Relationships between Vocabulary Learning Strategies and

Vocabulary Knowledge and Reading Comprehension

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ชื่อวิทยานิพนธ์   ความสัมพันธ์ระหว่างกลยุทธ์การเรียนรู้คำศัพท์กับความรู้ด้านคำศัพท์
และความสามารถในการอ่าน
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บทคัดย่อ

        การวิจัยครั้งนี้มีวัตถุประสงค์เพื่อ 1) ศึกษาการใช้กลยุทธ์การเรียนรู้คำศัพท์ของนักศึกษากลุ่มวิทยาศาสตร์สุขภาพ มหาวิทยาลัยวลัยลักษณ์ 2) ศึกษาความสามารถด้านความรู้คำศัพท์ของนักศึกษา 3) ศึกษาความสัมพันธ์ระหว่างกลยุทธ์การเรียนรู้คำศัพท์กับความรู้ด้านคำศัพท์ และ 4) ศึกษาความสัมพันธ์ระหว่างความรู้ด้านคำศัพท์กับความเข้าใจการอ่าน การวิจัยครั้งนี้ได้ทดลองกับกลุ่มตัวอย่างซึ่งเป็นนักศึกษาชั้นปีที่ 1 ที่ศึกษาสาขาวิทยาศาสตร์สุขภาพ ปีการศึกษา 2554 ณ มหาวิทยาลัยวลัยลักษณ์ จำนวน 160 คน โดยใช้แบบสอบถามกลยุทธ์การเรียนรู้คำศัพท์ แบบทดสอบวัดความรู้ด้านคำศัพท์ และข้อสอบวัดความเข้าใจการอ่านเป็นเครื่องมือในการวิจัย สถิติที่ใช้ในการวิจัยได้แก่ ค่าเฉลี่ย (Mean) ค่าเบี่ยงเบนมาตรฐาน (Standard Deviation) สถิติการทดสอบค่าที (t-test) และ ค่าสัมประสิทธิ์สหสัมพันธ์แบบเพียร์สัน (Pearson's Correlation Coefficient)

        ผลการวิจัยพบว่า ในภาพรวม นักศึกษาชั้นปีที่ 1 กลุ่มวิทยาศาสตร์สุขภาพ มหาวิทยาลัยวลัยลักษณ์ ใช้กลยุทธ์ในการเรียนรู้คำศัพท์อยู่ในระดับปานกลาง ในด้านการค้นหาความหมายคำศัพท์ นักศึกษาใช้กลยุทธ์การหาความหมายคำศัพท์ (Determination Strategies) คือ ค้นหาความหมายคำศัพท์จากพจนานุกรม อังกฤษ-ไทย มากที่สุด ด้านการจดจำความหมายคำศัพท์ นักศึกษาใช้กลยุทธ์ที่ใช้ความรู้ความเข้าใจ (Cognitive Strategies) คือ จดความหมายคำศัพท์ลงในสมุด/หนังสือเรียนมากที่สุด ส่วนด้านการนำคำศัพท์ใหม่ไปใช้เพื่อเพิ่มพูนความรู้คำศัพท์ (Expanding Vocabulary Knowledge Strategies) นักศึกษาใช้กลยุทธ์การตรวจสอบความความหมายคำศัพท์และการใช้คำศัพท์ในพจนานุกรมหรือหนังสือไวยากรณ์ก่อนการเขียนหรือหลังการพูดบ่อยครั้งเมื่อไม่แน่ใจความหมายหรือการใช้คำศัพท์ ส่วนความสามารถด้านความรู้คำศัพท์ของนักศึกษาชั้นปีที่ 1 กลุ่มวิทยาศาสตร์สุขภาพ นักศึกษามีความรู้คำศัพท์อยู่ที่ระดับ 1000 คำ มากที่สุด และระดับ 5000 คำ น้อยที่สุด ด้านผลการศึกษาความสัมพันธ์ระหว่างกลยุทธ์การเรียนรู้คำศัพท์กับความรู้คำศัพท์ปรากฏว่า ในภาพรวม มีความสัมพันธ์กันอย่างมีนัยสำคัญ ยกเว้นกลยุทธ์ทางสังคม (Social Strategies) ซึ่งไม่พบความสัมพันธ์อย่างมีนัยสำคัญ ส่วนผลการศึกษา

ความสัมพันธ์ระหว่างความรู้คำศัพท์กับความสามารถในการอ่านของนักศึกษาพบว่า ความรู้
คำศัพท์ที่ระดับ 1000 คำ 2000 คำ และ 3000 คำ ของนักศึกษาที่มีความรู้คำศัพท์อยู่ใน
ระดับสูงมีความสัมพันธ์กับความสามารถในการอ่านอย่างมีนัยสำคัญ ทั้งนี้ความสัมพันธ์ดังกล่าว
ไม่พบในกลุ่มนักศึกษาที่มีความรู้คำศัพท์อยู่ในระดับต่ำ

จากภาพรวมของการศึกษาอนุมานได้ว่ากลยุทธ์ในการเรียนรู้คำศัพท์ของ
นักศึกษาอาจเป็นปัจจัยสำคัญปัจจัยหนึ่งต่อการเรียนรู้คำศัพท์และการเพิ่มพูนความรู้ด้านคำศัพท์
ให้เพียงพอสำหรับการพัฒนาความสามารถในการอ่านของนักศึกษาที่ศึกษาในระดับมหาวิทยาลัย

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ABSTRACT

The purposes of this study were 1) to explore frequency of use of vocabulary learning strategies of first year health sciences students at Walailak University 2) to examine vocabulary knowledge of the students, 3) to investigate relationships between vocabulary learning strategies used by the students and their vocabulary knowledge, and 4) to investigate relationships between students' vocabulary knowledge and their reading comprehension ability. A questionnaire, a vocabulary level test, and a reading comprehension test were used as the instruments of this study. The stratified random sampling method was used to select 160 first year health sciences students from 4 Schools—Medicine, Pharmacy, Nursing and Allied Health Sciences and Public Health at Walailak University. The statistics employed to interpret data in this study were Mean ($\bar{x}$), Standard Deviation (S.D.), t-test, and Pearson's Correlation Coefficient.

Findings showed an overall frequency of strategy use of the participants at a moderate level. Determination Strategies were the most frequently used among other strategies. Specifically, the subjects reported using an Eng-Thai dictionary strategy to discover new word meanings at the highest frequency level. To remember meaning of new words, Cognitive Strategies were the most frequently used. This strategy was note taking of word meanings. The subjects frequently returned to consult dictionaries or grammar books when they encountered unclear word meanings and usage in order to expand their vocabulary knowledge. Regarding the subjects' vocabulary knowledge, the highest mean score was found at the 1000-word level whereas the lowest mean score was shown at the 5000-word level. Among the six categories of vocabulary learning strategies, significant but weak correlations

were found between the use of five categories of vocabulary learning strategies and vocabulary sizes. Nevertheless, no significant relationship between Social Strategies and vocabulary knowledge was found in this study. When separated into two groups of high and low vocabulary achievers, among high vocabulary achievers, a significant but moderate correlation was found between the 1000-word level and reading ability. The knowledge of 2000- and 3000-word levels were also found to positively correlate with their reading ability although at a low level of correlation. Conversely, a correlation was not found among the low vocabulary achievers.

The results of this study possibly suggest an effect of vocabulary learning strategies and vocabulary knowledge of EFL learners on their reading comprehension ability.

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Sukanlaya Thavornpon

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CHAPTER 1

INTRODUCTION

This chapter presents the rationale and proposes of the study. The research questions, significance of the study, definitions of keys terms, and scope and limitations of the study are subsequently presented.

1.1 Rationale of the Study and Statement of the Problem

Learning English for communication is perceived as an important element in the world of globalization. People from different countries worldwide are using English as a medium for communication. To communicate in English among people who are from different regions, their knowledge of vocabulary is necessary. Krashen and Terrel (1983) maintain that using foreign languages for communication, L2 learners have to know vocabulary as a basic instrument to convey meaning.

Vocabulary carries more of the meaning of a text than does the grammar (Lewis, 1993). If learners know grammatical rules of an utterance addressed to them, but they do not know the meaning of key words, they will be unable to take part in the communication (Krashen & Terrel, 1983). If vocabulary is considered as a major element for producing English communication, it is crucial for L2 learners to learn vocabulary for effective communication.

To learn L2 vocabulary, learning strategy is considered as a device to facilitate effective learning. Strategies help learners understand, acquire and retain new information relating to a new word item (O'Malley & Chamot, 1990). Learners may employ different learning strategies that they assumed to be effective ways of acquiring word meanings. Ellis (1997) stated that successful learners use a variety of effective strategies to acquire language more often than unsuccessful learners. Furthermore, the dynamic strategies the learners employ improve their academic performance.

As previously demonstrated, a wide range of appropriate and effective vocabulary learning strategies employed by learners will increase their vocabulary proficiency. Adequacy of vocabulary knowledge helps learners to comprehend a second language. Specifically, for students who study in a tertiary level. They learn mostly from reading textbooks and other academic resources for getting information (Adam, 1996). Vocabulary knowledge is fundamental to comprehend texts; one can not understand text without knowing what most of the words in text mean. Inadequate vocabulary knowledge is a serious problem for L2 learners in understanding reading texts. They tend to fall into a risky situation for their educational achievements (Nagy, 1988). Thus, vocabulary knowledge is necessary for reading, which is a very important skill for academic achievement of university students.

Several researchers conducted studies to investigate the relationship between word knowledge and reading comprehension ability (Koda, 1989; Baleghizadeh & Golbin, 2010; Zhang, 2008). The results show a positive correlation between the two variables which indicates that vocabulary knowledge of L2 learners helps their reading comprehension ability. Moreover, the research subjects of Hasbún's (2005) study claimed that knowing more words had made them better readers.

However, improving the amount of vocabulary of learners receives less attention than other aspects in learning a foreign language (McCarthy, 1990). In comparison with other research studies on language teaching and learning, vocabulary received less attention than research issues on teaching techniques, reading, writing, or discourse analysis (Allen, 1983; Lewis, 1993; Long & Richards, 1997; Schmitt, 1997; Zimmerman, 1997). Moreover, teaching vocabulary in class is incidental and less focused on development of vocabulary knowledge (McCarthy, 1990). This means that when students encounter unknown words, they are told the definitions but meaningful collocations of the target words or information about how to use the words are rarely provided.

Regarding classroom teaching and learning vocabulary in Thailand, Khuvasanond et al. (2010) mentions that many Thai students were taught vocabulary by repeating words spoken by their teachers in primary or secondary schools and memorizing the words' spelling and meanings. It is difficult for students to memorize a large number of words if they do not have the opportunity to apply their vocabulary in real-life situations out of class. Moreover, Mingsakoon (2003) states that many Thai students get anxious when they see unfamiliar words in texts. Mongkol (2008) interviewed her research subjects who were first year students majoring in English, about their problems in coping with unknown words in reading passages. The students revealed that they were frustrated when encountering unknown words while reading English books because they had insufficient vocabulary knowledge. This problem discouraged them from trying to comprehend the texts and subsequently resulted in unsatisfactory academic achievement. According to Mongkol (2008), teachers pay little attention to teaching students techniques to learn vocabulary independently outside the classroom. Students can learn vocabulary they need, not only from learning lessons in classrooms but also by self-directed learning outside classroom (Sokmen, 1997). Therefore teachers have to help students to find out how vocabulary can be effectively acquired by using their own methods and strategies.

With regard to English vocabulary acquisition research in Thai context, most researchers (Wimolkasem, 1992; Suthiwartnarueput, 2004; Siriwan, 2007; Mongkol, 2008) focused their exploration on pair-relationship between learners' vocabulary learning strategies and their vocabulary knowledge. However, there is no research focusing on relationships between vocabulary learning strategies and vocabulary knowledge and reading comprehension as an on-going, reflexively linked process. Even though there was a research study investigating a pair-relationship between vocabulary knowledge and reading comprehension conducted by Pringprom (2011), other research on these three variables are apparently lacking.

If the knowledge of vocabulary is regarded as a key factor in effective communication and comprehension of a wide range of different English text types and general English proficiency, a deficiency of vocabulary knowledge may affect learners' academic results. Regarding English language learning at Walailak University (WU), health sciences students did not perform well in English Foundation subject. This subject is a compulsory basic English course required for all first year students. It provides knowledge of basic English grammar and a revision of the macro skills for communication in real situations. The average grade of this subject of all health sciences students in trimester 1, 2011 academic year was 2.28 (see Table 1.1).

Table 1.1 Academic Results of English Foundation Subject of Health Sciences Students in the 1/2011 Academic Year

	A (4.00)	B (3.00)	B+ (3.50)	C (2.00)	C+ (2.50)	D (1.00)	D+ (1.50)	F (0)	W	Total Sts.	Average Grade
	Excellent	Good	Very Good	Good	Fairly Good	Very Poor	Poor	Fail	Withdrawn		
No. of students	19	41	53	151	84	12	78	11	6	455	2.28
%	4.18	9.01	11.65	33.19	18.46	2.64	17.14	2.42	1.32	100	

Source: Center for Educational Services, 1/2011 Academic Year, Walailak University

Table 1.1 displays academic results of English Foundation subject in percentage and average grade obtained by all health sciences students. The academic results showed that 33.19%, 17.4%, and 2.64% of the students obtained grades C, D+, and D respectively. This means that over 50% need improvement in English language learning. Inadequacy of vocabulary knowledge can be one of many problems that caused unsatisfactory academic results of the students (Nagy, 1988). They might not be able to understand English lessons clearly because their vocabulary was too limited to perform satisfactory English learning activities in class as well as English tests.

Since 2005, Walailak University has used Problem-Based Learning (PBL) approach as a main teaching and learning technique for health sciences programs of study. It is believed that PBL is the process of learning by understanding a resolution of a problem; it allows students to create body of knowledge and resolve patients' health problems (Barrows & Tamblyn, 1980).

English is used in several steps of PBL learning process and teaching materials for the health sciences students provided by teachers e.g. handouts, presentations and textbooks, in the current and higher levels (Year 2 and up) are mostly in English. They need a sufficient word knowledge in order to comprehend those English reading texts and to continue their study throughout the period of the study program.

Therefore, there is a need for the health science students to realize that a good knowledge of English vocabulary is crucial for them to comprehend reading texts while learning in the university. As can be seen in Table 1.1 (p.4), unsatisfactory academic results of the English Foundation subject imply that the health sciences students may be lacking in vocabulary knowledge. Moreover, they may have problems in using English skills, specifically reading skill which is an essential skill for university students. In addition, they were taught through PBL approach which requires them to read a number of reading passages. One may question whether the students have sufficient vocabulary knowledge to understand those reading texts. Thus, it was of interest to investigate current levels of the students' vocabulary knowledge and their vocabulary learning strategies in terms of use frequency. Moreover, the relationships between the vocabulary learning strategies and vocabulary knowledge, and between vocabulary knowledge and reading comprehension ability were under investigation.

1.2 Purposes of the Study and Research Questions

The purposes of this study were firstly to explore what vocabulary learning strategies were frequently used by WU first year health sciences students and levels of their vocabulary knowledge. The second aim was to examine relationships between strategies employed and levels of their vocabulary proficiency and relationships between their levels of vocabulary proficiency and ability to comprehend reading texts.

In order to achieve the purposes of this study, the research questions were framed as follows:

1) What vocabulary learning strategies are frequently used by WU first year health sciences students?

2) What are vocabulary sizes of the WU first year health sciences students?

3) What are the relationships between the health sciences students' frequency of vocabulary learning strategies use and their vocabulary knowledge?

4) Are there any relationships between the health sciences students' vocabulary knowledge and their reading comprehension ability?

1.3 Significance of the Study

This study investigated vocabulary learning strategies used by health sciences students at Walailak University in the 2011 academic year as well as measured their vocabulary knowledge. In addition, their reading comprehension ability has also been examined to ascertain relationship between vocabulary knowledge and reading ability.

The findings of this study will be beneficial and valuable for students and teachers as discussed hereafter.

1.3.1 Students can learn to employ strategies in acquiring word meanings and its usage more effectively. They may also try to use different learning strategies which yield positive results in vocabulary learning. Moreover, a relationship between vocabulary knowledge and reading comprehension would be of significance for students' motivation. They would realize that if they want to comprehend texts without encountering and dealing with unknown words, they must put more effort into vocabulary learning.

1.3.2 Importance of individual differences in using vocabulary learning strategies may bring vocabulary teaching to the attention of instructors. Training in vocabulary learning strategies may make both students and teachers recognize such strategies as efficient techniques for words acquisition. Teaching techniques and activities can be adapted to match individual differences as well as to strengthen learning strategies of students to be more effective in acquiring vocabulary.

1.3.3 This study helps in measuring students' vocabulary knowledge which is important for reading comprehension especially for those who studying at tertiary educational level. A learner who has higher vocabulary proficiency seems to have higher reading comprehension ability. The results of vocabulary levels test scores may indicate the students' vocabulary proficiency and raise their awareness of vocabulary development to reach the threshold of vocabulary to read English textbooks or other printed materials independently, specifically in their higher levels of learning (Year 2-4 or higher).

1.4 Definition of Key Terms

1.4.1 Vocabulary Learning Strategies (VLSs) refer to a variety of actions, methods, techniques, plans or behaviors of foreign language learners to learn and acquire foreign language vocabulary. In this study, they refer to six strategies in three main categories of vocabulary learning which are Discovery Strategies, Consolidation Strategies and Expanding Vocabulary Knowledge Strategies

1.4.2 Discovery Strategies refer to strategies that students use to get a word meaning consisting Determination Strategies (DET) and Social Strategies (SOC)

1.4.3 Consolidation Strategies refer to strategies that students use to store a word meaning in memory consisting Social Strategies (SOC) (interacting with someone to remember a word meaning), Memory Strategies (MEM), Cognitive Strategies (COG) and Metacognitive Strategies (MET)

1.4.4 Expanding Vocabulary Knowledge Strategies (EVK) refer to strategies that students use to practice using words knowledge from their memories in real situations for listening, speaking, reading and writing to maintain and expand their word knowledge.

1.4.5 High Vocabulary Achievers (HVAs) refer to 54 research subjects who obtained the vocabulary levels test scores ranging from 124 to 148.

1.4.6 Low Vocabulary Achievers (LVAs) refer to 54 research subjects who obtained the vocabulary levels test scores ranging from 31 to 80.

1.5 Scope and Limitations of the Study

1.5.1 This study focused on taxonomy of vocabulary learning strategies classified by Schmitt (1997) and Intaraprasert (2004) including Determination Strategies (DET), Social Strategies (SOC), Memory Strategies (MEM), Cognitive Strategies (COG), Metacognitive Strategies (MET), and Expanding Vocabulary Knowledge Strategies (EVK).

1.5.2 The study was designed to examine the frequency of use of vocabulary learning strategies and vocabulary sizes of the first year health sciences students at Walailak University, Nakhon Si Thammarat in the 2011 academic year. It also further investigated the relationships between students' vocabulary learning strategies frequently used and their vocabulary sizes, and between vocabulary sizes and their reading comprehension.

1.5.3 It was limited to a particular group of students at the university, where the situation and context might differ from those in other groups. The results of this study might not be generalized to other group of students who differ in background and field of study.

CHAPTER 2

REVIEW OF LITURATURE AND RELATED STUDIES

This part reviews theoretical and research literature related to language learning strategies, vocabulary learning strategies as part of language learning strategies that L2 learners employed when learning new words, and relationships between vocabulary knowledge and reading comprehension. Therefore, the topics are reviews as follows:

2.1 Definitions of Language Learning Strategies

2.2 Taxonomy and Classification of Language Learning Strategies

2.3 Taxonomy and Classification of Vocabulary Learning Strategies

2.4 Vocabulary Knowledge

    2.4.1 Definitions of Vocabulary Knowledge

    2.4.2 Vocabulary Knowledge (Size) and Reading Comprehension

2.5 Related Studies on Vocabulary Learning Strategies, Vocabulary Knowledge and Reading Comprehension

        2.5.1 Studies Conducted in International Contexts

            2.5.1.1 Studies on Vocabulary Learning Strategies and Vocabulary Knowledge

            2.5.1.2 Studies on Vocabulary Knowledge and Reading Comprehension

        2.5.2 Studies Conducted in Thai Context

            2.5.2.1 Studies on Vocabulary Learning Strategies and Vocabulary Knowledge

            2.5.2.2 Studies on Vocabulary Knowledge and Reading Comprehension

2.1 Definitions of Language Learning Strategies

Language learning strategies have been defined by many researchers who engage in the field of language learning strategies and attempt to study why strategies are important to language learning and how strategies help learners acquire language.

According to Wenden (1987), learning strategies are behaviors which learners actually use to learn and regulate the learning of second language. Wenden maintains that when learners use a particular kind of what it called 'strategy' to learn the language, they know about strategies they use. When they are asked about what strategy they employ to learn language, they can think back of what actions they actually did and come up with the answers. Moreover, learners who effectively use strategies in language learning have to know about aspects of their language learning other than the strategies they use, e.g. what personal factors facilitate L2 learning; general principles to follow in learning a second language successfully; what is easy or difficult about learning a specific language and how well or poorly they can use the language. Wenden emphasizes that it is assumed that the knowledge of these language learning aspects may influence a learner's choice of strategy use.

Similarly, Ellis (1997) posits that language learning strategies are taken as typical problem-solving method in learning. When, for example, learners encounter a problem in remembering meaning of a new word, they use strategies and they know what strategies they do use and the steps they use them can also be explained. Learning strategies in Ellis's view are the particular approaches or techniques that learners employ in trying to learn an L2. Learning strategies can be behavioral (for example, repeating new words aloud to help memorizing them) or they can be mental (for example, using linguistic or situational context to understand meaning of a new word).

In Oxford's (1990) point of view, learning strategies are operations employed by learners to aid the acquisition, storage, retrieval, and use of information. More specifically, learners take strategies to make their learning easier, faster, more enjoyable, more self-directed, more effective, and more transferable to new situations.

Strategies are important for language learning because they are devices for active, self-responsible learning. Students take more control of their own learning, which is necessary for developing academic competence. Learners who use appropriate language learning strategies gain improved proficiency and self-confidence (Oxford, 1990). Rubin (1987) shared the same view with Oxford that learning strategies contribute to development of the language learning system which the learner construct and affect their learning directly.

With respect to learning strategies defined by Chamot (1987, p.71), "learning strategies are techniques, approaches, or deliberate actions that students take in order to facilitate the learning and recall of both linguistic and content area information." Chamot's study outlines a variety of strategies used by good language learners of high school age to perform learning and communicative tasks in both formal and informal settings. Her analysis points out that language proficiency of the learners influence their choice of learning strategies.

In regard to O'Malley and Chamot (1990), they define language learning strategy as the special thoughts or behaviors that learners use to help them comprehend, learn, or retain new information. Their research study on learning strategies shared a similar result with Chamot (1987) that the differences between more and less effective learners was that the effective learners used a variety of learning strategies, more dynamic strategies and more frequently than the ineffective learners.

In conclusion, language learning strategies are actions, techniques, behaviors, skills, plans and mental processes that learners use to facilitate and make their language learning easier, more enjoyable but understandable and more adaptable to new situations for effective language acquisition.

2.2 Taxonomy and Classification of Language Learning Strategies

Several categories of language learning strategies have been proposed by several researchers. They can be delineated as follows:

Oxford (1990) categorized learning strategies into two main types: direct and indirect strategies. These two types are subdivided into a total of six groups—three direct and three indirect. The direct strategies consist of memory strategies, cognitive strategies and compensation strategies. The indirect strategies contain social strategies, affective strategies, and metacognitive strategies.

According to Oxford (1990), the direct and indirect strategies mutually interact with each other. The direct strategies occur when learners encounter new words and they look up word meanings. Then, the memory strategies will be used to remember and retrieve lexical meaning. Next, the cognitive strategies will be employed to understand and produce words. Finally, the compensation strategies will be used when learners lack the vocabulary. They will try to elicit words that they have in mind to substitute for the word they do not know.

Further, the indirect strategies support those direct ones. The social strategies will be applied for understanding when interacting with others e.g. asking the interlocutor when words are beyond understanding. The metacognitive strategies are used to link and review learning processes. The affective strategies relate to learners' emotional control. Learners with lower anxiety will acquire language more effectively and they tend to encourage themselves in language learning.

The affective strategies are considered as influential factors affecting learners' success or failure in language learning. This is because negative emotions and attitudes towards language learning frustrate learners' learning performance. Good language learners are those who know how to manage their emotions and attitudes in language learning. Oxford's taxonomy of direct and indirect strategies is shown in Table 2.1.

Table 2.1 Taxonomy of Direct and Indirect Language Learning Strategies

Direct Strategies		Indirect Strategies	
Memory Strategies	-Creating mental linkages	Metacognitive Strategies	-Centering your learning
	-Applying images and sounds		-Arranging and planning your learning
	-Reviewing well		-Evaluating your learning
	-Employing action		
Cognitive Strategies	-Practicing	Affective Strategies	-Lowering your anxiety
	-Receiving and sending messages		-Encouraging yourself
	-Analyzing and reasoning		-Taking your emotional temperature
	-Creating structure for input and output		
Compensation Strategies	-Guessing intelligently	Social Strategies	-Asking questions
	-Overcoming limitations in speaking and writing		-Cooperating with others
			-Empathizing with others

Source: Oxford (1990, p.17)

Additionally, O'Malley and Chamot (1990) differentiate language learning strategies into three categories: Metacognitive Strategies, Cognitive Strategies, Social /Affective Strategies. They are briefly described as follows.

Metacognitive Strategies

This strategy is related to learners' systematic steps of learning. When learning through metacognitive strategies, learners plan the organization of a particular language task. Then they follow what is planned and they review or monitor the task production while it is occurring. Finally, after the completion of the task, they evaluate or check their language production.

Cognitive Strategies

Cognitive strategies deal directly with incoming information and operate it in ways that enhance learning, make it understandable and memorable. In using this type of strategy to strengthen the newly learned information, learners may exploit these strategies: repeating, grouping or classifying information, inferring to guess meaning, summarizing, applying rules to understand language, using virtual images to understand or remember new information, transferring known information to understand language, linking new information with known information to remember language.

Social/Affective Strategies

As for Social/Affective Strategies, they are related to interaction with others or self-controlled to overcome emotional temperature. This strategy includes cooperation or working with others, questioning for clear understanding, controlling anxiety and directing oneself to achieve learning goals.

In summary, language learning strategies refer to whatever actions, techniques, behaviors or plans that L2 learners use to facilitate and enhance their language learning. Similarly, as part of language learning strategies, vocabulary learning strategies are referred to actions, techniques, behaviors or plans that learners use to acquire, retain and enlarge vocabulary knowledge. Vocabulary learning and learning strategies are explained by several researchers as follows:

McCarthy (1990) mentions that vocabulary learning is related to learners' mental operation of input, storage and retrieval of information. The input process is a conscious method of 'feeding' language to the learners' mind; a word and its meaning may be acquired in this stage. In the storage process, a word and its meaning is memorized in the learners' long term memory. In this process the word is attached to its meaning and then sound patterns and spelling patterns are concurrently organized and attached to its meaning for learners' long-term memory. Finally, the retrieval stage concerns the process of recalling the word and its attributes when needed for communication.

Learners are likely to learn vocabulary differently in terms of their characteristics and learning preferences. Nunan (1999) categorized learner types and learning preferences into four types. First, concrete learners are those who tend to like using entertaining activities in and outside classroom such as games, pictures, video, listening to cassettes, talking in pairs and practicing English outside classroom, to learn vocabulary. Second, analytical learners prefer learning grammar, studying alone, reading textbooks, discovering their own mistakes, and learning by resolving problems designed by teacher to acquire word knowledge. Third, communicative learners are those who like to interact with friends, have conversation with native speakers, watch English T.V. programs, and use English outside class to get meaning and practice their vocabulary knowledge in real contexts of language use. Finally, the authority-oriented learners prefer to retain and strengthen their vocabulary by listening to teacher's explanation, reading their own textbooks and noting down everything in a notebook, studying grammar, and learning new words by seeing them.

2.3 Taxonomy and Classification of Vocabulary Learning Strategies

According to the differences of vocabulary learning, several researchers classified vocabulary learning strategies differently in terms of knowledge-oriented strategies—understanding and recognizing a word and skill-oriented strategies—use of the word. Schmitt (1997) develops an extensive vocabulary taxonomy based on Oxford's (1990) Memory Strategies, Social Strategies, Cognitive Strategies and Metacognitive Strategies. He stated that according to Oxford's taxonomy, there is no strategy that learners use to discover a new word meaning by themselves without asking the meaning from others (Social Strategies in Oxford, 1990). He therefore proposed one additional strategy which is called determination strategies. This category of strategy refers to strategies that learners take to discover a new word meaning independently without interaction with other people to get meaning of a word.

Schmitt's taxonomy consists of two main strategies 1) Discovery Strategies—strategies for the initial discovery of a new word's meaning and 2) Consolidating Strategies—strategies for consolidating, retaining, or remembering a word meaning once it has been encountered. The discovery strategies consist of Determination Strategies (DET) and some of Social Strategies (SOC) which are related to interacting with people to get a word meaning. The consolidation strategies are the rest of Social Strategies (SOC) which involve interacting with people to consolidate or retain a word meaning (e.g. studying and practicing word meaning in a group), Memory Strategies (MEM), Cognitive Strategies (COG) and Metacognitive Strategies (MET). Table 2.2 shows taxonomy of vocabulary learning strategies proposed by Schmitt (1997).

Table 2.2 Taxonomy of Vocabulary Learning Strategies

Categories	Strategies
Discovery Strategies (Strategies for the discovery of a new word's meaning)	
Determination Strategies (DET)	Analyze part of speech
	Analyze affixes and roots
	Check for L1 cognate
	Analyze any available pictures or gestures
	Guess form textual context
	Bilingual dictionary
	Monolingual dictionary
	Word lists
	Flash cards
Social Strategies (SOC)	Ask teacher for an L1 translation
	Ask teacher for paraphrase or synonym of new word
	Ask teacher for a sentence including the new word
	Ask classmate for meaning
	Discover new meaning through group work activity

Table 2.2 (Continued)

Categories	Strategies
Consolidating Strategies (Strategies for consolidating a word once it has been encountered)	
Social Strategies (SOC)	Study and practice meaning in a group
	Teacher checks students' flash cards or word lists for accuracy
	Interact with native-speakers
Memory Strategies (MEM)	Study word with a pictorial representation of its meaning
	Image word's meaning
	Connect word to a personal experience
	Associate the word with its coordinates
	Connect the word to its synonym or antonym
	Use semantic maps
	Use 'scales' for gradable adjectives
	Peg Method/ Loci Method
	Group words together to study them
	Group words together spatially on a page
	Use new words in sentences
	Group words together within a storyline
	Study the spelling of a word
	Study the sound of a word
	Say new word aloud when studying
	Image word form
	Underline initial letter of the word
	Configuration
	Use Keyword Method
	Affixes and roots (remembering)
	Part of speech (remembering)

Table 2.2 (Continued)

Categories	Strategies
Memory Strategies (MEM)	Paraphrase the word's meaning
	Use cognate in study
	Learn the words of an idiom together
	Use physical action when learning a word
	Use semantic feature grids
Cognitive Strategies (COG)	Verbal repetition
	Written repetition
	Word lists
	Flash cards
	Take note in class
	Use vocabulary section in your text book
	Listen to tape of word lists
	Put English labels on physical objects
	Keep a vocabulary note book
Metacognitive Strategies (MET)	Use English-language media (e.g. songs, movies, newscasts)
	Testing oneself with word tests
	Use space word practice
	Skip or pass new word
	Continue to study word over time

Source: Schmitt (1997, p.207)

Vocabulary learning strategies as proposed by Schmitt (1997) are categorized into two main categories—Discovery and Consolidation Strategies. These strategies are elaborated as follow:

Discovery Strategies comprise Determination and Social Strategies (Interacting with or asking people to get a word meaning).

Determination Strategies (DET)

Determination strategies may be essential for learners to gain knowledge of new word from some other alternatives without recourse to another person's expertise such as looking up a word meaning in dictionaries. Moreover, getting word meaning from learners' previous knowledge such as analyzing affixes and roots, guessing from textual context, analyzing part of speech, are also considered as determination strategies.

Most of research results that investigate frequency of vocabulary learning strategies found that L2 learners use dictionary most frequently to discover a word meaning which is considered under the determination strategies (Schmitt, 1997; Suthiwartnarueput et al., 2004; Mongkol, 2008; Chansin 2007). The use of dictionary is very common for most language learners. Schmitt (1997) addresses that a bilingual dictionary is the most helpful resource for L2 learners. However, learners also perceived that using a monolingual dictionary is beneficial. This indicates that learners may be more likely to use a monolingual perhaps alongside a bilingual dictionary. Hulstijin's (1993) study shows that the good learners are more likely to consult a dictionary to confirm the correct word meaning while the poor learners often use dictionary to look up word meanings.

Nuttall (1996) conversely suggests that learners should discard the use of dictionary because the frequency of using it is too often. It is a waste time to look up every new word; only the key words are deserved for dictionary use. Learners must be trained to use a dictionary effectively or to try guessing meaning from surrounding context.

Guessing meaning from contextual clues is also frequently used by L2 learners to discover unknown word meanings. Wimolkasem (1992) compared two vocabulary teaching approaches—direct teaching definitions of individual words and indirect teaching word meanings by guessing from contextual clues. Both approaches helped the learners improve their vocabulary knowledge, specifically using textual context to discover the meaning of unknown words was more effective way for vocabulary acquisition.

Social Strategies (SOC)

Social strategies are considered as optional ways for discovering a new word meaning by asking someone who knows the word well. Teachers and friends can be asked in a variety of ways such as asking a teacher for L1 translation, asking a teacher for a sentence meaning including the new word, or asking classmates for a word meaning and etc.

The study of Mongkol (2008) found that students preferred asking their classmates who have higher English proficiency for the word meaning rather than asking their teachers. They did not want to ask a teacher because they were afraid that the teacher may ask some questions that they could not answer and they would be embarrassed.

Moreover, high and low vocabulary proficiency learners employed Social Strategies differently. The study of Suthiwartnarueput et al. (2004) found that only low-proficiency students employed Social Strategies. Low-proficiency students often asked their friends when they did not know or understand a word's meaning; they need help from both friends and teachers to avoid lower scores. Conversely, high-proficiency students can learn independently without resorting to their friends.

Consolidation Strategies contain Social Strategies (Interacting with people to consolidate a new word meaning), Memory, Cognitive and Metacognitive Strategies.

Social Strategies (SOC)

Social strategies under consolidation strategies refer to studying techniques to consolidate vocabulary knowledge by interacting with other people such as working in groups or interacting with native-speakers. Talking with native speakers may help learners gain not only words but also sounds. According to Mongkol's (2008) study, results obtained from the interview indicated that students perceived

that talking with native speakers was a helpful and useful technique to learn English since they can gain not only vocabulary but they also learn pronunciation, intonation and word stress from the natives.

Memory Strategies (MEM)

Most Memory Strategies involve a learner's mental process. Once learners employ Memory Strategies, their mental operation of word input match the word newly learned with some previous knowledge (McCarthy,1990). These strategies include using some forms of imagery, grouping or matching such as connecting word to a personal experience, grouping words to its synonyms and antonyms, studying words with pictorial representation of its meaning. According Schmitt (1997), word association such as synonym and antonym have very strong connective bond based on their association both in similar or opposite meanings. This may allow learners to easily connect and remember word meanings in group so that several words can be memorized and consolidated at a time. If the words are organized in some way before memorization, it will be more easy to recall meanings (Cofer, Bruce and Reicher, 1996 cited in Schmitt, 1997).

Cognitive Strategies (COG)

From Schmitt's point of view (1997), Cognitive Strategies are similar to Memory Strategies, but are not specially focused on manipulative mental processing. In stead, Cognitive Strategies involve repetition behaviors and using mechanical means to study vocabulary. These include written or verbal repetition, taking notes in class, using flash cards, using vocabulary note book etc. Taking notes in class invite learners to create their own personal structure for newly learned words, and also affords the chance for additional exposure during the review of word meanings after class (Schmitt, 1997).

Metacognitive Strategies (MET)

Learners can utilize Metacognitive Strategies for planning, controlling and evaluating their own vocabulary learning. Learners who apply this category of strategy always review their learning process and try to find whatever ways are more efficient for learning.

Learners tend to reinforce a strategy that they found positively helped in acquiring vocabulary or consider employing other choices of strategy if there is no signal of improvement. Metacognitive Strategies for vocabulary learning include testing oneself with word tests, continuing to study word over time, using English language media such as songs, movies, newscast, to increase words input. English media is the center of vocabulary learning. Learners prefer singing and listening to English songs to reading English texts. They thought they can not read book for many hours to remember meanings of words; it was boring. Songs and movies entertain learners; it is easy for them to learn English word from songs and movies (Monkol, 2008).

Additionally, Intaraprasert (2004) classified vocabulary learning strategies, which were reported to be employed by 133 university students studying English for science and technology (EST) at a university in Northeast Thailand, into three main categories 1) to discover the meaning of new vocabulary items 2) to retain the knowledge of newly-learned vocabulary items and 3) to expand the knowledge of vocabulary items as shown in Table 2.3.

Table 2.3 Taxonomy of Vocabulary Learning Strategies Classified by Intaraprasert (2004)

Categories	Strategies
Strategies to Discover the Meaning of New Vocabulary Items	Use a Thai-English dictionary
	Use an English-Thai dictionary
	Use an English-English dictionary
	Guess the meaning from the context
	Ask one's classmate or friend
	Ask one's teacher
	Ask someone other than one's teacher, classmate or friend
	Look at the word roots, prefixes or suffixes
	Use an on-line dictionary
	Use an electronic dictionary
Strategies to Retain the Knowledge of Newly-learned Vocabulary Items	Memorize with or without a word list
	Keep a vocabulary notebook
	Group words based on the synonym or antonym
	Associate new words with the already-learned ones
	Use new words in writing
	Use new words to converse with peers
	Speak Thai with English loan-words
	Keep words as the computer background
	Keep word cards or word charts in one's bedroom
	Keep words as rhymes or songs
	Use pictures
Strategies to Expand the Knowledge of Vocabulary Items	Listen to a radio program in English especially the one for language learning
	Watch a television program in English especially the one for language learning
	Search the Internet especially the websites for language learning

Table 2.3 (Continued)

Categories	Strategies
Strategies to Expand the Knowledge of Vocabulary Items	Read different types of different English printed materials e.g. leaflets, brochures, textbooks or newspapers
	Play games in English e.g. crossword, or hangman
	Practice translating from Thai into English and vice versa
	Watch an English-speaking film with Thai-narrated scripts
	Attend classes of every module regularly
	Listen to English songs
	Do extra vocabulary exercises from different sources e.g. books

Source: Intaraprasert (2004, p.55)

According to Intaraprasert (2004), vocabulary learning strategies were classified into three main categories according to the purposes of vocabulary learning. These include:

Strategies to Discover the Meaning of New Vocabulary Items

These strategies serve as means to get meanings of vocabulary when the learner initially encounters an unknown word. These strategies, for example, include using monolingual, bilingual or online dictionaries, guessing the meaning from the context, asking classmates or teachers to get meaning etc.

Strategies to Retain the Knowledge of Newly-learned Vocabulary-Items

The second purpose of vocabulary learning is to remember its meaning. Once a learner gets a word meaning, he or she tries to store or retain it in his/her memory for later retrieval. The examples of strategies under this category are memorizing meaning with or without a word list, keeping a vocabulary notebook, associating new words with the already-learned ones, using new words in writing, conversing with peers or native speakers etc.

Strategies to Expand the Knowledge of Vocabulary Items

Vocabulary's breadth and depth enlargement is considered as another purpose of vocabulary learning strategies (Nagy et al., 1987). Learners use expanding vocabulary knowledge strategies to produce and practice using words in their memory for more retention and expansion of a larger amount of vocabulary knowledge. These strategies include reading different types of different English printed materials (e.g. English newspapers), playing English games, practice translating from Thai into English and vice versa, watching an English-speaking film with Thai-narrated scripts, listening to English songs and etc.

Additionally, Nation (1990) suggested that teaching vocabulary learning strategies is more important when learners face low frequency words. He suggests three learning strategies for learners to deal with unfamiliar lexis that are guessing from context, using mnemonic techniques and using word parts e.g. prefixes, roots and suffixes. Vocabulary learning can be learned effectively through direct and indirect strategies. The direct method of learning occurs when learners do exercises and activities and focus their attention on words e.g. guessing words meaning from context, and learning new words from games. The indirect method of learning new words occurs when learners' attention is on other features such as listening to a story or reading a passage. They have limited vocabulary, but they are interested in the story, they try to know words meaning only to understand the story.

In summary, vocabulary learning strategies have been categorized differently in various ways by several researchers. Although some of these strategies have been named differently and seemed overlapped, they seem to share some common purposes of learning strategies. Several of vocabulary learning strategies are useful at all levels of stages of vocabulary learning. These strategies are important for L2 learners since strategies promote learners to take more control of their learning. They would also make their vocabulary learning easier, faster, more enjoyable and more efficient learning.

In the present study, the researcher aimed to elicit vocabulary learning strategies of the subjects using a combination of the vocabulary learning strategies based mainly on Schmitt's (1997) classification and some vocabulary learning strategies categorized by Intaraprasert (2004). Therefore, the vocabulary learning strategies proposed by Schmitt which are Discovery of word meanings— Determination and Social Strategies, Consolidation of word meanings—Memory, Cognitive and Metacognitive Strategies and vocabulary learning strategies proposed by Intaraprasert (2004) which are Expanding New Vocabulary Knowledge Strategies were included in the present study. Since the two categories—discovery and consolidation proposed by Schmitt provided only for the purposes of initial discovery of a word meaning and consolidating its meaning once it has been encountered. But no such strategies that learners use to produce and develop their vocabulary knowledge were included. Then, the researcher took the Expanding Vocabulary Knowledge Strategies into account in this study because in the authentic vocabulary learning, students tend to also produce and practice vocabulary items in their memory to retain and expand their vocabulary knowledge.

2.4 Vocabulary Knowledge

It has long been accepted that vocabulary knowledge is instrumental for communication in a second language. Using a foreign language to convey meaning, an L2 learner has to know vocabulary as a basic device (Krashen and Terrel, 1983). However, in the context of vocabulary teaching and learning in classroom,

there may be some questions addressed by teachers and learners that what specific part or what kind of vocabulary should be useful for learning. Before we go further to the scope of what words should essentially be known by L2 learners, the definition of knowing a word should be presented.

2.4.1 Definitions of Vocabulary Knowledge

Over the years, lexical researchers have developed various criteria for understanding what is involved in knowing word meaning.

Richards (1976) identifies seven aspects of word knowledge. In his view, 'knowing a word' means:

1) knowing the frequency of probability of encountering the word in speeches or print;

2) knowing the limitation imposed on the use of the word according to function and situation;

3) knowing the syntactic behavior associated with the word;

4) knowing the underlying form of a word and the derivations that can be made of it;

5) knowing the associations between the word and other words in the language;

6) knowing the semantic features of the word; and

7) knowing many of the different meaning associated with the word.

In his definitions, Richards includes word frequency, register, syntax, derivation, association, semantic features and polysemy.

Nation (1990) took this approach a step further by incorporating Richards' assumptions and several other components into the form of 16 questions. The 16 questions ask about what knowing a word means in different aspects to scope the specification of knowing a word. These questions can be used to guide teachers and learners for designing vocabulary learning tasks. The 16 questions were divided

into four categories comprising word form, position, function and meaning. Each category contains receptive and productive vocabulary knowledge aspects. Table 2.4 demonstrates the 16 guideline questions proposed by Nation (1990):

Table 2.4 The 16 Questions to Answer Whether We Know a Word

Form		
Spoken form	R*	What does the word sound like?
	P**	How is the word pronounced?
Written form	R	What does the word look like?
	P	How is the word written and spelled?
Position		
Grammatical patterns	R	In what pattern does the word occur?
	P	In what pattern must we use the word?
Collocations	R	What words or type of words can be expected before or after word?
	P	What words or type of words must we use with this word?
Function		
Frequency	R	How common is the word?
	P	How often should the word be used?
Appropriateness	R	Where would be expected to meet this word?
	P	Where can this word be used?
Meaning		
Concept	R	What does the word mean?
	P	What word should be used to express this meaning?
Association	R	What other words does this word make us think of?
	P	What other words could we use instead of this one?

*R=Receptive/ **P=Productive

Source: Nation (1990, p.31)

According the 16 questions presented in Table 2.4, Nation gives further explanations as follows:

Receptive Knowledge

Vocabulary receptive knowledge refers to knowledge of words that a learner uses for listening or reading and retrieving its meaning. It is also known as Passive Vocabulary. Nation (1990) explains that knowing a **word form** involves being able to recall it when it is heard or seen; to distinguish it from words with a similar form; to judge if the word form sounds right or looks right.

Knowing **word position** is also involved in knowing a word. Word position contains knowledge of grammatical pattern and collocation. By knowing grammar, a learner can determine that the verb *suggest* will be followed by an object or sometimes this word can appear in the form of a clause. Moreover, a learner's knowledge of collocations has made an expectation of what word will occur regularly when another word is used. For example, in a sentence 'He *made* a *mistak*e' the noun *mistake* will collocate with the verb *make*.

In Nation's view, the **word function** contains word frequency and appropriateness. He mentioned that knowing a word, we know whether it is a frequently occurring word or a rare one. Besides, a learner who knows appropriateness of using words, he/she knows whether a word is more suitable for speaking or writing; neutral, formal or informal; polite or impolite etc. Finally, knowing a word includes being able to recognize the **word meaning** when we meet it and to make various associations with other related words which have related meanings.

Productive Knowledge

Productive vocabulary knowledge (also known as Active Vocabulary) refers to skills that a learner uses to express a word meaning through speaking or

writing as well as retrieve and produce the appropriate spoken or written word form (Nation, 2001). Nation (1990, p.32) addressed that "productive knowledge involves knowing how to pronounce the word, how to write and spell it, how to use it in correct grammatical patterns along with the words it usually collocate with."

Productive knowledge also involves word frequency; consider using a high-frequency word more often than using a low-frequency one; using it in the appropriate situations. Moreover, productive vocabulary knowledge includes using the word to stand for the meaning it represents and being able to think of other choice of words that can be replaced the particular word if there are any.

Nation mentions that most native speakers also encounter difficulty in learning words. For example, they cannot spell or pronounce all the words they are familiar with, and they are not sure about the meaning and use of many of the words. He gives three reasons to support his view:

First, native speakers learn vocabulary through their whole life, they learn new words, expand and reorganize their knowledge of all familiar surrounding in their daily life.

Second, native speakers' receptive vocabulary is much larger than their productive vocabulary. Laufer and Paribakht (1998) affirm similarly that learners' receptive vocabulary knowledge is much larger than productive one. A large proportion of receptive vocabulary items are words with low-frequency of occurrence, so they do not to know much about them because they rarely meet them.

Third, native speakers develop their word knowledge in specialized areas. They might be uncertain about meaning of these words or hesitate to use words outside their specialized areas. Many L2 learners who are familiar with particular areas e.g. biochemistry, geology, engineering, have higher vocabulary knowledge than the natives who are not in specialized areas.

Qian's (2002) addresses that vocabulary knowledge in his view comprises four dimensions 1) vocabulary size, which refers to the number of words that a person knows 2) depth of vocabulary knowledge, which includes all word characteristics such as phonemic, morphemic, syntactic, semantic, collocational and

phraseological properties 3) lexical organization, which refers to the storage, connection, and representation of words in the mental lexicon and 4) automaticity of receptive and productive knowledge, which refers to all fundamental processes through which access to word knowledge is achieved for both receptive and productive purposes.

All four dimensions are naturally connected and interact closely with one another in all fundamental process of vocabulary use and development. The prominence of various factors in these dimensions will vary according to the specific purpose of language use.

In conclusion, vocabulary definitions as discussed above seem to involve broad elements of vocabulary (Richards, 1976; Nation, 1990; Qian, 2002). However, those researchers have a similar view of knowing a word should include knowing high-frequency word, breadth and depth vocabulary. Nation (1990, 2001) underlines the crucial importance of developing an adequate high-frequency vocabulary since learners' skill in using the language is largely dependent on the number of words they know.

2.4.2 Vocabulary Knowledge (Size) and Reading Comprehension

Knowledge of vocabulary is one of many factors which can predict an adequate level of reading comprehension for second language learners. According to Snow (2002), reading comprehension is defined as the process of congruently extracting and constructing meaning through interaction and involvement with written language. Comprehension entails three elements. The first element refers to readers, their abilities, knowledge, and experiences that they bring to the act of reading. Second, comprehension involves text that is to be comprehended. Third, it pertains to activities in which comprehension is a part including the activities' purposes, processes, and consequences associated with the act of reading.

McShane (2005) simply defines reading comprehension as understanding what we read. It involves readers' interactions with text in various ways to comprehend the text. Readers are active and intentional constructing meaning by using the message in the text and their own prior knowledge.

In conclusion, reading comprehension involves reader's interaction with text in order to comprehend what the message in the text means. If reading comprehension requires knowledge of meaning of a text, then vocabulary knowledge will be one of useful important components for L2 learners. However, it is hard to justify what type of vocabulary would be useful for vocabulary teaching and learning in order to facilitate L2 language learning.

Nation (1990, 2008) categorized vocabulary into four broad types 1) high frequency words 2) academic words 3) technical words and 4) low frequency word. The English high–frequency words occur very frequently in all kinds of uses of the language. It is useful for learners to know these words in order to comprehend general English texts. Academic words appear frequently in a variety of academic texts. They are considered like high frequency words and they deserve similar attention from learners with academic purposes. Technical words are words with more special purposes and very common in one particular area e.g. engineering, politics, ecology. They are needed when learners study the content matter of that particular area. Low-frequency words appear infrequently in general English texts and they are excluded from the list of high-frequency vocabulary. Learners need to know low-frequency words after they know a great amount of the high frequency and academic words.

Coxhead (2000) developed a new Academic Word List (AWL) which was compiled from a corpus of 3.5 million running words of written academic text by investigating the range and frequency of words outside the first 2,000 words in General Service List (GSL). The academic word items contain 570 words families. The academic words list should play important role in setting vocabulary learning goal for teachers and learners to perceive and understand these word lists.

Learners might be guided to pay more attention in acquiring those lists as they are worth learning because they appear very often across a wide range of academic texts.

Nation and Waring (1997) mention that word frequency is likely to be useful in teaching and learning second language. Word frequency occurs very often in the normal use of language. Nation's (1990, 2001) word frequency-based studies provide evidence that a small group of high frequent words cover a large proportion of the running words in any spoken or written texts and occur in all kinds of language uses.

Francis and Kucera (1982) cited in Nation and Waring (1997) displays the proportion of frequency words in each vocabulary size and percentage of text coverage in the Brown Corpus as shown in Table 2.5.

Table 2.5 Vocabulary Size and Text Coverage in the Brown Corpus

Vocabulary size	Text coverage
1000	72%
2000	79.7%
3000	84%
4000	86.8%
5000	88.7%
6000	89.9%
15,851	97.8%

Source: Francis and Kucera (1982) cited in Nation and Waring (1997), p.9

Table 2.5 refers to written texts and is from Francis and Kucera (1982) which is a very diverse corpus of over 1,000,000 running words. From Table 2.5, it can be assumed that the larger vocabulary size the higher the coverage in text. At the word knowledge of 2000 words, learners know around 80% of running words in a text. This percentage of text coverage might not be enough for language learners to reasonably guess the meaning of the unknown words to comprehend texts. The high ratio of unknown words in a text is the crucial factor that impedes text comprehension (Nation and Waring, 1997).

Laufer (1989) emphasizes the importance of having vocabulary large enough to provide coverage of 95% of token in a reading text. Learners whose vocabulary is not large enough to have 95% coverage do not reach an adequate level

comprehension of the texts. Hu and Nation (2000) argue that learners should know 98% of text coverage to gain adequate unassisted comprehension of the text.

Coxhead's (2000) investigated percentage of word of the General Service List and the Academic Word List occurring in the university academic text in three areas of Humanities, Science, Commerce and Law. She found that the first 2,000 word in the General Service List and 570 words in the Academic Word List provide 86% coverage of the academic texts.

Hirsh and Nation (1992) looked at text coverage of the most frequent 2,000 words of English by examining three short novels for teenagers. They found that the knowledge of 2,000 words is not sufficiency to comprehend reading for pleasure. The knowledge of 2,600-3,000 words could be useful for better comprehension of pleasurable reading. Learners' vocabulary around 5,000 words provides adequate coverage (97-98%) to reading unsimplified texts for pleasure. Nation and Waring (1997) maintain that L2 learners need to know 2,000-3,000 words for a good basis of general language use. The knowledge of around 3,000-5,000 is needed for comprehension of unsimplified texts.

If vocabulary knowledge growth is considered as a crucial element of second language proficiency, it is natural to assess whether learners know the meanings of the words they need to communicate successfully in the second language (Read, 1997). Measurement of vocabulary size involves estimating the numbers of word known by individual learners. The words to be tested are likely to be the word items listed according to the high frequency of occurrence in texts such as 2000 head words (or 5,000,000 word written corpus) of General Service List, Teacher's Word Book of 13,000 words family (or 18,000,000 word written corpus) in Thorndike and Lorge (1944), The Brown Corpus of 1,000,000 word written corpus in Francis and Kucera (1982).

Read (2000) addresses that one of the well-know vocabulary size tests is Nation's (1990, 2008) Vocabulary Levels Test which was designed to estimate learners' receptive vocabulary knowledge at the beginning of the course to provide a

basic planning for vocabulary teaching. The purpose of the test is to get an accurate number of the vocabulary learners know. That is if learners have partial knowledge of a word, they should be able to get the correct answer even if they have not yet fully learned that word. The Vocabulary Levels Test consists of the English frequency-word lists of 1000-, 2000-, 3000-, 5000-, 10,000-word levels and Academic Word List (AWL). The words in this text are ranked from the most frequent word to the least frequent words. This word list is then divided up into levels of 1000 words. So the first level contains the 1000 most frequent word families, the second level contains the second most frequent 1000 word families and so on and the academic word level is based on the Academic Word List (Nation, 2008).

The words in 1000-2000 levels are the words listed in the General Service List (West, 1953). The 3000-and 5000-word levels represent a sample of words from the third and the fifth thousand-word frequency based on Thorndike and Lorge' word list (1964). The academic words are a sample of words listed in 570 word families of Academic Word List (Coxhead, 2000).

Nation (1990) provided interpretation of the score obtained from Vocabulary Levels Test, each word in the test represents 33 words of each 1000 word level (1000 divided by 30) except Academic Word List represents 570 word families. A score of 27 out of 30 on a level means that a learner knows 900 words out of 1000 at that level and does not know 100 words from that level. The satisfactory level of words known at each level including AWL would be at least 90% or 27 out of 30. At this percentage of the coverage would probably be reasonable to guess meaning of unknown words; however a larger vocabulary is clearly better.

In conclusion, it is important for ESL learners to spend time learning high frequency words (Nation, 1990). The 1000-3000 word levels contain high frequency words that all learners need to know in order to provide a good basis for effective English learning and the 3000-5000 words represent the words in the upper limit of general high-frequency that is worth learning for comprehension of unsimplified texts. For those who wish to study in the university level, 570 head words of Academic Word List would be worth knowing (Coxhead, 2000).

From the aforementioned reviews, it can be summarized that learners' vocabulary knowledge seems influence their reading comprehension. The greater the number of English high frequency words learners know the greater percentage of text coverage which may allow the better reading comprehension.

However, individual learners' levels of reading comprehension ability are not equal even though they know similar number of words. Normally when a reader reads a piece of text, it is mostly because he/she would like to get some message or information e.g. facts, ideas, feelings, that a writer intended to transfer to a reader (Nuttall, 1996). However, some readers might comprehend text just only from understanding meaning appearing in the text, while some can understand meanings that are not directly stated in the text (Alderson, 2000).

Berry (2005) explains that reading is a thinking activity which involves getting meaning from the printed word or symbol. Normally in L2 learning, learners will be expected that they should be able to read at all levels of meaning or comprehension. Levels mean different depths of understanding, different analysis of what is meant.

According to Berry (2005), there are three different levels of reading comprehension—literal, interpretive and applied levels. At literal level, the meanings of the words can be simply understood by noticing those words in the reading texts and students will be able to answer questions. At this level, students would not have to understand the full meaning of a paragraph, however, they could memorize the

facts or information. However, even though they have memorized these facts, this does not mean that they necessarily understand the intended meaning or see the implication of these facts applied to other situations. The second level of comprehension is interpretive level. At this level, readers or students can attempt to understand what the author meant by what she/he said in the story or paragraph. It is presumed that students have already memorized certain facts at the literal level and now they are attempting to see the implications of the author's words. At this level, they are able to read between the lines and understand how that information relates to and is connected to the whole story of what they are reading. The last level is called the applied level. At this level the readers or students can attempt to elevate or raise their thinking level to a more critical, analyzing level. It is presumed that they have already reached the previous two levels. At this level, they are "reading beyond the lines" and then critically evaluate the message from the author and attempting to apply that message to other settings. At the applied level, the student has a clear view of the intention of a writer and is now more able to see the larger implications of the story.

Alderson (2000) asserted that three reading comprehension levels usually happen in order. Readers learn how to understand text literally, then they infer meanings from the text before they can evaluate what are the main implications of the text.

So far, vocabulary knowledge and reading comprehension are assumed to have some relationship. Beck et al. (1987) maintains that the relationship between vocabulary knowledge and reading comprehension is involved with a semantic process in reading comprehension. It not only requires accuracy of word knowledge but also fluency of word retrieval from memory as well as rich decontextualized knowledge of words as discussed earlier in item 2.4.1 in this section.

Nagy and Herman (1987) describe two hypotheses about the relationship between vocabulary knowledge and reading comprehension: the instrumentalist hypothesis and the knowledge hypothesis. The instrumentalist

hypothesis explains that word knowledge enables reading comprehension: learners have to have sufficient lexis knowledge stored in their memory and then they are able to read texts understandably. This hypothesis predicts that teaching vocabulary should increase reading comprehension automatically. On the other hand, the knowledge hypothesis is based on a schema-theoretic view of reading comprehension; knowing words meaning merely is not enough to comprehend the written texts. This hypothesis is related to background knowledge, and experiences of individuals. An essential part of understanding is that learners should know where a word fits in a proper situation or context. The determination of words does not provide information on what words contribute to the overall meaning of a text or information beyond or between the definition of words.

As an assumption of correlation between vocabulary knowledge and reading comprehension ability, a number of scholars have conducted several studies to investigate the relationship between the two variables. Results of those studies indicate relationships between vocabulary knowledge and reading comprehension abiltiy (Anderson & Freebody, 1981; Baleghizade and Golbin, 2010; Hirsh and Nation, 1992; Qian, 2002; Pringprom, 2011). On the other hand, some researchers proposed reciprocal influences of reading comprehension on vocabulary development. That is vocabulary can be learned and improved by exposure to a variety of reading texts. Without frequent and broad reading, vocabulary development is limited (Nagy, 1988; McShane, 2005).

Increasing vocabulary knowledge is not the only benefit of wide reading that might increase comprehension. Reading can also produce gains in general knowledge, which in turn enhances comprehension. However, how much vocabulary knowledge contributes to reading comprehension depends on these variables; frequency of opportunity to be exposed particular words; acquiring words from meaningful context; varied information about each word; interrelating instructed words and learners' own experience and prior knowledge; and learners taking part in learning word actively.

In conclusion, vocabulary knowledge needed for EFL learners seems to fall into high-frequency vocabulary which widely appears in a wide range of general language use, specifically in English reading texts. High-frequency words are the most frequent 2000 word lists of English in General Service List (West, 1953). This list is divided into levels of 1000 words from the 1000 most frequent words to the second 2000 most frequent words and so on. The high-frequency words covers a high percentage of word token in a reading text so the greater number of high-frequency vocabulary known by learners tends to influence their reading comprehension ability. That is, a reader with higher vocabulary size may comprehend more substantial content in the text than the one who has less vocabulary.

According to the aforementioned reviews regarding vocabulary knowledge (size) and reading comprehension, the researcher considered the knowledge of vocabulary important for the research subjects studying in the tertiary level, to comprehend both their English lessons and major subjects textbooks which were mostly written in English. In the present study, the researcher, therefore, examined the students' vocabulary knowledge by adopting the Vocabulary Levels Test (Nation, 2008) to measure if the students have sufficient vocabulary knowledge to comprehend their English reading texts. Furthermore, the reading comprehension test based on the three levels of comprehension suggested by Berry (2005) and Alderson (2000), was designed for the measurement of students reading comprehension ability.

2.5 Related Studies on Vocabulary Learning Strategies, Vocabulary Knowledge and Reading Comprehension

This section presents related studies which investigated vocabulary learning strategies and vocabulary knowledge as well as vocabulary knowledge and reading comprehension of EFL learners. The related studies are divided into the studies conducted in international and Thai contexts.

2.5.1 Studies Conducted in International Contexts

Several researchers conducted studies with EFL learners in different international contexts to examine frequency of use of learners' vocabulary learning strategies. These studies also explored the relationships between the use of the strategies and vocabulary knowledge, and vocabulary knowledge and reading comprehension. These studies are presented as follows:

2.5.1.1 Studies on Vocabulary Learning Strategies and Vocabulary Knowledge

Schmitt (1997) conducted a survey study to investigate vocabulary learning strategies usage pattern, and how these strategies help learners. The 600 subjects are from four groups of Japanese English L2 learners—junior high school students, high school students, university students and adult learners. Subjects were from different schools and represent high, medium and low school prestige, students in prestigious institutes were also represented in the research sample. Research instrument was vocabulary questionnaires containing 40 items of two main discovery and consolidation strategies. The subjects were asked to rate which strategy they used the most and whether it helped improvement. The result reveals that the three most frequency strategies used under discovery strategies are *bilingual dictionary* (85%), *guess meaning form context* (74%), and *ask classmates for meaning* (73%). The most used three strategies under consolidation strategies are *verbal repetition* (76%), *written repetition* (76%) and *study the word spelling* (74%). The least-used strategies under the discovery category is *check for L1 cognate* (11%), under the consolidate category are *use physical action* (13%) and *use cognates in study* (10%). Most helpful strategies under the discovery category are *bilingual dictionary* (95%), *ask teacher for paraphrase* (86%), *analyze pictures/gestures* (84%). Under consolidate category are *say new word aloud* (91%), *written repetition* (91%) and *connect word with synonym* (88%). Least helpful strategies are *skip or pass new word* (16%: Discovery), *image word's meaning* (38%: Consolidation) and *use cognates in study* (34%: Consolidation).

Gu (2002) conducted a survey study amongst Chinese adult EFL learners distributed by gender and academic major on their vocabulary learning strategies. The findings revealed that female students performed better than male students in both a vocabulary size test and general proficiency test. The female group also used more strategies than males. Academic majors had little effect on performance. Science students performed better than arts students in the vocabulary size test. On the other hand, arts students outperformed science students in the general proficiency test.

Purpura (1998) conducted a study to examine the relationship between strategy use and second language test performance among 1,382 high and low ability test takers from Spain, Turkey and Czech Republic. The subjects were asked to respond to learning strategies questionnaires and a language test. The results showed that metacognitive strategies use and language test results were correlated among different groups, while the cognitive strategies used by low ability test takers were not correlated with the language test.

Nacera (2010) investigated learning strategies of 46 second year university students in an English Department, and their vocabulary size by using strategies inventory for language learning (SILL) and university word level test as instruments. The results showed that students use a wide range of direct and indirect strategies at a moderate level. Metacognitive strategies were the most frequency used among the whole group of students. Students with higher vocabulary size used more specific strategies that require more effort and it leaded to effective learning e.g. making a summary, guessing from contexts, while students with lower vocabulary size used rote memory and gesture strategies.

Brown and Perry (1991) conducted a comparison research on three learning strategies to Arabic-speaking student's ESL vocabulary acquisition. Six EFL classes with two levels of proficiency were divided into three treatment groups with three different strategies—keyword, semantic and keyword-semantic, both groups received 4 days instruction. The instruments were recognition and cured-recall used to

measure effects both 1 day and 9 days after instruction. The results showed that key word method facilitated vocabulary acquisition for lower proficiency students, measured immediately after treatment by cued-recall test. The delayed results for both recognition and cued-recall tests suggested that the students in keyword-semantic group increased vocabulary retention more than other strategies.

2.5.1.2 Studies on Vocabulary Knowledge and Reading Comprehension

Qian (2002) investigated the roles of breadth and depth vocabulary knowledge in academic reading performance. The subjects were 217 students (who were from different L1 backgrounds) attending an English intensive program at the University of Toronto. The instruments for collecting data were the TOEFL Reading Comprehension Test, Depth of Vocabulary Knowledge Test and Vocabulary Levels Test. The multiple-choice TOEFL Reading Comprehension Test consisted of five passages of texts reflecting general academic matters at introductory levels, including biology, astronomy, geography, art history and biography. This test did not contain vocabulary items; the questions were judged appropriate for the purpose of measuring performance on reading for basic comprehension. The Depth of Vocabulary Knowledge Test is intended to measure the depth of word knowledge in terms of three vocabulary elements—synonymy, polysemy and collocation. The third instrument was Vocabulary Levels Test which used to measure test taker's vocabulary size or breath of vocabulary knowledge based on word frequency levels. Lastly, TOEFL Vocabulary Item Test measured the knowledge of English synonyms in a limited context. The main results showed that vocabulary depth and breadth (size) positively associated with the performance on reading tasks for basic comprehension.

Hu and Nation (2000) carried out a study to investigate what percentage coverage of text is needed for reading for pleasure without looking up words meaning. Two research instruments were used in this study—multiple choice reading comprehension test and cued written recall test. Most of the sixty-six EFL proficiency learners were attending pre-university English course and plan to study in English speaking countries. They were asked randomly to read the 100%, 95%, 90%,

80% text coverage. Words in these texts are based on 2000 words frequency. In four versions of text coverage, words will be replaced by nonsense words to create obstacles in reading, words in 80% version were replaced by 127 nonsense words, 90%: 63, 95%: 32, 100%: 0 respectively. Then the subjects answered a multiple choice test and written recall test. The results indicated that most learners need 98% coverage to gain adequate unassisted comprehension of the text (a density of unknown word per known word=1: 50).

Ballghizadeh and Golbin (2010) investigated relationship between vocabulary knowledge and reading comprehension. Eighty-three Iranian first-year students were the subjects of this study. The subjects were asked to complete a vocabulary size test (Nation, 1990) and a reading comprehension test (TOEFL version 2004). The result showed a very significant correlation between the two variables. His result points out the necessity of improving learners' vocabulary size in order to overcome difficulty in reading comprehension.

Kaivanpanah and Zandi (2009) attempted to verify the role of depth of vocabulary knowledge in reading comprehension as well as its relationship with grammatical knowledge. A TOEFL English Proficiency Test consisting 40 grammar items, 30 vocabulary items and 30 reading comprehension items and a test of depth vocabulary knowledge were administered to 57 EFL learners. The results disclosed that language proficiency influences performance on depth vocabulary knowledge tests. The correlations were found between depth of vocabulary knowledge and reading and grammatical knowledge and reading comprehension. Moreover, knowledge of collocation was also found to correlate with grammatical knowledge. Suggestions from the finding recommend increasing learners' grammatical knowledge.

2.5.2 Studies Conducted in Thai Context

Several Thai researchers studied frequency of use of vocabulary learning strategies of Thai EFL learners. These studies also further explored the relationships between the use of the strategies and vocabulary knowledge, and vocabulary knowledge and reading comprehension. These studies are presented as follows:

2.5.2.1 Studies on Vocabulary Learning Strategies and Vocabulary Knowledge

Waemusa (1993) investigated vocabulary learning strategies used by Mathayom Suksa six students at Sasanupatam School, an Islamic private school. Eighty-two subjects were divided into two groups of good and poor English proficiency and were asked to respond vocabulary learning strategies questionnaire. The questionnaire items were classified into three categories based on purposes of vocabulary learning—1) strategies for comprehension, 2) strategies for storing and 3) strategies for vocabulary production. The results revealed that, generally, the poor English learners rarely employed strategies to learn vocabulary, while the good learners moderately used vocabulary learning strategies. Among the three purposes of vocabulary learning, they used comprehension strategies the most frequent. These comprehension strategies were *writing a meaning of a new word in Thai*, *looking up a word meaning in English-Thai dictionary*, and *pronouncing a new word when looking it up in a dictionary or when listening to the teacher*. The poor students used comprehension strategies slightly more often than vocabulary storing strategies and vocabulary production strategies. The strategies they employed for comprehension were *looking up a word meaning in English-Thai dictionary*, *using Thai and Arabic to write a meaning of a new word*. The results showed that the students in good and poor English proficiency employed significantly different vocabulary production strategies. But the differences in employing strategies for vocabulary comprehension and vocabulary production of students in good and poor proficiency were not found.

Suthiwartnarueput et al. (2004) investigated vocabulary learning strategies used by 177 second-year medical students studying in Mahidol University in the 2004 academic year. The researchers divided the subjects into two groups of low- and high-vocabulary ability. The subjects were asked to complete a vocabulary learning strategies questionnaire and undertake a structured interview. The results indicated that the medical students mostly used determination strategies and memory strategies. The high- and low-ability students used four vocabulary learning strategies differently: cognitive, metacongitive, social discovery and social consolidation strategies and no differences in employing determination and memory strategies.

Intaraprasert (2004) carried out a preliminary study exploring vocabulary learning strategies used by 133 university students studying English for science and technology (EST) at a university in Northeast Thailand. No variables have been taken into consideration. The method of data collection of the study was the open-ended vocabulary learning strategies questionnaire. Three main categories of strategies for vocabulary learning were reported being employed by those students. They included the strategies 1) to discover the meaning of new vocabulary items; 2) to retain the knowledge of newly-learned vocabulary items; and 3) to expand the knowledge of vocabulary.

Chansin (2007) explored vocabulary learning strategies used by 33 good and 34 poor non-English major students at Naresuan University (NU). The subjects were separated into two groups based on score obtained from NU English Proficiency Test. The three instruments used to collect data were vocabulary learning strategies questionnaire, NU English Proficiency Test and English Vocabulary Test. The findings showed that the students (including both good and poor students) strongly believed that words should be acquired in context and frequency of using word contributed better memorization of its meaning than only remembering it without practical use. In an overall sense, the subjects frequently used dictionary, guessing from context and encoding words meaning. Good English learners seemed to use strategies more often than poor English learners. Recommendations from this study were the importance of teaching students to acquire words from context especially by reading and let students do some post activities after learning.

Moreover, suggestion of dictionary training was also made for more successful and effectively in vocabulary learning.

Siriwan (2007) investigated frequency of vocabulary strategies used by 1,481 from 12 Rajabhat Universities (RU), and relationships between frequency of use and 5 variables which were gender, major, previous language learning experience, level of vocabulary proficiency and type of program of study (regular or part-time programs). Instruments were semi-structured interviews and vocabulary learning strategies questionnaire based on Intaraprasert's (2004) Taxonomy of vocabulary learning strategies. The results revealed that Rajabhat University students were medium strategy users. Moreover, strong correlations were found between frequency of strategies use and gender, major, previous language learning experience and level of vocabulary proficiency.

Mongkol (2008) examined vocabulary learning strategies employed by the 54 first- and 46 second-year students at Phetchaburi Rajabhat University. Questionnaire, semi-structured interview and think-aloud method were used as instruments to study vocabulary learning strategies frequently used by the subjects. The findings indicated that in order to discover word meanings, 98.1% of first-year students used Eng-Thai dictionaries which were considered as Determination Strategies, while, 100% of second-year students analyzed word affixes and roots to get meanings. For social strategies, most of first year students (94.4%) frequently asked their friends to know word meanings, conversely, the second-year students preferred asking their teachers (87%). To remember meaning of words, the first-year students (90.7%) frequently employed paraphrasing the word's meanings whereas analysis of word affixes and roots strategy was used (91.3%) by the second-year students to store word meanings. Regarding Cognitive Strategies, the first- and second-year students (88.9%, 91.3%) believed that learning vocabulary through written repetition has positive effects for them. Lastly, in terms of Metacognitive Strategies, the first- and second-year students (88.9%, 87%) similarly used English media (e.g. The Internet, songs, TV programs) to review their vocabulary knowledge. The researcher concluded that the first- and second-year students employ vocabulary learning strategies significantly different at 0.05 level.

2.5.2.2 Studies on Vocabulary Knowledge and Reading Comprehension

Ward (1991) completed a survey study on how large a vocabulary Engineering students studying English for Academic Purposes need for effective engineering texts reading. It's commonly said that learners need to know a vocabulary at least 3000 word families based on general service list plus academic and technical word lists in order to read engineering texts efficiently. Ward's research results revealed that engineering students at Suranaree University of Technology need only 2000 word families to read engineering texts efficiently, and they can start learning engineering technical words without learning general words.

Pringprom (2011) examined the relationship between English vocabulary size and their reading comprehension. Thirty undergraduate students studying an English subject at Bangkok University were the research subjects in her study. The subjects were asked to take a vocabulary levels test and a reading comprehension test. The calculation of Pearson correlation showed that the subjects' English vocabulary size of 2000, 3000 and 5000 word levels and their reading comprehension was positively correlated at moderate ($r=.68$), high ($r=.77$) and low ($r=.57$) levels respectively. Since the findings showed correlation between vocabulary knowledge and reading comprehension, the pedagogical implication for classroom teaching was the assessment of learners' vocabulary knowledge should be paid more attention in every English course especially at the beginning level. Learners should be encouraged to learn more from their reading.

In a general view, the related studies of vocabulary learning strategies conducted in both international and Thai contexts mostly explored EFL learners' frequency of use of vocabulary learning strategies. The studies also focused on exploring the relationships between learners' frequency of the strategies use and their vocabulary proficiency development, and the learners' vocabulary knowledge and their reading comprehension ability. Most of the studies utilized a questionnaire to elicit learners' vocabulary learning strategies. The questionnaire items were mainly based on vocabulary learning strategies classified by Oxford (1990), Schmitt (1997), and in Thai

context by Intaraprasert (2004). To measure learners' vocabulary sizes, most of the studies employed the Vocabulary Levels Test (Nation, 1990). As for reading comprehension test, some researchers used a TOEFL English reading proficiency test and the rest of them utilized a teacher-made test to assess learners' reading ability.

From the reviews of literature and related studies, the researcher noticed that most of the studies conducted in both international and Thai contexts separately examined two pair of relationships between 1) frequency of use of vocabulary learning strategies and vocabulary knowledge, and 2) vocabulary knowledge and reading comprehension ability. However, a study that aimed to investigate relationships among the three variables one at a time is hardly found. By taking advantage of the literature review for the present study, the researcher, therefore, decided to study the three variables in the two pair of relationships in order to quickly estimate learners' current situation of vocabulary knowledge and reading proficiency in a short time. The instruments employed in this study were the vocabulary learning strategies questionnaire in which the items are based on Schmitt's (1997) vocabulary taxonomy and Intaraprasert (2004); the Vocabulary Levels Test (Nation, 2008); and the reading comprehension test made by the researcher.

CHAPTER 3

RESEARCH METHODOLOGY

The study examined the frequency of vocabulary learning strategy use and vocabulary knowledge of first-year health sciences students at Walailak University, Nakhon Si Thammarat in the 2011 academic year. The study also investigated the relationships between the use of vocabulary learning strategies and vocabulary knowledge, and vocabulary knowledge and reading comprehension of the subjects. This chapter explains the research procedures. It includes information about the subjects, research instruments, pilot study, data collection, data analysis and statistical procedures.

3.1 Research Subjects

The subjects of this study were 160 first year health sciences students in the 2011 academic year at Walailak University, Nakhon Si Thammarat. They were selected using the stratified random sampling method. They were 33 Medical, 37 Pharmaceutical, 30 Nursing and 60 Allied Health Sciences and Public Health students. This number represented 20% of the total number of the students in each school or faculty. They were 128 female (80%) and 32 male (20%) students. The subjects took one general education course of a 3-credit compulsory English Foundation course in the first trimester (June-September 2011) of their first year enrolment.

3.2 Research Instruments

Three instruments were used to collect data: Vocabulary Learning Strategies Questionnaire (VLSQ), Vocabulary Levels Test (VLT), and Reading Comprehension Test (RCT).

3.2.1 Vocabulary Learning Strategies Questionnaire

(See Appendix A)

The questionnaire was used to elicit students' frequency of use of vocabulary learning strategies. The questionnaire contained 59 items in total and was divided into two parts consisting general information about the subjects and their frequency of use of vocabulary learning strategies.

The first part gathered general information of the subjects containing 6 items: their gender, faculties, their general knowledge of English, their attitude towards the importance of vocabulary knowledge and frequency of the use of English skills—listening speaking, reading, writing and vocabulary in and outside classroom.

The second part of the questionnaire aimed to elicit students' frequency of use of vocabulary learning strategies by rating on a 6-point scale from most frequently used (5) to never used (0). The questionnaire items were mainly based on Schmitt's (1997) and Intaraprasert's (2004) vocabulary learning strategies taxonomy. The 53 items of vocabulary learning strategies were divided into three main purposes of vocabulary learning which are presented as follows:

1. Discovery Strategies are strategies to discover a new word meaning consisting Determination Strategies (DET: item 1-9) and Social Strategies (SOC: item 10-14).

2. Consolidation Strategies are strategies to remember or retain a word meaning, containing Social Strategies (SOC: item 16-18) which involve interacting with someone to consolidate word meanings, Memory Strategies (MEM: item 19-33), Cognitive Strategies (COG: item 34-38) and Metacognitive Strategies (MET: item 39-40).

3. Expanding Vocabulary Knowledge Strategies (EVK) are strategies to produce and practice using words knowledge from memory in real situations of language use—listening , speaking, reading and writing to maintain and expand word knowledge (item 42-52).

3.2.2 Vocabulary Levels Test (See Appendix B)

The test was designed to measure the levels of vocabulary knowledge of the students. The vocabulary levels test was adopted from Nation's (2008) Monolingual Vocabulary Levels Test, Version 2. The test consists of five vocabulary levels—the 1000-, 2000-, 3000-, 5000-word levels and Academic Word List (AWL). The aim of the Vocabulary Level Test is to get an accurate as possible record of what the learners know even if the words that they have not yet fully learned.

Each individual item in the test consists of six English words—three distracters and three target words represent the three Thai (L1) definitions. The students have to match an English word with its Thai translation. Each of the 1000-word level consists of 30 target words (words to be tested) and 150 target words in total. An example of the vocabulary levels test item is as follows.

1 business

2 clock _____ ผนังห้อง

3 horse _____ ม้า

4 pencil _____ ดินสอ

5 shoe

6 wall

Three words in each block of six were randomly chosen as the words to be tested. The other three in the block were the distractors. Nation (1990, 2008) explains the formation of Monolingual Vocabulary Levels Test that a representative sample of 60 words (30 target words and 30 disctractors) was taken from words family in each of the five word levels. The 60 words at each level were grouped into blocks of six words according to part of speech (noun, verb, adjective). Because the words were a representative sample, a learner's score at each level represents the proportion of all the words known at that level (1000 divided by 30=1 word represents 33.33 words). So, if a learner scores 27 out of 30 on the 1000-word level, it means that 90% or 900 out of 1000 words are known at that level.

The reason for selecting this test was that the objective of the test is matched with the purpose of this study measuring the number of words the learners knew as precisely as possible. The vocabulary levels test has been widely used in the area of second language vocabulary acquisition to estimate learners' L2 vocabulary size, specifically in exploring relationship between vocabulary size and reading comprehension. Moreover, the vocabulary levels test scores obtained by L2 learners are likely to be a good predictor of students' reading comprehension ability. Qian (2002) and Laufer (1996) found a high correlation (r=.82 and r=.71 respectively) between students score on the vocabulary levels test and reading comprehension test. As for scoring, each correct definition was awarded one point for a total of 150 points; each 1000-word level contained 30 word items.

3.2.3 Reading Comprehension Test (See Appendix C)

The test was constructed to examine reading comprehension ability of the students with high and low levels of vocabulary knowledge. The reading comprehension test mean scores were used to investigate correlations between vocabulary knowledge and students' reading ability. The test consisted of five short passages with 200-300 words length, carefully selected from a pool of reading texts in the previous 3-4 years of entrance examination reading tests available on the Internet. The reading texts in entrance examination were suitable for the current level of study of the research subjects who were the first year undergraduate students. All five short passages in the test reflected general academic matters in a wider range of topics to avoid content bias (Alderson, 2000), including the topics of ancient plants life, bird migrations, rain mechanism, new technology, and Beijing history. The test was a multiple choice test containing 30 items with one correct answer and three distracters for each question. The test was constructed by the researcher, containing three levels of reading comprehension questions: literal, interpretative and applied questions (Berry, 2005).

3.3 The Pilot Study

The pilot study was conducted to verify the validation and reliability of three research instruments. The first versions of the questionnaire, the vocabulary levels test and the reading comprehension test were examined by three research advisors from the supervisory committee. Then, the ambiguous items in the questionnaire, unclear Thai (L1) definitions in vocabulary levels test and the vague items in the reading comprehension test were revised. Finally, the revised versions of the questionnaire and the vocabulary levels test were then piloted with 31 health sciences students who were not the research subjects in the main study.

The pilot study proctored by the researcher was administered on 28th July 2011. The students took 60 minutes in total to finish both the questionnaire (20 minutes) and the vocabulary levels test (40 minutes). After the pilot study, it was found that eight questionnaire items consisting 2, 3, 14, 19, 21, 24, 25, and 28 (see Appendix 1, p. 101) were too vague to be understood. Therefore those items were revised for more clarity of understanding by providing some examples and pictures which can be seen as follows:

Before revision	**After revision**
Item 2. Guess a meaning by analyzing the Affixes e.g. Prefixes Suffixes and word Roots	Item 2. Guess a meaning by analyzing the Affixes e.g. Prefixes e.g. rearrange, Suffixes e.g. arrangement, Roots e.g. aqua= aquarium, aquaculture, aquatic, aqueous
Item 24. Remember word meaning by using semantic map	Item 24. Remember word meaning by using semantic map e.g.
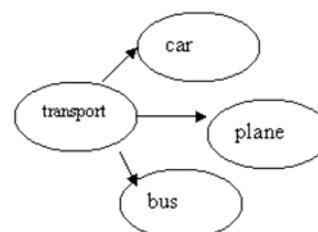
Regarding the reliability of the two instruments, the questionnaire and the vocabulary levels test were analyzed using Cronbach Alpha and Kuder Richardsons 20 formula. The reliability indices of the two instruments were .95 and .98 respectively.

As for the reading comprehension test, it was piloted two weeks after the first pilot, with 20 students—10 high vocabulary achievers and 10 low vocabulary achievers, The students took 90 minutes to finish reading 5 passages and answering 30 items of reading comprehension questions. The test difficulty and discrimination indices of the reading comprehension test items were analyzed after the pilot. The items which were too easy or too difficult were deleted and some of them were revised. The test items with the difficulty indices ranging between 0.3-0.7 and with the discrimination index of items above 0.3 (Ebel, 1997, cited in Brown, 2005, p.75) were selected to be included in the main study. The reliability of the reading test was also checked using Kuder Richardsons 20 formula and it was found that the reliability of the reading comprehension test was .70.

It can be concluded that all three research instruments were reliable and valid enough to be used as research instruments in the main study.

3.4 Data Collection

Data collection was divided into two phases.

Phase 1: Administration of the Vocabulary Learning Strategies Questionnaire and Vocabulary Levels Test

The tests were administered by the researcher to 160 health sciences students on 20th October 2011. First, the subjects were asked to rate their frequency of use of vocabulary learning strategies in the questionnaire. Then they were asked to complete the vocabulary levels test.

Phase 2: Administration of the Reading Comprehension Test

After the completion of vocabulary levels test, the scoring process was done to separate the subjects into two groups of High Vocabulary Achievers (HVAs) and Low Vocabulary Achievers (LVAs) by using the 33% technique.

They were 54 high vocabulary achievers and 54 low vocabulary achievers. The two groups of the subjects were required to sit for the reading comprehension test in order to further investigate relationships between the subjects' vocabulary knowledge and their reading ability. The test took place on 3rd November 2011 and it was administered by the researcher.

3.5 Data Analysis and Statistical Procedures

All data obtained from the three instruments—vocabulary learning strategies questionnaire, vocabulary levels test and reading comprehension test were analyzed using SPSS statistical program. The data were analyzed using the following statistical methods:

3.5.1 The statistic means and standard deviations were computed to investigate the frequency of use of vocabulary learning strategies, vocabulary levels test scores and reading comprehension test scores.

The mean scores of the frequency of use of vocabulary learning strategies were interpreted using the mid-point of class interval scale as follows:

4.50-5.00 = most frequently used
3.50-4.49 = frequently used
2.50-3.49 = moderately used
1.50-2.49 = slightly used
0.50-1.49 = least used
0.00-0.49 = never used

3.5.2 Independent sample t-test was employed to compare differences of strategies use, vocabulary means scores and reading mean scores between the high and low vocabulary achievers.

3.5.3 Pearson's Correlation was calculated to investigate the correlations between strategies use and vocabulary sizes, and the correlations between vocabulary sizes and reading comprehension ability of high and low vocabulary achievers.

CHAPTER 4

FINDINGS

This chapter presents findings of the study exploring frequency of use of vocabulary learning strategies of the subjects, their vocabulary sizes, relationships between vocabulary learning strategies and vocabulary sizes, relationships between students' vocabulary sizes and their reading ability.

The results are presented five sections from 4.1 to 4.5.

Section 4.1 describes the research subjects' general English proficiency, their attitudes towards the importance of vocabulary knowledge and frequency of use of English skills in and outside classroom.

Section 4.2 shows the results of vocabulary learning strategies use of the subjects to answer Research Question One: their frequency of use of the vocabulary learning strategies.

Section 4.3 illustrates the results obtained from vocabulary levels test to answer Research Question Two: the vocabulary sizes of the students.

Section 4.4 discloses relationships between the students' vocabulary learning strategies and their vocabulary sizes to respond to Research Question Three.

Section 4.5 reveals the findings derived from reading comprehension test and presents the relationships between the students' vocabulary sizes and their reading ability to answer Research Question Four.

4.1 General English Proficiency of the Subjects, Their Attitudes towards Importance of Vocabulary Knowledge and Frequency of Use of English Skills In and Outside Classroom

The findings of this section were obtained from the first part of the questionnaire. To illustrate students' self-assessment report regarding their general English proficiency, the results are presented in Table 4.1.

Table 4.1 Students' General English Proficiency

General English Proficiency	No. of Students	%
Excellent	0	0
Very good	4	2.5
Good	29	18.1
Fair	112	70
Need improvement	15	9.4
Total	**160**	**100**

According to the results shown in Table 4.1, most students considered their English proficiency fair (70%) whereas less than 20% assessed their English ability as good. 9.4% reported that they need to improve their English proficiency. Only 2.5% thought that their English ability was very good. This reflects that most students assumed that their general English proficiency was probably sufficient to study English lessons.

To display the attitudes of the students towards the importance of vocabulary knowledge in English language learning, the results of their attitudes are reported in Table 4.2.

Table 4.2 Students' Attitudes towards Importance of Vocabulary Knowledge

Attitudes towards Importance of Vocabulary Knowledge	No. of students	%
Very important	47	29.4
Important	50	31.3
Moderately important	39	24.4
Less important	20	12.5
Least important	4	2.5
Total	**160**	**100**

Regarding students' attitudes towards the importance of vocabulary knowledge in English language learning, most of them perceived that vocabulary knowledge is important and very important (31.3%, 29.4% respectively) for English language learning. On the other hand, approximately 15% of the students may not realize importance of vocabulary knowledge for learning English. The attitude of students may reflect their perception that vocabulary is rather important for them to learn English and they may put more effort into developing their vocabulary knowledge.

Since frequency of using English skills and vocabulary study both inside and outside classroom can be regarded as one of many factors that enhances students' vocabulary development and general English proficiency, the research subjects were asked to rank their frequency of use of English skills and vocabulary study inside and outside classroom. The results are presented in Table 4.3.

Table 4.3 Frequency of Use of English Skills In and Outside Classroom

Skills	In class				Out of class			
	Mean	**S.D.**	**%**	**Rank**	**Mean**	**S.D.**	**%**	**Rank**
Listening	3.36	.81	67.20	2	2.84	.99	56.88	3
Speaking	2.67	.82	53.40	5	2.42	.97	48.37	5
Reading	3.51	.85	70.20	1	3.02	.89	60.37	1
Writing	3.22	.89	64.40	4	2.66	.97	53.25	4
Vocabulary study	3.30	.82	66.00	3	2.92	1.00	58.38	2
Total	**3.21**	**.61**	**64.20**		**2.77**	**.73**	**55.40**	

Generally, the students moderately used all language skills both inside and outside classroom ($\bar{x}$=3.21, $\bar{x}$=2.77 respectively). Reading skill was the most frequently used in class and out of class ($\bar{x}$ =3.51, $\bar{x}$=3.02). It can also be seen that both in class and out of class, vocabulary study was frequently used, specifically the research subjects studied vocabulary outside class more frequently than other skills but slightly lower than reading skill. It seemed that out of class time, the subjects had more opportunity to be exposed to reading sources and they may learn new vocabulary items that they encountered while reading the texts.

4.2 Students' Frequency of Use of Vocabulary Learning Strategies

The findings of this section were obtained from the second part of the questionnaire to answer research question one asking students' frequency of use of vocabulary learning strategies. The results are described as follows:

Research Question 1: What vocabulary learning strategies are frequently used by WU first-year health sciences students?

To illustrate the use frequency of vocabulary learning strategies of the research subjects, the frequency of strategies used was ranked and shown in Table 4.4.

Table 4.4 Frequency of Use of Vocabulary Learning Strategies

Categories of strategies	Mean	SD	Percentage of frequency	Rank	frequency of VLS use
Determination (DET)	3.28	0.59	65.6%	1	Moderate
Cognitive (COG)	3.15	0.74	63%	2	Moderate
Memory (MEM)	3.04	0.59	60.8%	3	Moderate
Metacognitive (MET)	3.04	0.82	60.8%	3	Moderate
Expanding vocabulary knowledge (EVK)	2.86	0.68	57.2%	4	Moderate
Social (SOC)	2.85	0.62	57%	5	Moderate
Total	**3.02**	**0.52**	**60.4%**		**Moderate**

All 160 first year health sciences students at Walailak University were moderate strategy users. All categories of vocabulary learning strategies were used at a moderate level. Looking in detail, among the six categories of vocabulary learning strategies, the students used Determination Strategies (e.g. using bilingual dictionaries) to get new word meanings the most frequently ($\bar{x}$=3.28). It can be implied from the results that in vocabulary learning, the students mostly employed

strategies to learn new word meanings before making sense of the words usage more than recourse to other resources. Cognitive, Memory, and Metacognitive Strategies were also used over 60% by the research subjects to consolidate word meanings. This shows that the subjects learned vocabulary by using cognitive process (e.g. note taking, written or verbal repetition (COG), mental learning process (e.g. linking word meanings to their previous knowledge) (MEM), and self-planning and reviewing process (e.g. using English-language media) to learn vocabulary over time. The research subjects frequently used Expanding Vocabulary Knowledge Strategies to produce and practice their words in real situations of word use (e.g. practice writing words in sentences) and Social Strategies (e.g. interact with people to learn a word meaning) almost at the same level ($\bar{x}$=2.86, $\bar{x}$=2.85 respectively). This may indicate that the research subjects were likely to learn vocabulary individually rather than to interact with people.

The individual strategies frequently used by the research subjects, according to the three main purposes of such strategies, are presented as follows:

Table 4.5 Top-three Most Frequently Used of Vocabulary Learning Strategies

Purposes of Vocabulary Learning	Individual Strategies	Mean	SD	%	Rank
(a) Discovery	Q6 Use an Eng-Thai dictionary (DET)	3.76	1.07	75.2	1
	Q7 Use a Thai-Eng dictionary (DET)	3.58	1.07	71.6	2
	Q5 Guess meaning from textual context (DET)	3.52	0.94	70.4	3
(b) Consolidation	Q36 Take notes of word meaning in notebook or textbook (COG)	3.41	0.94	68.2	1
	Q20 Connect word to a personal experience (MEM)	3.38	0.97	67.6	2
	Q22 Connect word to its synonyms and antonyms (MEM)	3.37	0.87	67.4	3
(c) Expanding vocabulary knowledge	Q45 Consult dictionaries or grammar books to reconfirm an unclear word meaning and its usage before writing or after speaking (EVK)	3.22	1.00	64.4	1
	Q51 Practice listening and reading to English-language media e.g. songs, movies, newspapers (EVK)	3.17	1.04	63.4	2
	Q43 Use accurate word meanings to speak or write (EVK)	3.06	1.04	61.2	3

As shown in Table 4.5, the three main purposes of vocabulary learning are (a) discovery—strategies to get a word meaning (b) consolidation—strategies to remember or store a word meaning in memory and (c) expanding vocabulary knowledge—strategies to produce or enlarge a word newly learned. The results of the frequency of individual strategies used under these three purposes of vocabulary learning are discussed and detailed as follows:

a) Among the discovery strategies that students employed to get a word meaning, *Determination Strategies* (DET) including *using an Eng-Thai dictionary*, *using a Thai-Eng dictionary*, and *guessing word meanings from textual context* were reported as most frequently used among the students ($\bar{x}$=3.76, $\bar{x}$=3.58, $\bar{x}$= 3.52 respectively). In fact, the subjects may be familiar with these three strategies since they were informed of the benefits of using them when they were in high school.

b) With regard to the consolidation strategies, *Cognitive* and *Memory Strategies* were moderately used to retain new word knowledge in their memory but with a less frequency than the determination strategies. The strategies of *taking notes of word meanings in notebook or textbook* (COG) were used the most frequently ($\bar{x}$=3.41). Whereas the strategies of *connecting word to a personal experience* (MEM) and *connecting the word to its synonyms and antonyms* (MEM) were employed at almost the same frequency level ($\bar{x}$=3.38 and $\bar{x}$=3.37 respectively). From these findings, the subjects learned vocabulary by using cognitive process and studied vocabulary on their own time to remember the meanings.

c) To produce and expand new vocabulary knowledge, the research subjects used *consulting dictionaries or grammar books to reconfirm an unclear word meaning and its usage before writing or after speaking* ($\bar{x}$=3.22) the most frequently. Similarly, the subjects employed the strategy of *using accurate word meanings to speak or write* ($\bar{x}$=3.06) when they speak or write in English. English language media was also frequently used by the subjects to practice words in their memory and

enlarge vocabulary knowledge. This strategy was *practice listening and reading to English-language media e.g. songs, movies, newspapers* ($\bar{x}$=3.17). The research subjects studied words on their own to retrieve the words meanings from their memory and using them in real situations of language use.

Several language learning strategies-based studies reviewed in Chapter 2 indicated that high proficiency learners used learning strategies more frequently than low proficiency learners. Table 4.6 presents the differences of frequency of vocabulary learning strategies use between high and low vocabulary proficiency learners.

Table 4.6 Vocabulary Learning Strategies Used by High and Low Vocabulary Achievers

Strategies	High Vocabulary Achievers (n=54)		Low Vocabulary Achievers (n=54)		t	Sig
	Mean	SD	Mean	SD		
DET	3.42	0.52	3.15	0.59	2.50**	0.01
SOC	2.94	0.64	2.89	0.53	0.47	0.64
MEM	3.29	0.59	2.91	0.59	3.39**	0.00
COG	3.39	0.69	2.94	0.75	3.17**	0.00
MET	3.38	0.78	2.87	0.80	3.36**	0.00
EVK	3.09	0.68	2.71	0.65	2.98**	0.00
TOTAL	3.23	0.48	2.90	0.53	3.31**	0.00

** The mean difference is significant at the 0.01 level.
* The mean difference is significant at the 0.05 level.

As illustrated in Table 4.6, overall, high and low vocabulary achievers employed vocabulary learning strategies significantly different ($p<.01$, t =3.31). High vocabulary achievers employed vocabulary learning strategies more frequently than the low vocabulary achievers. Only the frequency of Social Strategies used by the two groups was not significantly different (p=0.64, t=.47).

4.3 Students' Vocabulary Sizes

The findings in this section were obtained from the vocabulary levels test to answer research question 2 as follows:

Research Question 2: What are WU first-year health sciences students' vocabulary sizes?

To answer research question two, the mean scores of the vocabulary levels test in each word level were presented in Table 4.7.

Table 4.7 Students' Vocabulary Mean Scores

Word levels	No. of items	Mean	%	SD
1000	30	25.94	86.5%	4.26
2000	30	22.09	73.6%	6.65
3000	30	20.39	68.0%	6.69
5000	30	17.06	56.9%	8.63
Academic Word Lists	30	19.41	64.7%	8.38
Total Vocabulary Scores	150	104.89	69.9%	32.03

As can be seen in Table 4.7, the research subjects' vocabulary levels test mean scores was 104.89 (69.9%) out of 150. They gained high vocabulary mean score at the 1000- and 2000-word tests. For the 3000-word level and the Academic Word test, the subjects' mean scores were almost at the same level, but the 3000-word test was slightly higher. The lowest mean score of the word level test was at the 5000-word test. This means that the students gained high scores on vocabulary items they frequently encountered.

4.4 Relationships between Students' Vocabulary Learning Strategies Use and Their Vocabulary Sizes

The findings in this section calculated from the students' frequency of use of vocabulary learning strategies and their vocabulary mean scores to answer the research question three as follows:

Research Question 3: What are the relationships between WU first-year health sciences students' vocabulary learning strategies use and their vocabulary knowledge?

To respond to research question three examining relationships between students' vocabulary learning strategies used and their vocabulary knowledge, the calculations of Pearson's correlation coefficient are presented in Table 4.8.

Table 4.8 Relationships between Vocabulary Learning Strategies and Vocabulary Sizes

Strategies	Vocabulary Sizes					
	1000	2000	3000	5000	AWL	Total
DET	.223**	.207**	.184**	.147*	.204**	.204**
SOC	-.038	-.044	-.013	.023	-.031	-.019
MEM	.262**	.231**	.226**	.214**	.251**	.253**
COG	.298**	.247**	.236**	.218**	.285**	.273**
MET	.263**	.201**	.189**	.130	.201**	.204**
EVK	.271**	.210**	.200**	.099	.176*	.194**
TOTAL STR.	.269**	.225**	.219**	.179*	.230**	.237**

** Correlation is significant at the 0.01 level.
* Correlation is significant at the 0.05 level.

As shown in Table 4.8, generally, vocabulary learning strategies employed by 160 research subjects were significantly correlated with their vocabulary knowledge but at a weak level. This shows that the use of vocabulary learning

strategies of the research subjects has some degrees of correlation with their vocabulary knowledge. The subjects' use of Social Strategies was not correlated with any vocabulary sizes. The use of these strategies seemed not to improve their vocabulary knowledge. Moreover, the use of Metacognitive and Expanding Vocabulary Knowledge Strategies of the research subjects had no effect on their improvement of vocabulary at the 5000-word level.

In order to compare the relationships of vocabulary learning strategies and vocabulary sizes between high and low vocabulary achievers, the correlations coefficients were computed to examine the differences of correlations between the two groups. The results are described as follows:

Table 4.9 presents relationships between the use of vocabulary learning strategies and vocabulary sizes of 54 high vocabulary achievers.

Table 4.9 Relationships between the Use of Vocabulary Learning Strategies and Vocabulary Sizes of High Vocabulary Achievers

Strategies	Vocabulary Sizes					
	1000	**2000**	**3000**	**5000**	**AWL**	**Total score**
DET	.177	.221	.045	.088	-.090	.119
SOC	.147	.145	-.011	.177	.223	.193
MEM	.202	.213	.035	.068	.067	.146
COG	.319**	.214	.168	.269*	.132	.330**
MET	.078	.193	-.123	-.138	-.111	-.081
EVK	.283*	.188	.019	-.079	-.036	.058
TOTAL	.277*	.252*	.041	.085	.055	.177

** Correlation is significant at the 0.01 level.
* Correlation is significant at the 0.05 level.

Table 4.9 indicates that only some vocabulary learning strategies used by 54 high vocabulary achievers seemed to significantly influence their vocabulary sizes. The use of Cognitive Strategies had weak correlations with vocabulary sizes of 1000- and 5000-word levels. Expanding Vocabulary Knowledge Strategies also

correlated with 1000-word level. It can be inferred that the research subjects who employed more Cognitive Strategies to learn words in the 1000 and 5000 word lists, and frequently used Expanding Vocabulary Knowledge Strategies to practice their vocabulary size of 1000-word level may have higher vocabulary knowledge at those levels.

The correlations between the use of vocabulary learning strategies and vocabulary sizes of 54 low vocabulary achievers are presented in Table 4.10.

Table 4.10 Relationships between the Use of Vocabulary Learning Strategies and Vocabulary Sizes of Low Vocabulary Achievers

Strategies	Vocabulary Sizes					
	1000	2000	3000	5000	AWL	Total Score
DET	.099	-.001	-.121	-.180	-.086	-.082
SOC	-.111	-.239(*)	-.134	-.170	-.030	-.193
MEM	.129	-.048	-.187	-.156	.084	-.047
COG	.098	-.162	-.160	-.246(*)	-.001	-.134
MET	.192	-.097	-.146	-.337(**)	-.067	-.134
EVK	.050	-.181	-.240(*)	-.325(**)	-.077	-.218
TOTAL	.081	-.135	-.208	-.260(*)	-.018	-.152

** Correlation is significant at the 0.01 level.
* Correlation is significant at the 0.05 level.

As seen in Table 4.10, in this group of students, low negative significant correlations were found between their use of Social Strategies and vocabulary size of 2000-word level; Cognitive Strategies and 5000-word level; Metacognitive Strategies and 5000-word level; and Expanding Vocabulary Knowledge Strategies and 5000-word level. This means that even though the subjects who had low vocabulary proficiency frequently used those strategies, their vocabulary sizes of those levels were not increased.

4.5 Relationships between Students' Vocabulary Sizes and Their Reading Ability

The findings in this section obtained from vocabulary levels test and reading comprehension test. The mean scores of the two tests were computed to examine correlations between the students' vocabulary size and their reading ability to answer the research question four as follows:

Research Question 4: Are there any relationships between vocabulary knowledge and their reading comprehension ability?

In order to present correlation coefficient between the students' vocabulary sizes and their reading ability, first, the vocabulary and reading mean scores of high and low vocabulary achievers are illustrated in Figure 4.1 to display a clear picture of vocabulary proficiency and reading ability of the two groups of students.

Figure 4.1 Vocabulary and Reading Mean Scores of High and Low Vocabulary Achievers
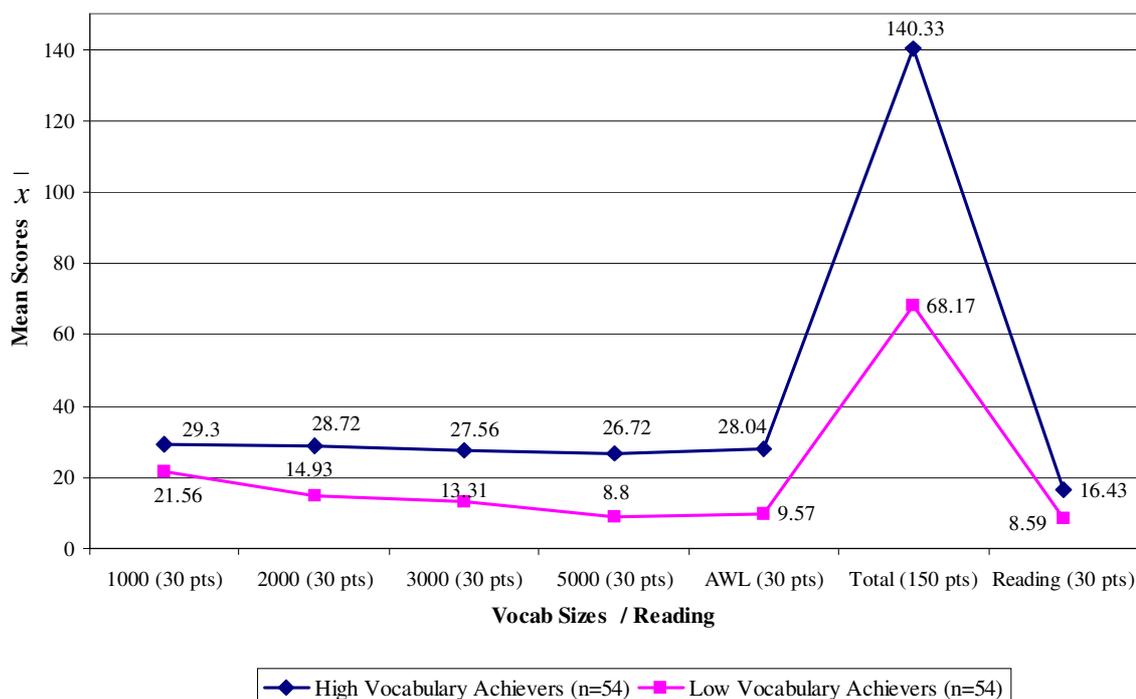
Clearly, the performances of high and low vocabulary achievers on vocabulary levels test and reading comprehension test were evidently different. The high vocabulary achiever group outperformed low vocabulary achiever group on all vocabulary sizes. Reading ability of those in high vocabulary achiever group was also higher than those in the low achiever group. Table 4.11 shows the mean difference of reading mean scores of the two groups.

Table 4.11 Reading Mean Scores of High and Low Vocabulary Achievers

	High Vocabulary Achievers (n=54)		Low Vocabulary Achievers (n=54)		t	Sig.
	$\bar{x}$	SD	$\bar{x}$	SD		
Total Reading scores (30 pts.)	16.43	3.18	8.59	3.11	12.943**	0.00

** The mean difference is significant at the 0.01 level.

The analysis of the t-test in Table 4.11 reveals that reading mean scores of students in high and low vocabulary proficiency groups was significantly different (t=12.943, p=0.00). The different performances on the reading test of the two groups obviously discriminated correlations between vocabulary knowledge and reading ability as shown in Table 4.12.

Table 4.12 Relationships between Vocabulary Sizes and Reading Comprehension

Vocabulary Sizes	Correlations	
	High Vocabulary Achievers (n=54)	Low Vocabulary Achievers (n=54)
1000	.448**	.129
2000	.272*	.054
3000	.313*	.004
5000	-.015	-.005
AWL	-.126	-.080
Total	.226*	.030

** Correlation is significant at the 0.01 level.
* Correlation is significant at the 0.05 level.

Table 4.12 depicts correlations between vocabulary sizes and reading ability of high and low vocabulary achievers. In an overall sense, a significant but weak correlation (r=.226) was found between vocabulary sizes and reading ability of high vocabulary achievers while no correlation between the two variables in the low vocabulary achievers was found.

Looking at the correlations between each vocabulary size and reading ability in high vocabulary achievers: vocabulary sizes of 1000- (r=.448), 2000- (r=.272), and 3000-word levels (r=.313) were significantly correlated with reading ability of high vocabulary achievers at a moderate and low level of correlations. This means that the research subjects who had higher vocabulary knowledge may have better reading comprehension ability.

The findings of this study reveal that first-year health sciences students at Walailak University were moderate strategy users. Their vocabulary sizes were high at the 1000- and 2000-word levels. Regarding the findings about the relationships between the students' use of vocabulary learning strategies and their vocabulary knowledge, this study found some degree of relationships between the two variables. Although the analysis of correlation coefficient indicates low relationships between these two variables, the positive significance of correlation found can lead to the development of strategies training for effective use in vocabulary improvement. For the relationships between vocabulary knowledge and their reading comprehension ability, the findings revealed that the research subjects who had higher vocabulary proficiency tended to understand more English reading texts.

CHAPTER 5

SUMMARY, DISCUSSION, IMPLICATIONS AND RECOMMENDATIONS

This chapter summarizes the main findings of the study. It also includes the discussion of research findings, the pedagogical implications and recommendations for further studies.

5.1 Summary of the Findings

This study was conducted to answer the four research questions: (1) what vocabulary learning strategies are frequently used by WU first year health sciences students?; (2) what are vocabulary sizes of the WU first year health sciences students?; (3) what are the relationships between the health sciences students' frequency of vocabulary learning strategies use and their vocabulary knowledge?; and (4) are there any relationships between the health sciences students' vocabulary knowledge and their reading comprehension ability?

One hundred and sixty, first year health sciences students in the 2011 academic year at Walailak University, Nakhon Si Thammarat, were selected with the stratified random sampling method.

Fifty-nine items of the vocabulary learning strategies included in the questionnaire were used to collect data concerning students' frequency of use of vocabulary learning strategies. The questionnaire consisted of two parts. The first part asked about students' general information. The second part contained individual strategy items the students used in learning vocabulary. The questionnaire items were classified into three main categories of vocabulary learning: Discovery, Consolidation and Expanding Vocabulary Knowledge. The Discovery and Consolidation Strategies were adopted from the vocabulary learning strategies inventory of Schmitt (1997). The Discovery Strategies include Determination and Social Strategies (Interact with people to get a word meaning): the Consolidating Strategies contain Social Strategies

(Interact with people to consolidate a word meaning), Memory, Cognitive and Metacognitive Strategies. The Expanding Vocabulary Knowledge Strategies derived from Intaraprasert's (2004) taxonomy of vocabulary learning strategies. These strategies refer to the strategies that students use to produce and practice using word knowledge from their memories in real situations for listening, speaking, reading and writing to maintain and expand their word knowledge.

The second research instrument was vocabulary levels test. The test was used to measure students' vocabulary knowledge. This test was adapted from Nation's (2008) monolingual vocabulary levels test version two. It consisted of five word levels—the 1000, 2000, 3000, 5000 and the Academic Word List.

The third instrument was a reading comprehension test. This was used to assess reading comprehension ability of the students in the groups of high and low vocabulary proficiency. The reading test consisted of 5 reading passages with 30 reading comprehension questions.

The questionnaire and vocabulary levels test were administered to 160 first-year health sciences students to collect data concerning vocabulary learning strategies frequently used and to examine their vocabulary knowledge. The subjects were asked to rate the questionnaire items and then complete vocabulary levels test. The subjects were separated into two groups of high and low vocabulary achievers using the 33% technique. Fifty-four students were classified as high vocabulary achievers and the other fifty-four were members of low vocabulary achiever group. Then the reading comprehension test was administered to the high and low vocabulary achievers to examine correlation between students' vocabulary knowledge and their reading comprehension ability. Finally, all data collected from the questionnaire, the vocabulary levels test and the reading comprehension test were analyzed using statistical methods—Mean, Standard Deviation, t-test and Pearson's Correlation, to answer the research questions.

The main findings of the research can be summarized as follows:

(1) The first-year health sciences students were moderate strategies users. Among six categories of vocabulary learning strategies, Determination Strategies were most frequently used to discover a word meaning. They always used *bilingual dictionaries* and *guessing meanings from contextual contexts* to discover a word meaning. Cognitive and Memory Strategies were used to consolidate vocabulary items once they encountered word meanings. They used *note taking of word meanings* (COG) and *connecting words to personal experience* (MEM) and *connecting words to their synonym and antonym* (MEM). The students used Expanding Vocabulary Knowledge Strategies to produce and practice using word knowledge for vocabulary development. They employed *consulting dictionaries or grammar books to reconfirm an unclear word meaning and its usage before writing or after speaking*, then *using English language media to practice listening and reading*, and they used *using accurate word meanings to speak or write*. Moreover, the high and low vocabulary achievers employed vocabulary learning strategies significantly different. The high vocabulary achievers used the strategies more frequently than the low vocabulary achievers. Only the frequency of use of Social Strategies was not significantly different between the two groups.

(2) Regarding the students' vocabulary sizes, the research subjects gained high score on vocabulary levels test at the 1000- and 2000-word levels (86.5% and 74% respectively). The scores of 3000-word and Academic Word tests were almost at the same level (68% and 65%) whereas their performance on the 5000-word test was only 57% which was the lowest score.

(3) Low correlations between overall strategies used by the 160 research subjects and their vocabulary sizes were found. However, there was no correlation between the use of Social Strategies and any of vocabulary sizes. Among the high vocabulary achievers, the use of Cognitive Strategies showed weak correlations with the 1000-word level and the 5000-word level. The Expanding Vocabulary Knowledge Strategies was also found to weakly correlate with the 1000-

word level. Among the low vocabulary achievers, low negative correlations were found between the use of Social Strategies and vocabulary size of 2000-word level; Cognitive Strategies and the 5000-word level; Metacognitive Strategies and the 5000-word level; and Expanding Vocabulary Knowledge Strategies and the 3000-word level.

(4) Significant but weak correlations were found between vocabulary knowledge and reading comprehension of the high vocabulary achievers. In more detail, the vocabulary knowledge of 1000-word level of the high vocabulary achievers was found to moderately correlate with their reading ability. In the same group, their vocabulary size of 2000- and 3000-word tests were found to weakly correlate with their reading ability. Conversely, there is no correlation between vocabulary knowledge and reading comprehension ability among the group of low vocabulary achievers.

5.2 Discussion of the Findings

This section aims to discuss the students' frequency of use of vocabulary learning strategies, their vocabulary sizes, relationships between strategies use and their vocabulary sizes. The discussion looks further into correlations between vocabulary knowledge and English reading ability of the research subjects. The discussions are presented according to the main findings of this research.

5.2.1 Students' Frequency of Vocabulary Learning Strategies Use

The first research question asked about students' frequency of use of vocabulary learning strategies. The results of this study indicate that overall, the first year health sciences students were moderate strategies users. The result is in line with the study of Zhang (2009), Mochizuki (1999), and Nacera (2010) who found that EFL learners studying in a tertiary level used vocabulary learning strategies at a moderate level. The subjects in their studies reported that even though they were aware of the importance of vocabulary learning and learning strategies, they still had no time to

practice and review vocabulary after class time. It was because they have quite a lot of homework and assignments to deal with and all the assignments were time-consuming tasks. Moreover, these studies also suggest that the EFL learners' frequency of use of vocabulary learning strategies seemed not enough for them to successfully learn vocabulary. Necera (2010) states that to succeed in vocabulary learning, L2 learners need to use vocabulary learning strategies more frequently and successfully. The research subjects in the present study seemed to have the same problem as EFL learners in those three contexts, about the limitation of time to learn and review their vocabulary. The first-year health sciences students had to engage in classroom assignments, laboratories and some of clinical assignments, therefore, most of their time was consumed by doing those assigned tasks. This might be one of many factors affecting the low correlations between the overall use of vocabulary learning strategies and vocabulary knowledge of the research subjects.

Regarding the results of the subjects' frequency of use of vocabulary learning strategies classified by the three purposes of vocabulary learning showed that the subjects mostly used Determination Strategies to discover unknown word meanings without recourse to other resources. These strategies are *using bilingual dictionaries* and *guessing word meaning from contextual contexts*. To consolidate new word meanings after first encountering the words, the students used strategy of *notes taking of new word meaning* which is considered as Cognitive Strategies. The students also employed Memory Strategies to retain word meanings in their memory. They used *connecting word meanings to their personal experiences* and *associating words synonym and antonym* before they remember the word meanings.

The finding is consistent with Schmitt (1997), Waemusa (1993), Suthiwartnarueput, (2004), and Mongkol (2008) who discovered that EFL learners mostly used bilingual dictionaries to get word meanings. It can be possibly explained that using dictionary to discover unknown word meanings is very normal in English classes. EFL learners are formally informed to resort to bilingual dictionary when words definitions are unknown or unclear. Moreover, getting word meaning from a bilingual dictionary is an easy and convenient way for EFL learners to find the

meanings of unknown words. However, looking up words in dictionaries might not be a powerful resource to help students in learning new vocabulary if they resort only to the word meanings but not also to sample sentences of target words provided in dictionaries. As Hulstijin's (1993) study shows that good learners are more likely to consult bilingual dictionary to confirm the correct word meaning. Good learners do know the word meaning and they want to confirm their knowledge with the dictionary definitions and explanations. For EFL learners, words obtained from dictionary definitions that are learned and stored in their long term memory must be those that are attended and practiced. It is important that EFL learners are trained to use bilingual dictionary effectively. Besides, sample English sentences of a target word in dictionaries can provide learners more clarity about the use of a particular word in context, so that learners can gain more knowledge about choosing proper words to fit in the right contexts. Schmitt (1997) proposes that monolingual dictionary is another resource for EFL learners to enhance their vocabulary proficiency as it provides learners additional exposures to new words in different contexts. Therefore, it may be useful to train learners to make the best use of bilingual and monolingual dictionaries resources for effective vocabulary acquisition.

Guessing meaning from textual contexts was frequently used to discover unfamiliar word meanings. The technique of guessing word meaning from context helps students dealing with unknown words in text and it is an effective way for vocabulary acquisition (Wimolkasem, 1982). The research subjects may be aware of contextual clues help them comprehend reading texts without stopping to use dictionary since this technique has been widely taught while they were in schools. According to Nation (1990), however, learners need to have a baseline of two or three thousand words in their memory to strengthen their use of guessing strategies of unknown word meanings in a text. Some students can do this without training, but those who cannot do it can easily be taught.

Cognitive and Memory Strategies were also moderately used by the students to consolidate new words into their memory. When learning a new word, they frequently take note of the word meaning in their books. Normally Thai students

prefer taking note when learning in class. Taking notes technique invite learners to create their own personal structure for newly learned word, and also affords the chance for additional exposure during the review of word meaning after class (Schmitt, 1997).

Other techniques students used to remember a word newly learned were connecting the word meaning to their personal experiences and associating the word meaning to its synonyms and antonyms. These techniques are under Memory Strategies. It is reasonable that in acquiring a lexical knowledge, learners are likely to store the word meaning and its usage into their long term memory so that they can retrieve it for communication. Once learners employ Memory Strategies, their mental operation of word input match the word newly learned with some of their previous knowledge (McCarthy,1990).

For vocabulary learning purposes, it is not only to discover and consolidate words meanings but it is also to produce and enlarge vocabulary knowledge for providing adequate percentage of text coverage to comprehend the reading texts.

To expand knowledge of vocabulary, before writing or after speaking, students frequently consulted dictionaries or English grammar books to recheck unclear word meaning and its usage. Repetition of word meaning exposure in a dictionary or a book helps longer retention of the meaning and usage. Moreover, the frequency of consulting dictionary or English book allows opportunity for learners to encounter a large number of new words.

The use of English language media e.g. English TV programs, songs, soundtrack movies was also rated by the students that they frequently practice their vocabulary knowledge by using English media. Learning through these English media helped learners relax and so they are likely to remember more vocabulary they encounter in songs or movies.

5.2.2 Students' Vocabulary Sizes

The second research question asked about vocabulary sizes of first-year health sciences students. The students' highest mean score of the vocabulary levels test was at 1000-word level (86.5%), followed by 2000-word level (74%), then 3000-word (68%) and academic word tests (65%). Finally, the least mean score of students' vocabulary levels test was at the 5000-word test (57%).

The result indicates students' high performance on 1000-2000 words is consistent with Nation (2008) who claims that many learners of English at schools are studying English with vocabulary baseline of 2000 words. Learners encountered this high-frequency vocabulary in their high school textbooks and other English written sources, and so on. The vocabulary knowledge of around 2000 words can be very useful for teachers and learners in language learning (West, 1953). The research subjects' high score on the 1000- and 2000-words tests may result from students' encountering high-frequency words when reading general English texts provided in class and available out of class. The results obtained from part one of the questionnaire confirm that among five English skills (reading, writing, listening, speaking and vocabulary study) the research subjects use reading skill most frequently both in class and outside class. In class, the students might learn high-frequency vocabulary from their reading class and they may be familiar with reading English textbooks, handouts or teaching materials prepared and presented by teachers. Out of class time, the students might be exposed to other reading materials such as English magazines, newspapers, brochures etc.

On the other hand, Nurweni and Read (1999) found that vocabulary size of first year Indonesian students studying in seven various faculties of an Indonesian university were rather low. The researchers found that on average the first-year students at an Indonesian university knew only 60% of word items in the 1000 word list; for the 2000 word list, they knew 37%; and then 30% of academic word list. The researchers stated that the vocabulary knowledge of Indonesian students was very far from the threshold level of 3000-5000 words that is widely regarded by

scholars as an adequate vocabulary level for independent reading of unsimplified texts. The researchers also suggests that besides explicit vocabulary teaching in class, one of the most effective ways to build up the English vocabulary knowledge of students is strategies training.

In the present study, the students' knowledge of 3000 words and academic word list seemed rather low (65-68%). It is possibly because of the 3000 words are words outside the first 2000 high-frequency words and appear less in general English texts. The students might encounter words in the 3000 word lists but the students may not frequently encounter many of the words in that word list so that they may not put any effort to remember them. They are consequently unable to recognize meanings of those words and the words are not stored in their long term memory. Similarly, academic words are widely found in multiple academic contexts (Coxhead, 2000). These words appear in different forms in many academic content areas. Although the students who study in tertiary level often encounter academic words in their textbooks or teaching materials provided when learning in classes, they are not likely to recognize many of academic words. The academic words are presented frequently only in class but students are not aware of the importance of these words after class time. However, learners might be guided to pay more attention in acquiring academic words. These words are useful to learn because they appear very often in academic texts and they equip learners with an adequate reading comprehension ability of a wide range of academic texts (Coxhead, 2000).

Among the five word levels, the students' vocabulary size of 5000-word is the lowest. This possibly due to the least frequency of word occurrences in general English texts. The 5000-word level represents the upper limit of general high-frequency vocabulary (Nation 1990). Therefore, the students rarely encounter these words in general English texts; they cannot remember words meanings since they lack sufficient exposure. Nation (1990), however, suggests that it is worth spending time on in class to acquire these words for a larger vocabulary size.

5.2.3 Relationships between Students' Vocabulary Learning Strategies Use and Their Vocabulary Sizes

The third research question investigates the relationships between the use of vocabulary learning strategies and vocabulary knowledge of first-year health sciences students. The results reveal that overall, there is a significant but rather low correlation between students' vocabulary learning strategies use and their vocabulary sizes at all levels. The result seem to be congruent with Gu and Johnson's (1996) study, which found that vocabulary sizes as well as overall language proficiency of the learners seemed to correlate with the learners' various vocabulary learning strategies.

In order to discover a new word meaning, majority of the students (65.6%) employed Determination Strategies the most frequently. The students used strategies of *using English-Thai dictionary* the most frequently (75.2%), followed by *using Thai-English dictionary* (71.6%) and *guessing unknown word meanings from textual context* (70.4%). The students' frequency of use of Determination Strategies correlated with all vocabulary sizes (1000, 2000, 3000, 5000 and Academic Word List). Thai students may be trained or familiar with using bilingual dictionaries in their high school studies. Mongkol (2008) found that most of her students commonly use English-Thai and Thai-English dictionaries to find out the meaning of unknown words more often than other kinds of strategies. The frequency of looking up word meanings in dictionaries also provided her research subjects more retention of the word meanings. Hulstijn et al. (1996) asserts that EFL learners who frequently look up word meanings in a dictionary had better retention and retrieval of word meanings.

Guessing meaning from contextual clues was also frequently used by the research subjects to discover unknown word meanings. It can be debated that recourse to dictionary to discover word definitions is not always the best way of vocabulary learning. Nuttall (1966) states that sometimes learners should discard dictionary use because frequency use of dictionary might impede learners' flow of ideas when reading a text. Chansin's (2007) study confirms that Thai learners of

English strongly believe that words should be acquired in context, and that words should be put to use rather than only memorized. Moreover, Wimolkasem (1992) found that teaching word meanings from contextual clues help the learners improve vocabulary skill.

To consolidate or retain a new word meaning, students frequently used Cognitive (63%) and Memory Strategies (61%). Three strategies students mostly employed were *note taking of word meanings* (COG) (68%), followed by *connecting word to their personal experience* (MEM) (67.6%), and *connecting word to its synonym and antonym* before remembering the words meanings (MEM) (67.4%). The frequency of use of these strategies were found to positively but lowly correlate with all vocabulary sizes (1000, 2000, 3000, 5000 and Academic Word List).

It can be assumed that students may prefer taking note after acquiring some information about definitions of unfamiliar words, but the ways they take notes varied depending on their preference and their own understanding. Moreover, students may presume that they can make use of the notes for their after-class review of vocabulary items. The finding is congruent with Hulstijn et al. (1996) who found that note taking strategy is one of the most effective strategies that correlates with vocabulary knowledge and general English proficiency. Moreover, Schmitt (1997) affirms that taking notes in class invites learners to create their own personal structure for newly learned word, and also affords the chance for additional exposure during the review of word meaning after class.

The strategies of grouping or associating words meaning before memorizing vocabulary items were frequently used and the frequency of the use correlated with students' vocabulary sizes at all word levels. Students may perceive that associating vocabulary to their personal experience helps them to easily imagine and recall word meanings. Moreover, students may prefer grouping words according to similar and opposite meanings of the words probably because they can remember several words in a short time. Schmitt (1997) asserts that word associations such as synonym and antonym have a very strong connective bond based on their association.

Moreover, if the words are organized in some ways to provide systematic memorization, it will be easier to recall meanings (Cofer, Bruce and Reicher, 1996 cited in Schmitt, 1997). These strategies may allow learners to easily connect and remember word meanings in group so that several words can be memorized and consolidated at a time.

Another strategy that the students also employed to consolidate meaning of new vocabulary items was Metacognitive Strategies (*using English language media to consolidate word meaning*, 61%). The overall use frequency of this strategy was weakly correlated with vocabulary sizes of 1000, 2000, 3000 and Academic Word List. The students frequently employed *using English language media* (66.4%) *e.g. songs, movies, the Internet, newspaper and etc*. to consolidate word meanings. Students are possibly familiar with many kinds of media because they can easily access those media either at home or at the school. They may be entertained and relaxed by watching English movies, listening to English songs, reading magazines, searching the Internet and so on. Sometimes, if they are interested in movies or songs stories, some articles in magazines or on the Internet, they may put more effort to learn new words to understand those stories. The subject may learn high-frequency vocabulary (1000-3000 words) and academic words that they encountered in English media. The finding of this research is congruent with study of Suthiwartnarueput et al. (2004) who discovered that their research subjects preferred watching movies and listening to songs because these strategies helped them to learn new words. Moreover, subtitles provided in the movies are also useful for the students' better understanding of word meanings. They can also understand slang words which are spoken by the natives in their daily life of language use. In addition, the students claimed that relaxation while learning from media helps them learn more and more. Conversely, the use of Metacognitive Strategies (*using English language media*) was not correlated with vocabulary size of 5000. It is possible that the words in the 5000 word list are rarely found in a wide range of English media.

To discover and consolidate word meanings, Social Strategies were the least frequently use (57%) by the research subjects. The frequency of Social Strategies use was not correlated with any of vocabulary sizes. Although social interaction is considered as one of many factors influencing second language development (Mackey, 1999), vocabulary development may not be affected similarly. Learners tend to ask their classmates who have higher English proficiency to discover the words meanings. But this frequently happen only in classrooms, after class time they use their first language. Therefore, the retention of words meanings may disappear very soon. Moreover, the students did not frequently ask the teacher to check the word meanings. Possibly, most teachers teach vocabulary implicitly— letting the students incidentally learn word meaning, so they may hesitate to approach their teachers to ask meaning of a word. This finding is in accordance with Mongkol (2008) who found that her students were reluctant to ask their teachers about word meanings. They thought that if a teacher ask them back about word meanings, they would be embarrassed because they could not answer the teacher's questions. Moreover, students may be afraid that their teacher might get angry at them and assumed that they did not pay enough attention to the teacher's lesson.

To expand newly-learned vocabulary items, the three most frequently used strategies are *consulting dictionaries or grammar books to reconfirm unclear words meanings and usage before writing or after speaking* (64.4%), followed by *practice listening and reading to English language media* (63.4%) and *using accurate word meanings to speak or write* (61.2%). The low correlational levels were found between the use of Expanding Vocabulary Knowledge Strategies and vocabulary sizes of 1000-, 2000-, 3000-word levels and Academic Word List.

The students frequently consulted dictionaries or grammar books to re-confirm the word meanings before or after using them. It may be possible that when they write English sentences, they might not sure about meanings and usage of some words so they consult dictionaries to confirm the correct definitions as well as grammar books to recheck the word usage. Similarly, when the students speak English with someone, sometimes they were not sure whether they produced words

correctly in meaning, they therefore, consult dictionaries to re-confirm accurate meaning of those words. The students seemed to aware of using accurate word meaning in their writing or speaking because accuracy is one of several indicators indicating learners' language proficiency. In addition, students' repetition behaviors of consulting these resources may reinforce the students' vocabulary learning as repetition of word in a dictionary or a book helps them retain the word meanings and usage longer and the retrieval for later word use is also easier.

The use of English language media was also rated by the students to expand and practice their vocabulary knowledge. As stated earlier, learning through English media helps learners relax and so they are likely to remember and develop more vocabulary items they encounter in the media (Suthiwartnarueput et al., 2004).

Conversely, the use of Expanding Vocabulary Knowledge Strategies seemed not to improve vocabulary size of 5000 word list of the research subjects. Among the five levels of high-frequency vocabulary, the 5000 word lists are the least frequent of word occurrence and rarely found in a wide range of general English texts (Nation, 2008). The students may rarely encounter these words in their vocabulary learning, so they pay least attention to the words in this list.

5.2.3.1 Relationships between Vocabulary Learning Strategies Use and Vocabulary Sizes of High and Low Vocabulary Achievers

For overall frequency of strategy use, the high vocabulary achievers employed vocabulary learning strategies more often than the low vocabulary achievers (See Table 4.6, p.63: High $\bar{x}$=3.23, Low $\bar{x}$=2.90, t=3.31). Moreover, it was found that the correlations between the frequency of vocabulary learning strategies use and vocabulary sizes of the two groups were different.

In high vocabulary achievers, moderately significant levels were found between Cognitive Strategy and vocabulary size of 1000-word level. There is a significant correlation between their Cognitive Strategy use and vocabulary

knowledge of 5000-word level. A correlation level was also found between Expanding Vocabulary Knowledge Strategies use and their vocabulary size of 1000-word level.

The reasonable explanation of this phenomenon might be Cognitive Strategies the high vocabulary achievers employed refer to their repetition behaviors and using mechanical means e.g. written or verbal repetition, note taking, to study vocabulary. These kinds of behaviors are helpful for L2 vocabulary learning (Schmitt, 1997). The high vocabulary proficiency students employed Cognitive Strategies to learn 1000 high-frequency which is the most frequent type of word that appears in various English texts. It is possible that they encountered the high-frequency vocabulary very often in a wide range of academic texts so they may assume that word frequency will provide them a basic vocabulary knowledge to understand English texts. In a similar way, high proficiency learners used Cognitive Strategies to acquire vocabulary knowledge of 5000 words. It is possible that when high proficiency learners encountered words that rarely appear in texts, they may prefer to learn those vocabulary items by taking note of word meanings, using verbal or written repetition and so on (Schmitt, 1997). They might presume that this strategy may help them remember those words the same way as they are coping with high frequency vocabulary learning.

On the other hand, in low vocabulary achievers, only low and negative correlations were found between the use of vocabulary learning strategies and vocabulary sizes. These correlations are between the use of Social Strategies and vocabulary size of 2000-word level; Cognitive Strategies and vocabulary size of 5000-word level; Metacognitive Strategies and vocabulary size of 5000-word level; and Expanding Vocabulary Knowledge Strategies and vocabulary sizes of 3000-word and 5000-word levels respectively.

The negative correlations may indicate that although the low vocabulary achievers put more effort in learning vocabulary, their attempts are likely

to be unsuccessful in vocabulary learning (Oxford, 1990). On the other hand, the students may think that they use strategies to learn vocabulary; however, in fact, they did not.

Low vocabulary achievers employed social strategies frequently to learn the words in high-frequency vocabulary (2000 words) but these strategies did not improve their vocabulary proficiency. One reasonable explanation could be the students may not be aware of the importance of high-frequency vocabulary. When they encounter these words, they just ask their friends who know word meanings but they did not remember the meanings. Revealed by Suthiwartnarueput et al. (2004) of vocabulary learning strategies employed by the low- and high-ability students, only the low-ability students used Social Strategies because they need help from teachers or friends to avoid a lower score. They assumed that they can always resort to their friends to know the word meaning. Unlike the low-ability students, the high-ability learners are highly competitive among their groups and they are self-directed learners—they can learn independently. Metacognitive Strategies involve students' efforts to control and evaluate their learning. In this study, the low vocabulary achievers used Metacognitive Strategies to learn high-frequency vocabulary items (5000 words). It is possible that they assessed themselves that they need a lot more improvement. But, they may not always resort to their friends because it is no guarantee whether their friends know the less-frequency vocabulary (5000 words). So they tried many ways for better acquiring high-frequency vocabulary. If the way they employed did not have a positive impact, they considered changing to new strategies. This may happen over time, but the positive results of vocabulary improvement may not be easily found in this group of students (Purpura, 1998). The use of Cognitive Strategies which involve verbal and written repetition, note taking, practicing or rehearsal word lists and so on, were also frequently used by the low vocabulary achievers. However, in fact, the students seemed not to rehearse or practice word meanings frequently enough until the word meanings are remembered—they may do it but just a few times. Purpura (1998) states that the low-ability students seemed to use repeating or rehearsing behaviors when learning new vocabulary items, however, their vocabulary proficiency and general English ability are not positively improved.

5.2.4 Relationships between the Students' Vocabulary Sizes and Their Reading Comprehension Ability

The fourth research question examined the relationships between the students' vocabulary sizes and their reading comprehension ability. Significant correlations were found between vocabulary sizes and reading ability among high vocabulary achievers, while no correlations were found between the two variables among the low vocabulary achievers. There was a moderate correlation between student's vocabulary size of 1000 words and their reading ability. Low correlational levels were found between students' vocabulary size of 2000 and 3000 words and their reading ability.

Vocabulary knowledge of 1000-3000 words is needed as basic threshold for EFL learners to comprehend general English texts. Laufer (1989) and Nation (1990) found that a vocabulary size of around 2000 words is the leading factor to help learners of English to understand reading passages. The research subjects' vocabulary knowledge of 1000-3000 words correlated with their reading ability possibly because these levels of vocabulary cover approximately 72-84% of word tokens in a text (Francis & Kucera 1982 cited in Nation & Waring, 1997). The subjects may be familiar with these word levels as they frequently encountered them in general English texts. On the other hand, there is no significant correlation between the vocabulary size of 5000, Academic Word List and students' reading ability. The words in the 5000 word list are less frequently used in general use or general English texts. So, EFL learners may not frequently encounter these words and try to make effort to remember them. Similarly, words in the Academic Word List can be found mostly in various kinds of academic written texts, students mostly encounter these words when they learn in a formal classroom. After class time, they may not pay attention to remembering these words, however, in fact, the words in Academic Word List are needed for EFL learners specifically for those who study in tertiary education (Laufer, 1989; Nation, 1990; Coxhead, 2000).

It is reasonable to say that vocabulary knowledge seem to have a positive impact to students' reading comprehension ability, specifically vocabulary knowledge of 1000-3000 words. The result of this study is in line with Baleghizade and Golbin's study (2010) which found that vocabulary knowledge at 1000 words can be regarded as a primary factor in the way that a learner comprehends a reading text and vocabulary knowledge beyond 1000 words influences reading comprehension more. In addition, the study of Zhang (2008) discovered that vocabulary size of Singaporean EFL learners at 2000-3000 words level helped them comprehend reading texts better. Similarly, Pringprom's study (2011) also found that vocabulary size of 2000-3000 of Thai EFL learners correlated to their reading ability. Moreover, several researchers affirm that vocabulary knowledge at 2000-3000 words helps ESL learners to better comprehend English texts (Anderson & Freebody, 1981; Ward, 1990; Hirsh & Nation, 1992; Qian, 2002). However, Luafer, (1989) and Hu and Nation (2000) suggested that second language learners may need a knowledge of vocabulary size at 5000 words to cover 95-98% of word token in an unsimplified English texts and be able to read the texts independently.

5.3 Pedagogical Implications and Recommendation for Further Studies

The results of this study have shown some degree of correlations between vocabulary learning strategies and vocabulary knowledge, and vocabulary knowledge and reading comprehension. The implications for vocabulary teaching and recommendations for further studies are presented as follows:

5.3.1 Pedagogical Implications

The findings of this study may raise teachers' awareness of the importance of vocabulary teaching and vocabulary learning strategies training. From this study, it is hoped that the university teachers would take explicit and implicit vocabulary teaching into consideration. It was found that the students who had higher vocabulary proficiency used vocabulary learning strategies more frequently than those in the lower proficiency group. Moreover, the use of different types of vocabulary

learning strategies has a significant impact on second language performance. Recommendations from the findings of this study are presented as follows:

1. It was found that students frequently employed dictionary strategies (explicit)—learning word definitions to learn vocabulary and guessing word meaning from contextual clues (implicit)—guessing the meaning of unknown words in a text. To help students get word meanings, students need to be trained to make the most of use of dictionaries; for example, studying samples of a target word used in context. By doing this, the students not only learn word meanings but also they are able to use a target word in context. Online dictionary is one of useful and easy-access resources for students to learn word meaning and its usage. The students also reported that they frequently learn word meaning from contextual clues. The way a word is used in a sentence or textual context alerts a reader to its meaning. Contextual clue strategy should be regarded as a needed technique for understanding unknown words in context. However, the students need to be guided how to effectively employ this strategy for vocabulary learning.

2. To help students consolidate word meaning to memory for further use, the strategies of note taking, connecting words to personal experience, and connecting words to a group of synonyms and antonyms, were also frequently used by students to consolidate word meanings.

2.1 Notes taking seemed to be a widely use strategy for EFL learners. For vocabulary learning, note taking is not just to write word meanings down but to know what and how to make the notes meaningful and teachers can be of help in this regard.

2.2 Learning a word by connecting its meaning to personal experiences or to its synonyms and antonyms may help the learner to remember and retrieve the word meaning for use. Meaningful vocabulary learning activities and exercises may be considered helpful for vocabulary acquisition. For example, a teacher

may ask students to relate their personal or daily-life experiences to vocabulary uses in vocabulary exercises. This may enhance students' vocabulary acquisition and retention.

2.3 A variety of English teaching media can give students more exposure to authentic English use in contexts. So that students may be familiar with vocabulary in meaningful contexts and permanently remember both word meaning and the word in context. Teachers may also consider using English media which matches students' ages, their interest, current trends in media, e.g. popular English songs, interesting newspapers issues, up-to-date soundtrack movies as medium of instruction. They might motivate learners to learn more vocabulary they encounter in those media.

3. The finding of this study also revealed low correlations between students' vocabulary knowledge and their reading comprehension ability. It may be assumed that their vocabulary knowledge was rather insufficient for them to successfully comprehend English texts. Reading is a good way to efficiently develop vocabulary knowledge. Students' exposure to a wide variety of reading texts can promote vocabulary development specifically when marginal glosses of unknown words are provided in a reading passage to allow frequent word occurrence which is believed to foster vocabulary learning.

5.3.2 Recommendation for Further Studies

Based on the findings of this study, the following recommendations are provided for further research as follows:

1. The learning strategies the subjects in this study employed were obtained from the questionnaire. Other qualitative data collection e.g. interview, observation, think-aloud protocol, should be considered to triangulate the collected data and reflect what actions students actually do when they learn vocabulary. This may enable researchers to discover other aspects in vocabulary learning, for example, problems of vocabulary learning, the ways students use individual strategies to learn vocabulary.

2. This study was conducted with a particular group of the health science students. Further research may be considered to examine the use of vocabulary learning strategies of other groups of students in various fields. The exploration of longitudinal study of their vocabulary learning strategies and vocabulary size over time should also be considered.

3. Since the correlation coefficient have shown negative correlations between the use of vocabulary learning strategies and vocabulary sizes among the low vocabulary achievers, further study may explore why more frequent strategies use does not promote vocabulary development in low proficiency learners.

4. Moreover, some degrees of correlations were found between the use of learner's vocabulary learning strategies and their vocabulary knowledge, and between vocabulary knowledge and their reading comprehension ability. Further study should consider exploring other factors affecting low correlation among those variables.

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APPENDIX A

VOCABULARY LEARNING STRATEGIES QUESTIONNAIRE

VOCABULARY LEARNING STRATEGIES QUESTIONNAIRE

This questionnaire aims to collect data on vocabulary learning strategies used by first year health sciences students at Walailak University, Nakhon Si Thammarat. The questionnaire comprises 2 sections 1) students' background information and 2) vocabulary learning strategies. The questionnaire is completely anonymous, and the results will be used for research purposes only.

PART 1: Student's Background Information

Instruction: Please provide information about yourself by choosing the choices given (✓) or write the response where necessary:

1. Gender   ☐ Male
                  ☐ Female

2. I'm studying in Schools of ☐ 1. Pharmacy
                                    ☐ 2. Nursing
                                    ☐ 3. Medicine
                                    ☐ 4. Allied Health Sciences and Public Health

3. I think my English ability is:
                ☐ Need improvement
                ☐ Fair
                ☐ Good
                ☐ Very good
                ☐ Excellent

4. I think the importance of vocabulary knowledge to English learning is:
                ☐ Least important
                ☐ Less important
                ☐ Moderately important
                ☐ Important
                ☐ Very important

5. Please check (✓) in the box which best describes your frequency of use of English skills **IN** class:

English skills	Frequency of use					
	5 most frequently	4 frequently	3 moderately	2 slightly	1 least	0 never
Listening						
Speaking						
Reading						
Writing						
Vocabulary study						

6. Please check (✓) in the box which best describes your frequency of use of English skills **OUTSIDE** class:

English skills	Frequency of use					
	5 most frequently	4 frequently	3 moderately	2 slightly	1 least	0 never
Listening						
Speaking						
Reading						
Writing						
Vocabulary study						

PART 2: Questions about Vocabulary Learning Strategies

Instructions: Please read each statement of vocabulary learning strategy carefully, and then mark (✓) in the level of your own vocabulary strategy use. Each frequency level of use can be described as the followings:

> 5 = most frequently
> 4 = frequently
> 3 = moderately
> 2 = slightly
> 1 = least
> 0 = never

Strategies	Frequency of vocabulary learning strategy use					
	5	4	3	2	1	0
(1) Strategies to discover a word's meaning						
1. Guess a meaning by analyzing part of speech or word class e.g. nouns, pronouns, verbs, adjective						
2. Guess a meaning by analyzing the structure of words e.g. prefixes= <u>re</u>arrange, suffixes=arrange<u>ment,</u> roots *aqua*=aquarium, aquaculture, aqueous, aquatic						
3. Guess a meaning by associating an English word with a Thai word which has a close meaning with the English word e.g. Mom = แม่, Torture= ทรมาน						
4. Guess a meaning from pictures or gestures						
5. Guess the meaning from context						
6. Use an Eng-Thai dictionary to find new vocabulary items						
7. Use an Thai-Eng dictionary						
8. Use an English-English dictionary						
9. Guess meaning from aural features e.g. stress, intonation, pronunciation						
10. Ask an English teacher for a meaning of an unknown word						
11. Ask an English teacher for a synonym meaning of an unknown word e.g. buddy = close friend						
12. Ask an English teacher to explain an unknown word meaning and how to use the word						

Strategies	Frequency of vocabulary learning strategy use					
	5	4	3	2	1	0
13.Ask friends, classmates or others for an unknown word meaning						
14. Learn new words meaning from participating in group work activity or assignment						
15. Others, please specify……………………….. ………………………………………………						
(2) Strategies to consolidate a word's meaning						
16. Study and practice meaning in a group						
17. Study flash cards or word lists from a teacher						
18. Converse with native-speakers						
19. Study word with a pictorial representation of its meaning e.g. = swimming						
20. Remember a word meaning by associating its meaning to a personal experience						
21. Remember word meaning in group by associating its coordinates e.g. fruits=apples, pears, cherries, peaches						
22. Remember word meaning by connecting meaning to its synonym or antonym e.g. fast/quick, open/close						
23. Look at real objects and associate them with vocabulary items previously-learned to retain word meanings						
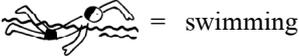
Strategies	Frequency of vocabulary learning strategy use					
	5	4	3	2	1	0
24. Remember word meaning by using semantic map e.g.						
25. Remember word meaning by grouping comparative and superlative forms (e.g. high/higher/highest) of adjective or adjective with similar meanings (e.g. big/large/huge)						
26. Use new word in sentence						
27. Study the spelling of a word, its sound and practice saying it aloud						
28. Study word meaning by remembering word prefixes (e.g. possible/impossible), suffixes (e.g. beauty/beautiful) or roots (e.g. trans=transport, transfer, transmit)						
29. Remember word meaning by grouping words' part of speech						
30. Practice using new word meaning by paraphrasing an English sentence						
31. Remember idiom e.g. try on or phrasal verbs e.g. sign in						
32. Use word rhymes to remember word meaning						
33. Use physical action when learning a word						
34. Use verbal repetition						
35. Use written repetition						
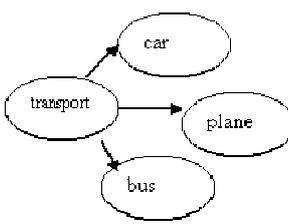
Strategies	Frequency of vocabulary learning strategy use					
	5	4	3	2	1	0
36. Take notes of word meaning in notebook or textbook						
37. Learn new words from textbooks or graded readers						
38. Use flash cards to retain word meanings						
39. Use English language media (songs, movies, etc.)						
40. Plan and continue to study words over time						
41. Others, please specify ……………………………………………. ……………………………………………						
(3) Strategies to Produce or Practice Vocabulary for Expanding Vocabulary Knowledge						
42. Practice saying or writing new words in sentences						
43. Use accurate word meanings to speak or write						
44. Use words to speak or write even though they are unclear meaning and usage						
45. Consult dictionaries or grammar books to reconfirm an unclear word meaning and its usage before writing or after speaking						
46. Associate English words with real objects in daily life						
47. Play English games e.g. crossword puzzle, scrabble						
48. Participate in activities that use English as a medium such as English debate etc.						

Strategies	Frequency of vocabulary learning strategy use					
	5	4	3	2	1	0
49. Converse in English with friends, teachers and native speakers						
50. Chat with native speakers via internet or social networks						
51. Practice listening and reading to English-language media e.g. songs, movies, newspapers						
52. Read English articles from different sources, such as novels, newspapers, magazines, brochures						
53. Others, please specify……………………… ……………………………………………						

Notes: 1. Discovery Strategies

Determination Strategies (DET) (item 1-9)

Social Strategies (SOC) (item 10-14)

2. Consolidation Strategies

Social Strategies (SOC) (item 16-18)

Memory Strategies (MEM) (item 19-33)

Cognitive Strategies (COG) (item 34-38)

Metacognitive Strategies (MET) (item 39-40)

3. Expanding Vocabulary Knowledge Strategies (EVK) (item 42-52)

แบบสอบถามเพื่อการวิจัย

เรื่อง "ความสัมพันธ์ระหว่างกลยุทธ์การเรียนรู้คำศัพท์ต่อความรู้ด้านคำศัพท์

และความสามารถในการอ่าน"

คำชี้แจง

แบบสอบถามชุดนี้มี 2 ตอน ได้แก่

ตอนที่ 1   ข้อมูลทั่วไปของนักศึกษา

ตอนที่ 2   แบบสอบถามเกี่ยวกับกลยุทธ์การเรียนรู้คำศัพท์ภาษาอังกฤษของนักศึกษา

1. แบบสอบถามฉบับนี้จัดทำขึ้นเพื่อสำรวจกลยุทธ์การเรียนรู้คำศัพท์ภาษาอังกฤษของนักศึกษาชั้นปีที่ 1 กลุ่มวิทยาศาสตร์สุขภาพ มหาวิทยาลัยวลัยลักษณ์ ข้อมูลที่ได้จะนำไปวิเคราะห์เพื่อการวิจัย และไม่มีผลต่อผลการเรียนของนักศึกษา

2. โปรดอ่านคำถามทุกข้อให้ละเอียด แล้วทำเครื่องหมาย ✓ ในข้อที่ตรงกับความถี่ของกลยุทธ์ที่ใช้เพื่อการเรียนรู้คำศัพท์ภาษาอังกฤษของนักศึกษามากที่สุด

3. ขอความร่วมมือนักศึกษาให้ตอบข้อมูลตามความเป็นจริงเพื่อนำไปสู่การสรุปผลที่สามารถนำไปใช้ประโยชน์ในการปรับปรุง พัฒนาการเรียนรู้คำศัพท์ภาษาอังกฤษทั้งต่อตัวนักศึกษาเองและครูผู้สอนภาษา ขอขอบคุณในความร่วมมือเป็นอย่างดีในการตอบแบบสอบถามเป็นการล่วงหน้าไว้ ณ โอกาสนี้

ตอนที่ 1 ข้อมูลทั่วไปของนักศึกษา

คำชี้แจง   โปรดทำเครื่องหมาย ✓ ให้ตรงกับช่องที่ตรงกับความเป็นจริง

1. เพศ ☐ ชาย

☐ หญิง

2. ปัจจุบันเป็นนักศึกษาในสำนักวิชา ....

☐ 1. เภสัชศาสตร์   ☐ 2. พยาบาลศาสตร์

☐ 3. แพทย์ศาสตร์   ☐ 4. สหเวชศาสตร์และสาธารณสุขศาสตร์

3. ความรู้/ความสามารถด้านภาษาอังกฤษโดยทั่วไปของนักศึกษาอยู่ในระดับใด

☐ ต้องปรับปรุง

☐ พอใช้

☐ ดี

☐ ดีมาก

☐ ดีเยี่ยม

4. ในการเรียนภาษาอังกฤษความรู้คำศัพท์มีความสำคัญในระดับใด

      ☐ น้อยที่สุด

      ☐ น้อย

      ☐ ปานกลาง

      ☐ มาก

      ☐ มากที่สุด

5. นักศึกษาใช้ทักษะภาษาอังกฤษเหล่านี้<u>ใน</u>ห้องเรียนในระดับใด

ทักษะ	ระดับความถี่					
	5 บ่อยที่สุด	**4** บ่อย	**3** ปานกลาง	**2** น้อย	**1** น้อยที่สุด	**0** ไม่ได้ใช้เลย
การฟัง						
การพูด						
การอ่าน						
การเขียน						
คำศัพท์/การเรียนรู้คำศัพท์						

6. นักศึกษาใช้ทักษะภาษาอังกฤษเหล่านี้<u>นอก</u>ห้องเรียนในระดับใด

ทักษะ	ระดับความถี่					
	5 บ่อยที่สุด	**4** บ่อย	**3** ปานกลาง	**2** น้อย	**1** น้อยที่สุด	**0** ไม่ได้ใช้เลย
การฟัง						
การพูด						
การอ่าน						
การเขียน						
คำศัพท์/การเรียนรู้คำศัพท์						

ตอนที่ 2 **คำถามเกี่ยวกับกลยุทธ์การเรียนรู้คำศัพท์ภาษาอังกฤษของนักศึกษา**

คำชี้แจง โปรดทำเครื่องหมาย ✓ ให้ตรงกับระดับความถี่ในการใช้กลยุทธ์หรือวิธีการ
เรียนรู้คำศัพท์ภาษาอังกฤษของนักศึกษา ซึ่งมี 6 ระดับ ตามความหมายต่อไปนี้

5 หมายถึง ใช้บ่อยที่สุด

4 หมายถึง ใช้บ่อย

3 หมายถึง ใช้ปานกลาง

2 หมายถึง ใช้น้อย

1 หมายถึง ใช้น้อยที่สุด

0 หมายถึง ไม่เคยใช้เลย

กลยุทธ์/วิธีการเรียนรู้คำศัพท์ภาษาอังกฤษ	ระดับความถี่					
	5	4	3	2	1	0
กลยุทธ์การหาความหมายคำศัพท์ภาษาอังกฤษ						
1. เดาความหมายคำศัพท์จากชนิดของคำ (part of speech) เช่น คำนาม สรรพนาม กริยา คุณศัพท์ เป็นต้น						
2. เดาความหมายคำศัพท์จากการวิเคราะห์หน่วยคำเติม (affixes) ได้แก่ คำอุปสรรคเติมข้างหน้า (prefixes) เช่น <u>re</u>arrange หรือคำปัจจัยเติมส่วนท้ายคำ (suffixes) เช่น arrange<u>ment</u> หรือ คำรากศัพท์ (roots) เช่น คำว่า aquarium, aquaculture, aqueous, aquatic มาจากรากศัพท์ ของคำว่า aqua แปลว่าน้ำ เป็นต้น						
3. เดาความหมายคำศัพท์ภาษาอังกฤษโดยเชื่อมโยงกับ คำศัพท์ที่มีความหมายใกล้เคียงกับคำในภาษาไทย เช่นคำ ว่า Mom กับ แม่ หรือ Torture กับ ทรมาน เป็นต้น						
4. เดาความหมายคำศัพท์จากภาพหรือท่าทาง ที่เห็น						
5. เดาความหมายคำศัพท์จากข้อความหรือประโยค ข้างเคียง						
6. หาความหมายคำศัพท์จากพจนานุกรม อังกฤษ-ไทย						

กลยุทธ์/วิธีการเรียนรู้คำศัพท์ภาษาอังกฤษ	ระดับความถี่					
	5	4	3	2	1	0
7. หาความหมายคำศัพท์จากพจนานุกรม ไทย-อังกฤษเมื่อนึกถึงคำศัพท์ภาษาไทยแล้วอยากทราบความหมายภาษาอังกฤษ						
8. หาความหมายคำศัพท์จากพจนานุกรม อังกฤษ-อังกฤษ						
9. เดาความหมายคำศัพท์จากลักษณะทางด้านเสียง เช่น การออกเสียงของคำ เสียงหนักเบา สูงต่ำ เป็นต้น						
10. ถามความหมายของคำศัพท์ภาษาอังกฤษจากครูโดยให้ครูบอกความหมายเป็นภาษาไทย						
11. ถามความหมายของคำศัพท์ภาษาอังกฤษจากครูโดยให้ครูบอกคำศัพท์ที่มีความหมายใกล้เคียงกันแทน (synonym) เช่น คำที่มีความหมายใกล้เคียงคำว่า buddy คือ close friend เป็นต้น						
12. ถามความหมายของคำศัพท์ใหม่ที่อยู่ในประโยคจากครูโดยให้ครูอธิบายความหมายทั้งประโยค						
13. ถามความหมายของคำศัพท์ใหม่จากเพื่อน						
14. เรียนรู้ความหมายคำศัพท์ใหม่จากการทำงานเป็นกลุ่ม เช่น เมื่อแบ่งกลุ่มทำงานเพื่อนำเสนอหน้าชั้น เรื่อง Healthy food นักศึกษาก็ได้เรียนรู้คำศัพท์ใหม่ ๆ ที่เกี่ยวข้องจากการทำงาน เป็นกลุ่ม เป็นต้น						
15. นอกจากกลยุทธ์/วิธีการหาความหมายคำศัพท์ดังที่กล่าวมาแล้ว นักศึกษามีวิธีการอื่น ๆ ในการหาความหมายคำศัพท์หรือไม่ โปรดระบุกลยุทธ์และระบุระดับความถี่						

กลยุทธ์/วิธีการเรียนรู้คำศัพท์ภาษาอังกฤษ	ระดับความถี่					
	5	4	3	2	1	0
กลยุทธ์การจดจำความหมายคำศัพท์ภาษาอังกฤษ						
16. เรียนรู้และฝึกฝนจำความหมายคำศัพท์กับเพื่อนเป็นกลุ่ม						
17. จำความหมายคำศัพท์จากบัตรคำศัพท์ที่ครูใช้ในการสอนคำศัพท์ในห้องเรียน						
18. ใช้คำศัพท์ในการสนทนาภาษาอังกฤษกับเจ้าของภาษาทุกครั้งที่มีโอกาส						
19. จำภาพที่แสดงความหมายของคำศัพท์ใหม่ เช่น = swimming						
20. จำความหมายของคำศัพท์โดยเชื่อมโยงกับประสบการณ์เดิมของตนเอง เช่น จำคำศัพท์ cycling ได้เพราะเคยไปปั่นจักรยานกับเพื่อนต่างชาติ เป็นต้น						
21. จำคำศัพท์เป็นกลุ่มตามความหมายของคำ เช่น apple เป็นผลไม้ชนิดหนึ่งจึงจำคำศัพท์อื่นที่เกี่ยวกับผลไม้ เช่น pears, cherries, peaches ไปพร้อมกัน เป็นต้น						
22. จำกลุ่มคำศัพท์เป็นที่มีความหมายเหมือนกัน (synonym) เช่น fast กับ quick และ คำศัพท์ที่มีความหมายตรงข้าม เช่น(antonym) close กับ open เป็นต้น						
23. ดูของจริงรอบ ๆ ตัว แล้วพยายามนึกถึงคำศัพท์ภาษาอังกฤษ เช่น เห็นตู้เย็น ก็นึกถึงคำศัพท์ refrigerator ที่เคยเรียนมา เป็นต้น						

กลยุทธ์/วิธีการเรียนรู้คำศัพท์ภาษาอังกฤษ	ระดับความถี่					
	5	4	3	2	1	0
24. ใช้แผนภูมิทางด้านความหมายในการจดจำคำศัพท์ (semantic maps) เช่น 						
25. จำคำศัพท์และความหมายของคำคุณศัพท์ (adjectives) โดยใช้คุณศัพท์เปรียบเทียบ เช่น high/higher/highest หรือ จำเป็นกลุ่มความหมาย เช่น big/large/huge เป็นต้น						
26. นำคำศัพท์ใหม่มาฝึกแต่งเป็นประโยค						
27. เมื่อพบคำศัพท์ใหม่ ฝึกท่องตัวสะกด ฝึกออกเสียง และ ท่องความหมายของคำศัพท์เพื่อการจดจำคำศัพท์						
28. จำคำศัพท์จากหน่วยคำเติม (affixes) ได้แก่ คำอุปสรรคเติม ข้างหน้า (prefixes) เช่น possible/impossible หรือคำปัจจัยเติม ส่วนท้ายคำ (suffixes) เช่น beauty/beautiful หรือ คำรากศัพท์ (roots) เช่น คำว่า transport/transfer/transmit มาจากรากศัพท์ของ คำว่า trans เป็นต้น						
29. จำความหมายคำศัพท์จากชนิดของคำ (part of speech) เช่น คำนาม สรรพนาม กริยา คุณศัพท์ เป็นต้น						
30. แปลความหมายของคำศัพท์ใหม่โดยการใช้คำศัพท์เดิม ที่รู้อยู่แล้วจากความเข้าใจของตนเอง (paraphrase)						
31. จำคำศัพท์หรือสำนวนและหรือกริยาวลีที่มาจากคำศัพท์ นั้น ๆ เพื่อสร้างความหมายใหม่ของคำ เช่น try แปลว่า พยายาม/try on = ลองสวม (เสื้อผ้า) หรือ sign in = ลงชื่อ เข้าใช้งาน เป็นต้น						
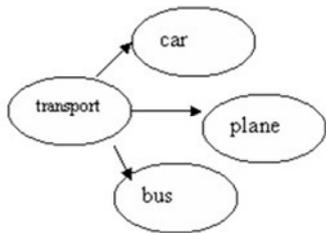
กลยุทธ์/วิธีการเรียนรู้คำศัพท์ภาษาอังกฤษ	ระดับความถี่					
	5	4	3	2	1	0
32. ท่องจำคำศัพท์แบบคล้องจองทางเสียง (rhymes) เช่น room ห้อง long ยาว ขาว white ไกล far เป็นต้น						
33. ทำท่าทางประกอบเพื่อเรียนรู้และจำคำศัพท์ใหม่ เช่น jog ก็ทำท่าวิ่งเหยาะ run ก็ทำท่าวิ่งเร็ว เป็นต้น						
34. ท่องคำศัพท์และความหมายของคำซ้ำ ๆ บ่อย ๆ						
35. ฝึกเขียนความหมายของคำศัพท์ซ้ำ ๆ บ่อยๆ						
36. จดความหมายของคำศัพท์ลงในสมุด หนังสือเรียน						
37. จดจำคำศัพท์จากหนังสือเรียน หรือหนังสืออ่านนอก เวลาอื่น ๆ						
38. จำคำศัพท์และทบทวนความหมายโดยใช้บัตรคำ (flash cards)						
39. จดจำคำศัพท์จากสื่อและสิ่งพิมพ์ต่าง ๆ เช่น ดู ภาพยนตร์ ฟังเพลง หนังสือพิมพ์ ป้ายโฆษณา						
40. วางแผนการเรียนรู้คำศัพท์ด้วยตนเองและทบทวน สม่ำเสมอ						
41. นอกจากกลยุทธ์/วิธีการจดจำความหมายคำศัพท์ดังที่ กล่าวมาแล้ว นักศึกษามีวิธีการอื่น ๆ ในการจดจำ ความหมายคำศัพท์หรือไม่ โปรดระบุกลยุทธ์และระบุ ระดับความถี่...						
กลยุทธ์การนำคำศัพท์ใหม่ไปใช้เพื่อเพิ่มพูนความรู้คำศัพท์						
42. ใช้คำศัพท์ที่เพิ่งเรียนมาพูดหรือเขียนเป็นประโยค						
43. ใช้คำศัพท์ใหม่มาพูดหรือเขียนเมื่อแน่ใจว่ารู้ ความหมายและเข้าใจการใช้คำศัพท์นั้นอย่างถูกต้อง						

กลยุทธ์/วิธีการเรียนรู้คำศัพท์ภาษาอังกฤษ	ระดับความถี่					
	5	4	3	2	1	0
44. ใช้คำศัพท์มาพูดหรือเขียนทั้งที่ยังไม่ค่อยแน่ใจว่าความหมายและการใช้คำศัพท์นั้น ๆ ถูกต้องหรือไม่						
45. เมื่อไม่แน่ใจในการใช้คำศัพท์มาพูด หรือเขียนว่าถูกต้องหรือไม่ จึงกลับมาตรวจสอบความหมายและการใช้คำกับดิกชันนารีหรือหนังสือไวยากรณ์เสมอเพื่อให้การใช้คำศัพท์ในครั้งต่อไปมีความถูกต้องแม่นยำมากขึ้น						
46. เรียกสิ่งต่าง ๆที่พบเห็นในชีวิตประจำวันเป็นภาษาอังกฤษ						
47. เล่นเกมต่าง ๆ ที่ต้องใช้ความรู้ด้านคำศัพท์ เช่น crossword puzzle, scrabble						
48. ร่วมทำกิจกรรมเกี่ยวกับการใช้คำศัพท์ภาษาอังกฤษทั้งในและนอกห้องเรียน เช่น เข้าร่วมการโต้วาทีภาษาอังกฤษ						
49. สนทนาภาษาอังกฤษกับเพื่อน ครู ชาวต่างชาติ						
50. พูดคุย (chat) กับเพื่อนชาวต่างชาติทาง Internet โดยใช้ภาษาอังกฤษ						
51. ฝึกการฟังภาษาอังกฤษจากสื่อต่าง ๆ เช่น ฟังเพลง ข่าว รายการวิทยุ ภาพยนตร์ เป็นต้น						
52. อ่านเรื่องราวต่าง ๆ จากสิ่งพิมพ์ภาษาอังกฤษ เช่น หนังสือนิยาย หนังสือพิมพ์ นิตยสาร จดหมายข่าว แผ่นพับ เป็นต้น						
53. นอกจากกลยุทธ์/วิธีการการนำคำศัพท์ใหม่ไปใช้ดังกล่าวมาแล้ว นักศึกษามีวิธีการอื่น ๆ ในการนำคำศัพท์ใหม่ไปใช้หรือไม่ **โปรดระบุกลยุทธ์และระบุระดับความถี่**						

☺ ขอขอบคุณนักศึกษาทุกคนที่ให้ความร่วมมือเป็นอย่างดีในการตอบแบบสอบถาม ☺

APPENDIX B

VOCABULARY LEVELS TEST

แบบทดสอบวัดความรู้คำศัพท์ภาษาอังกฤษ
สำหรับนักศึกษากลุ่มวิทยาศาสตร์สุขภาพ ชั้นปีที่ 1
มหาวิทยาลัยวลัยลักษณ์ อ.ท่าศาลา จ.นครศรีธรรมราช

แบบทดสอบ 50 ข้อ คะแนนรวม 150 คะแนน   **เวลา 40 นาที**

<u>**คำชี้แจง**</u>

        1. แบบทดสอบฉบับนี้จัดทำขึ้นเพื่อวัดความรู้คำศัพท์ภาษาอังกฤษของนักศึกษา ผลที่ได้จะนำไปวิเคราะห์เพื่อการวิจัย และไม่มีผลใด ๆ ต่อผลการเรียนของนักศึกษา

        2. ขอความร่วมมือนักศึกษาทำแบบทดสอบฉบับนี้อย่างเต็มความสามารถ เพื่อนำผลไปใช้ในการปรับปรุง พัฒนาการเรียนรู้คำศัพท์ภาษาอังกฤษซึ่งจะเป็นประโยชน์ทั้งต่อตัวนักศึกษาเอง และการสอนภาษาอังกฤษต่อไป

        3. ขอให้นักศึกษาทำ**แบบทดสอบให้ครบทั้ง 50 ข้อ** ให้เลือกหมายเลขหน้าคำศัพท์ภาษาอังกฤษมาเขียนลงในช่องว่างหน้าความหมายภาษาไทยให้ถูกต้องตามความหมายที่ให้ไว้ทั้งสามความหมาย

<u>**ตัวอย่าง**</u>

1 business

2 clock   <u> 6 </u>   ผนังห้อง

3 horse   <u> 3 </u>   ม้า

4 pencil   <u> 4 </u>   ดินสอ

5 shoe

6 wall

ข้อ 1 (1,000 word level)

1 could

2 during   _____   ได้, สามารถ

3 this   _____   ระหว่าง

4 piece   _____   เพื่อจะ

5 of

6 in order to

ข้อ 2

1 indeed

2 what   _____   ของฉัน

3 along   _____   จริง ๆ, โดยแท้จริง

4 my   _____   บ้าง

5 some

6 away

ข้อ 3

1 church

2 scene   _____   รถยนต์

3 hour   _____   ความลำบาก

4 trouble   _____   ความจริง

5 fact

6 car

ข้อ 4

1 meet

2 leave   _____   วาง,ใส่

3 put   _____   ให้

4 give   _____   ใช้

5 use

6   begin

ข้อ 5

1   wind

2   room   _____   ผู้ชาย

3   line   _____   เส้น

4   enemy   _____   กลางคืน

5   night

6   man

ข้อ 6

1   kill

2   reply   _____   ก้าวหน้า

3   advance   _____   ตอบ

4   appoint   _____   ฆ่า

5   divide

6   receive

ข้อ 7

1   moment

2   separate   _____   แยกต่างหาก

3   worse   _____   ชั่วขณะ, เวลาสำคัญ

4   free   _____   สีเหลือง

5   heavy

6   yellow

ข้อ 8

1   spring

2   danger   _____   น้อง/พี่สาว

3   stone   _____   อันตราย

4   product   _____   หิน

5   sister

6   subject

ข้อ 9

1   example

2   breadth   _____ ความกว้าง

3   fear   _____ ความกลัว

4   desert   _____ ห้องโถง

5   bit

6   hall

ข้อ 10

1   surround

2   shoot   _____ เหมาะ พอดี

3   paint   _____ เตือน

4   fit   _____ ยิง

5   command

6   warn

ข้อ 11 (2,000 word level)

1   copy

2   event   _____ จุดปลายสุด, ยอด

3   motor   _____ เครื่องยนต์ขับเคลื่อน

4   pity   _____ คัดลอก, เลียนแบบ

5   profit

6   tip

ข้อ 12

1   accident

2   debt   _____ เสียงคำราม

3   fortune   _____ หนี้

4   pride   _____ ความภาคภูมิใจ

5   roar

6 thread

ข้อ 13

1 coffee

2 disease   _____   ค่าจ้าง

3 justice   _____   กระโปรง

4 skirt   _____   ความยุติธรรม ถูกต้องตามกฎหมาย

5 stage

6 wage

ข้อ 14

1 clerk

2 frame   _____   เครื่องดื่มแอลกอฮอล์ชนิดหนึ่ง

3 noise   _____   เสมียน พนักงาน

4 respect   _____   เสียงรบกวน, เสียงดัง

5 theatre

6 wine

ข้อ 15

1 dozen

2 empire   _____   โอกาส

3 gift   _____   จำนวนหนึ่งโหล

4 opportunity   _____   ภาษี

5 relief

6 tax

ข้อ 16

1 admire

2 complain   _____   ขยายออก ทำให้กว้างหรือยาวขึ้น

3 fix   _____   แนะนำ

4 hire   _____   ชื่นชม

5 introduce

6   stretch

ข้อ 17

1   arrange

2   develop   _____   พัฒนา

3   lean   _____   จัด เตรียม

4   owe   _____   ชอบมากกว่า

5   prefer

6   seize

ข้อ 18

1   blame

2   elect   _____   ผลิต

3   jump   _____   เลือกตั้ง

4   manufacture   _____   ละลาย

5   melt

6   threaten

ข้อ 19

1   ancient

2   curious   _____   ยาก

3   difficult   _____   เก่าแก่

4   entire   _____   ศักดิ์สิทธิ์

5   holy

6   social

ข้อ 20

1   bitter

2   independent   _____   สวยงาม น่ารัก

3   lovely   _____   เล็กน้อย, นิดหน่อย

4   merry   _____   เป็นที่นิยม

5   popular

6 slight

ข้อ 21 (3,000 word level)

1 bull

2 champion   _____ ความภูมิฐาน มีเกียรติ

3 dignity   _____ ผู้ชนะเลิศ

4 hell   _____ พิพิธภัณฑ์

5 museum

6 solution

ข้อ 22

1 blanket

2 contest   _____ วันหยุด

3 generation   _____ คุณความดี

4 merit   _____ ผ้าห่ม

5 plot

6 vacation

ข้อ 23

1 comment

2 gown   _____ เสื้อคลุม ชุดยาว

3 import   _____ สิ้นค้านำเข้า

4 nerve   _____ เส้นประสาท

5 pasture

6 tradition

ข้อ 24

1 administration

2 angel   _____ ฝูงสัตว์

3 fort   _____ เทพ นางฟ้า

4 frost   _____ การบริหาร

5 herd

6 pond

ข้อ 25

1 atmosphere

2 counsel   _____ ข้อแนะนำ/เสนอแนะ, ที่ปรึกษา

3 factor   _____ ทุ่งหญ้า

4 hen   _____ แม่ไก่

5 lawn

6 muscle

ข้อ 26

1 abandon

2 dwell   _____ อาศัย

3 oblige   _____ ทำให้ลุล่วง

4 pursue   _____ ละทิ้ง จากไป

5 quote

6 resolve

ข้อ 27

1 assemble

2 attach   _____ เฝ้าดู

3 peer   _____ หยุด ล้มเลิก

4 quit   _____ กรีดร้อง

5 scream

6 toss

ข้อ 28

1 drift

2 endure   _____ อดทน

3 grasp   _____ ถัก

4 knit   _____ จับ/คว้า

5 register

6 tumble

ข้อ 29

1 brilliant

2 distinct   _____   ผอม บาง

3 magic   _____   มั่นคง

4 naked   _____   เปลือย ไม่ปกปิด

5 slender

6 stable

ข้อ 30

1 aware

2 blank   _____   ปกติ

3 desperate   _____   สูงสุด, เหนือสุด

4 normal   _____   ตระหนักรู้

5 striking

6 supreme

ข้อ 31 (5,000 word level)

1 analysis

2 curb   _____   ความกระตือรือร้น

3 gravel   _____   เงินกู้ซื้อบ้าน

4 mortgage   _____   ก้อนกรวด

5 scar

6 zeal

ข้อ 32

1 cavalry

2 eve   _____   เนิน

3 ham   _____   วันก่อนวันหยุดหรือวันเทศกาล

4 mound   _____   ทหารม้า

5 steak

6   switch

ข้อ 33

1   circus

2   jungle   _____   เครื่องดนตรีชนิดหนึ่ง

3   nomination   _____   ม้านั่งไม่มีพนัก

4   sermon   _____   การให้โอวาท เทศนา

5   stool

6   trumpet

ข้อ 34

1   artillery

2   creed   _____   ต้นไม้ชนิดหนึ่ง

3   hydrogen   _____   หลักความเชื่อ

4   maple   _____   ปืนใหญ่

5   pork

6   streak

ข้อ 35

1   chart

2   forge   _____   แผนผัง แผนภูมิ

3   mansion   _____   คฤหาสน์

4   outfit   _____   โรงตีเหล็ก

5   sample

6   volunteer

ข้อ 36

1   contemplate

2   extract   _____   พิจารณา

3   gamble   _____   ฟื้นไข้ ทุเลา

4   launch   _____   ทำให้โกรธ

5   provoke

6   revive

ข้อ 37

1   demonstrate

2   embarrass   _____   พักผ่อน

3   heave   _____   ทำให้แตกเป็นชิ้น

4   obscure   _____   ทำให้รู้สึกอายหรือประหม่า

5   relax

6   shatter

ข้อ 38

1   correspond

2   embroider   _____   ติดต่อกันทางจดหมาย

3   lurk   _____   ซุ่มซ่อน

4   penetrate   _____   โกรธเคือง

5   prescribe

6   resent

ข้อ 39

1   decent

2   frail   _____   เปราะ ชำรุดง่าย

3   harsh   _____   เกี่ยวกับเทศบาล

4   incredible   _____   ซึ่งไม่น่าเชื่อ

5   municipal

6   radical

ข้อ 40

1   adequate

2   internal   _____   เพียงพอ

3   mature   _____   เติบโตเต็มที่

4   profound   _____   โดดเดี่ยว

5   solitary

6 tragic

ข้อ 41 (Academic Word List)

1 area

2 contract   _____ เอกสารสัญญา

3 definition   _____ วิธีการ

4 evidence   _____ หลักฐาน

5 method

6 role

ข้อ 42

1 debate

2 exposure   _____ แผนการ วิธีการ

3 integration   _____ ทางเลือก

4 option   _____ การบูรณาการ

5 scheme

6 stability

ข้อ 43

1 access

2 gender   _____ เพศ

3 implementation   _____ การศึกษาว่าด้วยจิตวิทยา

4 license   _____ ทางเข้า

5 orientation

6 psychology

ข้อ 44

1 accumulation

2 edition   _____ การสะสม

3 guarantee   _____ การรับประกัน

4 media   _____ แรงจูงใจ

5 motivation

6 phenomenon

ข้อ 45

1 adult

2 exploitation _____ การสิ้นสุด

3 infrastructure _____ ยานพาหนะ

4 schedule _____ กำหนดการ

5 termination

6 vehicle

ข้อ 46

1 alter

2 coincide _____ ปรับเปลี่ยน

3 deny _____ ปฏิเสธ

4 devote _____ ระบุ กำหนดชัดเจน

5 release

6 specify

ข้อ 47

1 survive

2 diminish _____ เก็บไว้

3 emerge _____ มีชีวิตรอด, อยู่รอด

4 highlight _____ เน้น

5 invoke

6 retain

ข้อ 48

1 bond

2 channel _____ ทำให้เล็กลง

3 estimate _____ ประมาณ คาดคะเน

4 identify _____ ชี้ตัว แสดงตัว พิสูจน์

5 mediate

6   minimize

ข้อ 49

1   explicit

2   final   _____   สุดท้าย

3   negative   _____   แข็ง

4   professional   _____   เป็นการปฏิเสธ เชิงลบ

5   rigid

6   sole

ข้อ 50

1   abstract

2   adjacent   _____   ติดกัน

3   controversial _____   ซึ่งเป็นการเพิ่มเติม

4   global   _____   ทั่วโลก

5   neutral

6   supplementary

APPENDIX C

READING COMPREHENSION TEST

Reading Comprehension Test

For First Year Health Sciences Students, Walailak University,

Nakhon Si Thammarat

Total test items: 30 items   **Total points: 30 points**

Time allowed: 90 minutes

Instruction: **Read each of five passages below and circle the best answer from a, b, c or d according to each passage.**

Passage 1:

Several hundred million years ago, plants similar to modern ferns covered vast stretches of the land. Some were as large as trees, with giant fronds bunched at the top of trunks as straight as pillars. Others were the size of bushes and formed thickets of undergrowth. Still others lived in the shade of giant club

5 mosses and horsetails along the edges of swampy lagoons where giant amphibians swam.

A great number of these plants were true ferns, reproducing themselves without fruits or seeds. Others had only the appearance of ferns. Their leaves had organs of sexual reproduction and produced seeds. Although their "flowers" did

10 not have **corollas**, these false ferns (today completely extinct) ushered in the era of flowering plants. Traces of these flora of the earliest times have been preserved in the form of fossils. Such traces are most commonly found in shale and sandstone rocks wedged between coal beds.

Today only tropical forests bear living proof of the ancient greatness of

15 ferns. The species that grow there are no longer those of the Carboniferous period, but their variety and vast numbers, and the great size of some, remind us of the time when ferns ruled the plant kingdom.

1. What does the first paragraph mainly discuss?

      a. Plant reproduction

      b. Extinction of ferns

      c. An ancient form and size of plant life

      d. Tropical plant life

2. Which of the following is **NOT** mentioned as a characteristic of the plants described in the passage?

      a. They once spread over large areas of land.

      b. They varied greatly in size.

      c. They coexisted with amphibians, mosses, and horsetails.

      d. They clung to tree trunks and bushes for support.

3. The word 'corollas' in line 10 is closest in meaning to which of the following?

      a. seeds

      b. petals

      c. fruits

      d. branches

4. According to the second paragraph, what makes true ferns different from other plants?

      a. They lived in the shade of other plants.

      b. They covered vast stretches of the land.

      c. They commonly lived in shale and sandstone rocks.

      d. They reproduced themselves asexually.

5. What is true about the third paragraph?

      a. Nowadays, most of plants that grow in tropical forests are ferns.

      b. Nowadays, ancient species of ferns cannot be found in tropical forests.

      c. There are many new kinds of plants in tropical forest derived from ferns.

      d. Ferns can grow and spread quickly only in tropical forests.

6. Who would probably be the author of this passage?

    a. A botanist

    b. A forester

    c. A fern lover

    d. An agriculturalist

Passage 2:

    According to some scientists, migratory birds should be able to **withstand** the winter. A bird's feathery coat is good insulation against the cold. Because a bird is warm-blooded, its body temperature always remains constant, even if the temperature of its surroundings changes.

5   The factors that trigger migratory behavior in birds are difficult to explain. This behavior seems to be instinctive, not learned, for example many northern species leave their summer homes while the weather is still warm and the food supply plentiful. Young arctic terns born at the arctic breeding grounds will take off with the flock for distant lands they have never seen.

10   Bird migrations are probably regulated by the glandular system. Scientists suspect that the changing length of the day is the factor that triggers migratory behavior. In an experiment, migratory birds were kept in artificially lighted rooms. It was found that if periods of darkness were lengthened proportionately, the glands of the birds became active. These glands secrete

15 hormones, which are chemicals that control numerous body functions. Shorter periods of daylight seem to change the hormone balance of birds, so that they retain more fat. This stored fat is the fuel that provides the energy for long flight. The same experiment revealed that the birds became more excited as the artificial night was lengthened. It is probably no coincidence that most flocks begin their migratory flights during the night.

7. What does the passage mainly discuss?

     a. Migratory paths for birds

     b. Why birds migrate

     c. How birds adjust themselves in the winter

     d. Migration in cold climates

8. The word 'withstand' in line 2 is closest in meaning to_____.

     a. prefer

     b. tolerate

     c. regulate

     d. hesitate

9. In paragraph 2, the author mentions young arctic terns as an example of birds that_____.

     a. do not migrate

     b. breed during migration

     c. migrate instinctively

     d. adapt to the cold

10. In the experiment, if a scientist wants to change the hormone balance of birds, which of the following the scientist should do with them?

     a. lengthen periods of daylight

     b. keep them in a dark room

     c. prolong periods of darkness

     d. expose them to light

11. According to paragraph 3, why do birds need fat?

     a. because fat can be converted into energy for their long journey

     b. because they need warmth from fat before migrating during the night

     c. because fat changes the hormone balance of birds

     d. because fat is essential for all warm-blooded animals

12. Who would probably be the author of this passage?

    a. A news reporter

    b. A researcher

    c. A conservative

    d. A novelist

Passage 3:

What makes it rain? Rain falls from clouds for the same reason anything falls to Earth. The Earth's gravity pulls it. But every cloud is made of water droplets or ice crystals. Why doesn't rain or snow fall constantly from all clouds? The droplets or ice crystals in clouds are exceedingly small. The effect of gravity on

5   **them** is minute. Air currents move and lift droplets so that the net downward displacement is zero, even though the droplets are in constant motion.

Droplets and ice crystals behave somewhat like dust in the air made visible in a shaft of sunlight. To the casual observer, dust seems to act in a totally random fashion, moving about chaotically without fixed direction. But in fact

10 dust particles are much larger than water droplets and they finally fall. The average size of a cloud droplet is only 0.0004 inch in diameter. It is so small that it would take sixteen hours to fall half a mile in perfectly still air, and it does not fall out of moving air at all. Only when the droplet grows to a diameter of 0.008 inch or larger it can fall from the cloud.

15 The average raindrop contains a million times as much water as a tiny cloud droplet. The growth of a cloud droplet to a size large enough to fall out is the cause of rain and other forms of precipitation. This important growth process is called "coalescence."

13. What is the main topic of the passage?

    a. The mechanics of rain

    b. The movement of droplets

    c. How Earth's gravity affects clouds

d. Types of clouds

14. What does the word 'them' in line 5 refers to_____.

    a. air currents

    b. snow

    c. clouds

    d. droplets

15. Droplets or Ice crystals do **NOT** immediately fall to Earth because_____.

    a. air currents always blow and lift it up

    b. they combine with other chemicals in the atmosphere

    c. most of them evaporate

    d. their electrical charges draw them away from the earth

16. What can be inferred about drops of water larger than 0.008 inch in diameter?

    a. They never occur

    b. They are not affected by the force of gravity

    c. In still air they would fall to the earth

    d. In moving air they fall at a speed of thirty-two miles per hour

17. How much bigger is a raindrop than a cloud droplet?

    a. 200 times bigger

    b. 1,000 times bigger

    c. 100,000 times bigger

    d. 1,000,000 times bigger

18. Information in this passage may be useful for_____.

    a. air pollution problem solving

    b. water saving

    c. artificial rain production

    d. global warming resolution

Passage 4:

Ever wished you could decide what to dream at night? A Japanese toymaker says it has a new gadget that can help you do just **that**. Tokyo-based Takara Company says that its "Dream Workshop" stand—shaped like an oversized cellular phone dock and about 14 inches tall—can be programmed to
5 help sleepers choose what to dream.

While preparing for bed, the user mounts a photograph on the device of who should appear in the dream, selects music appropriate to the mood—fantasy, comedy, romantic story, **nostalgia**—and records key word prompts, such as the name of a romantic crush.

10 Placed near the bedside, the dream-maker emits a special white light, relaxing music and a fragrance to help the person nod off. Several hours later, it plays back the recorded word prompts, timed to coincide with the part of the sleep cycle when dreams most often occur. It then helps coax the sleeper gently out of sleep with more light and music so that the dreams are not forgotten.

15 The device targets **sleep-deprived** businessmen, a company official said. "There are many businessmen today who say they don't sleep because they are too busy. This gadget can be used to help them dream a good dream" said Takara spokeswoman, Mayuko Hasumi.

In a study conducted on a group of men and women between the ages of
20 20-40, the device had a success rate of 22 percent in inducing dreams in which one of the prompt words appeared.

19. The word 'that' in line 2 refers to _____.

    a. a Japanese toymaker

    b. the Tokyo-based Takara Company

    c. a new gadget can help you to dream

    d. making up your mind what to dream

20. What does the user have to do with a photograph in order to operate the device?

      a. insert it on the device

      b. attach it on the device

      c. select a photograph from the device

      d. take a photo of a person by using the device

21. If you select 'nostalgia' music mode, who would appear in your dream?

      a. an alien from outer space

      b. a comedian playing a joke

      c. your boyfriend/girlfriend in a romantic mood

      d. your family while they are having a happy time

22. The word 'sleep-deprived' in line 15 is closest in meaning to_____?

      a. sleepless

      b. sleepwalking

      c. asleep

      d. sleepy

23. According to the passage, who would be the target group of the new device?

      a. elders

      b. businessperson

      c. company officers

      d. people who have stress

24. What is the main purpose of this passage?

      a. To report success in controlling a human's mind

      b. To show how a new gadget helps us select our dreams

      c. To reveal that technology can help solve the business dilemma

      d. To point out that technology can do anything beyond imagination

Passage 5:

Beijing is a city with deep-rooted traditions. It has a history of more than 3,000 years. The Palace Museum is one of the ancient places in Beijing, with its history of more than 570 years of the 24 emperors who lived and reigned there; **the temple of heaven**, the structure of which holds on an important position in
5   the history of the Chinese architecture, have aroused people's imagination concerning its uniqueness and mystery.

The Palace Museum is located in the middle of Beijing and is the former place of the emperors of the Ming and Qing dynasties. It's the largest and best preserved group of ancient wooden architecture in the world. First built in 1406
10   in the fourth year of Emperor Yongle. It is the place where 24 emperors were enthroned. Occupying an area of 720,000 square meters, the Palace Museum has 9,999 rooms. In 1987, the United Nations Educational, Scientific and Cultural Organization (UNESCO) listed the Palace Museum as part of world cultural heritage.

15   In the northern part of the vast land of China there lies the Great Wall which stretches from east to west, winding over mountains, across grasslands and through in numerous twists and terns. Spanning a total of 5,660 kms, it starts from the banks of the Yalu River in the east and meanders toward the Qilin and Tianshan Mountains in the west. Its **gigantic** proportions of construction, long
20   history and great magnificence have made it known throughout the world and brought it the **reputation** as one of the world's seven wonders in the medieval times. In 1987, the UNESCO named it one of the world's cultural heritages, the imposing Great Wall has long been the symbol and soul of China.

25. What does the passage mainly discuss?
     a. The two ancient places with long history in China
     b. Uniqueness and mystery of the Palace Museum
     c. Beijing history and the temple of heaven
     d. The Great Wall history and the world's seven wonders

26. What does the author mean by describing the Palace Museum as 'the temple of heaven' in the first paragraph?

    a. It's a doubtful place.

    b. It's a magnificent place.

    c. It's an unbelievable place.

    d. It's a forbidden place.

27. What is **NOT** true about the second paragraph?

    a. Emperor Yongle accessed to the throne in year 1402.

    b. The 24 emperors of the Ming and Qing dynasties lived and enthroned in the Palace Museum.

    c. It took 581 years since the first built of the Palace Museum to be entitled as one of world cultural heritage.

    d. The UNESCO recorded the Palace Museum as part of world cultural heritage because it has 9,999 rooms.

28. The word **'gigantic'** in line 19 can be replaced by_____.

    a. excellent

    b. beautiful

    c. huge

    d. elegant

29. According paragraph 3, why the Great Wall is named as one of the world's seven wonders?

    a. because its massive structure, splendor and long history

    b. because it is the symbol and soul of China

    c. because the United Nations named it as the world's wonder

    d. because it is a total of 5,660 kilometers long

30. The word 'reputation' is closest in meaning to which of the following?

    a. replacement

    b. renown

    c. representative

    d. resistance

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