. ตัวอย่างที่ไม่เป็นไปตามกฎเกณฑ์

  b. ตัวอย่างที่นำมาจากหนังสือทางศาสนา

  c. ตัวอย่างทั่วไปและได้รับการยอมรับอย่างแพร่หลาย

  d. ตัวอย่างที่ได้เพิ่งถูกค้นพบเมื่อเร็วๆ นี้

132. Atop: He was **atop** the hill.

thesaurus.

  a. ตีนเขา

  b. ยอดเขา

  c. ข้างหนึ่งของเขา

  d. ด้านที่อยู่ออกไปของเขา

133. Marsupial: It is a **marsupial.**

erythrocyte.

  a. สัตว์ที่มีเท้าแข็ง

  b. ต้นไม้ที่อยู่ได้นานหลายปี

  c. ดอกทานตะวัน

  d. สัตว์ที่มีกระเป๋าหน้าท้อง

134. Augur: It **augured** well.

stopped by the

  cordillera.

  a. สัญญาว่าจะเกิดสิ่งดีๆ ในอนาคต

  b. เห็นด้วยกับสิ่งที่คาดว่าจะเกิด

  c. มีสีที่เข้ากันกับสิ่งอื่นๆ

136. Gauche: He was **gauche**.

  a. ช่างพูด

  b. ยืดหยุ่นได้

  c. เงอะงะ

  d. ดื้อดึง

137. Thesaurus: She used a

  a. พจนานุกรมชนิดหนึ่ง

  b. สารประกอบทางเคมี

  c. วิธีพิเศษในการพูด

  d. การฉีดยาใต้ผิวหนัง

138. Erythrocyte: It is an

  a. ยาแก้ปวด

  b. เม็ดเลือดแดง

  c. โลหะสีขาว แดง

  d. สมาชิกครอบครัววาฬ

139. Cordillera: They were

  a. กฎหมายพิเศษ

  b. เรือรบ

  c. กลุ่มเทือกเขา

d. เสียงที่ดังขึ้นอย่างชัดเจน และไพเราะ

d. พระราชโอรสองค์โตของพระมหากษัตริย์

135. Bawdy: It was **bawdy**.

limpid

a. ไม่สามารถคาดเดาได้

b. สนุกสนาน

c. เร่งรีบ

d. หยาบคาย

140. Limpid: He looked into her

eyes.

a. ใสแจ๋ว

b. เต็มไปด้วยน้ำตา

c. สีน้ำตาลเข้ม

d. สวยงาม

Appendix D
Vocabulary Size Test (Revised)

ข้อสอบวัดวงคำศัพท์ เป็นข้อสอบที่ออกแบบโดย เพื่อวัดระดับความรู้คำศัพท์ของนักศึกษา โดย
แบ่งเป็นทั้งหมด 10 ระดับ เมื่อนักศึกษาทำข้อสอบชุดนี้เสร็จ คะแนนจากข้อสอบจะสามารถบอกได้
ว่าความรู้คำศัพท์ของนักศึกษาอยู่ในระดับใด ดังนั้น ขอให้นักศึกษาตั้งใจทำข้อสอบ เพื่อที่นักศึกษา
จะสามารถรู้ว่านักศึกษามีความรู้ด้านคำศัพท์มากน้อยเพียงใด เพื่อที่จะพัฒนาตนเองให้มีความรู้ด้าน
คำศัพท์มากยิ่งขึ้นไป

<u>**คำชี้แจง**</u>

5) ข้อสอบวัดวงความรู้คำศัพท์มีทั้งหมด 100 ข้อ

6) ให้นักศึกษากากบาท (X) ข้อที่ถูกที่สุดลงในกระดาษคำตอบ

7) หากนักศึกษาไม่ทราบ หรือไม่แน่ใจคำตอบข้อใด ขอให้เว้นไว้

8) นักศึกษามีเวลาในการทำข้อสอบ 45 นาที

<u>ตัวอย่าง</u> ข้อสอบทุกกข้อจะมีลักษณะ ดังต่อไปนี้

<u>คำสั่ง</u> ให้เลือกคำตอบที่มีความหมายตรงกับคำที่กำหนดให้

Huge: This fish is **huge**.

    e. น่ากลัว

    f. ใหญ่มาก

    g. หายาก

    h. แปลกประหลาด

<u>คำตอบ</u> b. ใหญ่มาก ให้นักศึกษาทำเครื่องหมายกากบาท (X) ที่ตัวเลือก b ในกระดาษคำตอบ

1. Drive: He **drives** fast.

    a. ว่ายน้ำ

    b. เรียนรู้

    c. ขว้างลูกบอล

    d. ขับรถ

2. Period: It was a difficult **period**.

    a. คำถาม

    b. ช่วงเวลา

    c. สิ่งที่ต้องทำ

    d. หนังสือ

3. Shoe: Where is your **shoe**?

    a. ผู้ปกครอง

    b. กระเป๋าสตางค์

    c. เครื่องเขียน

    d. รองเท้า

4. Figure: Is this the right **figure**?

    a. คำตอบ

    b. สถานที่

    c. เวลา

    d. ตัวเลข

5. Standard: Her **standards** are very high.

    a. ส้นรองเท้า

    b. คะแนนจากโรงเรียน

    c. เงินที่ขอไว้

    d. มาตรฐาน
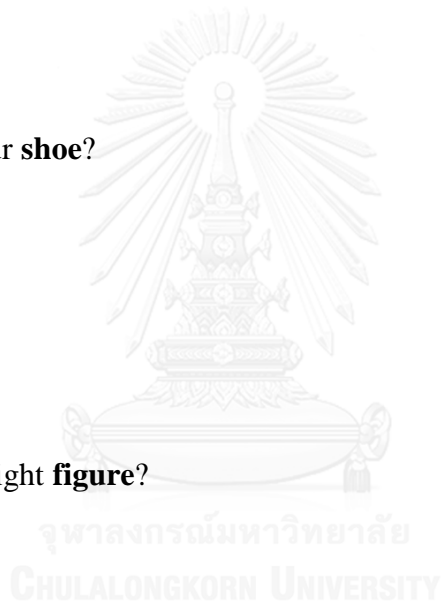
6. Basis: This was used as the **basis**.

    a. คำตอบ

    b. สถานที่พักผ่อน

    c. ขั้นต่อไป

    d. ส่วนหลัก

7. Maintain: Can they **maintain** it?

    a. เก็บรักษาไว้อย่างเดิม

    b. ทำให้ใหญ่ขึ้น

    c. เอาอันใหม่ที่ดีกว่า

    d. เอามาได้

8. Upset: I am **upset.**

    a. เหนื่อย

    b. มีชื่อเสียง

    c. รวย

    d. ไม่มีความสุข

9. Drawer: The **drawer** was empty.

    a. ลิ้นชัก

    b. โรงรถ

    c. ตู้เย็น

    d. บ้านของสัตว์

10. Patience: He has **no patience**.

    a. ไม่อดทน

    b. ไม่มีเวลาว่าง

    c. ไม่มีความศรัทธา

    d. ไม่รู้จักความยุติธรรม
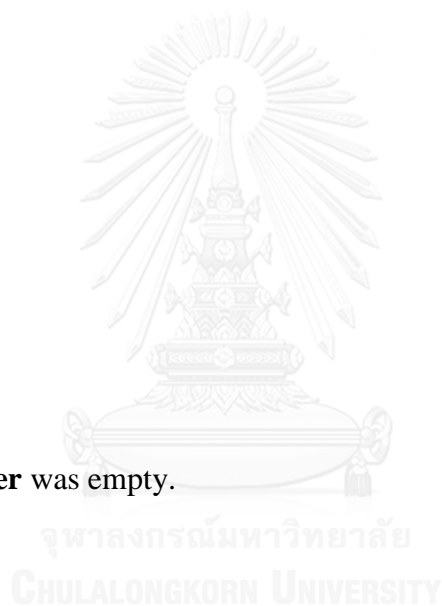
11. Nil: His mark for the question was **nil**.

    a. แย่มาก

    b. ศูนย์

    c. ดีมาก

    d. อยู่ตรงกลาง

12. Pub: They went to the **pub**.

    a. สถานที่สำหรับดื่มและคุยกัน

    b. ธนาคาร

    c. ห้างสรรพสินค้า

    d. ที่สำหรับว่ายน้ำ

13. Restore: It has been **restored**.

    a. พูดซ้ำอีกครั้ง

    b. ให้คนอื่นไป

    c. ลดราคา

    d. ทำให้ใหม่อีกครั้ง

14. Jug: He was holding a **jug**.

    a. เหยือกน้ำ

    b. การอภิปรายแบบไม่เป็นทางการ

    c. หมวกนุ่มๆ

    d. อาวุธที่ระเบิดได้

15. Scrub: He is **scrubbing** it.

    a. หั่นลงไปตื้นๆ

    b. ซ่อมแซม

    c. ขัดถูให้สะอาด

    d. วาดรูปมันอย่างง่ายๆ

16. Dinosaur: The children were pretending

   to be **a dinosaur**.

   a. โจรสลัด

   b. เทพธิดา

   c. มังกร

   d. สัตว์ที่สูญพันธ์ุไปนานแล้ว

17. Strap: He broke the **strap**.

   a. สัญญา

   b. ฝาปิด

   c. จานก้นไม่ลึก

   d. วัตถุที่ยึดสิ่งของเข้าด้วยกัน

18. Dash: They **dashed** over it.

   a. เคลื่อนที่อย่างรวดเร็ว

   b. เคลื่อนที่อย่างช้าๆ

   c. ต่อสู้

   d. กวาดตาดูอย่างรวดเร็ว

19. Rove: He couldn't stop **roving.**

   a. เมา

   b. เดินทางไปทั่ว

   c. ฮัมเพลง

   d. ทำงานหนัก

20. Lonesome: He felt **lonesome**.

   a. อกตัญญู

   b. เหนื่อยมาก

   c. โดดเดี่ยว

   d. เต็มไปด้วยพลังงาน

21. Input: We need more **input**.

    a. ข้อมูล อำนาจ และอื่นๆ ที่ใส่เข้าไปในสิ่งใดสิ่งหนึ่ง

    b. คนงาน

    c. สิ่งสังเคราะห์สำหรับอุดรูไม้

    d. เงิน

22. Latter: I agree with the **latter**.

    a. บาทหลวง

    b. เหตุผล

    c. ข้อสุดท้าย

    d. คำตอบ

23. Candid: Please be **candid.**

    a. ระมัดระวัง

    b. แสดงความสงสาร

    c. แสดงความยุติธรรมให้ทั้งสองฝ่าย

    d. พูดอย่างที่คิดจริงๆ

24. Tummy: Look at my **tummy**.

    a. ผ้าคลุมผม

    b. ท้อง

    c. สัตว์ขนปุยตัวเล็กๆ

    d. นิ้วโป้ง

25. Compound: They made a new **compound**.

    a. ข้อตกลง

    b. สิ่งที่ทำจากชิ้นส่วนสองชิ้น หรือมากกว่า

    c. กลุ่มคนที่ร่วมกันทำธุรกิจ

    d. การคาดเดาจากประสบการณ์ในอดีต
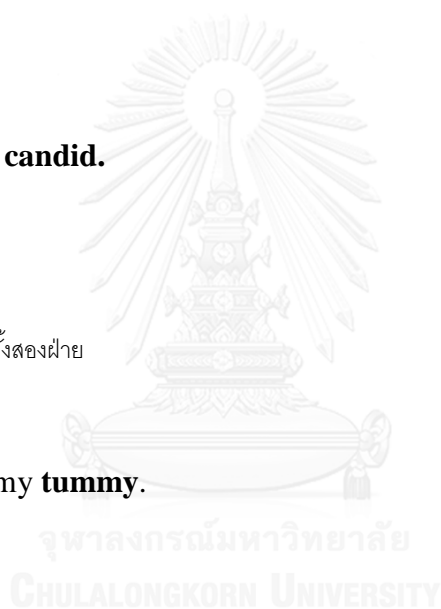
26. Remedy: We found a good **remedy**.

    a. วิธีแก้ปัญหา

    b. ร้านอาหาร

    c. วิธีเตรียมอาหาร

    d. กฎเกณฑ์เกี่ยวกับตัวเลข

27. Allege: They **alleged** it.

    a. อ้างโดยไม่มีหลักฐาน

    b. ขโมยความคิดของคนอื่น

    c. เตรียมข้อมูลจริงสำหรับการพิสูจน์

    d. โต้แย้งต่อความจริงที่นำมาสนับสนุน

28. Weep: He **wept**.

    a. จบหลักสูตร

    b. ร้องไห้

    c. ตาย

    d. กังวล

29. Nun: We saw a **nun.**

    a. สิ่งมีชีวิตตัวยาว บาง ที่อาศัยอยู่ในโลก

    b. อุบัติเหตุที่แย่มาก

    c. แม่ชี

    d. แสงสว่างบนท้องฟ้าที่ไม่สามารถอธิบายได้

30. Deficit: The company had a large **deficit**.

    a. ค่าใช้จ่ายมากกว่ารายได้

    b. ราคาตกลงไปมาก

    c. มีแผนสำหรับการใช้จ่ายที่ต้องใช้เงินมาก

    d. มีเงินจำนวนมากในธนาคาร

31. Haunt: The house is **haunted.**

    a. เต็มไปด้วยของประดับ

    b. ถูกเช่า

    c. ว่างเปล่า

    d. ถูกผีสิง

32. Cube: I need one more **cube**.

    a. ของแหลมคมที่ใช้ยึดติดสิ่งของ

    b. กลองแข็งสี่เหลี่ยมจัตุรัส

    c. แก้วทรงสูงที่ไม่มีจานรอง

    d. กระดาษพับครึ่ง

33. Miniature: It is a **miniature**.

    a. อันที่เล็กมากๆในจำพวกเดียวกัน

    b. เครื่องมือที่ใช้ดูวัตถุชิ้นเล็กๆ

    c. สิ่งมีชีวิตที่เล็กที่สุด

    d. เส้นสั้นๆ ที่ใช้เชื่อมตัวหนังสือเวลาเขียน

34. Peel: Shall I **peel** it?

    a. แช่ไว้ในน้ำนานๆ

    b. ปลอกเปลือก

    c. ทำให้ขาว

    d. หั่นให้เป็นชิ้นบางๆ

35. Bacterium: They didn't find a single **bacterium.**

    a. เชื้อโรค

    b. ต้นไม้ที่มีดอกสีแดงหรือส้ม

    c. สัตว์ที่บรรทุกน้ำไว้บนหลังของมัน

    d. ของที่ถูกขโมยและนำไปขายที่ร้าน

36. Devious: Your plans are **devious**.

  a. มีเล่ห์เหลี่ยม

  b. ทำขึ้นมาอย่างดี

  c. ไม่เข้าท่า

  d. แพงเกินความจำเป็น

37. Premier: The **premier** spoke for an hour.

  a. คนที่ทำงานในศาล

  b. อาจารย์มหาวิทยาลัย

  c. นักผจญภัย

  d. หัวหน้ารัฐบาล

38. Butler: They have a **butler.**

  a. คนรับใช้ที่เป็นผู้ชาย

  b. เครื่องตัดต้นไม้

  c. ครูส่วนตัว

  d. ห้องใต้ดิน

39. Threshold: They raised the **threshold**.

  a. ธง

  b. จุด หรือ เส้น ที่เกิดการเปลี่ยนแปลง

  c. หลังคาใต้ตึก

  d. ดอกเบี้ย

40. Accessory: They gave us some **accessories**.

  a. วีซ่า

  b. คำสั่งอย่างเป็นทางการ

  c. ข้อคิดในการเลือก

  d. เครื่องประดับเสริม

41. Thesis: She has completed her **thesis.**

    a. วิทยานิพนธ์

    b. การกล่าวของผู้พิพากษาในตอนสุดท้ายของคดี

    c. ปีแรกของการว่าจ้างในฐานะครู

    d. การขยายช่วงเวลารักษาในโรงพยาบาล

42. Strangle: He **strangled** her.

    a. ฆ่าโดยการบีบคอ

    b. ให้เธอทุกอย่างที่ต้องการ

    c. ลักพาตัว

    d. ชื่นชมเธออย่างมาก

43. Malign: His **malign** influence is still felt.

    a. ที่เลวร้ายเหมือนปีศาจ

    b. ที่ดี

    c. ที่สำคัญมาก

    d. ที่เป็นความลับ

44. Veer: The car **veered**.

    a. แฉลบไปอีกทางอย่างกระทันหัน

    b. แล่นไปอย่างสั่นๆ

    c. ทำเสียงดังมาก

    d. ไถลไปข้างทาง โดยไม่ได้หมุนพวงมาลัย

45. Stealth: They did it by **stealth.**

    a. การใช้เงินจำนวนมาก

    b. การทำให้ผู้อื่นบาดเจ็บอย่างมากจนต้องยอมชดเชยให้ตามที่ขอ

    c. การเคลื่อนย้ายอย่างลับๆ ด้วยความระมัดระวังและเงียบอย่างที่สุด

    d. การไม่สังเกตเห็นปัญหาที่เกิดขึ้น

46. Olive: We bought **olives.**

    a. ผลไม้ที่ใช้สกัดน้ำมัน

    b. กลิ่นของดอกไม้สีชมพูหรือแดง

    c. ชุดว่ายน้ำของผู้ชาย

    d. เครื่องมือสำหรับขุดวัชพืช

47. Shudder: The boy **shuddered**.

    a. พูดด้วยเสียงต่ำๆ

    b. เกือบจะตก

    c. สั่น

    d. ตะโกนเรียกดังๆ

48. Bristle: The **bristles** are too hard.

    a. คำถาม

    b. ขนสั้นและแข็ง

    c. เตียงพับได้

    d. ส่วนใต้ของรองเท้า

49. Bloc: They have joined this **bloc**.

    a. กลุ่มนักดนตรี

    b. แก๊งโจร

    c. ทหารกองหน้า

    d. กลุ่มประเทศที่รวมกันเพื่อจุดประสงค์เดียวกัน

50. Demography: This book is about **demography**.

    a. การศึกษารูปแบบของการใช้พื้นที่

    b. การศึกษาการใช้รูปภาพเพื่อแสดงข้อมูลจริงของตัวเลข

    c. การศึกษาการเคลื่อนที่ของน้ำ

    d. การศึกษาเกี่ยวกับประชากร
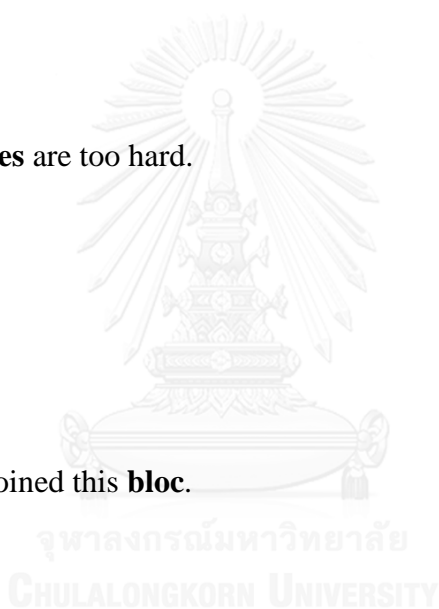
51. Gimmick: That's a good **gimmick**.

    a. สิ่งที่ใช้ยืนเวลาทำงานในที่สูง

    b. สิ่งของชิ้นเล็กๆที่มีกระเป๋าสำหรับใส่สตางค์

    c. การกระทำหรือสิ่งของที่ทำให้คนอื่นเกิดความสนใจ

    d. แผนหรืออุบายที่ฉลาด

52. Yogurt: This **yogurt** is disgusting.

    a. โคลนสีเทาที่พบใต้แม่น้ำ

    b. บาดแผลเปิด ที่ดูแย่

    c. นมเปรี้ยว ข้น มักผสมด้วยน้ำตาลและรสชาติต่างๆ

    d. ผลไม้สีม่วงลูกใหญ่ที่มีเนื้อนิ่ม

53. Erratic: He was **erratic.**

    a. ปราศจากความผิด

    b. เลวมาก

    c. สุภาพมาก

    d. โลเล

54. **Palette**: He lost his **palette**.

    a. ตะกร้าใส่ปลา

    b. ความอยากอาหาร

    c. เพื่อนที่เป็นหญิงสาว

    d. จานผสมสีของจิตรกร

55. **Kindergarten**: This is a good **kindergarten**.

    a. กิจกรรมที่ทำให้ลืมความกังกล

    b. โรงเรียนอนุบาล

    c. เป้สะพายหลัง

    d. ห้องสมุด

56. Null: His influence was **null.**

    a. มีเหตุผลที่ดี

    b. ไม่ได้ช่วยอะไร

    c. ไม่มีผลกระทบ

    d. อยู่ได้นาน

57. Eclipse: There was an **eclipse**.

    a. ลมแรง

    b. เสียงดังจากการที่มีสิ่งของตกลงน้ำ

    c. การฆาตกรรมหมู่

    d. สุริยุปราคา

58. Marrow: This is the **marrow**.

    a. สัญญลักษณ์ที่นำความโชคดีมาให้แก่ทีม

    b. ไขที่อยู่ตรงส่วนกลางของกระดูก

    c. เครื่องควบคุมการร่อนเครื่องบิน

    d. การเพิ่มเงินเดือน

59. Locust: There were hundreds of **locusts**.

    a. แมลงมีปีก

    b. อาสาสมัคร

    c. คนที่เป็นมังสวิรัต

    d. ดอกไม้ป่าสีสดใส

60. Authentic: It is **authentic**.

    a. จริง

    b. เสียงดังมาก

    c. เก่า

    d. เหมือนกับทะเลทราย
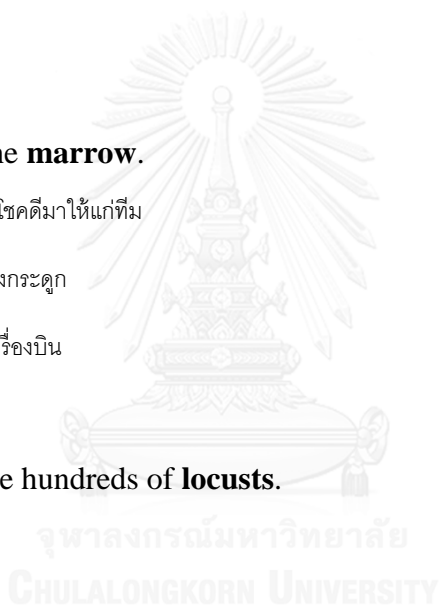
61. Cabaret: We saw the **cabaret**.

   a. ภาพวาดบนผนัง

   b. การแสดงทั้งร้องและเต้น

   c. แมลงตัวเล็กๆ

   d. นางเงือก

62. Mumble: He started to **mumble**.

   a. คิดอย่างลึกซึ้ง

   b. สั่นอย่างควบคุมตัวเองไม่ได้

   c. ยืนอยู่ห่างๆ ข้างหลังคนอื่น

   d. พูดพึมพำ

63. Hallmark: Does it have a **hallmark**?

   a. แสตมป์แสดงวันหมดอายุ

   b. แสตมป์บอกคุณภาพของสินค้า

   c. เครื่องหมายที่แสดงว่าสินค้าได้รับการยอมรับจากราชวงศ์

   d. เครื่องหมายที่ติดไว้เพื่อป้องกันการลอกเลียนแบบ

64. Puritan: He is a **puritan**.

   a. คนที่ชอบให้ผู้อื่นสนใจ

   b. คนที่ยึดมั่นในศีลธรรมอย่างเคร่งครัด

   c. คนที่อาศัยในบ้านเคลื่อนที่

   d. คนที่ไม่ชอบการใช้จ่ายเงิน

65. Monologue: Now he has a **monologue.**

   a. แว่นขยาย

   b. บทพูดเดี่ยว

   c. ตำแหน่งที่คุมอำนาจ

   d. รูปภาพที่วาดโดยใช้ตัวอักษรมาผสมผสานกันทั้งหมด

66. Weir: We looked at the **weir**.

    a. คนที่ทำตัวแปลกประหลาด

    b. สถานที่ที่เป็นโคลน เปียก เต็มไปด้วยต้นไม้น้ำ

    c. เครื่องดนตรีเก่าแก่ที่ทำจากโลหะ เล่นโดยการเป่า

    d. เขื่อน

67. Whim: He had lots of **whims**.

    a. เหรียญทองเก่าๆ

    b. ม้าเพศเมีย

    c. ความคิดเพ้อฝัน

    d. ก้อนเนื้อสีแดงที่ทำให้เจ็บ

68. Octopus: They saw an **octopus**.

    a. นกตัวใหญ่ที่หากินกลางคืน

    b. เรือดำน้ำ

    c. เฮลิคอปเตอร์

    d. ปลาหมึก

69. Awe: They looked at the mountain with **awe**.

    a. ความกังวล

    b. ความสนใจ

    c. ความสงสัย

    d. ความน่าเกรงขาม

70. Egalitarian: This organization is **egalitarian**.

    a. ไม่ค่อยให้ข้อมูลของตัวเองต่อสาธารณะ

    b. ไม่ชอบการเปลี่ยนแปลง

    c. ซักถามศาลบ่อยๆเกี่ยวกับการตัดสินคดี

    d. ปฏิบัติต่อคนงานทุกคนอย่างเท่าเทียมกัน
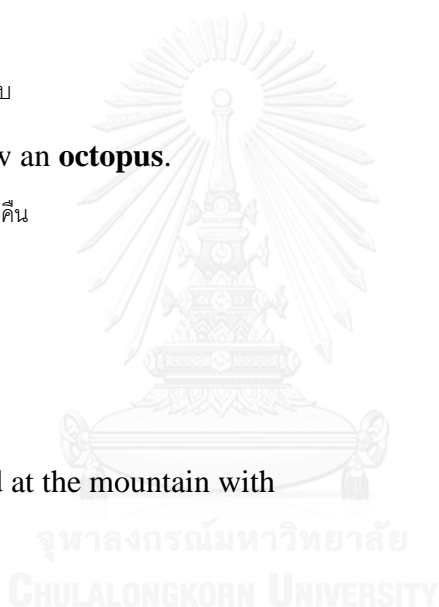
71. Mystique: He has lost his **mystique**.

    a. ร่างกายที่แข็งแรงสมบูรณ์

    b. วิธีการลับที่ทำให้คนอื่นคิดว่าเขามีอำนาจหรือทักษะพิเศษ

    c. ภรรยาน้อย

    d. หนวด

72. Upbeat: I'm feeling really **upbeat** about

   it.

    a. เสียใจ

    b. ดี

    c. เจ็บ

    d. สับสน

73. Pigtail: Does she have a **pigtail**?

    a. ผมเปีย

    b. ผ้าหลายๆชิ้นที่ทำเป็นพู่ติดด้านหลังชุดราตรี

    c. ต้นไม้ที่มีดอกสีชมพูห้อยตามกิ่งสั้นๆ

    d. คนรัก

74. Lectern: He stood at the **lectern**.

    a. โต๊ะอ่านหนังสือแบบสูง

    b. โต๊ะใช้สำหรับการสวดมนต์ในโบสถ์

    c. สถานที่สำหรับซื้อเครื่องดื่ม

    d. ปลายขอบ

75. Excrete: This was **excreted** recently.

    a. ผลักออกไป หรือส่งออกไป

    b. ทำให้ชัดเจน

    c. ค้นพบจากการทดลองทางวิทยาศาสตร์

    d. บันทึกไว้ในรายการของสิ่งผิดกฎหมาย

76. Mussel: They bought **mussels**.

    a. ลูกแก้วที่ใช้เล่นเกม

    b. หอย

    c. ผลไม้ผลใหญ่สีม่วง

    d. ผ้ากันเปื้อน

77. Counterclaim: They made a **counterclaim.**

    a. ข้อเรียกร้องทางกฎหมายจากฝ่ายหนึ่งฝ่ายใด

    b. การขอให้ร้านค้ารับคืนของที่ชำรุด

    c. ข้อตกลงระหว่างสองบริษัทในการแลกเปลี่ยนการทำงาน

    d. ผ้าคลุมหัวเตียง

78. Yoga: She has started **yoga.**

    a. งานถักที่ทำด้วยมือ

    b. การออกกำลังกายชนิดหนึ่งที่ช่วยทั้งร่างกายและจิตใจ

    c. กีฬาที่มีผู้เล่นสองฝ่ายตีลูกขนไก่โต้ตอบกัน

    d. การเต้นรำชนิดหนึ่งของประเทศทางตะวันออก

79. Puma: They saw a **puma**.

    a. บ้านหลังเล็กๆ ที่ทำจากอิฐดินเหนียว

    b. ต้นไม้จากประเทศที่ร้อนและแห้ง

    c. ลมพายุหมุน

    d. เสือชนิดหนึ่ง

80. Hutch: Please clean the **hutch**.

    a. ตะแกรงดักขยะในท่อน้ำ

    b. กะบะเก็บของท้ายรถ

    c. เฟืองจักรยาน

    d. กรงสำหรับสัตว์ตัวเล็กๆ

81. Hessian: She bought some **hessian**.

    a. ปลาสีชมพูที่มีมันเยอะ

    b. สิ่งที่ช่วยทำให้จิตใจเป็นสุข

    c. ผ้าเนื้อหยาบ

    d. รากต้นไม้ที่ช่วยเสริมรสชาติอาหาร

82. Haze: We looked through the **haze**.

    a. หน้าต่างกลมที่อยู่ในเรือ

    b. อากาศอึมครึม

    c. ไม้ หรือพลาสติกที่ ใช้ปิดหน้าต่าง

    d. รายชื่อ

83. Spleen: His **spleen** was damaged.

    a. กระดูกหัวเข่า

    b. ม้าม

    c. ท่อน้ำทิ้ง

    d. การเคารพตนเอง

84. Soliloquy: That was an excellent **soliloquy.**

    a. เพลงจากผู้ร้อง 6 คน

    b. คำสุภาษิต

    c. ความบันเทิงที่ใช้แสง และดนตรี

    d. การกล่าวสุนทรพจน์แบบเดี่ยว

85. Reptile: She looked at the **reptile**.

    a. หนังสือเก่าที่เขียนด้วยลายมือ

    b. สัตว์เลื้อยคลาน

    c. คนขายของตามบ้าน

    d. รูปภาพที่ทำจากกระดาษหลายๆ สีติดกัน

86. Alum: This contains **alum**.

   a. สารพิษจากพืช

   b. วัสดุเนื้อนิ่มทำจากด้ายสังเคราะห์

   c. ผงยาสูบที่ใส่เข้าทางจมูก

   d. สารสังเคราะห์ที่ใช้กับอลูมิเนียม

87. Refectory: We met in the **refectory**.

   a. ห้องอาหาร

   b. ห้องทำงานที่ใช้สำหรับเซ็นสัญญาทางกฎหมาย

   c. ห้องนอนแบบรวม

   d. เรือนกระจกสำหรับปลูกต้นไม้

88. Impale: He nearly got **impaled.**

   a. ถูกกล่าวหาว่ากระทำผิดร้ายแรง

   b. ถูกขังคุก

   c. ถูกแทงทะลุด้วยของมีคม

   d. เข้าไปพัวพันในเรื่องโต้แย้ง

89. Caffeine: This contains a lot of

   caffeine.

   a. สารที่ทำให้หลับ

   b. ด้ายที่ทำมาจากใบไม้ที่เหนียวๆ

   c. ความคิดที่ไม่ถูกต้อง

   d. สารที่ทำให้ตื่นตัว

90. Talon: Just look at those **talons**.

   a. ยอดสูงของภูเขา

   b. เล็บอันแหลมคมของนกนักล่า

   c. เสื้อเกราะ

   d. คนที่เป็นตัวตลกทำให้คนอื่นหัวเราะโดยไม่รู้ตัว

91. Plankton: We saw a lot of **plankton**.

    a. วัชพืชมีพิษที่ขยายพันธุ์อย่างรวดเร็ว

    b. สัตว์ หรือพืชเล็กๆ ที่พบในน้ำ

    c. ต้นไม้ที่ใช้ผลิตไม้เนื้อแข็ง

    d. ดินเหนียวสีเทาที่ทำให้ลื่น

92. Skylark: We watched a **skylark**.

    a. การแสดงการขับเครื่องบิน

    b. ดาวเทียม

    c. นักมายากล

    d. นกเล็กๆ ชนิดหนึ่งที่ชอบบินและร้องเพลง

93. Beagle: He owns two **beagles**.

    a. รถเปิดประทุน

    b. ปืนกระบอกใหญ่ที่สามารถยิงคนได้อย่างรวดเร็ว

    c. สุนัขตัวเล็ก หูยาว

    d. บ้านพักตากอากาศ

94. Atoll: The **atoll** was beautiful.

    a. เกาะรูปวงแหวนที่เกิดจากปะการัง

    b. งานรูปภาพศิลปะที่ทำจากการถักเส้นไหม

    c. มงกุฎเล็กๆ ประดับด้วยอัญมณี สำหรับผู้หญิงสวมในตอน เย็น

    d. สถานที่ที่มีแม่น้ำไหลผ่านช่องแคบ และเต็มไปด้วยหินก้อน ใหญ่ๆ

95. Atop: He was **atop** the hill.

    a. ตีนเขา

    b. ยอดเขา

    c. ข้างหนึ่งของเนินเขา

    d. ด้านที่อยู่ไกลออกไปของเนินเขา

96. Thesaurus: She used a **thesaurus**.

    a. พจนานุกรมชนิดหนึ่ง

    b. สารประกอบทางเคมี

    c. วิธีพิเศษในการพูด

    d. การฉีดยาใต้ผิวหนัง

97. Marsupial: It is a **marsupial.**

    a. สัตว์ที่มีเท้าแข็ง

    b. ต้นไม้ที่อยู่ได้นานหลายปี

    c. ดอกทานตะวัน

    d. สัตว์ที่มีกระเป๋าหน้าท้อง

98. Bawdy: It was **bawdy**.

    a. ไม่สามารถคาดเดาได้

    b. สนุกสนาน

    c. เร่งรีบ

    d. หยาบคาย

99. Canonical: These are **canonical** example.

    a. ตัวอย่างที่ไม่เป็นไปตามกฎเกณฑ์

    b. ตัวอย่างที่นำมาจากหนังสือทางศาสนา

    c. ตัวอย่างทั่วไปและได้รับการยอมรับอย่างแพร่หลาย

    d. ตัวอย่างที่เพิ่งถูกค้นพบเมื่อเร็วๆ นี้

100. Limpid: He looked into her **limpid** eyes.

    a. ใสแจ๋ว

    b. เต็มไปด้วยน้ำตา

    c. สีน้ำตาลเข้ม

    d. สวยงาม

Appendix E
Depth of Vocabulary Knowledge Test

ข้อสอบวัดความรู้คำศัพท์เชิงลึก

คำชี้แจง

1) ข้อสอบมีทั้งหมด 35 ข้อ

2) เวลาในการทำข้อสอบ 45 นาที

3) ให้นักศึกษาทำเครื่องหมายกากบาท (X) เลือกข้อที่ถูกลงในกระดาษคำตอบ

คำอธิบาย

1) ให้นักศึกษาเลือกคำที่มีสัมพันธ์กับคำศัพท์ที่กำหนดให้ โดยคำศัพท์ที่
กำหนดให้ทั้งหมดอยู่ในรูปของคำคุณศัพท์ (adjective)

2) ตัวเลือกฝั่ง A B C และ D จะแสดงคำที่มีความหมายเหมือน หรือความหมาย
ร่วมกับคำศัพท์ที่กำหนดให้

3) ตัวเลือกฝั่ง E F G และ H จะแสดงคำนาม (noun) ที่สามารถใช้ร่วมกับคำศัพท์
ที่กำหนดให้

4) ในแต่ละข้อคำถามจะมีคำตอบที่ถูกทั้งหมด 4 ข้อ โดยคำตอบอาจจะมาจากฝั่ง
A-D หรือ E-H ทั้งหมดหรือ มาจากทั้งสองฝั่งผสมกันก็ได้

5) ให้นักศึกษากากบาทคำตอบทั้งหมดของแต่ละข้อลงในกระดาษคำตอบ

ตัวอย่าง

Digital

| (A) numerical   (B) valuable | (E) computer   (F) liquid |
| (C) binary   (D) body | (G) keyboard   (H) wind |

คำตอบ: (A) numerical และ (C) binary มีความหมายว่า เกี่ยวกับตัวเลข

(E) computer และ (G) keyboard เป็นคำที่สามารถใช้ร่วมกับคำว่า Digital ได้

Outstanding

(A) limited (B) exceptional	(E) example (F) mistake
(C) strange (D) expectant	(G) contribution (H) painter

คำตอบ: (B) exceptional มีความหมายเหมือนคำว่า outstanding

(E) example, (G) contribution และ (H) painter เป็นคำที่โดยปกติจะพบถูกใช้

ร่วมกับ outstanding

Depth of Vocabulary Knowledge Test

Directions: In this test, there are 40 items. Mark your answers in the answer sheet.

1. Peak

(A) initial (B) top (C) crooked (D) punctual	(E) time (F) performance (G) beginning (H) speed

2. Accurate

(A) exact (B) helpful (C) responsible (D) reliable	(E) error (F) event (G) memory (H) estimate

3. Dense

(A) transparent (B) acceptable (C) compact (D) thick	(E) hair (F) view (G) wood (H) material

4. Troublesome

(A) annoying (B) irritating (C) dangerous (D) bothersome	(E) favor (F) relief (G) weeds (H) opportunity

5. Devoted

(A) dedicated (B) relevant (C) loyal (D) elected	(E) follower (F) instance (G) requirement (H) patriot

6. Wild

(A) sound (B) uncultivated (C) uncivilized (D) disappointed	(E) calm (F) mob (G) refinement (H) berries

7. Insufficient

(A) ungrateful (B) inexpressible (C) discontented (D) inadequate	(E) lack (F) resources (G) amount (H) need

8. Considerable

(A) significant (B) outright (C) great (D) large	(E) change (F) condition (G) release (H) nature

9.Obscure

(A) unclear (B) unknown (C) vague (D) old	(E) product (F) appraisal (G) origin (H) demand

10.Minute

(A) tiny (B) timely (C) incorrect	(E) adjustment (F) preconception
(D) hard	(G) imperfection (H) particle

11.Consecutive

(A) successive (B) final (C) fateful	(E) attempts (F) matches (G) aspects
(D) required	(H) terms

12. Narrow minded

(A) bigoted (B) intolerant (C) stupid	(E) remark (F) creation (G) people
(D) uniform	(H) wisdom

13. Key

(A) primary (B) fundamental (C) hidden	(E) issues (F) purpose (G) wealth
(D) false	(H) duration

14. Overall

(A) general (B) special (C) comprehensive	(E) component (F) action
(D) best	(G) responsibility (H) goal

15. Surplus

(A) valuable (B) problematic (C) strong	(E) sorrow (F) supplies (G) food
(D) extra	(H) revenues

16. Appealing

(A) prevalent (B) likeable (C) attractive	(E) city (F) conflict (G) prominence
(D) pleasing	(H) objection

17. Organic

(A) living (B) advanced (C) inspired	(E) compound (F) farm (G) matter
(D) colorful	(H) requirement

18. Vivid

(A) bright (B) intense (C) intelligent	(E) description (F) exception
(D) visual	(G) reception (H) coloring

19. Leading

(A) foremost (B) principal (C) developed	(E) scientist (F) society (G) work
(D) competitive	(H) producer

20. Daring

(A) brave (B) bold (C) late	(E) feat (F) escape (G) problem
(D) upsetting	(H) sleep

21. Celebrated

(A) renowned (B) festive (C) well known	(E) persuasion (F) recognition
(D) famous	(G) understanding (H) play

22.Fine

(A) excellent (B) average (C) constant (D) natural	(E) day (F) athlete (G) removal (H) China

23.Powerful

(A) potent (B) definite (C) influential (D) supportive	(E) position (F) engine (G) repetition (H) price

24.Conventional

(A) traditional (B) practical (C) neat (D) expensive	(E) clothing (F) warfare (G) methods (H) awkwardness

25. Deceptive

(A) wishful (B) misleading (C) polite (D) dramatic	(E) inspiration (F) argument (G) intent (H) appearance

26.Crude

(A) sympathetic (B) unprocessed (C) unrefined (D) rude	(E) respect (F) value (G) detail (H) oil

27. Brief

(A) short (B) fleeting (C) quick (D) clear	(E) help (F) summer (G) tool (H) approach

28. Fake

(A) fabulous (B) imitation (C) splendid (D) counterfeit	(E) fur (F) experience (G) attraction (H) identity

29. Remote

(A) mental (B) distant (C) reasonable (D) far	(E) location (F) knowledge (G) package (H) era

30. Essential

(A) vital (B) necessary (C) sensible (D) critical	(E) loss (F) nutrients (G) outlook (H) luxury

31. Adjacent

(A) nearby (B) private (C) adjoining (D) genuine	(E) property (F) suburbs (G) plans (H) silence

32. Avid

(A) sarcastic (B) enthusiastic (C) eager (D) reckless	(E) report (F) eater (G) reader (H) request

33. Elaborate

(A) concealed (B) evolved (C) intricate (D) generous	(E) void (F) precautions (G) system (H) network

34. Terse

(A) heated (B) concise (C) delicate (D) abrupt	(E) attitude (F) reply (G) expectation (H) style

35. Contaminated

(A) rejected (B) infected (C) unclean (D) convenient	(E) weather (F) news (G) site (H) needle

36. Prolonged

(A) lengthened (B) extended (C) continued (D) boring	(E) willingness (F) road (G) space (H) illness

37. Irrevocable

(A) unalterable (B) irreversible (C) unchangeable (D) impossible	(E) pretense (F) quantity (G) nonsense (H) step

38. Perceptible

(A) present (B) surprising (C) visible (D) initial	(E) motion (F) personality (G) star (H) flaw

39. Perpetual

(A) permanent (B) unbelievable (C) everlasting (D) continual	(E) level (F) cold (G) book (H) foresight

40. Recurring

(A) recent (B) repeated (C) respectable (D) resolute	(E) dream (F) nation (G) complaint (H) theme

…………………………………………..END…………………………………………..

จุฬาลงกรณ์มหาวิทยาลัย
CHULALONGKORN UNIVERSITY

Appendix F

Depth of Vocabulary Knowledge Test (Reviese0

ข้อสอบวัดความรู้คำศัพท์เชิงลึก

<u>คำชี้แจง</u>

1) ข้อสอบมีทั้งหมด 35 ข้อ

2) เวลาในการทำข้อสอบ 45 นาที

3) ให้นักศึกษาทำเครื่องหมายกากบาท (X) เลือกข้อที่ถูกลงในกระดาษคำตอบ

<u>คำอธิบาย</u>

1) ให้นักศึกษาเลือกคำที่มีสัมพันธ์กับคำศัพท์ที่กำหนดให้ โดยคำศัพท์ที่กำหนดให้ทั้งหมด
อยู่ในรูปของคำคุณศัพท์ (adjective)

2) ตัวเลือกฝั่ง A B C และ D จะแสดงคำที่มีความหมายเหมือน หรือความหมายร่วมกับ
คำศัพท์ที่กำหนดให้

3) ตัวเลือกฝั่ง E F G และ H จะแสดงคำนาม (noun) ที่สามารถใช้ร่วมกับคำศัพท์ที่
กำหนดให้

4) ในแต่ละข้อคำถามจะมีคำตอบที่ถูกทั้งหมด 4 ข้อ โดยคำตอบอาจจะมาจากฝั่ง A-D หรือ
E-H ทั้งหมดหรือ มาจากทั้งสองฝั่งผสมกันก็ได้

5) ให้นักศึกษากากบาทคำตอบทั้งหมดของแต่ละข้อลงในกระดาษคำตอบ

<u>ตัวอย่าง</u>

Digital

(A) numerical (B) valuable	(E) computer (F) liquid
(C) binary (D) body	(G) keyboard (H) wind

คำตอบ: (A) numerical และ (C) binary มีความหมายว่า เกี่ยวกับตัวเลข

(E) computer และ (G) keyboard เป็นคำที่สามารถใช้ร่วมกับคำว่า Digital ได้

Outstanding

(A) limited (B) exceptional	(E) example (F) mistake
(C) strange (D) expectant	(G) contribution (H) painter

คำตอบ: (B) exceptional มีความหมายเหมือนคำว่า outstanding (E) example,

(G) contribution และ (H) painter เป็นคำที่โดยปกติจะพบถูกใช้ร่วมกับ outstanding

Depth of Vocabulary Knowledge Test

Directions: In this test, there are 40 items. Mark your answers in the answer sheet.

1. Peak

(A) initial (B) top (C) crooked (D) punctual	(E) time (F) performance (G) beginning (H) speed

2. Accurate

(A) exact (B) helpful (C) responsible (D) reliable	(E) error (F) event (G) memory (H) estimate

3. Troublesome

(A) annoying (B) irritating (C) dangerous (D) bothersome	(E) favor (F) relief (G) weeds (H) opportunity

4. Devoted

(A) dedicated (B) relevant (C) loyal (D) elected	(E) follower (F) instance (G) requirement (H) patriot

5. Wild

(A) sound (B) uncultivated (C) uncivilized (D) disappointed	(E) calm (F) mob (G) refinement (H) berries

6. Insufficient

(A) ungrateful (B) inexpressible (C) discontented (D) inadequate	(E) lack (F) resources (G) amount (H) need

7. Considerable

(A) significant (B) outright (C) great (D) large	(E) change (F) condition (G) release (H) nature

8. Obscure

(A) unclear (B) unknown (C) vague (D) old	(E) product (F) appraisal (G) origin (H) demand

9. Minute

(A) tiny (B) timely (C) incorrect (D) hard	(E) adjustment (F) preconception (G) imperfection (H) particle

10. Consecutive

(A) successive (B) final (C) fateful (D) required	(E) attempts (F) matches (G) aspects (H) terms

11. Narrow minded

(A) bigoted (B) intolerant (C) stupid (D) uniform	(E) remark (F) creation (G) people (H) wisdom

12. Key

(A) primary (B) fundamental (C) hidden (D) false	(E) issues (F) purpose (G) wealth (H) duration

13. Overall

(A) general (B) special (C) comprehensive (D) best	(E) component (F) action (G) responsibility (H) goal

14. Surplus

(A) valuable (B) problematic (C) strong (D) extra	(E) sorrow (F) supplies (G) food (H) revenues

15. Appealing

(A) prevalent (B) likeable (C) attractive (D) pleasing	(E) city (F) conflict (G) prominence (H) objection

16. Organic

(A) living (B) advanced (C) inspired (D) colorful	(E) compound (F) farm (G) matter (H) requirement

17. Vivid

(A) bright (B) intense (C) intelligent (D) visual	(E) description (F) exception (G) reception (H) coloring

18. Leading

(A) foremost (B) principal (C) developed (D) competitive	(E) scientist (F) society (G) work (H) producer

19. Daring

(A) brave (B) bold (C) late (D) upsetting	(E) feat (F) escape (G) problem (H) sleep

20. Celebrated

(A) renowned (B) festive (C) well known (D) famous	(E) persuasion (F) recognition (G) understanding (H) play

21.Fine

(A) excellent (B) average (C) constant (D) natural	(E) day (F) athlete (G) removal (H) China

22.Powerful

(A) potent (B) definite (C) influential (D) supportive	(E) position (F) engine (G) repetition (H) price

23.Conventional

(A) traditional (B) practical (C) neat (D) expensive	(E) clothing (F) warfare (G) methods (H) awkwardness

24. Deceptive

(A) wishful (B) misleading (C) polite	(E) inspiration (F) argument (G) intent
(D) dramatic	(H) appearance

25. Brief

(A) short (B) fleeting (C) quick (D) clear	(E) help (F) summer (G) tool
	(H) approach

26. Fake

(A) fabulous (B) imitation (C) splendid	(E) fur (F) experience (G) attraction
(D) counterfeit	(H) identity

27. Remote

(A) mental (B) distant (C) reasonable	(E) location (F) knowledge (G) package
(D) far	(H) era

28. Essential

(A) vital (B) necessary (C) sensible	(E) loss (F) nutrients (G) outlook
(D) critical	(H) luxury

29. Adjacent

(A) nearby (B) private (C) adjoining	(E) property (F) suburbs (G) plans
(D) genuine	(H) silence

30. Avid

(A) sarcastic (B) enthusiastic (C) eager	(E) report (F) eater (G) reader
(D) reckless	(H) request

31. Elaborate

(A) concealed (B) evolved (C) intricate	(E) void (F) precautions (G) system
(D) generous	(H) network

32. Contaminated

(A) rejected (B) infected (C) unclean	(E) weather (F) news (G) site
(D) convenient	(H) needle

33. Prolonged

(A) lengthened (B) extended (C) continued	(E) willingness (F) road (G) space
(D) boring	(H) illness

34. Perpetual

(A) permanent (B) unbelievable	(E) level (F) cold (G) book
(C) everlasting (D) continual	(H) foresight

35. Recurring

(A) recent (B) repeated (C) respectable	(E) dream (F) nation (G) complaint
(D) resolute	(H) theme

……………………………………………..END…………………………………………………..

Appendix G
Reading Comprehension Test

ข้อสอบการอ่านเพื่อความเข้าใจ

<u>คำชี้แจง</u>

1) ข้อสอบประกอบด้วยบทอ่านทั้งหมด 6 บท รวมทั้งหมด 45 ข้อ

2) ให้นักศึกษาอ่านเนื้อเรื่อง และกากบาท (X) คำตอบลงในกระดาษคำตอบ

3) นักศึกษามีเวลาในการทำข้อสอบ 2 ชั่วโมง

4) ไม่อนุญาติให้ใช้พจนานุกรมทุกชนิด

Reading Comprehension Test

Direction Read the passages and answers the questions.

Passage 1

October 3, 2013 | By Salvador Rodriguez

1   As everyone expected when Facebook bought
Instagram in 2012, ads are coming to the popular photo and
video social network. Instagram announced the news
Thursday afternoon, saying it will ease into the processes of
5 displaying ads by beginning to show *them* occasionally.
Slowly, users will start to see photos and videos from
brands that are active on Instagram, regardless of whether
users follow those accounts. "We'll focus on delivering a small number of beautiful,
high- quality photos and videos from a handful of brands that are already great
members of the Instagram community," Instagram said in a blog. Instagram also
said users will be able to hide ads after they see them and provide the social
network with feedback on why they didn't like that ad. Facebook has been showing
ads on Instagram's social network for years, and this year, it is projected to account
for nearly 16% of mobile ad **revenue** worldwide, according to EMarketer.

Adapted from: http://article.latimes.com/keyword/instagram

1. What is the relationship between Facebook and Instagram?
   a. Facebook owns Instragram.
   b. Facebook creates Instragram.
   c. Facebook supports Instragram.
   d. Facebook advertises Instragram.

2. According to the passage, what can users do on Instragram?

   a. Users can put ads on Instragram.

   b. Users can put their photos on Instragram.

   c. Users can comment on the ads they dislike.

   d. Users can delete the ads from their accounts.

3. On line 5, what does "them" refer to?

   a. ads.

   b. news

   c. processes

   d. announcements

4. What is the meaning of the word "**revenue**"?

   a. promotion

   b. income

   c. investment

   d. expanding

5. Which sentence is not true about the passage?

   a. Instragram allows users to hide ads that they do not like.

   b. Instragram makes popular photos and videos on Facebook.

   c. Instragram only posts ads from the brands that are its members.

   d. The ads on Instragram have been shown in forms of photos and videos.

6. What is the main idea of the passage?

   a. Instragram is a good tool for posting ads.

   b. Instragram provides many benefits to its users.

   c. Facebook made a right decision of showing ads on Instragram.

   d. Every brand will be popular if they put their ads on Instragram.

Passage 2

'Knowing about Thailand'

With sixteen million foreigners flying into the country each year, Thailand is Asia's primary travel destination and offers a host of places to visit. Yet despite the large numbers of visitors, Thailand's cultural integrity remains largely undamaged – a country that avoided colonization has been able to absorb Western influences while

maintaining its own rich heritage. Though the high-rises and neon lights occupy the foreground of the tourist picture, the typical Thai community is still the farming village, and you need not venture far to encounter a more traditional scene of fishing communities, rubber plantations and Buddhist temples. Around forty percent of Thais earn their living from the land, based around the **staple** rice, which forms the foundation of the country's unique and famous cuisine.

Through all the changes of the last sixty years, the much-respect constitutional monarch, King Bhumibol, who sits at the pinnacle of an elaborate hierarchical system of deference covering the whole of Thai society, has lent a measure of stability. Furthermore, some 85 percent of the population are still practicing Theravada Buddhists, a unifying faith that colours all aspects of daily life – from the temple rooftops that dominate every skyline, to the omnipresent saffron-robed monks and the packed calendar of festivals.

Adapted from: **http://www.roughguides.com/destinations/asia/thailand**

7. What do you know about Thailand after reading the passage?

    a. Tourist attraction destinations

    b. Thai people's life in the past

    c. Most Thai people's religious

    d. Different festivals in Thailand

8. From the passage, what is not Thai people's occupation?

    a. farmer   b. landlord

    c. fisherman   d. rubber tapper

9. What is the meaning of "**staple**"?

    a. unique   b. good quality

    c. routinely eaten   d. growing easily

10. Which statement is not true about the passage?

    a. The King helps Thailand to be a stable country.

    b. Buddhist temples are one of the traditional scenes of Thailand.

    c. Thailand has never been controlled over from Western countries.

    d. The famous cuisine is the uniqueness of Thailand as one of tourist attractions.

11. Which influence of being Theravada Buddhists does not appear in the passage?

   a. Thai people believe in faith.

   b. Monks are everywhere in Thailand.

   c. Many temples are built in Thailand.

   d. There are many Buddhist festivals in Thailand.

12. What is the main purpose of the author?

   a. To give some overview about Thailand

   b. To present Thai people's daily life to tourists.

   c. To provide information about Thailand's history

   d. To explain why Thai people can still keep their culture

Passage 3

One of the best ways to experience the different culture of a country you are visiting is to try the foods the native people eat. They may not be everyone's tastes, but the following foods, whilst considered weird and bizarre to some of us, are considered delicious **delicacies** in other countries.

Birds Nest Soup: You wouldn't necessarily think a birds nest would be edible, but the Chinese use swiftlets' nests to make this soup, known as the 'Caviar of the East'. Right now you're probably imagining a nest made out of twigs and leaves, but swiftlets make their nests predominantly out of saliva.

It's something in the saliva of the bird that makes it have this unique gelatinous, rubbery texture and it's one of the most expensive animal products consumed by humans. It's expensive because the swiftlets build the nests during breeding season over a period of 35 days and nests can only be harvested around three times a year. The nests are typically built in coastal caves and collecting them is a **treacherous** process involving climbing and nimble skills, which adds to the hefty price tag. With an increase in demand for birds nest soup, however, manmade nesting sites are often constructed. Hong Kong and the US are the largest importers of birds' nests and a bowl of soup can cost around $30 to $100 per bowl, whilst a kilo of nest can cost between $2,000 and $10,000. The soup has been believed to be nutritious in proteins and minerals.

Fried tarantulas, Cambodia: Eensy weensy spider, climbing up the spout…if you suffer from arachnophobia you probably don't want to try eating these eight legged monsters. They're not tiny little house spiders, they're great big tarantulas and you can buy them in the streets of Skuon, Cambodia.

They're fried whole – legs, fangs and all. They were first discovered by starving Cambodians in the bloody, brutal days of the Khmer Rouge rule and have gone from being the vital sustenance of these people to a delicacy tourists come far and wide to try.

The black hairy arachnids found in the jungle around the market town of Skuon have become a source of fame and fortune for the region as bus loads of people stop to try them on their way to other places. They cost only a few cents and supposedly taste delicious, as they are best plucked straight from the burrow and pan fried with a bit of garlic and salt. They're supposed to taste a bit like crickets or scrawny chickens and are crispy on the outside with a gooey body on the inside.

Adapted from: http://www.bootsnall.com/articles/09-09/10-weird-food-delicacies-from-around-the-world.html

13. What does the passage suggest tourists to do?

   a. Try local food to experience the culture

   b. Be careful when eating weird food when travelling

   c. Try to see different kinds of food from different countries

   d. Adapt themselves to different kinds of food that may not be their taste

14. What is the meaning of the word "**delicacies**"?

   a. local food   b. unusual food

   c. luxurious food   d. traditional food

15. Which fact is not from the passage?

   a. Bird nest soup's texture is like gelatin.

   b. Bird nest soup is an Asian famous food.

   c. The bird nest soup is made from birds' saliva.

d. Swiflets spend more than 35 days to build the nests.

16. From the passage, which statement is true?

    a. Nesting sites can be built by humans

    b. A bowl of bird nest soup in US can cost over $100.

    c. Swiflets can build their nests only three times a year.

    d. Bird nest collectors need more than climbing and nimble skills.

17. What is the meaning of the word "**treacherous**"?

    a. skillful

    b. unsafe

    c. difficult

    d. challenged

18. From the author's suggestion, what kind of people should not eat fried tarantulas?

    a. People who hate eight-legged bugs

    b. People who hate all kinds of insects

    c. People who are scared of black animals

    d. People who are scared of all kinds of spiders

19. Which information is not true?

    a. Fried tarantulas are cheap and delicious.

    b. Many tourists come to try fried tarantulas.

    c. Fried tarantulas can be found in all streets in Cambodia.

    d. Cambodians cook the whole body of tarantulas with salt and garlic.

20. From the passage, what do we know about Cambodians?

    a. Cambodians suffered during of the Khmer Rouge period.

    b. Cambodians found tarantulas in the jungle around Skuon.

    c. Many Cambodians were killed by Tarantulas during the Khmer Rouge period.

    d. Many Cambodians started eating fried tarantulas because they were easy to find.

21. What is the main purpose of the author?

    a. To explain why Asian people eat strange food

    b. To introduce some local strange foods of Asian countries

    c. To confirm that Asian local foods are safe and worth to try

    d. To give brief history about some Asian strange famous food

22. Which title is the most suitable to the passage?

    a. Healthy Strange Asian Food   b. Reasons of Eating Weird Food

    c. Let's Eat Asian's Unusual Food   d. Learning from Weird and Bizarre

Passage 4

Contributed by Dave Norgate

Organic food is no healthier than ordinary food, a large independent review has concluded. There is little difference in nutritional value and no evidence of any extra health benefits from eating organic produce, UK researchers found.

The Food Standards Agency who commissioned the report said that the findings would help people make an "informed choice." But the Soil Association criticized the study and called for better research. Researchers from the London School of Hygiene and Tropical Medicine looked at all the evidence on nutrition and health benefits from the past 50 years. Among the 55 of 162 studies that were included in the final analysis, there were a small number of differences in nutrition between organic and **conventionally** produced food.

Overall the report, which is published in the American Journal of Clinical Nutrition, found no differences in most nutrients in organically or conventionally grown crops, including in vitamin C, calcium, and iron. The same was true for studies looking at meat, dairy and eggs. Differences that were detected, in levels of nitrogen and phosphorus, were most likely to be due to differences in fertilizer use and ripeness at harvest and are unlikely to provide any health benefit.

Gill Fine, FSA director of consumer choice and dietary health, said: "Ensuring people have accurate information is absolutely essential in allowing us all to make informed choices about the food we eat. This study does not mean that people should not eat organic food. What it shows is that there is little, if any, nutritional difference between organic and conventionally produced food and that there is no evidence of additional health benefits from eating organic food." She added that the FSA was neither pro nor anti organic food and recognized there were many reasons why people choose to eat organic, including animal welfare or environmental concerns.

Dr. Dangour, said: "Our review indicates that there is currently no evidence to support the selection of organically over conventionally produced foods on the basis of nutritional superiority." He added that better quality studies were needed.

Peter Melchett, policy director at the Soil Association said they were disappointed with the conclusions. Although the researchers say that the differences between organic and non-organic food are not 'important', due to the relatively few studies, they report in their analysis that there are higher levels of beneficial nutrients in organic compared to non-organic foods. Without large-scale, **longitudinal** research, it is difficult to come to far-reaching clear conclusions on this.

Adapted from:

23. What is the main message of the passage?

    a. People do not need to eat organic food anymore.

    b. People need to have enough information before deciding to eat or not to eat organic food.

    c. There are few studies that confirm the benefits of ordinary food and organic food.

    d. There are many studies that confirm the benefits of ordinary food and organic food.

24. What is the meaning of the word "**conventionally**"?

    a. locally   b. purely

    c. traditionally   d. conveniently

25. What is the conclusion of the researchers from the London School of Hygiene and Tropical Medicine?

    a. The amount of nutrition in organic and ordinary foods is much different.

    b. The amount of nutrition in organic and ordinary foods is not much different.

    c. The amount of nutrition in organic foods is less than ordinary food.

    d. The amount of nutrition in organic foods is a lot more than ordinary food.

26. Which organization or person would like to see more research on organic food?

    a. The Food Standards Agency and Peter Melchett

    b. The Food Standards Agency and Gill Fine

    c. Soil Association and Gill Fine

    d. Soil Association and Dr. Dangour

27. Which information is true?

    a. Vitamin C, calcium, and iron are found most in organic crops.

    b. Meat, dairy and eggs have the same numbers of nutrients as organically grown crops

    c. Normally, the levels of nitrogen and phosphorus in organic and ordinary crops are different.

    d. Different kinds of fertilizers affects the difference on the levels of nitrogen in organic and ordinary crops.

28. Which statement is Gill Fine's viewpoint?

    a. She is neither pro or anti organic food due to many reasons.

    b. It does not matter if people choose to eat or not to eat organic food.

    c. If there is enough information, people should not eat organic food.

    d. People should not eat organic food due to its little nutritional difference from ordinary food.

29. What is the meaning of the word "**longitudinal**"?

    a. observing over time

    b. long distance

    c. large area

    d. east or west areas

30. Which is the best title of the passage?

    a. No More Organic Food

    b. Should I Eat Organic Food?

    c. The Importance of Organic and Ordinary Food

    d. The Differences between Organic and Ordinary Food

31. Which statement should be the conclusion of the passage?

    a. More and better quality of research studies on organic produces should be conducted in the future.

    b. From some evidences showed, it can be concluded that organic food is not better than ordinary food.

    c. People can continue eating organic food if they are concerned about animal welfare and environment.

    d. Some researches claim that organic food is not healthier than ordinary food;

however, some report that organic food has higher level of nutrients.

32. What kind of magazine is not likely to publish this passage?

    a. Food and health magazine

    b. Beauty and fashion magazine

    c. Indoor and outdoor sport magazine

    d. Travel and entertainment magazine

Passage 5

Many teenagers are more interested in watching TV and playing video games than exercising. But new research has presented them with another reason to get active - regular moderate to vigorous exercise could boost their academic performance.

According to the Centers for Disease Control and Prevention (CDC), regular physical activity in childhood and adolescence has many significant benefits, including helping to build healthy bones and muscles, improving strength and increasing self-esteem. But statistics from the CDC show that in 2011, only 29% of high school students participated in 60 minutes of physical activity a day - the amount of activity recommended by the US Department of Health and Human Services.

Researchers from the UK say that if their findings are confirmed through further research, it could present significant implications for public health and education policy. The UK research team analyzed a sample of 5,000 children who were a part of a Children of the 90s study. The children were required to wear an accelerometer on an elasticated belt for a period of 3-7 days, in order for the researchers to monitor their daily **duration** and intensity of physical activity.

Results from the accelerometer showed that on average, boys carried out 29 minutes of moderate to **vigorous** exercise each day, while girls carried out 18 minutes. The researchers note that this is significantly less than the 60 minutes of exercise each day recommended by health officials. These results were then compared with the children's academic performance in English, mathematics and science at ages 11, 13, and 15/16.

The findings reported that at age 11, higher levels of moderate to vigorous exercise correlated with better academic performance across all three subjects for both boys and girls.

Girls in particular demonstrated a significant improvement in science performance as a result of physical activity. At age 13, better academic performance was also linked to increased physical activity. At age 15/16, every additional 17 minutes of exercise a day for boys and 12 minutes for girls was linked to better examination results. Again, females demonstrated the highest benefit of exercise through their science results.

The researchers say that these results suggest that paying more time to physical education benefits not only the health and well-being of teenagers, but also their academic successful.

Adapted from: http://www.medicalnewstoday.com/articles/267677.php

33. What seems to be a problem of today teenagers?

    a. Having unhealthy body

    b. Having poor academic performance

    c. Paying much attention on TV and video games

    d. Watching too much TV more than doing other activities

34. Which benefit of exercise is not mentioned in the passage?

    a. Promote self-esteem   b. Build healthy bones and muscles

    c. Improve academic performance   d. Increase strength of body and mind

35. What is the main idea of the passage?

    a. Teenagers should exercise more than before.

    b. Exercise could help teenagers to increase their academic performance.

    c. The research result can show teenagers how exercise is important for their lives.

    d. In order to gain benefits from exercise, teenagers need to have enough time of exercise.

36. Which statements is not true?

    a. Teenagers need to exercise at least 60 minutes a day.

    b. Less than 30% of high school students exercise 60 minutes a day.

    c. The UK research team chose 90 children from 5,000 to participated in their research.

    d. The UK research team believes that their research finding could benefit to

public health and education policy.

37. What is the meaning of the word "**duration**"?

   a. continuation   b. flexibility

   c. relaxation   d. responsibility

38. What do children need to do during participating the research?

   a. Do different kinds of exercise

   b. Exercise more and more every day

   c. Wear an exercise elastic belt for 3-7 days

   d. Wear a device that measures body movement

39. What is the meaning of the word "**vigorous**"?

   a. extreme   b. strong and energetic

   c. unbearable   d. stable and tolerant

40. Which statement is true?

   a. The result of students with different ages is not the same.

   b. The participants could increase their exercise time after joining the research.

   c. The average time of daily exercise of both boys and girls is lower than recommended time.

   d. The result shows that boys' physical performance is better than girls' physical performance.

41. Which title is the most appropriate for the passage??

   a. Teenagers Need Exercising

   b. Exercise for Better Academic Performance

   c. Time to Turn your Back to TV and VDO Games

   d. Boost your Body, Boost your Mind, Boost your Grade

Passage 6

American Indians are often thought of as one group, but they do not constitute a single, unified **ethnic** grouping. There are literally hundreds of cultural and linguistic--that is, ethnic: the Navajo of Arizona, for example, have little in common with the Mohawks of New York. The Inuits and the Aleuts of Alaska are categorized as American Indians, but they are ethnically distinct from each other and from the American Indians of the contiguous states as well. It is estimated that from 300 to 550

different American Indian languages were in use in North America before European colonization; about 150 are still spoken today.

While the Ingalik language and culture differ from those of the Seminoles, there is a general history that all American Indians have in common: an origin in the prehistoric past somewhere in northeast Asia and, in more recent centuries, encountering with European explorers and settlers followed by extreme social and economic discrimination by the European Americans.

Most estimates of American Indian population at the time of the European arrival nearly around one million. However, for many reasons, it is believed likely that the population might have been two or more times that. The Europeans introduced not only conflicting ways of life, but diseases to which the American Indians had no **resistance**, and whole populations died. By 1860 there were only about 340,000 American Indians in the contiguous states and by 1910 some 220,000. Improvement in medical care even on remote reservations later that time resulted in a decline in the death rate, and the American Indian population started to grow. The Census Bureau records that from 1950 to 1970 this population more than doubled, from 357,000 to 793,000.

Adapted from: http://www.collegeboard.com/student/testing/psat/prep/reading/read11.html

42. What is the meaning of the word "**ethnic**"?

    a. race   b. culture

    c. unique   d. social

43. How many tribes of American Indians are mentioned in the passage?

    a. 4 tribes   b. 5 tribes

    c. 6 tribes   d. 7 tribes

44. What is not true about the story?

    a. Indian American died from the diseases that came with Europeans.

    b. There were more than 500 American Indian languages used in North America.

    c. American Indians were facing with discrimination when Europeans coming to America.

    d. The population of Indian American started to grow again in 1910 when there was better medical care.

45. What is the meaning of the word "**resistance**"?

    a. control

    b. avoidance

    c. defense against

    d. preparation for

…………………………………………..END………………………………………..

Appendix H
Reading Comprehension Test (Revised)

ข้อสอบการอ่านเพื่อความเข้าใจ

<u>คำชี้แจง</u>

1) ข้อสอบประกอบด้วยบทอ่านทั้งหมด 6 บท รวมทั้งหมด 40 ข้อ

2) ให้นักศึกษาอ่านเนื้อเรื่อง และกากบาท (X) คำตอบลงในกระดาษคำตอบ

3) นักศึกษามีเวลาในการทำข้อสอบ 1 ชั่วโมง 30 นาที

4) ไม่อนุญาติให้ใช้พจนานุกรมทุกชนิด

Reading Comprehension Test

Direction Read the passages and answers the questions.

Passage 1

October 3, 2013 | By Salvador Rodriguez

1   As everyone expected when Facebook bought
Instagram in 2012, ads are coming to the popular photo and
video social network. Instagram announced the news
Thursday afternoon, saying it will ease into the processes of

5 displaying ads by beginning to show *them* occasionally.
Slowly, users will start to see photos and videos from
brands that are active on Instagram, regardless of whether users follow those
accounts. "We'll focus on delivering a small number of beautiful, high-quality
photos and videos from a handful of brands that are already great members of the
Instagram community," Instagram said in a blog.

10 Instagram also said users will be able to hide ads after they see them and provide
the social network with feedback on why they didn't like that ad. Facebook has
been showing ads on Instagram's social network for years, and this year, it is
projected to account for nearly 16% of mobile ad **revenue** worldwide, according to
EMarketer.

Adapted from: http://article.latimes.com/keyword/instagram

1. What is the relationship between Facebook and Instagram?

    a. Facebook owns Instragram.

    b. Facebook creates Instragram.

    c. Facebook supports Instragram.

    d. Facebook advertises Instragram.

2. On line 5, what does "them" refer to?

    a. ads.   b. news

    c. processes   d. announcements

3. What is the meaning of the word "**revenue**"?

    a. promotion   b. income

    c. investment   d. expanding

4. What is the main idea of the passage?

    a. Instragram is a good tool for posting ads.

    b. Instragram provides many benefits to its users.

    c. Facebook made a right decision of showing ads on Instragram.

    d. Every brand will be popular if they put their ads on Instragram.

Passage 2

'Knowing about Thailand'

With sixteen million foreigners flying into the country each year, Thailand is Asia's primary travel destination and offers a host of places to visit. Yet despite the large numbers of visitors, Thailand's cultural integrity remains largely undamaged – a country that avoided colonization has been able to absorb Western influences while maintaining its own rich heritage. Though the high-rises and neon lights occupy the foreground of the tourist picture, the typical Thai community is still the farming village, and you need not venture far to encounter a more traditional scene of fishing communities, rubber plantations and Buddhist temples. Around forty percent of Thais earn their living from the land, based around the **staple** rice, which forms the foundation of the country's unique and famous cuisine.

Through all the changes of the last sixty years, the much-respect constitutional monarch, King Bhumibol, who sits at the pinnacle of an elaborate hierarchical system of deference covering the whole of Thai society, has lent a measure of stability. Furthermore, some 85 percent of the population are still practicing Theravada

Buddhists, a unifying faith that colours all aspects of daily life – from the temple rooftops that dominate every skyline, to the omnipresent saffron-robed monks and the packed calendar of festivals.

Adapted from: **http://www.roughguides.com/destinations/asia/thailand**

5. What do you know about Thailand after reading the passage?

   a. Tourist attraction destinations   b. Thai people's life in the past

   c. Most Thai people's religious   d. Different festivals in Thailand

6. From the passage, what is not Thai people's occupation?

   a. farmer   b. landlord

   c. fisherman   d. rubber tapper

7. What is the meaning of "**staple**"?

   a. unique   b. good quality

   c. routinely eaten   d. growing easily

8. Which influence of being Theravada Buddhists does not appear in the   passage?

   a. Thai people believe in faith.

   b. Monks are everywhere in Thailand.

   c. Many temples are built in Thailand.

   d. There are many Buddhist festivals in Thailand.

9. What is the main purpose of the author?

   a. To give some overview about Thailand

   b. To present Thai people's daily life to tourists.

   c. To provide information about Thailand's history

   d. To explain why Thai people can still keep their culture

   Passage 3

One of the best ways to experience the different culture of a country you are visiting is to try the foods the native people eat. They may not be everyone's tastes, but the following foods, whilst considered weird and bizarre to some of us, are considered delicious **delicacies** in other countries.

Birds Nest Soup: You wouldn't necessarily think a birds nest would be edible, but the Chinese use swiftlets' nests to make this soup, known as the 'Caviar of the East'. Right now you're probably imagining a nest made out of twigs and leaves, but swiftlets make their nests predominantly out of saliva.

It's something in the saliva of the bird that makes it have this unique gelatinous, rubbery texture and it's one of the most expensive animal products consumed by humans. It's expensive because the swift lets build the nests during breeding season over a period of 35 days and nests can only be harvested around three times a year. The nests are typically built in coastal caves and collecting them is a **treacherous** process involving climbing and nimble skills and risking of collectors' lives, which adds to the hefty price tag.

With an increase in demand for birds nest soup, however, manmade nesting sites are often constructed. Hong Kong and the US are the largest importers of birds' nests and a bowl of soup can cost around $30 to $100 per bowl, whilst a kilo of nest can cost between $2,000 and $10,000. The soup has been believed to be nutritious in proteins and minerals.

Fried tarantulas, Cambodia: Eensy weensy spider, climbing up the spout…if you suffer from arachnophobia you probably don't want to try eating these eight legged monsters. They're not tiny little house spiders, they're great big tarantulas and you can buy them in the streets of Skuon, Cambodia.

They're fried whole – legs, fangs and all. They were first discovered by starving Cambodians in the bloody, brutal days of the Khmer Rouge rule and have gone from being the vital sustenance of these people to a delicacy tourists come far and wide to try.

The black hairy arachnids found in the jungle around the market town of Skuon have become a source of fame and fortune for the region as bus loads of people stop to try them on their way to other places. They cost only a few cents and supposedly taste delicious, as they are best plucked straight from the burrow and pan fried with a bit of

garlic and salt. They're supposed to taste a bit like crickets or scrawny chickens and are crispy on the outside with a gooey body on the inside.

10. What does the passage suggest tourists to do?

   a. Try local food to experience the culture

   b. Be careful when eating weird food when travelling

   c. Try to see different kinds of food from different countries

   d. Adapt themselves to different kinds of food that may not be their taste

11. What is the meaning of the word "**delicacies**"?

   a. local food   b. unusual food

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12. Which fact is not from the passage?

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   b. Bird nest soup is an Asian famous food.

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   a. skillful   b. unsafe

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14. From the author's suggestion, what kind of people should not eat fried tarantulas?

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   b. People who hate all kinds of insects

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15. Which information is not true?

   a. Fried tarantulas are cheap and delicious.

   b. Many tourists come to try fried tarantulas.

   c. Fried tarantulas can be found in all streets in Cambodia.

   d. Cambodians cook the whole body of tarantulas with salt and garlic.

16. From the passage, what do we know about Cambodians?

a. Cambodians suffered during of the Khmer Rouge period.

b. Cambodians found tarantulas in the jungle around Skuon.

c. Many Cambodians were killed by Tarantulas during the Khmer Rouge period.

d. Many Cambodians started eating fried tarantulas because they were easy to find.

17. What is the main purpose of the author?

a. To explain why Asian people eat strange food

b. To introduce some local strange foods of Asian countries

c. To confirm that Asian local foods are safe and worth to try

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18. Which title is the most suitable to the passage?

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The Food Standards Agency who commissioned the report said that the findings would help people make an "informed choice." But the Soil Association criticized the study and called for better research. Researchers from the London School of Hygiene and Tropical Medicine looked at all the evidence on nutrition and health benefits from the past 50 years. Among the 55 of 162 studies that were included in the final analysis, there were a small number of differences in nutrition between organic and **conventionally** produced food.

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organic food. What it shows is that there is little, if any, nutritional difference between organic and conventionally produced food and that there is no evidence of additional health benefits from eating organic food." She added that the FSA was neither pro nor anti organic food and recognized there were many reasons why people choose to eat organic, including animal welfare or environmental concerns.

Dr. Dangour, said: "Our review indicates that there is currently no evidence to support the selection of organically over conventionally produced foods on the basis of nutritional superiority." He added that better quality studies were needed.

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Adapted from:

https://mymoodle.barnsley.ac.uk/pluginfile.php/38340/mod_resource/content/1/l2bbcorganicno healthbenefits STUDENT.pdf

19. What is the main message of the passage?

   a. People do not need to eat organic food anymore.

   b. People need to have enough information before deciding to eat or not to eat organic food.

   c. There are few studies that confirm the benefits of ordinary food and organic food.

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According to the Centers for Disease Control and Prevention (CDC), regular physical activity in childhood and adolescence has many significant benefits, including helping to build healthy bones and muscles, improving strength and increasing self-esteem. But statistics from the CDC show that in 2011, only 29% of high school students participated in 60 minutes of physical activity a day - the amount of activity recommended by the US Department of Health and Human Services.

Researchers from the UK say that if their findings are confirmed through further research, it could present significant implications for public health and education

policy. The UK research team analyzed a sample of 5,000 children who were a part of a Children of the 90s study. The children were required to wear an accelerometer on an elasticated belt for a period of 3-7 days, in order for the researchers to monitor their daily **duration** and intensity of physical activity.

Results from the accelerometer showed that on average, boys carried out 29 minutes of moderate to **vigorous** exercise each day, while girls carried out 18 minutes. The researchers note that this is significantly less than the 60 minutes of exercise each day recommended by health officials. These results were then compared with the children's academic performance in English, mathematics and science at ages 11, 13, and 15/16.

The findings reported that at age 11, higher levels of moderate to vigorous exercise correlated with better academic performance across all three subjects for both boys and girls.

Girls in particular demonstrated a significant improvement in science performance as a result of physical activity. At age 13, better academic performance was also linked to increased physical activity. At age 15/16, every additional 17 minutes of exercise a day for boys and 12 minutes for girls was linked to better examination results. Again, females demonstrated the highest benefit of exercise through their science results.

The researchers say that these results suggest that paying more time to physical education benefits not only the health and well-being of teenagers, but also their academic successful.

Adapted from: http://www.medicalnewstoday.com/articles/267677.php

29. What seems to be a problem of today teenagers?
   a. Having unhealthy body
   b. Having poor academic performance
   c. Paying much attention on TV and video games
   d. Watching too much TV more than doing other activities

30. Which benefit of exercise is not mentioned in the passage?
   a. Promote self-esteem   b. Build healthy bones and muscles

c. Improve academic performance   d. Increase strength of body and mind

31. What is the main idea of the passage?

    a. Teenagers should exercise more than before.

    b. Exercise could help teenagers to increase their academic performance.

    c. The research result can show teenagers how exercise is important for their lives.

    d. In order to gain benefits from exercise, teenagers need to have enough time of

      exercise.

32. Which statements is not true?

    a. Teenagers need to exercise at least 60 minutes a day.

    b. Less than 30% of high school students exercise 60 minutes a day.

    c. The UK research team chose 90 children from 5,000 to participated in their

      research.

    d. The UK research team believes that their research finding could benefit to

      public health and education policy.

33. What is the meaning of the word "**duration**"?

    a. continuation   b. flexibility

    c. relaxation   d. responsibility

34. What is the meaning of the word "**vigorous**"?

    a. extreme   b. strong and energetic

    c. unbearable   d. stable and tolerant

35. Which statement is true?

    a. The result of students with different ages is not the same.

    b. The participants could increase their exercise time after joining the research.

    c. The average time of daily exercise of both boys and girls is lower than

      recommended time.

    d. The result shows that boys' physical performance is better than girls' physical

      performance.

36. Which title is the most appropriate for the passage??

    a. Teenagers Need Exercising

b. Exercise for Better Academic Performance

c. Time to Turn your Back to TV and VDO Games

d. Boost your Body, Boost your Mind, Boost your Grade

Passage 6

American Indians are often thought of as one group, but they do not constitute a single, unified **ethnic** grouping. There are literally hundreds of cultural and linguistic--that is, ethnic: the Navajo of Arizona, for example, have little in common with the Mohawks of New York. The Inuits and the Aleuts of Alaska are categorized as American Indians, but they are ethnically distinct from each other and from the American Indians of the contiguous states as well. It is estimated that from 300 to 550 different American Indian languages were in use in North America before European colonization; about 150 are still spoken today.

While the Ingalik language and culture differ from those of the Seminoles, there is a general history that all American Indians have in common: an origin in the prehistoric past somewhere in northeast Asia and, in more recent centuries, encountering with European explorers and settlers followed by extreme social and economic discrimination by the European Americans.

Most estimates of American Indian population at the time of the European arrival nearly around one million. However, for many reasons, it is believed likely that the population might have been two or more times that. The Europeans introduced not only conflicting ways of life, but diseases to which the American Indians had no **resistance**, and whole populations died. By 1860 there were only about 340,000 American Indians in the contiguous states and by 1910 only about 220,000 left. There were improvement in medical care later that time resulted in a decline in the death rate, and the American Indian population started to grow. The Census Bureau records that from 1950 to 1970 this population more than doubled, from 357,000 to 793,000.

Adapted from: http://www.collegeboard.com/student/testing/psat/prep/reading/read11.html

37. What is the meaning of the word "**ethnic**"?

a. race   b. culture

c. unique   d. social

38. How many tribes of American Indians are mentioned in the passage?

    a. 4 tribes   b. 5 tribes

    c. 6 tribes   d. 7 tribes

39. What is not true about the story?

    a. Indian American died from the diseases that came with Europeans.

    b. American Indians were facing with discrimination when Europeans coming to America.

    c. In the past, there were more than 500 American Indian languages used in North America.

    d. The population of Indian American started to grow again in 1910 when there was better medical care.

40. What is the meaning of the word "**resistance**"?

    a. control

    b. avoidance

    c. defense against

    d. preparation for

……………………………………………..END……………………………………..

Appendix I
The Vocabulary Learning Strategy Questionnaire

แบบสอบถามเรื่องกลยุทธ์ในการเรียนคำศัพท์

คำชี้แจง   แบบสอบถามมี 2 ส่วน ประกอบไปด้วย

    ส่วนที่ 1   ข้อมูลทั่วไปของผู้ตอบแบบสอบถาม

    ส่วนที่ 2   ข้อคำถามเกี่ยวกับการใช้กลยุทธ์ในการเรียนคำศัพท์

<u>ส่วนที่ 1</u>   ข้อมูลทั่วไปของผู้ตอบแบบสอบถาม

กรุณาทำเครื่องหมาย (✔) หน้าข้อที่คุณเลือก หรือเติมคำตอบในช่องว่าง

1. ชื่อ-

นามสกุล…………………………………………………………………..……………………

2. เพศ ☐ หญิง   ☐ ชาย

3. อายุ ☐ 17 ☐ 18 ☐ 19 ☐ 20

4. คณะ………………………………………… สาขา………....………....………………….

5. จบจากโรงเรียน………………………………………………………………………………

  5.1 หลักสูตรที่เรียน: ☐ ภาษาไทย (Thai Program) ☐ ภาษาอังกฤษ (English Program)

          ☐ สองภาษา (Bilingual Program)

6. หมายเลขโทรศัพท์

....

7. ก่อนเข้ามหาวิทยาลัย คุณเรียนภาษาอังกฤษมาทั้งหมดกี่ปี

  ☐ น้อยกว่า 9 ปี ☐ 9 ปี ☐ 10 ปี ☐ 11 ปี ☐ 12 ปี

  ☐ 13 ปี   ☐ 14 ปี ☐ 15 ปี ☐ มากกว่า 15 ปี

8. คุณรู้สึกอย่างไรเกี่ยวกับคำศัพท์ภาษาอังกฤษ คุณสามารถเลือกตอบได้มากกว่า 1 ข้อ

☐ สนุก ☐ น่าเบื่อ ☐ ง่าย ☐ ยาก

☐ สำคัญ ☐ ท้อ ☐ ไม่ชอบ ☐ เฉยๆ

<u>ส่วนที่ 2</u> ข้อคำถามเกี่ยวกับการใช้กลยุทธ์ในการเรียนคำศัพท์

<u>คำชี้แจง</u> แบบสอบถามเรื่องกลยุทธ์ในในการเรียนคำศัพท์ได้ออกแบบ โดยการรวบรวมข้อมูล

เกี่ยวกับกลยุทธ์ที่นักศึกษาใช้ในการเรียนคำศัพท์ภาษาอังกฤษ ข้อคำถามที่คุณจะตอบต่อไปนี้

เกี่ยวกับ "ความถี่" ในการใช้กลยุทธ์แบบต่างๆในการเรียนคำศัพท์ โปรดอ่านข้อคำถามแต่ละข้อ

อย่างรอบคอบ และใส่เครื่องหมาย "✓" ในช่องที่ตรงกับความเป็นจริงเกี่ยวกับตัวคุณ

1 = ไม่เคยใช้เลย   2 = แถบจะไม่เคยใช้   3 = ใช้เป็นบางครั้ง   4 = ใช้บ่อยๆ

5 = ใช้เสมอๆ

ข้อคำถาม	ความถี่ในการใช้กลยุทธ์				
	1 ไม่เคย ใช้เลย	2 แทบจะ ไม่เคยใช้	3 ใช้เป็น บางครั้ง	4 ใช้บ่อยๆ	5 ใช้เสมอๆ
A. เมื่อฉันเจอคำศัพท์ใหม่ที่ไม่รู้ ฉัน.........					
1. ดูรูปแบบของคำศัพท์ใหม่ เช่น คำกิริยา (verb), คำนาม (noun), หรือ คำคุณศัพท์ (adjective)					
2. ดูส่วนต่างๆของคำศัพท์ เช่น im-, im-, un-, -able, -ful, -ment, และ ex-					
3. ดูว่าคำศัพท์นั้นใช้ทับศัพท์ในภาษาไทยหรือไม่					
4. ใช้รูปภาพในเรื่องที่อ่านช่วยในการเดาความหมาย					
5. เดาความหมายจากเนื้อเรื่อง					
6. ใช้พจนานุกรม ไทย-อังกฤษ					
7. ใช้พจนานุกรม อังกฤษ-อังกฤษ					
8. ใช้ Talking-Dict ไทย-อังกฤษ					
9.ใช้ Talking-Dict อังกฤษ-ไทย					
10. ค้นหาความหมายของคำศัพท์จาก Internet เช่น พจนานุกรม online หรือ สังคม online					

11. ขอให้คุณครูบอกความหมายของคำศัพท์					
12. ขอให้คุณครูให้ตัวอย่างประโยคที่ใช้คำศัพท์นั้น					
13. ถามความหมายของคำศัพท์จากเพื่อน					
14. ข้ามคำศัพท์ใหม่ไปเลย					
B. เมื่อฉันต้องการที่จะจำคำศัพท์ใหม่ และสร้างความรู้ทางคำศัพท์ของฉัน ฉัน.............					
15. ศึกษาคำศัพท์กับเพื่อนร่วมชั้น					
16. ขอให้คุณครูช่วยตรวจความหมายของคำที่ฉันเข้าใจ					
17. ใช้คำศัพท์นั้น คุยกับเจ้าของภาษา					
18. วาดรูปที่สื่อความหมายของคำศัพท์เพื่อช่วยจำ					
19. สร้างภาพของความหมายของคำศัพท์ในใจ					
20. โยงคำศัพท์กับประสบการณ์ส่วนตัว					
21. จำคำที่ตามหลัง หรือนำหน้า คำศัพท์ใหม่					
22. โยงคำศัพท์กับคำศัพท์อื่นๆที่มีความหมายคล้ายกัน					
23. โยงคำศัพท์กับคำศัพท์อื่นๆที่มีความหมายตรงกันข้าม					
24. ใช้คำศัพท์ใหม่ ในการแต่งประโยค					
25. จับกลุ่มคำศัพท์เพื่อการเรียนรู้คำ					
26. ศึกษาตัวสะกดของคำศัพท์					
27. เขียนเรื่องโดยใช้คำศัพท์ใหม่					
28. ศึกษาการออกเสียงของคำศัพท์					
29. จำคำศัพท์ที่มักพบบ่อยๆ					
30. พูดคำศัพท์ออกมาเสียงดังๆ เมื่อเจอคำศัพท์นั้นครั้งแรก					
31. จำคำศัพท์โดยจำส่วนต่างๆ ของคำศัพท์ เช่น im-, un-, -able, -ful, -ment, ex- เป็นต้น					
32. จำคำศัพท์จากรูปแบบของคำ เช่น คำกริยา (verb), คำนาม (noun), หรือ คำคุณศัพท์(adjective)					
33. ท่องคำศัพท์ดังๆ หลายๆ ครั้ง					
34. เขียนคำศัพท์หลายๆ ครั้ง					
35. ทำรายการ (list) สำหรับคำศัพท์ใหม่					
36. เน้นคำศัพท์ใหม่ให้เห็นชัดเจนด้วยการขีดเส้นใต้ วงกลม หรืออื่นๆ					

ข้อคำถาม	ความถี่ในการใช้กลยุทธ์				
	1 ไม่เคย ใช้เลย	2 แทบจะ ไม่เคยใช้	3 ใช้เป็น บางครั้ง	4 ใช้บ่อยๆ	5 ใช้เสมอๆ
B. เมื่อฉันต้องการที่จะจำคำศัพท์ใหม่ และสร้างความรู้ ทางคำศัพท์ของฉัน ฉัน.............(ต่อ)					
37. ทำสมุดโน๊ตคำศัพท์					
38. จดคำศัพท์ลงในแผ่นป้ายเล็กๆ					
39. ติดป้ายเป็นภาษาอังกฤษบนสิ่งของ					
40. ใช้สื่อภาษาอังกฤษ เช่น ภาพยนต์ หนังสือพิมพ์ เป็นต้น					
41. ทดสอบตัวเองด้วยข้อสอบคำศัพท์					
42. ทบทวนคำศัพท์ใหม่หลายๆ ครั้ง					
43. ใช้วิธีแยกส่วนคำศัพท์ในการจำ					

คุณใช้กลยุทธ์ในเรียนคำศัพท์อื่นๆ นอกเหนือจากที่กล่าวมาในตารางหรือไม่ ถ้ามี

โปรดระบุ

1._____

2._____

3._____

4._____

5._____

6._____

ขอขอบคุณสำหรับความร่วมมือ

Appendix J

QUESTIONNAIRE ON ENGLISH READING STRATEGIES

แบบสอบถามเรื่องกลยุทธ์ในการอ่านภาษาอังกฤษ

คำชี้แจง   แบบสอบถามมี 2 ส่วน ประกอบไปด้วย

ส่วนที่ 1   ข้อมูลทั่วไปของผู้ตอบแบบสอบถาม

ส่วนที่ 2   ข้อคำถามเกี่ยวกับการใช้กลยุทธ์ในการอ่านภาษาอังกฤษ

<u>ส่วนที่ 1</u> ข้อมูลทั่วไปของผู้ตอบแบบสอบถาม

กรุณาทำเครื่องหมาย (✓) หน้าข้อที่คุณเลือก หรือเติมคำตอบในช่องว่าง

1. ชื่อ-นามสกุล………………………………………………………...………………………

2. เพศ ☐ หญิง   ☐ ชาย

3. อายุ   ☐ 17   ☐ 18   ☐ 19   ☐ 20

4. คณะ……………………………………………… สาขา………....…………………………

5. จบจากโรงเรียน……………………………………………………………………………

   5.1 หลักสูตรที่เรียน: ☐ ภาษาไทย (Thai Program)   ☐ ภาษาอังกฤษ (English Program)

   ☐ สองภาษา (Bilingual Program)

6. ก่อนเข้ามหาวิทยาลัย คุณเรียนภาษาอังกฤษมาทั้งหมดกี่ปี

   ☐ น้อยกว่า 9 ปี   ☐ 9 ปี   ☐ 10 ปี   ☐ 11 ปี   ☐ 12 ปี

   ☐ 13 ปี   ☐ 14 ปี   ☐ 15 ปี   ☐ มากกว่า 15 ปี

7. คุณรู้สึกอย่างไรกับการอ่านภาษาอังกฤษ กรุณาเลือกตอบเพียง 1 ข้อ

   ☐ สนุก   ☐ น่าเบื่อ   ☐ ง่าย   ☐ ยาก ☐ ท้าทาย

   ☐ มีประโยชน์   ☐ เสียเวลา   ☐ ท้อ   ☐ เครียด   ☐ จำเป็น

8. หมายเลขโทรศัพท์..

<u>ส่วนที่ 2</u> ข้อคำถามเกี่ยวกับการใช้กลยุทธ์ในการอ่านภาษาอังกฤษ

<u>คำชี้แจง</u> แบบสอบถามเรื่องกลยุทธ์ในการอ่านภาษาอังกฤษได้ออกแบบ โดยการรวบรวมข้อมูล
เกี่ยวกับกลยุทธ์ที่นักศึกษาใช้ในการอ่านภาษาอังกฤษ ข้อคำถามที่คุณจะตอบต่อไปนี้เกี่ยวกับ
ความถี่ในการใช้กลยุทธ์แบบต่างๆในการอ่าน โปรดอ่านข้อคำถามแต่ละข้ออย่างรอบคอบ และใส่
เครื่องหมาย "✔" ในช่องที่ตรงกับความเป็นจริงเกี่ยวกับตัวคุณ

1 = ไม่เคยใช้เลย   2 = แถบจะไม่เคยใช้

3 = ใช้เป็นบางครั้ง   4 = ใช้บ่อยๆ   5 = ใช้เสมอๆ

ข้อคำถาม	ความถี่ในการใช้กลยุทธ์				
	1 ไม่เคย ใช้เลย	2 แทบจะ ไม่เคยใช้	3 ใช้เป็น บางครั้ง	4 ใช้ บ่อยๆ	5 ใช้ เสมอๆ
1. ฉันมีจุดประสงค์ในการอ่านอยู่ในใจ					
2. ฉันจดโน้ตขณะที่อ่านเพื่อช่วยให้เข้าใจสิ่งที่อ่าน					
3. ฉันนึกถึงสิ่งที่ฉันรู้เพื่อช่วยให้เข้าใจสิ่งที่อ่าน					
4. ฉันกวาดตาดูบทอ่านโดยรวมก่อนว่าเรื่องที่อ่านเกี่ยวกับ อะไร					
5. เมื่อเรื่องที่อ่านเริ่มยากขึ้น ฉันจะอ่านออกมาดังๆ เพื่อช่วย ให้ฉันเข้าใจสิ่งที่อ่าน					
6. ฉันพิจารณาว่าเนื้อหาของเรื่องที่อ่านตรงกับจุดมุ่งหมาย ในการอ่านของฉันหรือไม่					
7. ฉันอ่านอย่างช้าๆ และระมัดระวัง เพื่อให้แน่ใจว่าฉันเข้าใจ เรื่องที่ฉันกำลังอ่าน					
8. ฉันเริ่มต้นพิจารณาเรื่องที่อ่านจากความยาวและการ ลำดับเรื่อง					
9. เมื่อฉันเสียสมาธิในการอ่าน ฉันพยายามดึงตัวเองกลับมา					
10. ฉันขีดเส้นใต้ หรือวงกลม ข้อมูลในเรื่องที่อ่านเพื่อช่วยให้ ฉันจำได้					
11. ฉันปรับความเร็วในการอ่านตามเรื่องที่ฉันกำลังอ่าน					
12. ขณะที่อ่าน ฉันจะตัดสินใจว่าควรให้ความสนใจและ ไม่ให้ความสนใจตรงส่วนไหนของเรื่อง					
13. เมื่อเรื่องที่อ่านเริ่มยากขึ้น ฉันจะตั้งใจอ่านมากขึ้น					

ข้อคำถาม		2 แทบจะ ไม่เคยใช้	3 ใช้เป็น บางครั้ง	4 ใช้ บ่อยๆ	5 ใช้ เสมอๆ
14. ฉันหยุดอ่านเป็นระยะๆ เพื่อทบทวนเรื่องที่ฉันกำลังอ่าน					
15. ฉันปรับเปลี่ยนข้อความเดิมเป็นคำพูดของตัวเอง เพื่อให้ฉันเข้าใจเรื่องที่อ่านมากขึ้น					
16. ฉันพยายามวาดภาพเกี่ยวกับเรื่องที่อ่านในใจเพื่อช่วยให้ฉันจำเรื่องที่อ่านได้					
17. ฉันวิเคราะห์วิจารณ์ และประเมินข้อมูลของเรื่องที่อ่าน					
18. ฉันอ่านย้อนกลับไปกลับมาเพื่อหาความสัมพันธ์ของเนื้อหาและความคิดในเรื่อง					
19. ฉันประเมินความเข้าใจของตนเอง เมื่อฉันอ่านพบเนื้อหาใหม่					
20. เมื่อฉันอ่าน ฉันพยายามเดาว่าเนื้อหาของเรื่องที่อ่านเกี่ยวกับอะไร					
21. ฉันถามตัวเองเกี่ยวกับเรื่องที่ฉันต้องการรู้จากเรื่องที่อ่าน					
22. ฉันตรวจดูว่าการเดาเรื่องของฉันผิดหรือถูก					
23. ขณะที่อ่าน ฉันจะแปลเรื่องจากภาษาอังกฤษเป็นภาษาไทย					
24. ขณะที่อ่าน ฉันคิดเกี่ยวกับเนื้อหาของเรื่องเป็นภาษาอังกฤษและไทย					
25. ขณะที่อ่าน ฉันคิดเกี่ยวกับเนื้อหาของเรื่องเป็นภาษาอังกฤษ					
26. ขณะที่อ่าน ฉันคิดเกี่ยวกับเนื้อหาของเรื่องเป็นภาษาไทย					
27. ฉันพยายามที่จะหาประเด็นสำคัญของเรื่องเมื่อฉันอ่าน					
28. ฉันพยายามหาหัวข้อและใจความสำคัญของเรื่องโดยการอ่านคร่าวๆ					
29. ฉันพยายามหาข้อมูลที่เฉพาะเจาะจงของเรื่องโดยการอ่านผ่านๆ					
30. ฉันพยายามที่จะเข้าใจเนื้อเรื่อง โดยไม่สนใจคำศัพท์					
31. ฉันใช้ประเด็นหลักของเรื่อง เพื่อช่วยให้ฉันเข้าใจเรื่อง					
32. ฉันขีดเส้นใต้ใจความสำคัญของเรื่อง					
33. ฉันไม่ชอบทำให้หนังสือเลอะเทอะ ฉันจึงไม่เขียนโน๊ตหรือขีดเส้นใต้ประโยค					
34. ฉันใช้พจนานุกรม ไทย-อังกฤษ เพื่อหาความหมายของคำศัพท์					

35. ฉันใช้พจนานุกรม อังกฤษ-อังกฤษ เพื่อหาความหมาย ของคำศัพท์					
36. เมื่ออ่าน ฉันจะเดาความหมายของคำหรือ ประโยคที่ไม่รู้เอง โดยไม่ใช้พจนานุกรม					
37. ฉันข้ามคำศัพท์ที่ฉันไม่รู้ความหมายไป					
38. ฉันพบว่าการใช้พจนานุกรมหาคำศัพท์ที่ฉันไม่รู้ ทำให้ฉันเสียเวลา อ่านได้ช้าลง					
39. ฉันอ่านเรื่องหลายๆ ครั้ง เพื่อให้เข้าใจมากขึ้น					
40. ฉันย้อนกลับไปอ่านซ้ำอีก เมื่อฉันไม่เข้าใจ					
41. เมื่อฉันเริ่มอ่าน ฉันจะอ่านจนจบที่เดียว เพราะ ฉันไม่ชอบอ่านแบบย้อนไปย้อนมา					
42. เมื่อฉันอ่านเจอส่วนที่ไม่เข้าใจ ฉันจะข้ามไป					
43. เมื่อฉันอ่านพบเนื้อเรื่องที่ขัดแย้งกัน ฉันจะ ทบทวนความเข้าใจของฉันต่อเนื้อเรื่องที่อ่าน					
44. ฉันใช้ข้อมูลจริงในเรื่อง และความรู้เดิมของฉัน เกี่ยวกับเนื้อเรื่อง เพื่อช่วยให้ฉันเข้าใจเรื่องที่อ่าน					
45. ฉันใช้ความรู้ที่เดิม เดาความหมายแฝงในเรื่อง ที่อ่าน					
46. เพื่อไม่ให้เกิดความสับสน ฉันไม่นำความรู้เดิมที่ มีอยู่มาใช้ในการอ่าน					
47. ฉันใช้ความรู้รอบตัวเพื่อช่วยให้เข้าใจสิ่งที่อ่านได้ ดีขึ้น					
48. ฉันใช้ความรู้ทางด้านโครงสร้างภาษาอังกฤษ ของฉัน เพื่อช่วยให้ฉันเข้าใจสิ่งที่อ่าน					
49. ฉันใช้ความรู้ทางด้านโครงสร้างของบทอ่าน เพื่อ ช่วยให้ฉันเข้าใจสิ่งที่อ่าน					
50. ฉันใช้ข้อมูลในเรื่องที่อ่าน เพื่อช่วยให้เข้าใจ ความหมายแฝงของเรื่อง					
51. ฉันอ่านชื่อเรื่องและ หัวเรื่องย่อย เสมอๆ เพื่อ ช่วยให้ฉันเข้าใจเรื่องที่อ่าน					
52. เมื่อฉันไม่เข้าใจความหมายของประโยค ฉันจะ นึกถึงประโยคอื่นๆ ในย่อหน้าเดียวกัน เพื่อช่วยให้ฉัน เข้าใจประโยคนั้นๆ					

53. ฉันจะใช้บริบทในเนื้อเรื่อง เพื่อช่วยให้ฉันเข้าใจ เรื่องที่กำลังอ่านดีขึ้น					
54. ฉันจะใช้บริบทในเนื้อเรื่อง เพื่อช่วยเดา ความหมายของคำศัพท์ที่ฉันไม่รู้					
55. ฉันจะข้าม ตาราง กราฟ แผนผัง หรือรูปภาพใน เรื่องที่อ่าน เพราะมันทำให้ฉันอ่านได้ช้าลงและ ไขว้เขว					
56. ฉันใช้ ตาราง กราฟ แผนผัง หรือรูปภาพ ใน เรื่องที่อ่าน เพื่อช่วยให้เข้าใจมากขึ้น					

คุณใช้กลยุทธ์ในการอ่านอื่นๆ นอกเหนือจากที่กล่าวมาในตารางหรือไม่ ถ้ามีโปรดระบุ

1._____

2._____

3._____

4._____

5._____

6._____

ขอขอบคุณสำหรับความร่วมมือ

Appendix K

Semi-structured interview questions

1. How do you feel about reading?

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2. How much effort do you put when reading?

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3. What kind of reading strategies do you like to do?

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4. What is the first thing you do when you read?

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5. What do you do when you do not know meaning of a word when you read?

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6. When the text becomes difficult, what do you do?

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7. What kind of vocabulary learning strategies that you like to do?

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8. When you find a new word that you do not know, what is the first thing that you do?

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9. What do you do to remember a new word?

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10. How do you build your vocabulary?

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11. Other…

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Appendix K

Semi-structured interview questions (Revised)

1. How do you feel about reading?

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2. How much effort do you put when reading?

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3. What kind of reading strategies do you like to do?

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4. What is the first thing you do when you read?

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5. What would you do when you find an unknown word while you read?
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6. What would you do when you do not understand the reading?

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7. When the text becomes difficult, what do you do?

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8. What kind of vocabulary learning strategies that you like to do?

8.1 When you find a new word that you do not know, what is the first thing that you do?

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8.2 What do you do to remember a new word?

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8.3. How do you build your vocabulary?

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9. Other

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VITA

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