ENGLISH VOCABULARY KNOWLEDGE AND VOCABULARY LEARNING STRATEGIES OF THAI UNDERGRADUATE STUDENTS IN A SCIENCE PROGRAM

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ABSTRACT

Considering the importance of vocabulary knowledge and the significant contributions of vocabulary learning strategy to vocabulary acquisition, the purposes of the present study are 1) to discover the average size of general and academic English vocabulary knowledge of Thai science undergraduate students, and 2) to explore vocabulary learning strategies employed by Thai science undergraduate students. The participants of this study included 165 undergraduate students studying in a science program at a provincial campus of a leading research-based university in Thailand. The research findings were obtained from the Vocabulary Levels Test (VLT) by Schmitt et al, (2001), questionnaires based on Schmitt's (1997) taxonomy of vocabulary learning strategies, and focus group interviews. Statistical analysis revealed that the participants' vocabulary size is below 2,000 words. The questionnaires and the interviews revealed that the most frequently employed vocabulary learning strategy was the determination strategy. Social strategies, memory strategies, cognitive strategies, and metacognitive strategies were employed moderately. Cognitive strategies were the least employed strategy group. In conclusion, the students' vocabulary size and vocabulary learning strategies indicate that the importance of vocabulary knowledge and vocabulary learning strategy as well as the benefits of employing vocabulary strategies should be emphasized. In order to encourage the students to be independent and autonomous learners, pedagogical implications are proposed in an effort to make vocabulary learning strategy instruction potentially worthwhile.

KEY WORDS: VOCABULARY KNOWLEDGE/ VOCABULARY LEARNING
                    STRATEGIES/ UNDERGRADUATE SCIENCE STUDENTS

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ความรู้ทางคำศัพท์และกลยุทธ์การเรียนคำศัพท์ภาษาอังกฤษของนักศึกษาไทยหลักสูตรวิทยาศาสตร
บัณฑิต

ENGLISH VOCABULARY KNOWLEDGE AND VOCABULARY LEARNING STRATEGIES
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บทคัดย่อ
        การวิจัยนี้มีวัตถุประสงค์เพื่อศึกษา (1)   ระดับความรู้ทางคำศัพท์ทั่วไปที่พบบ่อยและ
คำศัพท์ทางวิชาการในภาษาอังกฤษ และ (2) กลยุทธ์การเรียนคำศัพท์ภาษาอังกฤษของนักศึกษาไทย
ระดับปริญญาตรีหลักสูตรวิทยาศาสตรบัณฑิต การวิจัยครั้งนี้ทำการศึกษากับนักศึกษาระดับปริญญา
ตรีหลักสูตรวิทยาศาสตรบัณฑิตที่กำลังศึกษาอยู่ในระดับชั้นปีที่ 2 และ 3   ในมหาวิทยาลัยของรัฐ
จำนวน 165 คน เครื่องมือที่ใช้ในการศึกษาคือ แบบทดสอบวัดระดับความรู้ทางคำศัพท์ภาษาอังกฤษ
แบบสอบถามเกี่ยวกับกลยุทธ์การเรียนคำศัพท์ภาษาอังกฤษ และการสัมภาษณ์ ผลการศึกษาจากแบบ
วัดระดับความรู้ทางคำศัพท์ภาษาอังกฤษพบว่านักศึกษามีความรู้ทางคำศัพท์ในระดับต่ำกว่า 2,000
คำ ผลการศึกษาจากแบบสอบถามและการสัมภาษณ์พบว่านักศึกษาใช้กลยุทธ์การเรียนคำศัพท์
ภาษาอังกฤษทุกประเภท โดยกลยุทธ์ที่ใช้มากที่สุดคือกลยุทธ์แบบพึ่งพาตนเอง กลยุทธ์การเรียน
คำศัพท์ที่นักศึกษาใช้ในระดับปานกลางได้แก่ กลยุทธ์ด้านสังคม กลยุทธ์ด้านความจำและกลยุทธ์
ด้านอภิปัญญา กลยุทธ์การเรียนคำศัพท์ที่นักศึกษาใช้น้อยที่สุดคือกลยุทธ์ด้านพุทธิปัญญา

        ผลการศึกษาจากการวิจัยครั้งนี้ชี้ให้เห็นว่าความรู้ทางคำศัพท์ทั่วไปที่พบบ่อยและ
คำศัพท์ทางวิชาการ รวมทั้งการใช้กลยุทธ์การเรียนรู้คำศัพท์เป็นสิ่งสำคัญในการเรียนและการพัฒนา
ทักษะภาษาอังกฤษ การสอนวิธีการเรียนรู้คำศัพท์ภาษาอังกฤษโดยใช้กลยุทธ์การเรียนรู้คำศัพท์เป็น
ปัจจัยสำคัญในการส่งเสริมให้นักศึกษาสามารถเรียนรู้และพัฒนาทักษะทางภาษาอังกฤษได้ด้วย
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CHAPTER I
INTRODUCTION

1.1 Significance of the Study

Vocabulary is the important fundamental component of foreign language acquisition as it is regarded as the core of a language, and vocabulary knowledge is related to foreign language proficiency (Read, 2000). In order to acquire foreign language effectively, a large amount of vocabulary knowledge is desirable. However, recent frequency-based studies reveal that some English vocabulary are found to appear more frequently and more useful than others. Consequently, it might not be necessary for learners who learn English as a foreign language (EFL learners) to know every word in order to use the language effectively (Nation, 2001). In fact, learners of English as a foreign language should learn certain words that would help them achieve their language learning goals.

In the case of EFL undergraduate students, the knowledge of high frequency vocabulary and academic vocabulary would facilitate a broad range of academic study (Nation, 2001). Correspondingly, a study of English textbooks for science undergraduate students in Thailand reveals that high frequency vocabulary and academic vocabulary cover approximately 80% and 8% respectively in the English coursebooks for Thai science undergraduate students (Poonpon et al., 2001). The occurrence of high frequency vocabulary and academic vocabulary in university level coursebooks suggests that Thai science undergraduate students inevitably have to encounter general English vocabulary and academic words in their study.

Although acquiring vocabulary knowledge is a demanding and time consuming process for non-native language learners, it was found that vocabulary learning strategy is an important factor contributing to successful vocabulary acquisition. For non-native learners, learning vocabulary in a foreign language requires strategic processes to find the meaning of new wordssuch as studying word forms, finding the word meanings from a dictionary, and connecting word forms with

meanings (Ellis, 1997). Toacquire, maintain, and expand vocabulary knowledge, learners should be aware of vocabulary learning strategies and be able to use them as well (Nation, 2001). Studies concerning language learning strategies in Thai EFL contexts conducted to study the relationship between Thai students' language learning strategies and students' vocabulary knowledge reveal that vocabulary learning strategies play a supportive role in enriching vocabulary knowledge(Pringprom, 2009). Moreover, it was found that successful language learners tend to use a wide range of learning strategies (Lawson &Hogben, 1996).

Recent studies of language learning strategy and vocabulary learning strategy in Thai EFL context focusing on the relationship between vocabulary learning strategy and language proficiency reveal that vocabulary learning strategy and vocabulary knowledge are related. Additionally, different groups of students employed different vocabulary learning strategies and the extent to which vocabulary learning strategies are employed also varied. Despite the perceived importance of vocabulary knowledge and vocabulary learning strategies, no study has been conducted to exclusively investigate how, and the extent to which Thai science faculty students learn English vocabulary (Intarapresert, 2010).

Considering the significance contributions of vocabulary learning strategy to vocabulary acquisition, investigating Thai science undergraduate students' vocabulary size and their vocabulary learning strategies, therefore, would be beneficial in terms of identifying Thai science undergraduate students' vocabulary status, their potential insufficiency in vocabulary knowledge, vocabulary learning strategies used, and pedagogical development.

1.2 ResearchQuestions

1.2.1 What is Thai science undergraduate students' average size of general and academic English vocabulary?

1.2.2 What kinds of vocabulary learning strategies are employed by Thai science undergraduate students?

1.3 Objectives of the Study

1.3.1 To discover the average size of general and academic English vocabulary of Thai science undergraduate students

1.3.2 To find out vocabulary learning strategies employed by Thai science undergraduate students

1.4 Pedagogical Implications

1.4.1 To acquire more information on Thai science undergraduate students' knowledge of both general and academic English vocabulary and vocabulary learning strategies

1.4.2 To create language teachers' and students' awareness of general and academic English vocabulary and vocabulary learning strategies

1.4.3 To provide guidelines for the development of course design and language programs to improve Thai science students' vocabulary knowledge

1.5 Scope of the Study

This study focuses on exploring the vocabulary size of general and academic English vocabulary and the vocabulary learning strategies employed by Thai undergraduate students in a science program at one of the provincial campuses of a leading research-based university in Thailand during the second semester of the 2012 academic year.

1.6 Definitions of Key Terms

General English vocabulary: General vocabulary, in this study, refers to vocabulary in the most frequent 2,000-5,000 word frequency bands. Words in these frequency levels are related to learners' language ability (Schmitt et al., 2001).

AcademicWordList(AWL): The list of 570 word families selected from a large corpus of written academic text in the fields of Law, Arts, Communication, and Commerce. The words in the AWL are ones that occur more than 100 times in the entire corpus and at least 10 times in each study areas. The AWL contains 10 sub lists which indicate the degrees of frequency of appearance. Sub list 1 contains the most frequent words while sub list 10 contains the least frequent words.

Academicvocabulary: Words that occur considerably frequently in academic texts but not elsewhere (Nation, 2001). This study focuses on vocabulary listed in the Academic Word List (AWL).

Vocabulary knowledge: This term refers to vocabulary knowledge including knowledge of form, knowledge of meaning, and knowledge on use according to Nation's (2001) conceptual framework of vocabulary knowledge.

Vocabulary learning strategies: Approaches or techniques employed by EFL learners to facilitate independent and effective vocabulary learning.

CHAPTER II
LITERATURE REVIEW

This section reviews four main issues relating to vocabulary and vocabulary learning strategies. First, vocabulary knowledge and its importance are presented. Secondly, the academic vocabulary and the academic word list are reviewed. The third and the fourth sections of this chapter cover vocabulary knowledge assessment and vocabulary learning strategies.

Vocabulary is the crucial component of language learning (Folse, 2004; Zimmerman, 1997). Moreover, vocabulary knowledge and the four language skills: reading, listening, writing, and speaking are related. The lack of vocabulary knowledge certainly obstructs learners' comprehension and language abilities in all areas (Bishop et al., 2009; Folse, 2004; Schmitt, 2000). Vocabulary generally refers to words (Schmitt, 2000). Similarly, vocabulary can be defined as words and their meanings. Vocabulary appears in both oral and written form as well as receptive referring to the perceived words when reading and listening and productive forms which refer to words used in speaking and writing (Nation, 2001). The following section discusses vocabulary knowledge and the importance of vocabulary knowledge.

2.1 Vocabulary Knowledge

Vocabulary knowledge or alternatively known as lexical knowledge is a multi-dimensional construct of interrelated sub-knowledge components (Laufer & Goldstein, 2004). The conceptual framework of this study regarding vocabulary knowledge is based on Nation's (2001) vocabulary knowledge framework which involves a number of aspects of knowledge that can be categorized into three aspects: knowledge of forms, meaning, and use. Nation's (2001) vocabulary knowledge framework is presented in Table 2.1. These aspects will be discussed respectively as follows.

Table 2.1 The framework of vocabulary knowledge (Nation, 2001, 27)

Knowledge of Form	Spoken	R	What does the word sound like?
		P	How is the word pronounced?
	Written	R	What does the word look like?
		P	How is the word written and spelled?
	Word parts	R	What parts are recognizable in the word?
		P	What word parts are needed to express the meaning?
Knowledge of Meaning	Form and meaning	R	What meaning does this word form signal?
		P	What word form can be used to express this meaning?
	Concept and referents	R	What is included in the concept?
		P	What item can the concept refer to?
	Associations	R	What other words does this make us think of?
		P	What other words could we used instead of this one?
Knowledge on Use	Grammatical functions	R	In what patterns does the word occur?
		P	In what patterns must we use this word?
	Collocations	R	What words or types of words occur with this one?
		P	What words or types of words must we use with this one?
	Constraints on use	R	When, where, and how often would we expect to meet this word?
		P	When, where, and how often would we use this word?

R = Receptive knowledge, P= Productive knowledge

2.1.1 Knowledge of form

Firstly, vocabulary knowledge includes the learners' abilities to recognize forms of words which are spoken and written forms as well as word parts of vocabulary (Nation, 2001). When hearing a word in a spoken form, learners must recognize it and be able to produce the same word with the correct sounds and stress patterns. To produce the correct spoken form of vocabulary, pronounceability of the word is a factor that must be considered (Nation, 2001). The degree of pronounceability is influenced by similarities between the first and second language. Laufer (1997b) asserts that phonological differences between first and second language can cause difficulties for learners to distinguish sounds and produce those sounds. Second language vocabulary possessing similar sounds and stress patterns to that of the first language tend to be easier to be pronounced. It is, therefore, easier for learners to acquire. Moreover, learners should be exposed to a large number of vocabulary in the second language and make themselves familiar with the underlying patterns of the words and the sound patterns. Thus, familiarity with underlying word patterns and features can affect the pronounceability of words (Laufer, 1997b).

Besides the spoken form, Nation (2001) further points out that language learners need to pay attention to written forms of vocabulary. One way to improve learners' familiarity with the written form of words is to practice vocabulary spelling. Learners can acquire new vocabulary through the training process that involves several steps including exposing, analyzing, categorizing, and relating the new words in written forms with their spoken forms. The difficulty of learning written form depends on the similarity between first and second language spelling systems and the knowledge of the spoken form of vocabulary learned in the second language.

Apart from knowing spoken and written forms of vocabulary, learners need to know what the word is made of. Generally, words are composed of two parts: stems and affixes. Therefore, to learn vocabulary, learners should be familiar with regular affixes and their meanings to be able to recognize the meaning of the words and express meanings based on word parts. Knowing word forms also means knowing word families and their members (Milton, 2009; Nation, 2001).

2.1.2 Knowledge of meaning

To acquire vocabulary knowledge effectively, learners should be able to understand the original meaning of the words and also understand the meaning according to the context where the words appear. Understanding the word meanings involves the learners' ability to connect the form with the meaning (Milton, 2009; Nation, 2001). Connection between forms and meanings determines the readiness to recognize the words when hearing and retrieving the meaning of the word whenever one wants to express meaning. Nation (2001) states that knowing the meaning of cognates or loan words which exist and share meanings in both first and second language would facilitate vocabulary acquisition. Furthermore, it is important to be able to recognize 'homonyms' or words sharing the same form but have different meanings. Homonyms include homographs which are words with the same written forms and homophones or words with the same spoken forms. Nation (2001), thus, suggests that language learners must also take homonyms into account and try to select the right word with the right meaning to fit in given contexts.

2.1.3 Knowledge on use

The third aspect of acquiring vocabulary is acquiring the correct use of vocabulary (Nation, 2001). Word use not only includes knowing parts of speech and language patterns but also covers collocations and constraints on use (Nation, 1990; 2001). Learners' awareness on collocations can reduce their learning difficulties. Nation (2001) suggests that if similar collocations exist in both first and second language, learners would face less difficulty learning vocabulary. Additionally, there are constraints in a language. When employing a second language, learners should also learn which terms are considered appropriate or inappropriate in the target language and then try to avoid using the inappropriate term. Cultural issues are other factors besides restricted use of words to be considered. Some constraints in one language may be permitted in another according to different cultures of people who use the language. For example, English speakers might find the word 'old' rather offensive while in other cultures this particular same term might be accepted as a compliment carrying the sense of wisdom of the addressee (Nation, 2001, p.58).

The following section discusses the importance of vocabulary knowledge on four aspects of language learning namely reading, listening, writing, and speaking.

2.2 The Importance of Vocabulary Knowledge

2.2.1Vocabulary and reading

Reading skill is regarded as the most fundamental skill of language that can affect learners' academic success. Reading ability is also related to and affected by vocabulary knowledge as sufficient vocabulary knowledge facilitates reading comprehension (Hu & Nation, 2000; Nation, 1990; Nation & Coady, 1988; Perfetti, 2007; Thavornpon & Sripetpun, 2012; Wise et al., 2007). Vocabulary knowledge was found to be the most important factor related to reading comprehension compared with other factors (Laufer, 1997a). In support of the idea that vocabulary knowledge is crucial to reading comprehension, Stæhr (2009) indicates that learners' vocabulary size and the quality of their vocabulary knowledge are factors that predict academic reading comprehension.

Not only is vocabulary knowledge related to reading comprehension, but it is also strongly related to reading speed (Jordan, 1997). Readers with sufficient vocabulary knowledge can read efficiently within less time spent since their vocabulary knowledge assists in word identification (Perfetti, 2007). The requirement for vocabulary knowledge increases as learners read academic texts or university level texts as learners are demanded to read more. Consequently, encountering unknown words and unfamiliar phrases while reading often causes comprehension difficulties (Jordan, 1997; Joshi, 2005; Schmitt, 2000). Learners with academic purposes need academic vocabulary knowledge for effective academic reading (Clark & Ishida, 2005; Nation, 1990). The lack of vocabulary knowledge certainly affects learners' comprehension ability and could be disadvantageous especially for EFL learners (Clark & Ishida, 2005; Folse, 2004).

2.2.2 Vocabulary and listening

The degree of listening comprehension depends greatly on the language proficiency of listeners. Listeners with limited linguistic knowledge, such as vocabulary, face difficulties when encountering unknown words. Their limited knowledge of vocabulary is an obstruction for interpretation (Stæhr, 2009).

A study of vocabulary knowledge and listening comprehension in EFL learners reveals the association between vocabulary knowledge and listening comprehension. For EFL learners, knowledge of vocabulary is critical to listening comprehension since it is a fundamental factor contributing to correct comprehension (Stæhr, 2009). However, EFL learners tend to be less efficient in listening as they have limited contact with English (Nation, 1990). In order to understand what they hear correctly, learners need to have good listening skills and adequate word knowledge stored in their lexicon (Folse, 2004). Without sufficient vocabulary knowledge, extracting the meaning of any listening passage can be quite challenging.

2.2.3 Vocabulary and writing

For learners with academic purposes of any study areas, one language skill that cannot be overlooked is writing (Jordan, 1997). The requirement for academic writing is greater at the university level as learners are expected to write in academic register using correct grammar and sophisticated vocabulary (Breeze, 2009).

Non-native learners tend to use the same vocabulary repeatedly in writing as their vocabulary size is much smaller than that of native learners (Breeze, 2009). They are not familiar with both academic register and academic vocabulary. Moreover, they have insufficient knowledge of word selection for appropriate academic writing. The lack of vocabulary knowledge reflects vocabulary variety in writing. According to Nation (1990), writing is the most common way to assess learners' knowledge in academic study, limited vocabulary range is one of the factors that cause difficulties in academic writing for university students (Jordan, 1997; Leki & Carson, 1994).

In EFL contexts, a study of lexical errors in Thai third-year university students' writing yields similar results that vocabulary knowledge is important to writing skills (Hemchua & Schmitt, 2006). The lack of precise knowledge of words is

the most frequent problem found in the students' writing. The students' unawareness of formal register and their use of incorrect synonyms with unidentical meanings reflect their insufficient vocabulary knowledge causing errors in their composition (Hemchua & Schmitt, 2006). Hence, it can be concluded that vocabulary is important to writing, and the lack of sufficient and precise vocabulary knowledge can affect EFL learners' writing skills.

2.2.4 Vocabulary and speaking

For speaking, less vocabulary is required because topics of speaking tend to be less formal than those of writing (Nation, 2001). Yet, learners should be equipped with vocabulary knowledge in order to be able to produce fluent speech. According to Ferris and Tagg (1996), at university level, speaking skills required vary across academic disciplines. University level learners are often expected to participate in class activities, small group discussions, and give presentations. The requirement for various uses of speaking skill implies that learners need vocabulary knowledge to participate in academic studies successfully.

To sum up, vocabulary is related to four language skills as it plays a supportive role in language learning. However, this study's purposes are to find out university students' vocabulary knowledge and vocabulary learning strategies, it is necessary to review the concept of academic vocabulary which is included as a part of the researching tool employed in this study.

The following section discusses academic vocabulary and its contributions to academic study.

2.3 Academic Vocabulary

There are four different levels of vocabulary; high frequency vocabulary, academic vocabulary, technical vocabulary, and low frequency vocabulary (Nation & Chung, 2009). Academic vocabulary is a term given to a kind of specialized vocabulary that differs from non-academic vocabulary in terms of the context in which they occur. Academic vocabulary commonly occurs frequently in academic texts.

Even though academic vocabulary is a kind of specialized vocabulary, it is not technical vocabulary as it is not limited to any particular study area (Nation, 2001).

Academic vocabulary plays an essential role in every aspect of academic study. Academic reading and writing, for example, rely heavily on knowledge of academic vocabulary. Laufer (1997a) points out that vocabulary knowledge is, in fact, related to the proficiency level in reading comprehension. Knowledge of vocabulary, especially high-frequency vocabulary, is an indicator of academic success. As learners' vocabulary knowledge exceeds, the higher level of efficiency is expected. Similarly, Coxhead (2000) suggests that the size of vocabulary knowledge affects learners' abilities to cope with reading and writing, thus, it is important to achieve academic vocabulary knowledge.

Similarly, in the EFL context, knowledge of academic vocabulary is found to be essentially supportive knowledge to university level learners. In order to understand academic texts written in English and write academically, learners need to have academic vocabulary knowledge (Nurweni & Read, 1999; Song, 2002). Having knowledge of academic words, therefore, would be an advantage as Coxhead (2000) claims that although the academic words are not the core component of any specific area of academic study; they still play a supportive role in academic study. Morris and Cobb (2004) indicate that knowledge of academic vocabulary has a correlation with academic performance as the productive use of academic vocabulary indicates the learners' ability of accessing academic and formal language register which is considered essential and advantageous for academic studies.

It is noted that even though academic vocabulary occurs in a wide range of academic texts, it is still not a well-known kind of vocabulary (Coxhead & Nation, 2001). However, due to its occurrence in academic studies, academic vocabulary is combined into a list named the Academic Word List (AWL), which will be explained in the next section.

2.3.1 Academic word list

The Academic Word List is based on the assumption that certain words with high frequency and wide coverage in different kinds of texts are more useful for learners (Coxhead, 2000). It was originally created for study programs with academic

purposes (Milton, 2009; Read, 2000). Learners doing academic studies could benefit from this list as it contains useful academic words.

The Academic Word List (AWL) is the list of 570 word-families developed by Coxhead (2000) who defines 'word family' as a word and all of its related affixed forms and derivatives. The Academic Word List was compiled from 3,500,000 running words in four academic disciplines: Science, Law, Arts, and Commerce. Words in this list are selected based on their frequency of occurrence in the academic texts. The AWL provides 10% coverage of academic texts (Coxhead, 2000).

The 570 selected words were divided into 10 sub lists according to their frequency of occurrence in academic texts. Sub list 1 contains the most frequent words while sub list 10 contains the least frequent words (The Academic Word List can be accessed from http://www.victoria.ac.nz/lals/resources/academicwordlist/publications/awlsublists1.pdf).

There are 3 criteria for the selection of words in the AWL. First of all, the selected words are not included in the most frequent 2000 words. Proper nouns and function words such as 'the' and 'in' are not included in the AWL. Next, the words must cover a wide range of academic areas. The occurrence of the word must not be less than 10 times in each of the Science, Law, Arts, and Commerce subject areas and at least 15 times of the overall 28 subject areas. Frequency is the last criteria of selection. The word families selected must be ones whose members occur fairly frequently in the academic corpus which is at least 100 times (Coxhead, 2000; Folse, 2004; Read, 2000).

Additionally, the words chosen must represent a variety of academic registers (Coxhead, 2000). Therefore, words in the Academic Word List are taken from various academic sources such as journal articles, textbook chapters, and laboratory manuals (Read, 2000). According to its academic nature and systematic compilation, the AWL is widely used as a reference list for language teaching and testing (Read, 2007).

Since the AWL is a compilation of words from academic texts and intended for academic purposes, this list is used widely in developing language materials, language teaching and testing (Nation, 2001; Paquot, 2010; Read, 2000).

Moreover, the use of high frequency word lists such as the AWL is a very useful way of teaching specialized vocabulary as the list contains common words in academic areas (Schmitt, 2000). Words in the AWL can be set as vocabulary learning goals (Coxhead, 2000). The list can help learners focus on useful specific words they need. Along with setting learning goals, the AWL can be applied to language teaching, material development and English for Academic Purposes (EAP) course design and classroom activities. When knowledge of academic vocabulary is properly stored in learners' vocabulary repertoire, this kind of vocabulary can certainly facilitate academic studies (Coxhead, 2000). Even though the AWL is an essence of vocabulary learning, it should not be a learning prescription. Instead, vocabulary lists should work as a guide or assistance to vocabulary learning (Schmitt, 2000).

In sum, the knowledge of academic vocabulary is an important part of academic success (Nation, 2001). In terms of coverage, assuming knowledge of the most frequent 2000 words, academic vocabulary benefits learners as it adds up 10% coverage to the existing 80% from the most frequent 2000 words resulting in almost 90% coverage of words in academic texts (Richard, 2011). When supplemented by learners' technical vocabulary knowledge, learners can nearly reach 95% coverage of the texts which is sufficient for minimum requirement for reading comprehension (Laufer, 2010; Nation, 2001). Considering the contributions of academic vocabulary knowledge to academic study, exploring Thai science undergraduate students' academic vocabulary knowledge would be beneficial in terms of identifying the students' vocabulary knowledge and language teaching.

2.4 Assessing Vocabulary Knowledge

Due to vocabulary's role as the basic foundation of language knowledge, it is necessary to assess the learners' vocabulary size to trace their vocabulary acquisition progress (Coxhead, 2000; Eyckmans, 2004; Nguyen & Nation, 2011; Read, 2000; Schmitt, 2000). For EFL learners, the vocabulary size of most frequent 2,000 words would be adequate for basic communication in English. The mastery of the 3,000 frequency levels suggests an initial point where learners can read authentic texts (Schmitt et al., 2001). However, for non-native learners to reach the threshold of

independent reading, the most frequent 5,000 words level should be reached (Hazenberg & Hulstijn, 1996; Laufer, 2010; Nation & Waring, 1997). Later, a number of research reveal that the knowledge of 8,000 word families which provides 98% of text coverage is required to read independently, but the knowledge of 4,000-5,000 word families with 95% coverage is still regarded as a minimum requirement for reading comprehension (Laufer, 2010; Milton, 2009; Nation, 2006). Moreover, academic vocabulary knowledge is also necessary for learners engaging in academic study (Schmitt et al., 2001). The proposed vocabulary size is quite intimidating for non-native learners. Yet, they can be considered as an indicator of learners' potential for success (Ishii & Schmitt, 2009).

As vocabulary size can indicate learners' knowledge and potential language difficulties, it is necessary to be assessed. Typically, vocabulary tests are administered to measure learners' vocabulary size (breadth of knowledge) both for diagnostic and placement purposes. Due to the complex nature of vocabulary, the assessment of vocabulary size produces results suggesting partial vocabulary knowledge (Nguyen & Nation, 2011). In fact, several researchers agree that assessing partial knowledge can be quite satisfactory (Ishii & Schmitt, 2009; Nation, 2001; Read, 2004; Schmitt et al., 2001).

In order to assess the students' vocabulary knowledge, this study examines Thai science undergraduate students' vocabulary knowledge of high frequency vocabulary and academic vocabulary focusing exclusively on the students' knowledge of words meanings.

The following section presents another key issue of this study which is vocabulary learning strategies. Vocabulary learning strategies and its importance to vocabulary learning as well as the taxonomy of vocabulary learning strategies are discussed.

2.5 Vocabulary Learning Strategies and Their Importance

Oxford (1990) defines learning strategies as "specific actions taken by the learner to make learning easier, faster, more enjoyable, more self-directed, more effective, and more transferrable to new situations" (p. 8). Vocabulary learning strategies (VLS) are techniques that language learners use to acquire vocabulary (Asgari & Mustapha, 2011; O'Malley & Chamot, 1990; Schmitt, 2000). In the process of vocabulary learning, language learners use multiple strategies simultaneously. Learning strategies can support language learning and enhance learners' self-regulation. Moreover, it is suggested that learning strategies can be trained (Nation, 2001; Oxford, 1990).

As learning strategies facilitate both the discovery and the consolidation of word meanings, they are thus important not only for vocabulary learning but also for language learning in general. Learning strategies are important because they encourage self-directedness and make learners become more independent (Oxford, 1990). Hence, teaching vocabulary learning strategy is necessary (Coady, 1997). These self-regulated strategies can potentially lead to increased vocabulary knowledge (Ghazal, 2007).

Vocabulary learning strategies are useful especially when dealing with low frequency words. It is not worth spending time teaching low frequency words which will rarely be met by learners. Therefore, learners can use vocabulary learning strategies to discover word meanings by themselves (Nation, 2001).
The study is based on the taxonomy of vocabulary learning strategies (Schmitt, 1997). The following sections offer details regarding this framework.

2.6 A Taxonomy of Vocabulary Learning Strategies

Vocabulary learning strategies, according to Schmitt's taxonomy (1997), can be categorized into discovery strategies and consolidation strategies. Vocabulary learning strategies that learners use in learning the meaning of new words are termed discovery strategies whereas consolidation strategies are strategies employed in retaining or consolidating meaning of encountered words (Schmitt, 1997; 2000). The taxonomy of vocabulary learning strategies is as follows.

Table 2.2 Taxonomy of vocabulary learning strategies adopted from Schmitt (1997)

Discovery Strategies		Consolidation Strategies	
Determination Strategies	Analyze parts of speech	**Social Strategies**	Study and practice meaning in a group
	Analyze affixes and roots		Teacher checks students' flash cards or word lists for accuracy
	Check for L1 cognate		Interact with native speakers
	Analyze any available pictures or gestures	**Memory Strategies**	Study word with a pictorial representation of its meaning
	Guess from textual context		Image word's meaning
	Bilingual dictionary		Connect word to a personal experience
	Word lists		Associate the word with its synonyms and antonyms
	Flash cards		Use semantic maps
Social Strategies	Ask teacher for paraphrase or synonym of new word		Use 'scales' gradable adjectives
	Ask teacher for a sentence including the new word		Loci method
	Ask classmates for meaning		Group words together to study them
	Discover new meaning through group work activity		Group words together spatially on a page
			Use new word in sentences
			Group words together within a story line
			Study the spelling of a word
			Study the sound of a word
			Say new word aloud when studying
			Image word form

Table 2.2 Taxonomy of vocabulary learning strategies adopted from Schmitt (1997) (cont.)

Discovery Strategies	Consolidation Strategies	
	Memory Strategies	Underline initial letter of the word
		Configuration
		Use Keyword Method
		Affixes and roots (remembering)
		Part of speech (remembering)
		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 grid
	Cognitive Strategies	Verbal repetition
		Written repetition
		Word lists
		Flash cards
		Take note in class
		Listen to tape of word lists
		Put English labels on physical objects
		Keep a vocabulary notebook
	Metacognitive Strategies	Use English language media (songs, movies, newscasts, etc.)
		Testing oneself with word test
		Used spaced word practice
		Skip or pass new word
		Continue to study word overtime

2.6.1 Discovery strategies

Discovery strategies consist of determination and social strategies. Determination strategies are used when learners discover meaning of new words without seeking help from others. In finding the meaning of new words by themselves, learners may guess the meaning from part of speech that the new word belongs to, root and affixes of the word, the given contexts or available pictures, guess the meaning from their own language knowledge, and use references such as monolingual or bilingual dictionaries (Schmitt, 2000).

Social strategies, on the other hand, refer to strategies employed in learning the meaning of words by interacting with other people (Muensorn & Tepsuriwong, 2009; Schmitt, 1997). In order to discover meanings of new vocabulary, learners can apply social strategies by asking teachers and classmates for direct translations, synonyms, and paraphrases (Schmitt, 1997).

2.6.2 Consolidating strategies

Consolidation strategies are strategies used to consolidate and retain vocabulary knowledge for future use (Schmitt, 1997). According to Schmitt (1997), four strategies are included in consolidating the meaning of encountered vocabulary namely social strategies, memory strategies, cognitive strategies, and metacognitive strategies. The following section discusses these four strategies.

Social strategies are included in discovery strategies and consolidating strategies because these strategies facilitate both purposes. First of all, social strategies used in discovering word meaning can play a part in meaning consolidation. In retaining word meaning, learners can practice their vocabulary through interaction with others such as working in group with friends and talking with native speakers. They could ask teacher to check their language accuracy as well.

Secondly, retaining words' meanings involves using memory strategies. Learned words can be remembered by integrating with learners' existing knowledge or experience. Another way to help remember word meanings is to use imagery. Learners can create mental pictures and relate those pictures to the words. Moreover, related words can be memorized together. For example, synonyms which are related in the sense of meaning can be memorized together to facilitate word recall. Similarly, words

belonging to the same categories can be naturally grouped together (Schmitt, 1997). Other memory strategies are remembering orthographic and phonological forms of words. In sum, memory strategies are about elaborately making meaningful association or creating a mental linkage between learners' existing word knowledge and new information (Schmitt, 1997).

The third kind of consolidation strategies is cognitive strategies. Cognitive strategies involve mechanical means of vocabulary learning such as repeatedly write the words or speak the words aloud. Listening to language and imitating native speakers are also forms of cognitive strategies. Taking notes in class or using additional learning aids such as flash cards, word lists, or vocabulary notebook is also useful to help reviewing and remembering the words (O'Malley & Chamot, 1990; Schmitt, 1997). Since cognitive strategies emphasize practicing, they are useful for learning language (Oxford, 1990).

The last group of strategies according to Schmitt's taxonomy is metacognitive strategies. Metacognitive strategies concern the learners' process of evaluating their own learning (O'Malley & Chamot, 1990; Schmitt, 1997). Learners use these kinds of strategies when they plan to monitor and control their learning such as scheduling their language study, planning to gain access to more input in order to maximize their learning, planning to practice the language, and testing themselves with language tests (O'Malley & Chamot, 1990; Schmitt, 2000).

Komol and Sripetpun's (2011) study of vocabulary size and vocabulary learning strategies reveal that vocabulary learning strategies and vocabulary size are related. It was found that students who used more vocabulary learning strategies performed better in vocabulary size test. Despite the importance of vocabulary learning strategies, Ellis (1994) suggests that it is necessary to find out the learners' preferred strategies before teaching them to use any strategy. After identifying learners' preference, teachers then know which strategies to teach. Finally, teachers need to emphasize the importance of using strategies and encourage learners to apply both discovery and consolidating strategies (Muensorn & Tepsuriwong, 2009). Moreover, O'Malley and Chamot (1990) suggest that vocabulary learning strategies are not exclusively learned by high competence learners, they can be introduced to less competent learners as well.

To conclude, vocabulary learning strategies are important to language learners as they facilitate discovering words meanings and consolidating vocabulary knowledge. Schmitt's (1997) taxonomy of vocabulary learning strategies is employed as a framework for the development of this study's research instruments. The questionnaires and the interview questions regarding the students' vocabulary learning strategies are developed according to the framework.

2.7 Chapter Summary

Vocabulary knowledge is an important component of language learning. Knowing word forms, meaning, and word use are the three aspects of vocabulary knowledge. At the university level, the knowledge of most frequent words and academic vocabulary facilitates academic studies. Word list such as the academic word list containing high frequency academic words could benefit language learners with academic purposes as it provides some useful words relating to academic studies. In addition, word lists can also be used as the basis for vocabulary learning, teaching, and vocabulary knowledge assessment.

Another important aspect of language learning that should not be overlooked is the knowledge of language learning strategies. In the case of vocabulary, there are several ways to acquire new vocabulary through the employment of vocabulary learning strategies. In finding the meaning of new vocabulary, for instance, one could find it by using strategies such as using dictionaries, guessing the meaning from the stems and affixes of the word or asking other people. Likewise, retaining the meaning of the learned vocabulary could be achieved by using vocabulary consolidation strategies. For example, one could use strategies such as memorizing words with similar meaning in groups, saying the word aloud, writing the words repeatedly, linking the words with existing knowledge or personal experience, or using word lists. In conclusion, vocabulary learning strategies are crucial since they assist acquiring the meaning of new words and retaining the meanings of encountered vocabulary which can potentially have positive effects on learners' vocabulary knowledge.

CHAPTER III
RESEARCH METHODOLOGY

This chapter presents the research methodology employed to obtain information regarding students' vocabulary knowledge and their vocabulary learning strategies. The research instruments including the Vocabulary Levels Test, the questionnaire, and the research methods are discussed in this chapter.

3.1 Case Study as a Research Method

Case study is a research methodology that focuses on obtaining detailed understanding of a particular participant or case (Duff, 2012). It is suggested that case study is a suitable method that can be employed in a variety of contexts and topics the field of second language acquisition (Dörnyei, 2007).

According to Dörnyei (2007), the advantage of case study is that it provides the opportunities to study and gain understandings of a particular group of people's behaviors and thoughts in context. However, the limitation of utilizing case study in research is the generalizability of the research results (Dörnyei, 2007). Therefore, it is necessary to employ several research tools in this study including questionnaires and focus group interview to obtain accurate and sufficiently valid data.

Case study was employed as a research method in this study since the study aimed to exclusively examine Thai science undergraduate students' vocabulary knowledge and vocabulary learning strategies. Vocabulary knowledge is important to this group of students as well as other groups of students pursuing their academic studies as they have to encounter both high frequency English vocabulary and academic vocabulary in their studies

(Poonpon et al., 2001). Hence, case study is a suitable method for examining the selected group of participants within this research context.

3.2 Research Participants

Participants of this study were 165 students studying in the 2nd and 3rd years in a Bachelor of Science program in a selected provincial campus of the leading research-based university in Thailand. Participants were selected based on the principle of purposive sampling and because they were assumed to have knowledge of vocabulary especially the most frequent 2,000 words from their previous academic background.

3.3 Data Collection

The data of this study drew upon 3 main research tools: Vocabulary Levels Test (VLT), questionnaires, and focus group interviews. Firstly, the participants' vocabulary knowledge was acquired from the Vocabulary Levels Test. Then, the questionnaires were given to the research participants to obtain information about their vocabulary learning strategies. Lastly, the four sessions of focus group interviews were conducted to gain the participants' insight about vocabulary learning strategies. The acquired data were triangulated to establish validity of research findings. Each research instrument will be discussed as follows.

3.3.1. Vocabulary levels test (VLT)

The Vocabulary Levels Test was employed in this study to find out the students' vocabulary levels of knowledge. The Vocabulary Levels Test revised and validated by Schmitt et al. (2001) is a matching test which the test takers need to select and match the correct words with their definitions. This test is claimed to be the "best-known and the most-used vocabulary size test" (Ishii & Schmitt, 2009, p.8). The Vocabulary Levels Test was originally designed by Paul Nation in 1990 to be the diagnostic test of vocabulary knowledge. The test consists of five vocabulary levels namely the 2,000, 3,000, 5,000, 10,000 word frequency levels, and the academic vocabulary section. Academic words exist in the 2,000-10,000 frequency range, hence, it is not considered to fit in or between any mentioned frequency levels. Each level has 10 word clusters. Six words are provided in each cluster; however, only 3 words are

being directly tested. In this study, the total number of words tested was 120. Although, this number of words may seem inadequate to represent the total size learners' vocabulary, it has been statistically proved to be reliable. Moreover, the test was suitable for estimating vocabulary size since it is easily administered and calculated (Nation, 2001). The VLT used in this study is a bilingual version which the given definitions of the tested words were translated into Thai. Using bilingual version test is an efficient means to test the learners' vocabulary knowledge directly without relying on irrelevant second language knowledge (Nation, 2001). The format of the test is as shown in the following example (See Appendix B for the full version).

This is a vocabulary test. You must choose the right word to go with each meaning. Write the number of that word next to its meaning.

Here is an example.

1 business

2 clock   _____ กำแพง

3 horse   _____ ม้า

4 pencil   _____ ดินสอ

5 shoe

6 wall

You answer it in the following way.

1 business

2 clock   ___6___ กำแพง

3 horse   ___3___ ม้า

4 pencil   ___4___ ดินสอ

5 shoe

6 wall

Some words are in the test to make it more difficult. You do not have to find a meaning for these words. In the example above, these words *are business, clock, shoes*

Vocabulary Levels Test adapted from: Schmitt (2000)

In this study, the 2,000, 3,000, 5,000 word frequency levels, and the academic vocabulary section were selected and used as the research instrument. The 10,000 frequency level was excluded because words in this level are low frequency words that students will rarely encounter in English (Nation, 2001; Read, 2000).

Words included in the test were randomly selected. Each word has different orthographic forms and meanings. The format of this test requires little reading and grammatical knowledge to complete. The test focuses on vocabulary knowledge of the test takers. The test score reflects the test takers' vocabulary knowledge. This information identifies possible lexical inadequacy that would result in difficulty coping with reading authentic texts and other language tasks.

Although the Vocabulary Levels Test is a unidimensional test which aims to test only partial knowledge, it is claimed to be sufficiently effective in estimating vocabulary size (Nation, 1990). It is also applicable to diagnose vocabulary deficiency and placement purposes as it indicates the learners' initial vocabulary knowledge (Schmitt, 2000; Schmitt et al., 2001). However, it is important to keep in mind that receptive vocabulary knowledge measured by the Vocabulary Levels Test cannot directly guarantee test takers' productive vocabulary knowledge.

Considering the accumulative nature of vocabulary acquisition, the unidimensional nature of the test is not considered a serious issue in vocabulary testing (Nation, 2009). Read (2004) also indicates that testing full knowledge of the particular sets of words is not necessary because testing of selective words will suffice. It is important to note that there is no standard test currently available that can test all the aspects of vocabulary knowledge and it is impractical to test all the aspects of word knowledge (Milton, 2009; Nation, 2001; Schmitt et al., 2001; Schmitt, 2009).

In terms of scoring method and result interpretation, one mark was given to each correct answer in the 2,000, 3,000, 5,000 word frequency levels, and the academic vocabulary section. The test scores were carefully calculated. The students' vocabulary knowledge was presented in terms of word frequency level they possess rather than the exact vocabulary size. Although vocabulary size is not estimated using this scoring method, individuals' vocabulary profiles were revealed. The mastery criterion score for each level is 26 out of 30 (Schmitt et al., 2001).

In order to interpret the test result, it is important to consider that the most frequent 2,000 words cover 80% of the running words while the academic vocabulary accounts for 10%. The rest are proper nouns and technical vocabulary which are roughly estimated to provide coverage of 5% each (Nation, 2001). Thus, if the participants could score at least 26 out of 30 in the 2,000 frequency level, they will understand the majority of running words encountered. With addition of technical vocabulary knowledge and proper nouns, the participants would have potential to reach the minimum threshold for academic reading which is 95% (Laufer, 2010). Milton (2009) explains that there are two main reasons why it is difficult to reach 95-98% comprehension in academic reading. First, understanding academic vocabulary is demanding task which requires considerable amount of word knowledge; therefore, it is not always easy to gain knowledge of words in academic genre. Secondly, considering the fact that the Academic Word List is a combination of words from a various academic study areas, learners often need additional knowledge of specialist vocabulary or technical vocabulary of their study areas in order to reach the comprehension threshold (Milton, 2009).

In this study, the test scores of all participants are discussed to show the overall vocabulary knowledge of Thai science undergraduate students.

3.3.2. Questionnaires

Additional information concerning participants' vocabulary learning strategies was obtained from a set of Likert scales questionnaires based on taxonomy of vocabulary learning strategies (Schmitt, 1997) distributed to participants after the test (See Appendix C). The questionnaire's objective was to gain general information of students' demographic, language educational background, and vocabulary learning strategies. The results from the questionnaire were analyzed by Statistical Package for the Social Sciences software (SPSS) version 19.

The questionnaires were divided into 3 parts. The first part of the questionnaire consist of 6 questions regarding the participants' gender, age, academic years, academic majors, English language courses taken, and the purposes of using English.

The second part of the questionnaire focuses on vocabulary learning strategies employed by the participants. Based on the 2 main types of vocabulary learning strategies namely discovery strategies and consolidation strategies, the total 40 questions in this part were separated into 2 parts with 9 and 31 questions respectively. The first 9 questions ask the participants to rate how often they use the listed discover strategies to find the meaning of the newly encountered words while the following 31 questions in the other part ask the participants to rate how often they use the listed strategies to consolidate the meaning of the learned words.

The last part of the questionnaire asks for the participants' contact information and voluntariness to participate in focus group interviews.

The questionnaires were analyzed by SPSS and the mean scores of vocabulary learning strategies used were interpreted using mid-point interval scale as follows

4.51-5.00 =	Most frequently used
3.51-4.50 =	Frequently used
2.51-3.50 =	Moderately used
1.51-2.50 =	Slightly used
0.51-1.50 =	Least frequently used
0.00-0.50 =	Never used

The questionnaire was initially piloted with 50 undergraduate students studying in the 2nd, 3rd, and 4th years in science program at a different university. The data from the pilot study was submitted to SPSS version 19 for reliability analysis. Cronbach's alpha coefficient is 0.95 indicating an acceptable level of reliability.

3.3.3. Focus group interview

Focus group interview is a research methodology employed to obtain qualitative data. This methodology involves the discussion of particular issues by 6-8 participants who share common characteristics or experience (Wilkinson, 2004). The researchers' role during the discussion is moderating the discussion and encouraging group participation. The discussions are recorded and the focus groups data is analyzed by means of qualitative content analysis which involves grouping the obtained data together according to the coding system (Wilkinson, 2004).

Following the careful analysis of the test results and the questionnaires, four sessions of focus group interviews were conducted to obtain more detailed information about vocabulary learning strategies. Twenty-one research participants were invited to the focus group interviews and separated into four groups according to their majors of study. All participants were informed about the purposes of the interviews and the overview of the topic. The researcher took the moderator role to ask questions and encourage participation in each interview session while the interview notes were carefully taken by two assistants. Each interview session was conducted in Thai in a room with 4-7 participants. Additionally, the interview sessions were tape-recorded. The examples of interview questions are as follows (See Appendix D for the full version).

1. How long have you been studying English?

2. What do you think about learning English?

3. What do you think are your problems in learning English?

4. Where do you usually learn new English vocabulary from?

5. What do you do when you hear words that you do not understand? Please explain.

6. What do you do when you read a passage or a textbook written in English and find words that you do not understand?

7. What do you do when you see the unknown words for the first time? Do you prefer discovering the words' meanings by yourself or asking other people?

8. What do you do to retain your vocabulary knowledge?

9. Do you prefer studying and practicing English vocabulary by yourself or with other people? Why?

10. What do you do to help you learn and remember English vocabulary better?

11. What do you do to keep track of your vocabulary development, monitor, and evaluate your vocabulary progress?

The interview tapes were immediately transcribed verbatim after the interviews and the tape scripts were reviewed by the participants afterwards. The tape scripts were manually color-coded according to Schmitt's (1997) framework of

vocabulary learning strategies for data analysis. Key words or sentences that identify each type of vocabulary learning strategy were categorized together for data analysis. The data from each interview sessions were analyzed according to types of vocabulary learning strategies namely discovery strategies, social strategies, memory strategies, cognitive strategies, and metacognitive strategies.

3.4 Data Presentation

The research results will be presented and discussed in the following chapter. Data obtained from the Vocabulary Levels Tests and the questionnaires will be presented in tables and charts. The focus group interviews excerpts will be presented in italics. Participants' names are represented by abbreviations and numbers (FT for Food Technology, AG for Agricultural Science, GS for Geoscience, and CB for Conservation Biology). The translated interview scripts will be provided in Appendix E.

CHAPTER IV
RESEARCH FINDINGS

The objectives of the study are to find out the vocabulary knowledge and vocabulary learning strategies of Thai undergraduate students studying in a science program. To obtain the data, the Vocabulary Levels Test and the questionnaire regarding vocabulary learning strategies were administered and followed by four sessions of focus group interviews. This chapter, hence, presents the detailed findings of the study acquired from the Vocabulary Levels Test, the questionnaires, and the focus group interviews. The findings are divided into 2 main parts; the students' vocabulary knowledge and the students' use of vocabulary learning strategies.

4.1 The Research Participants

The data concerning students' vocabulary knowledge and vocabulary learning strategies were acquired from 165 Thai undergraduate students studying in the 2nd and 3rd years in the science undergraduate program. Of all the students, 78 were Food Technology students, 38 were Conservation Biology students, 31 were Geoscience students, and 18 were Agricultural Science students. The participants' age range is between 18-22 years old. 137 students were female and 28 were male students. The participants' demographic information is presented below.

Table 4.1 Participants' Demographic Information

Year of Study	Majors of Study				Total
	Food Technology	**Conservation Biology**	**Agricultural Science**	**Geoscience**	
2nd year	39	32	17	31	119
3rd year	39	6	1		46
Total	78	38	18	31	165

The majority of the participants were students from Food Technology major. Fourth year students and some students from other majors of study could not take the test due to time constraint and their study schedules.

The questionnaires also required some information about the English courses taken prior to and during the semester the Vocabulary Levels Test was administered. The following figure presents the information regarding English courses taken by the students.
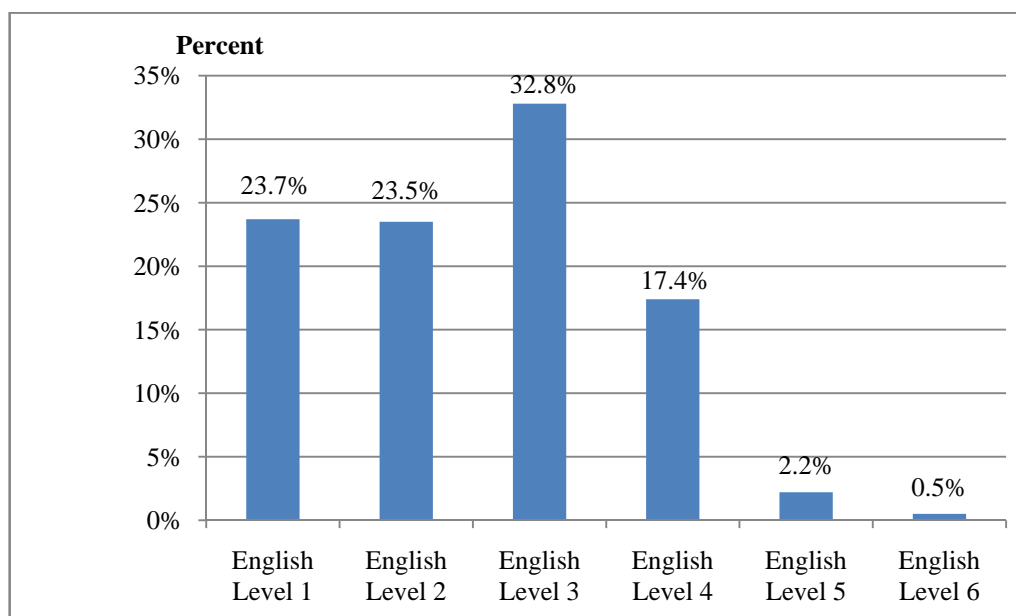
Figure 4.1: English Courses Taken by the Participants

English courses that had been taken by most of the participants are English level 1, 2, and 3. It can be interpreted that the majority of the students were beginner and intermediate English learners.

To gain general understanding of the students' use of English, the students were also required to report their use of English. The questionnaire data revealed that the majority of the participants (20.6%) use English when using the Internet. 18.6% use English when they watch movies and listen to music. Moreover, 15% reportedly used English when reading English academic texts. However, the number of students using English when writing English academic papers or attending academic seminar was fairly low. The data are displayed in the following figure.
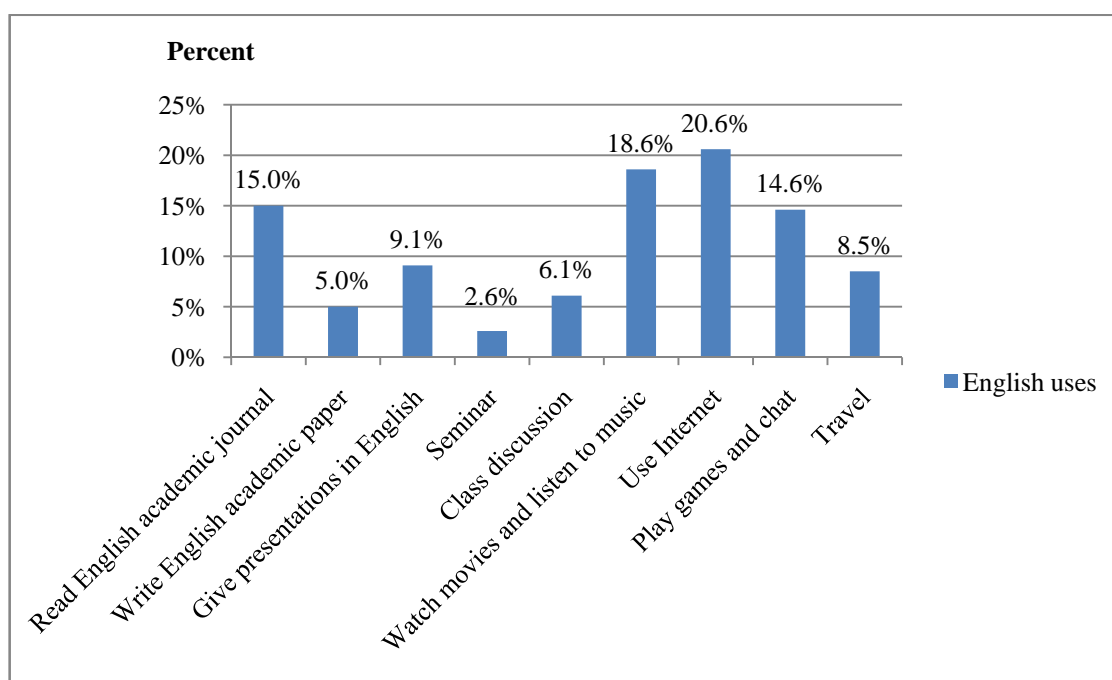
Figure 4.2: The Participants' Use of English

4.2 The Vocabulary Levels Test Score

To answer research question 1 which was *"What is Thai science undergraduate students' average size of general and academic English vocabulary?"* The Vocabulary Levels Test (VLT) was administered and the data from the Vocabulary Levels Test (VLT) were analyzed by using SPSS to find out the participants' test score. The administered Vocabulary Levels Test consisted of 4 parts

namely the 2,000, 3,000, 5,000 word levels and the academic vocabulary. The 30 vocabulary items in each level equal 30 points in total. The VLT administered in this study was translated into Thai language. The test required participants to match the English vocabulary with the correct Thai definition. One point was awarded for one correctly matched item.

The participants' test scores are presented based on the word frequency levels which are 2,000 word level, 3,000 word level, 5,000 word level, and the academic vocabulary. The mean score of each level was 20.92, 19.98, 14.90, and 18.71 accordingly as presented in Table 4.2.

Table 4.2 The Participants' Vocabulary Levels Test Score

Vocabulary Levels Test Score	2,000-word level	3,000-word level	5,000-word level	Academic Vocabulary
N Valid	165	165	165	165
Missing	0	0	0	0
Mean	**20.92**	**19.98**	**14.90**	**18.71**
Std. Deviation	4.86	4.36	3.95	5.81
Minimum	10.00	9.00	6.00	6.00
Maximum	30.00	29.00	25.00	30.00

According to the score presented in Table 4.2, the highest mean score is in the 2,000-word level. Words in the 2,000-word level appear more frequently than words in the 5,000-word level. Thus, it is not surprising that the mean score decreased as the frequency of words decreased.

The test scores were further analyzed based on the students' majors of study in order to gain more detailed understandings about the participants' vocabulary knowledge. The participants' test scores according to their majors of study are revealed in Figure 4.3.
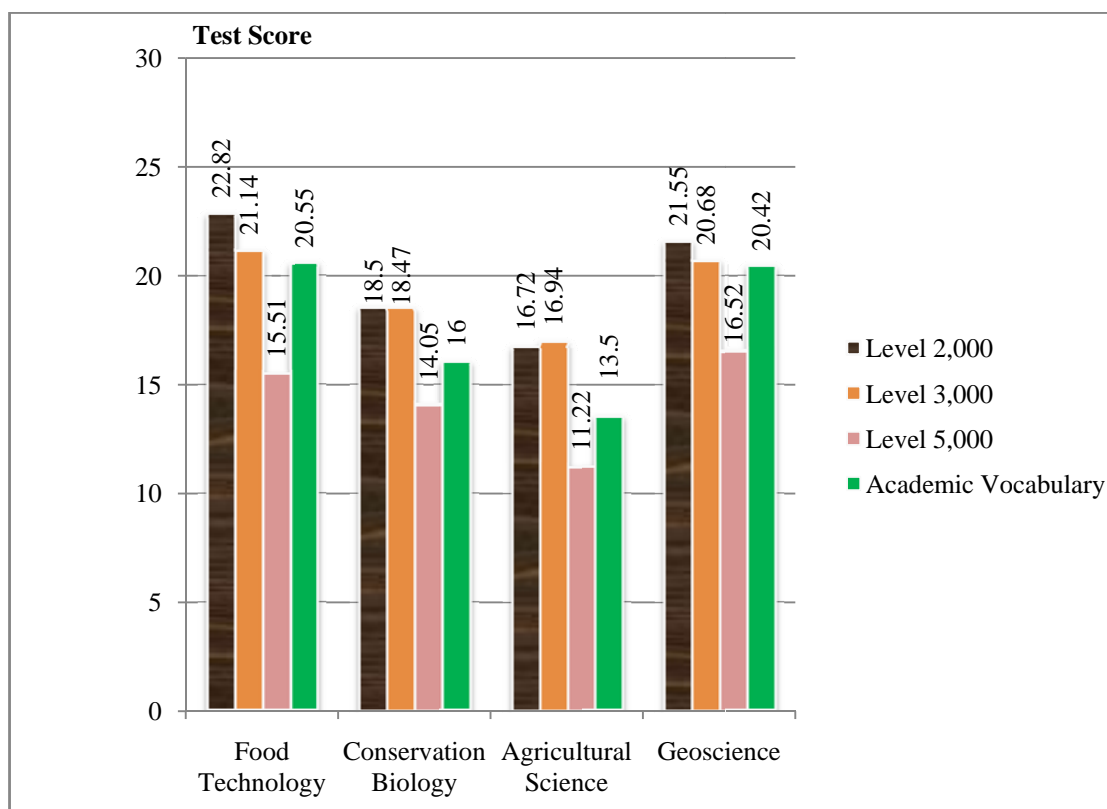
Figure 4.3: The Participants' Vocabulary Levels Test Score according to Majors of Study

The findings displayed in Figure 4.3 reveal that participants from Food Technology major scored the highest in almost every level of the Vocabulary Levels Test. Following the students majoring in Food Technology, the participants majoring in Geoscience scored slightly lower in every level except the 5,000-word level which they obtained the highest score compared to other majors of study. The Conservation Biology majored participants' mean score ranked the third while the mean score of the participants majoring in Agricultural Science was the lowest.

However, the overall scores of the students followed the common score pattern that the test score would decrease as the level of word frequency decreases. Words belonging to the higher number of level such as the 5,000-word level are less frequency words compared to words in the 2,000- and 3,000-word levels. Thus, it is common that the test scores would drop as the level of frequency decreases.

Based on Schmitt et al (2001), the mastery criteria for each level is 26 out of 30 or 80%. The obtained data revealed that most of the participants' test scores,

regardless of the majors of study, were below the mastery score for every level. In this section, it is evident that the Thai science undergraduate students' vocabulary size of general English vocabulary is below 2,000-words and their knowledge in academic vocabulary is quite limited. The lack of adequate vocabulary knowledge suggests the potential problems in their academic studies.

The following section shows the vocabulary learning strategies employed by the participants.

4.3 Vocabulary Learning Strategies

Research question 2 was *"What kinds of vocabulary learning strategies are employed by Thai science undergraduate students?"* To find out what kinds of strategies the participants used to learn English vocabulary, the 40-item questionnaires were administered following the Vocabulary Levels Test. Later, four sessions of focus group interviews were also conducted to obtain more information in terms of vocabulary learning strategies use. The questionnaire data revealed that the participants used various kinds of vocabulary learning strategies to learn new words and to remember learned words. Yet, the frequency of employing each strategy varied. The findings are presented in Table 4.3.

Table 4.3 The participants' vocabulary learning strategies

Vocabulary Learning Strategies	Number of items	Mean	Std. Deviation
Determination Strategies	7	3.60	0.54
Social Strategies	5	3.11	0.64
Memory Strategies	17	3.11	0.57
Metacognitive Strategies	4	2.99	0.75
Cognitive Strategies	7	2.79	0.70

The descriptive statistics for vocabulary learning strategies used by the participants is presented in Table 4.3. According to Table 4.3, the most frequently employed vocabulary learning strategy type is determination strategies (M=3.60) followed by social strategies (M=3.11), memory strategies (M=3.11), metacognitive strategies (M=2.99), and cognitive strategies (M=2.79) respectively.

In order to gain more detailed understandings about the use of vocabulary learning strategies by the participants, it is necessary to consider the descriptive statistics for each strategy group presented in the following sections.

4.3.1 Determination strategies

Based on Schmitt's (1997) taxonomy of vocabulary learning strategies, determination strategies refer to the process of learning vocabulary without seeking help from other people. Determination strategies include analyzing word parts, looking for affixes, using contextual clues to guess word meaning, and using dictionaries.

Table 4.4 Determination Strategies

Determination Strategies	Question Number	Mean	Std. Deviation
Use an English-Thai dictionary	6	4.34	0.81
Use any pictures or gestures to guess	3	3.88	0.81
Use background knowledge to guess	4	3.87	0.83
Guess from textual context	5	3.82	0.87
Look for any word parts that I know such as prefixes or suffixes(impossible, colorful)	2	3.36	0.98

Table 4.4 Determination Strategies (cont.)

Determination Strategies	Question Number	Mean	Std. Deviation
Check a new word's form	1	3.17	0.89
Use an English-English dictionary	7	2.71	1.11

The participants' use of determination strategies is revealed in Table 4.4. Table 4.4 reveals that the most frequently used determination strategy to learn English vocabulary is to use an English-Thai dictionary (M=4.34). Moreover, guessing the word meanings from available pictures or gestures, using background knowledge to guess, and textual contexts were also frequently used strategies (M=3.88, M=3.87, and M= 3.82 accordingly). The least employed strategy was using an English-English dictionary to learn the meaning of new words (M=2.71).

The interviews revealed that the participants used a variety of determination strategies to find out the meaning of unknown words. Discovering vocabulary meaning by using dictionaries is the most frequently used strategy. Most of the participants reported using reference materials such as English-Thai and English-English dictionaries to discover the meaning of vocabulary while reading. Moreover, they also use online dictionary websites and dictionary applications on their mobile phones to find the meanings of newly encountered words.

The majority of the group stated that they preferred using dictionary applications on their mobile phone while some of the students preferred using online translation service such as Google Translate to help them find the definition of new vocabulary. Online translation service and mobile applications are considered the fast and convenient way to learn the meaning of new vocabulary. Some participants stated that they sometimes used English-English dictionaries, but they could not understand both the word and its definition. Thus, they preferred using English to Thai version of dictionaries. However, they were aware that discovering the word meanings from the dictionaries could not lead to effective memorization of words.

Extract 1

Interviewer:	*What are the advantages of using dictionaries?*
GS Student 4:	*Using dictionaries on my mobile phone or using Google Translate can be quick and convenient, but it doesn't make me remember the words better.*

In addition, the students also guess the meaning of new vocabulary by using available pictures or gestures. When hearing unknown words during English conversation, they tried to guess from the speakers' gestures, tone of voice, facial expressions, and verbal context. Similar strategies were also applied while reading as they revealed that pictures were considered important when reading English texts.

Extract 2

Interviewer:	*Do you try to read and use the pictures to help you guess?*
CB Student 2:	*Actually, pictures are important. If I read the text and don't fully understand it, I will try to look at the pictures and relate them to the text. I will look at the pictures for confirmation.*

The students also used their background knowledge and try to discover the meaning of new vocabulary by using textual knowledge. According to the interview, using background knowledge of the subject is the common determination strategy applied when discovering the meaning of new words.

Extract 3

Interviewer:	*What do you do when you read a passage or a textbook written in English and found words that you do not understand?*
GS Student 4:	*I often skip the unknown words and try to connect what I know using my own background knowledge before translating the text.*

Besides using background knowledge, one of the commonly applied determination strategy was to discover the meaning of words by using textual contexts. The interviews revealed that textual contexts were considered reliable, useful, and preferable. When looking at textual contexts, the students sometimes skipped the unknown words and focused on the surrounding sentences as one student from Conservation Biology major explained.

Extract 4

CB Student3:   *If I don't understand what I read, I would read it again. Sometimes I try to read the adjacent sentences to see what the text is about. I guess from the previous sentences.*

In sum, the data obtained from the questionnaires and the interviews revealed that several determination strategies such as guessing, using dictionaries, and using background knowledge were employed simultaneously when discovering new vocabulary's meanings. These strategies were also regarded by the students as important and useful.

4.3.2 Social strategies

This section presents the participants' use of social strategies. Social strategies refer to learning new vocabulary through interactions with other people such as asking other people for vocabulary definitions and studying vocabulary with groups of friends (Schmitt, 1997).

Table 4.5 Social Strategies

Social Strategies	Question Number	Mean	Std. Deviation
Ask your classmates for the meaning	9	3.75	0.90
Ask the teacher to give you the definition	8	3.47	0.93
Study the word with your classmates	10	3.06	0.93
Ask the teacher to check your definition	11	2.84	0.95
Talk with native speakers	12	2.45	0.94

Table 4.5 presents the participants' frequencies of social strategies use. According to the data, the most frequently used social strategy was to ask classmates for vocabulary meaning (M=3.75). The second frequently used social strategy was to ask teachers for word definition (M=3.47). The least used strategy is to talk with native speakers (M=2.45).

The data obtained from the interview revealed that the participants employed social strategies both to discover meanings of new vocabulary and consolidate their vocabulary knowledge. The participants employed several social strategies when trying to learn some new vocabulary. They often asked the speakers for the definitions of unknown words immediately. During the interviews, they also pointed out that asking other people such as friends and teachers provided them with additional understanding of words as one student from Geoscience major stated.

Extract 5

Interviewer: *What do you do when you see the unknown words for the first time? Do you prefer discovering the words meanings by yourself or asking other people?*

GS Student 3:   *It depends on the situation. I would like to look it up myself first if I could. If I didn't get it, I had to ask other people. Mostly I like asking people because they knew the words. They can explain those words to me in an understandable way.*

In addition, the participants reported that they often sought confirmation from other people such as friends and foreign interlocutors. They felt no hesitation to ask for meaning clarification from their foreign interlocutors. If they heard some unknown vocabulary during conversations with foreign interlocutors, they would ask the interlocutors immediately. They noted that they asked friends, foreign friends, and teachers for the meaning of the unknown vocabulary because they felt that these people could provide accurate and reliable answers of words meanings and uses. One student from Agricultural Science major said that she preferred asking the teacher as she reasoned.

Extract 6

I prefer asking my teacher for definitions of new vocabulary. If I do it myself, there's a chance I could get it wrong. I think it's better to ask someone who knows. I can be more certain when asking my teacher.

To consolidate vocabulary knowledge, the participants revealed that they also use social strategies. The students study vocabulary with groups of friends mainly because it was more challenging and fun. However, they all agreed that the vocabulary knowledge obtained from studying with friends was retained only for a short period of time. According to the interview, every student agreed that taking their time to study vocabulary alone was a better strategy to retain vocabulary knowledge. They suggested that group studies and exchanging memorization techniques were only useful when quick reviews of vocabulary were needed. The majority of the

participants stated that asking the teacher to check words' definitions and talking to native speakers are not employed very often because they felt more comfortable asking friends. Moreover, the participants stated that they did not have enough opportunity to talk to native speakers on a regular basis.

In summary, several social strategies were employed when discovering new vocabulary and consolidating vocabulary knowledge. Asking friends and teachers for words definitions functioned mainly as a means to confirm the participants' understandings of word definitions as well as to provide additional understandings of words. Moreover, studying vocabulary with groups of friends was regarded as a challenging way of study, yet the limitations of group studies are also acknowledged.

4.3.3 Memory strategies

The participants' use of memory strategies in order to consolidate vocabulary knowledge is presented in the following section. Memory strategies involve learning vocabulary by creating mental connections of words, memorizing words by their spellings and sounds, using physical actions, and grouping words together (Schmitt, 1997).

Table 4.6 Memory Strategies

Memory Strategies	Question Number	Mean	Std. Deviation
Say the new words aloud when studying	24	3.54	0.97
Connect the word to a personal experience	15	3.44	1.03
Connect the word to other words with similar or opposite meanings	17	3.44	0.84

Table 4.6 Memory Strategies (cont.)

Memory Strategies	Question Number	Mean	Std. Deviation
Connect the word to known words	16	3.42	0.83
Remember words in 'scales' (always-often-sometimes-never)	18	3.38	2.61
Make your own definition for the word	28	3.35	0.99
Make a mental image of the word's form	25	3.25	1.01
Remember the word using its parts (im-, un-, -able, -ful, -ment, ex-)	26	3.19	1.01
Study the sound of a word	23	3.17	0.98
Make a mental image of the word's meaning	14	3.12	1.01
Study the spelling of a word	22	3.07	0.90
Remember the word using its word form (verb, noun, adjective)	27	3.01	0.97

Table 4.6 Memory Strategies (cont.)

Memory Strategies	Question Number	Mean	Std. Deviation
Group words together to study them	19	3.00	0.93
Use new words in sentences	20	2.91	0.89
Use physical action when learning a word	29	2.70	1.01
Draw a picture of the word to help remember it	13	2.19	0.93

The participants' use of memory strategies to learn vocabulary is presented in Table 4.6. According to the obtained data, the most frequently used memory strategy was saying the word aloud when studying (M=3.54). Making connections between words and one's own experience and connecting words to similar or opposite words were the equally used memory strategies (M=3.44). The three least frequently used memory strategies were using new word in sentences (M=2.91) using physical action when learning a word (M=2.7) and drawing a picture of a word (M=2.19).

Saying the words aloud, connecting words to personal experience, and memorizing words in groups of synonyms were the three most frequently employed memory strategies according to the interviews. Most of the participants stated that saying the words aloud was necessary for the process of word and meanings recall.

Extract 7

AG Student 1:   *If there are new words with slightly different meanings, for example, 'boar', 'sow', 'piglet', it is necessary for me to eliminate my own confusion by saying them out loud when I study them.*

Interestingly, the participants also reported making and using vocabulary lists when studying vocabulary. According to the students, vocabulary lists were useful and convenient for studying and repeating vocabulary.

Extract 8

CB Student 2:   *I have my own set of vocabulary to repeat aloud. I have the list divided into two columns which I put words and their meanings in each column. I repeat those words many times until I can remember them all.*

Another memory strategy used by the participants was connecting vocabulary to personal experience. The students related the words to their personal experience, specific situation, objects they saw, and people as one student from Food Technology major interestingly noted.

Extract 9

When I try to remember the word 'analyze', for example, I often think of the time when I calculate something or when I do something in the lab. It helps me remember the word better.

Another student from Geoscience major stated that she sometimes related vocabulary to her teacher's face as she interestingly explained.

Extract 10

There are some words that my teacher usually says. When I hear those words outside the class, the teacher's face usually pops up in my head and I will know what those words mean because I might have related his face to some vocabulary.

Besides saying the word aloud and creating connections between vocabulary and personal experience, the participants also memorized words with similar meanings together. One student from Food Technology major claimed that memorizing words in groups was her preferable way of learning vocabulary.

Extract 11

Interviewer:	*Do you imagine words and picture together?*
FT Student7:	*I remember words with similar meanings in groups. That way I can remember more words.*
Interviewer:	*Is it effective for you?*
FT Student7:	*I might not remember all of the words but if I see them again, they look familiar. That might help.*

The students also sang vocabulary songs because they believed that singing was a useful way to help them learn more words with similar meanings at the same time.

In conclusion, memory strategies were always employed when the participants try to memorize vocabulary. They tried to relate vocabulary to their existing experience and knowledge, repeated them aloud, and organized them into groups in order to make vocabulary easier to memorize.

4.3.5 Metacognitive strategies

This section presents the participants use of metacognitive strategies. Metacognitive strategies involve planning, monitoring, and evaluating one's learning process as well as trying to maximize vocabulary opportunity by using language learning media (O'Malley & Chamot, 1990; Schmitt, 1997).

Table 4.7 Metacognitive Strategies

Metacognitive Strategies	Question Number	Mean	Std. Deviation
Use English-language media (songs, movies, the internet)	37	3.98	0.98
Play English vocabulary games	39	2.99	1.12
Test yourself with word tests	38	2.58	1.00
Study new words continuously	40	2.41	0.92

Table 4.7 reveals the students' use of metacognitive strategies which refers to the process of controlling and evaluating one's study. The most frequently used metacognitive strategies is to use English-language media as a tool to monitor vocabulary learning (M=3.99) followed by playing English vocabulary games (M=2.99). The least frequently used metacognitive strategy by the students is studying words continuously (M=2.41).

The interviews revealed that the participants' main source of vocabulary learning was English language media. Watching movies and listening to music, reading news online, and reading comics in English were considered as a fun and effective way of learning new vocabulary. Most of the participants maximized their vocabulary learning opportunities by using English language media and relied mainly on dictionaries to learn new words. The participants reported that they also tried to listen to English conversations in movies to test their own understanding.

Vocabulary games played an important role in helping the participants keep track of their vocabulary learning progress. They revealed that they liked playing vocabulary games on their mobile phones and personal computers in their free time. Students claimed that playing vocabulary games helped their vocabulary recall.

Extract 12

Interviewer: *Does any of you play vocabulary games?*

CB Student 4:   *In my free time, I often play vocabulary games which I need to match pictures with the correct vocabulary. If I get the words wrong, the words will reappear then I can finally remember them.*

CB Student 5:   *Actually I learned a lot from playing vocabulary games because I play them every day. The more I see the words, the more I remember them.*

In conclusion, the students viewed learning English vocabulary through English-language media and playing vocabulary games as a way to evaluate their vocabulary learning. The participants accessed to English media partly to test their English skills. The data revealed that only a few participants had taken English tests to evaluate themselves regularly. The lack of self evaluation was mainly due to time constraint and the participants' inadequate confidence in their own language knowledge.

4.3.4 Cognitive strategies

The participants' use of cognitive strategies is presented in this section. According to Schmitt (1997), cognitive strategies refer to the mechanical means of learning vocabulary. Cognitive strategies involve note taking, verbal and written repetition, and using flash cards or word lists.

Table 4.8 Cognitive strategies

Cognitive Strategies	Question Number	Mean	Std. Deviation
Take notes or highlight new words in class	34	3.55	1.07
Repeat the words aloud many times	30	3.45	1.05
Write the words many times	31	3.33	1.12
Make lists of new words	32	2.56	0.98
Keep a vocabulary notebook	36	2.39	1.06
Put English labels on physical objects	35	2.13	1.02
Use flash cards to record new words	33	2.12	0.92

Cognitive strategies include using mechanical means such as verbal and written repetition, and using study aids to learn vocabulary (Schmitt, 1997). The findings presented in Table 4.8 indicates that taking note and highlighting new words was the most frequently employed cognitive strategy by the students (M=3.55). Repeating the word aloud many times was the second frequently employed cognitive strategy (M=3.45) followed by writing the words many times (M=3.33). The least frequently used cognitive strategy was putting English labels on objects (M=2.12).

According to the interviews, note taking, word highlighting, verbal repetition, and written repetition were cognitive strategies employed frequently by the

participants in order to consolidate the meanings of vocabulary. When learning new words or studying vocabulary on their own, they often made some notes, highlight vocabulary they want to memorize, and write down the definitions above the words in the text or on separate pieces of papers. Additionally, they suggested that making notes and highlighting new words made them remember the locations of the words and made the words more noticeable when studying. However, the words worth written down in their vocabulary notebook, according to the participants' opinion, were the words assumed to be frequently encountered in their studies.

Extract 13

Interviewer: *Do you take notes when learning new words?*

AG Student 1:   *I like writing the words down and marking them with different colors, but I don't write every word I learned. I only write technical vocabulary that would benefit my studies. If they aren't technical vocabulary, the words must be interesting enough for me to jot them down.*

Moreover, verbal repetition was also claimed to be very useful when trying to consolidate word meanings. The students repeated the words for an extended period of time in order to remember them. They also tried to think about the words many times. A Geoscience major student revealed her interesting memorizing technique.

Extract 14

When I need to study some words, I would say them repeatedly in my free time for a day or two. Then, when I see or hear those words again I can quickly recall their meanings.

The students stated that verbal repetition was a strategy often employed especially before examinations.

In addition to note taking, word highlighting, and verbal repetition, students also reported employing written repetition as a strategy to consolidate their vocabulary knowledge. The main purpose of written repetition, according to the

interview, was to help them familiarize the words and their spellings. Written repetition also provided more exposure to the words which could enhance memorization.

In conclusion, cognitive strategies were commonly employed by the participants to help retaining vocabulary knowledge. This group of strategies was considered to be useful because they required less mental linkage and conceptualization. Therefore, employing mechanical means was preferable especially before examinations.

4.4 Chapter Summary

This chapter presents two important research findings regarding the participants' vocabulary knowledge and their vocabulary learning strategies. The findings revealed that all five vocabulary learning strategy groups: determination strategy, social strategy, memory strategy, cognitive strategy, and metacognitive strategy were employed when learning and consolidating vocabulary knowledge.

The most frequently employed vocabulary learning strategy was determination strategy followed by memory strategy and social strategy. Metacognitive strategy and cognitive strategy were not frequently employed by this group of participants. The most frequently employed strategy to discover word meanings was to use English-Thai dictionaries while the least frequently employed strategy to discover vocabulary meaning was to talk to native speakers.

The most frequently employed strategy in order to consolidate vocabulary knowledge was to access English language media. The students sought opportunities to study English through watching English language movies, listening to English language songs, and browsing the Internet because learning English through media was considered entertaining.

Although all vocabulary learning strategies were employed, the Vocabulary Levels Test scores suggested that the participants' general and academic English vocabulary knowledge was quite inadequate considering their academic levels. The participants' test scores and inadequate vocabulary knowledge indicated

potential shortcomings in academic studies since the participants claimed that they are constantly required to read many academic texts in their courses of studies.

The following chapter presents the discussions of key findings in terms of pedagogical implications.

CHAPTER V
DISCUSSION AND PEDAGOGICAL IMPLICATIONS

This chapter presents the discussions of the key findings and the conclusions in the context of English teaching. The key findings; the Thai science undergraduate students' vocabulary knowledge and their use of vocabulary learning strategies are discussed. Finally, the chapter presents pedagogical implications of the findings.

5.1 Vocabulary Knowledge

5.1.1 The Participants' vocabulary knowledge of general English vocabulary

To answer research question one; *"what is Thai science undergraduate students' average size of general and academic English vocabulary?"*, the findings show that most of the participants' vocabulary knowledge was below the 2,000-word level. The Vocabulary Levels Test scores of the students reveal that the majority of the participants' knowledge of general English vocabulary is inadequate. Although they reported that they often sought more exposure to English vocabulary through various sources, their test scores of the 2,000 word, 3,000 word, and 5,000 world levels were below the mastery criteria.

The participants' limited knowledge of general English vocabulary may lead to problems in their study since they are constantly required to read English textbooks and write in English in their university level science courses. In order to understand English texts, the knowledge of the minimum 2,000 words is required as they are considered very important to academic study (Nation, 2001). The average scores in the three frequency levels represent their vocabulary knowledge insufficiency which can potentially obstruct their academic study. Likewise, the

interview data also revealed the difficulties the students experienced when reading and trying to get information from English texts.

The Vocabulary Levels Test scores are similar to the study of Pringprom and Obchuae (2011) regarding the study of vocabulary size and reading abilities of Thai science undergraduate students. It was found that the students' vocabulary size is limited. The test scores of the students were below the mastery criteria of every tested level. Likewise, Thavornpon and Sripetpun (2012) studied the relationship between vocabulary knowledge of Thai undergraduate students and reading comprehension and found that the Thai science undergraduate students' vocabulary size is rather low especially in the 5,000 word level.

The low scores in this study might be the result of the lack of the students' attention in learning general English vocabulary. Many students stated in the interviews that they have learned most of the tested words before, yet they could not recall the word meanings correctly.

5.1.2 The students' vocabulary knowledge of academic English vocabulary

The current study's findings also reveal that the students' academic vocabulary knowledge is quite limited. The low average scores indicate the students' insufficient academic vocabulary knowledge. As presented in the interview data, the low score might have resulted from the students' exclusive focus on learning technical vocabulary. The students stated that they tended to memorize words related directly to their field of study. Although the academic vocabulary provides more coverage in English academic texts than does the technical vocabulary, they were not perceived to be as important.

This finding is similar to Gu's (2010) study of vocabulary learning strategies and vocabulary development of Chinese EFL undergraduate students. Gu (2010) presents that the importance of academic vocabulary are not perceived by this group of students, rather they focused on other kinds of vocabulary.

The test results of the present study suggested that the participants' knowledge of general and academic vocabulary was insufficient considering their academic levels and requirements. The students' limited vocabulary knowledge may

be the result of less deliberate vocabulary learning and the lack of effective use of vocabulary learning strategies which will be presented in the following section.

5.2 The Students' Vocabulary Learning Strategies

With regard to the research question 2; *"what kinds of vocabulary learning strategies are employed by Thai science undergraduate students?",* the findings reveal that all vocabulary learning strategies were employed by the participants in both discovering and consolidating vocabulary meaning. However, each strategy group was not employed equally. In addition, the students seemed not to be fully aware of the importance of employing vocabulary learning strategies. Thus, the strategies were not employed continually. The following sections discuss each vocabulary learning strategy in turn.

5.2.1 Determination strategy

The questionnaires revealed that determination strategy was the most frequently employed vocabulary learning strategy group compared to other vocabulary strategies (M=3.60). This group of strategies consisted of strategies of finding vocabulary meaning without seeking help from others. The most frequently used strategy to discover vocabulary meaning was to use English-Thai dictionaries. According to the questionnaires and the interviews, the main reason to this might be that bilingual dictionaries can be easily accessed and the definitions provided in the participants' native language were easier to understand compared to English-English dictionaries. The interviews revealed that besides the printed version, English-Thai dictionaries can be immediately accessed through participants' mobile phones and computers whenever they wanted to learn new vocabulary. English-Thai dictionaries, both printed and electronic versions, were the common reference material for vocabulary learning among this group of students. In addition, the reason why students did not prefer using monolingual dictionaries to discover words' meanings might be that using English-English dictionary caused confusion to them. The interviews revealed that some students could not understand the words definition provided in the English-English dictionaries, so they preferred using an English-Thai

dictionary. In fact, the reason why the students preferred English-Thai dictionary was quite predictable. The average Vocabulary Levels Test scores indicated that the students' vocabulary knowledge did not reach the 2,000 words level. Nation (2001) states that the knowledge of at least 2,000 words is required for the effective use of monolingual dictionaries. Thus, the participants' insufficient vocabulary knowledge did not allow them to use English-English dictionary effectively. Due to the perceived convenience of using bilingual dictionaries, it is not surprising that the participants' use of other determination strategies, for instance, checking word forms and affixes is not as frequently employed since these strategies require more time and effort.

The findings of this study are consistent with Komol and Sripetpun's (2011) study of the relationship between the students' vocabulary learning strategies and their vocabulary knowledge. It was found that determination strategies, particularly using bilingual dictionaries, is the most frequently used strategy by second-year university students. Yet, the relationship between using bilingual dictionaries and vocabulary size remains unclear.

In this study, the findings showed that the participants regard using dictionaries as the convenient way of learning new word meaning. Although using bilingual dictionaries is the most frequently employed determination strategy, the use of bilingual dictionaries alone may not benefit vocabulary learning and long-term vocabulary retention. Relying mainly on the use of bilingual dictionaries may limit vocabulary learning as bilingual dictionaries often contain fewer examples of alternative meanings and word use compared to monolingual dictionaries.

Additionally, the participants also guessed the meaning of new vocabulary from contexts. Available pictures in the text and the interlocutors' gestures are also considered helpful when trying to discover meanings of new words while reading or conversing. The data from both the questionnaires and the interviews revealed that the participants often guessed the meanings of new vocabulary by looking at pictures in the texts. Similarly, when conversing in English, the students would look at the interlocutors' facial expressions and body language to help them acquire the meaning of the unknown vocabulary. The use of contextual clues to discover the meaning of words may function as the compensation for the lack of reference materials. However, guessing from context may not always be a useful vocabulary learning strategy

because correct guessing also requires a certain level of language proficiency. In order to guess correctly, the students' existing vocabulary knowledge plays an important role to decrease the proportion of unknown words and make guessing easier (Nation, 2001). It is important to keep in mind that guessing the meaning of new words from the contextual clues is a discovery strategy with some limitations and may not always contribute to successful vocabulary learning. In fact, it is possible that some texts provide insufficient clues for effective guessing. Therefore, teachers can suggest alternative discovery strategies such as using dictionaries to their students.

The findings indicate that the Thai science undergraduate students prefer discovering vocabulary meanings on their own. They prefer using dictionaries as well as guessing from contextual clues. The effective use of dictionaries requires certain skill in selecting the appropriate part of speech of each word and relevant meaning for certain context as well. Moreover, it is important to point out that guessing correctly is a skill that is cumulatively acquired and requires some language knowledge (Oxford, 1990). Thus, it is important to teach students how to use both bilingual and monolingual dictionaries effectively and how to make effective use of the linguistic clues and other clues. For example, English teachers can familiarize their students with using dictionaries by assigning some dictionary tasks during class times. Teachers can encourage the use of dictionary through class activities such as having the students find some prefixes, suffixes, synonyms and antonyms, give the correct spelling, or look for part of speech of given words. Moreover, when asked for word meanings, teachers can show their students how to look up word meanings in the dictionaries instead of telling the meaning directly. In addition, teachers can train their students to make use of contextual clues to improve their guessing skills by encouraging the students to predict the meanings of unknown words by integrating the given information with the students' background knowledge (Oxford, 1990).

5.2.2 Social strategy

Social strategy is another vocabulary learning strategy group used moderately by the science undergraduate students (M=3.11). When discovering the meanings of new words, the participants often consulted friends, teachers, and other people. According to the data obtained, the participants asked their classmates for two

purposes. They asked for the meanings of new words and meaning confirmation mainly because they could learn the new words more conveniently. However, if the students could choose people to ask, they would prefer asking classmates who seemed knowledgeable enough to provide them with the correct word meanings. Apart from classmates, teachers were also considered reliable to provide them with both the correct vocabulary meanings and word uses.

The findings of the current study are not entirely consistent with the study of vocabulary learning strategy by Komol and Sripetpun (2011) where social strategy is the least frequently used group of vocabulary learning strategy by undergraduate students. However, the use of sub-group strategies are similar; asking classmates is most often used social strategy while talking to native speakers is the least often used strategy of all social strategies.

According to data analysis, asking classmates is the most frequently used social strategy possibly because the participants feel more comfortable asking their friends than asking teachers or native speakers. Also, asking classmates might be preferable and considered helpful because the participants shared some background knowledge with their friends. The shared background knowledge might facilitate vocabulary learning as stated in the interviews, some participants preferred asking their classmates because they could learn the meaning of the words in the more 'understandable ways'. Unlike asking classmates, asking native speakers was the least used social strategy. The possible reason might be the participants lacked the opportunity to socialize and interact with native speakers. Since there are only a limited number of foreign teachers in the campus, the participants would have fewer opportunities to converse in English. Although the opportunity to talk to native speakers in their campus was scarce, the participants still sought opportunity to talk with foreigners and practiced their foreign language skills by other means such as using online live chat service and email. It can be interpreted that the participants' limited vocabulary knowledge did not prevent them from using English with English speakers. In addition, the participants' attempts to use English with foreigners showed that they seemed to be aware of the benefits of using social strategies to enhance vocabulary learning.

When consolidating their vocabulary knowledge, the participants often studied vocabulary with their friends. It is evident that group study not only provides the opportunity to share vocabulary learning skills but also creates the challenging atmosphere for vocabulary studying. Hurd (2003) indicates that the opportunity to practice and share learning experience with friends can affect vocabulary learning motivation. Thus, the challenging atmosphere experienced during group studies may function as the vocabulary learning motivation for the students.

In conclusion, social strategies are employed by the participants as a means to acquire and confirm vocabulary meanings and uses. Additionally, employing social strategies was perceived as important as it allowed the participants to learn vocabulary in a challenging and motivating atmosphere.

5.2.3 Memory strategy

The findings reveal that all kinds of memory strategy are moderately employed by the students in order to consolidate vocabulary meanings (M=3.11). The students reported connecting new words to their existing vocabulary knowledge and personal experience. They also create mental images of words and their spellings. Saying new words aloud when studying is also found to be the most frequently used memory strategy. Convenience might be the possible reason for the students to use this strategy when trying to study vocabulary. Saying the words aloud can be practiced independently. Hence, the students can consolidate vocabulary knowledge on their own in their favorable learning situations.

However, the data obtained from the questionnaires and the interviews is not consistent with Komol and Sripetpun's (2011) study in which memory strategy is not frequently employed by the Thai undergraduate students. Conversely, the current study showed that various memory strategies were moderately used. This indicates that the students were aware of the importance of using memory strategy to assist their vocabulary development.

As memory strategy involves connecting the newly acquired knowledge to the learners' existing knowledge, the two equally employed memory strategies are connecting words to personal experience and connecting words to other words with similar or opposite meaning. Takač (2008) states that relating vocabulary to personal

experience, in fact, can be beneficial to vocabulary knowledge development as the vocabulary become more psychologically tangible to learners. Similarly, connecting words with personal experience, according to the participants, helps strengthen their memory of the words meaning and facilitate subsequent words recall.

Additionally, the participants create connections between newly acquired vocabulary and their existing knowledge by grouping them with synonyms and antonyms. In this current study, memorizing words in groups of synonyms or antonyms was considered an effective memory strategy when trying to retain vocabulary knowledge. According to the interviews, this strategy benefits not only vocabulary retention, but also vocabulary knowledge expansion. The participants believed that studying words with their synonyms and antonyms was the efficient way of acquiring more vocabulary in a short period of time.

Grouping words together creates an organized memory network which can be beneficial to vocabulary learning (Klapper, 2008). Additionally, Nation (2001) suggests that elaborative memorization could improve long-term vocabulary retention. However, in the current study, the participants claimed that they only elaborately memorized vocabulary before examinations. Furthermore, they stated that most of the focused words were technical vocabulary related to their major of study. The students' focus on technical terms was likely to be responsible for their experience of the decline in vocabulary knowledge since this category of vocabulary provide roughly 5% coverage in all kinds of written texts (Nation, 2001). The low scores on the Vocabulary Levels Tests might have resulted from the students' focus on memorizing technical vocabulary as well. It is possible that the students could not reach the mastery criteria for each level of the test mainly because the test focused exclusively on high frequency vocabulary and academic vocabulary rather than technical terms.

To conclude, memory strategies involve connecting new information to the participants' existing knowledge to create meaningful learning. According to the findings, it is important to promote vocabulary learning through using various memory strategies. Takač (2008) suggests that memory is essential in vocabulary learning as the systematic organization of memory system influences vocabulary knowledge retention.

5.2.4 Metacognitive strategy

Metacognitive strategy is moderately employed by the Thai science undergraduate students (M=2.99). In order to evaluate their vocabulary learning progress, the students reported using English-language media to test their understandings of English vocabulary. The students often watch movies, listen to English language music, and browse English language websites in their free time. According to the students, watching movies and listening to English language music are enjoyable ways to consolidate and expand their vocabulary knowledge. Moreover, the students claimed that using English language media allows them to learn and remember more words than learning from textbooks or other reading materials. English language media are considered interesting and enjoyable vocabulary learning source outside classroom context. The students can choose the types of media they prefer and enjoy using them in their free time. Consequently, the students might feel motivated to seek more access to the media over time. Additionally, the enjoyment from using English language media might make the students less aware that they are learning vocabulary.

The moderate use of metacognitive strategies of the current study corresponds to Komol and Sripetpun's (2011) study of vocabulary learning strategies. Metacognitive strategies were found to be used at a moderate level. However, they were not to be significantly related to vocabulary gains.

Metacognitive strategies include the process of planning, monitoring, and evaluating one's vocabulary development. Although the students use English language media and Internet to learn vocabulary, the interviews reveal that the students rarely plan their vocabulary study schedule or monitor their vocabulary learning progress. The use of English language media in the current study might not be sufficient to make vocabulary retention successful. In order to consolidate and expand vocabulary knowledge, other metacognitive strategies such as deliberate planning and constant evaluating of vocabulary learning progress might be required in complementary to media use.

Learning vocabulary through the use of English language media can be beneficial to vocabulary knowledge development as multiple encounters to same vocabulary in different contexts can enhance systematic organization of knowledge

and long-term memory (Takač, 2008). However, Takač (2008) further noted that learners need to be exposed to adequate amount of comprehensible vocabulary input in order to develop vocabulary knowledge. Therefore, the successful vocabulary learners should be equipped with several vocabulary learning strategies that would allow transforming incidental learning to explicit leaning.

5.2.5 Cognitive strategy

Cognitive strategy was found to be the least employed vocabulary learning strategy group by the participants compared to other vocabulary learning strategy groups (M=2.79). The participants reported using some mechanical means such as taking notes, highlighting new words, saying words repeatedly, and writing words repeatedly when consolidating vocabulary meaning.

Note taking and highlighting were the most frequently used cognitive strategy. The participants often took notes or highlighted new words encountered during reading English texts to help them remember the words better. In order to enhance word memorization, the participants reported that they sometimes said and wrote the words repeatedly until they could remember them. They believed that saying and writing vocabulary repeatedly could potentially enrich their vocabulary knowledge. As the findings of determination strategy in this study revealed that the participants preferred learning vocabulary by convenient means, it is possible that the students used verbal and written repetition for the similar reasons. To the students, these two strategies might appear to be easy and not time-consuming. Thus, the students sometimes used them when consolidating vocabulary meanings. In addition, the use of verbal and written repetition is found to be common among EFL learners as these strategies involve less mental manipulation (O'Malley & Chamot, 1990).

The findings of the current study correspond to the findings of Thavornpon and Sripetpun (2012) which examined the relationships between vocabulary learning strategies and vocabulary knowledge and reading comprehension. Thavornpon and Sripetpun (2012)'s study revealed that cognitive strategies were found to be moderately used by the Thai undergraduate students. The participants' study habits might account for their moderate use of cognitive strategies as they stated during the interviews that cognitive strategies were used only prior to the time of examination.

The findings of the current study revealed that the participants paid less attention on learning vocabulary and consolidating vocabulary knowledge. Instead, the students' attention on learning vocabulary was rather opportunistic. Additionally, vocabulary learning was not regularly planned and monitored. The participants only focused on learning vocabulary based on classroom materials. Their focus was on technical vocabulary that was directly related to their subjects of study and achieving short-term outcomes such as passing examinations. Vocabulary size and vocabulary learning strategies were found to be related (Komol & Sripetpun, 2011). Thus, the students' vocabulary test scores might have resulted from their habits of vocabulary study. According to the findings, the lack of consistency in studying vocabulary might be one of the factors contributing to limited vocabulary knowledge.

To conclude, although some cognitive strategies were employed to consolidate vocabulary knowledge, they were not deliberately and continuously employed. The participants only focused on learning vocabulary and using cognitive strategies when they wanted to achieve short-term learning objectives. The following section discusses pedagogical implications of this study

5.3 Pedagogical Implications

The current study focuses on vocabulary knowledge and vocabulary learning strategies of Thai science undergraduate students at one of the campuses of a leading research-based university in Thailand. The Vocabulary Levels Test results showed that the students' vocabulary knowledge is relatively low. Even though the students' vocabulary knowledge was limited, the questionnaires and the interviews revealed that varieties of vocabulary learning strategies were employed to discover vocabulary meanings and consolidate vocabulary meanings. However, the findings indicate that the students' use of vocabulary learning strategies did not seem continuous which could be responsible for gradual decrease of vocabulary knowledge and hinder the students' vocabulary development. The present study's findings are similar to the previous studies of vocabulary size and vocabulary learning strategies in EFL contexts. Thavornpon and Sripetpun's (2012) study of vocabulary knowledge of Thai students and reading comprehension indicates that although the students used

various vocabulary learning strategies, their vocabulary knowledge was rather limited. Pedagogical implications of the study are presented in terms of vocabulary knowledge development and vocabulary learning strategies as follows.

5.3.1 Vocabulary knowledge development

It is evident that the vocabulary knowledge of the Thai science undergraduate students in this study was insufficient considering their academic level. In order to develop the students' vocabulary knowledge, English teachers should emphasize the importance of vocabulary knowledge and provide substantial vocabulary contents in language courses. As vocabulary acquisition is a cumulative process of learning, the students should be exposed to adequate and comprehensible vocabulary inputs. English teachers can encourage vocabulary learning by direct teaching of vocabulary and plan the English language courses that involve essential vocabulary for the students' academic level. In addition, the importance of high frequency vocabulary and academic vocabulary should be emphasized and acknowledged since the students are likely to encounter these kinds of vocabulary in their studies. Word lists such as the Academic Word List should be introduced to the students since the list contains essential academic words and provides a wide range of vocabulary coverage in all kinds of academic texts.

The findings reveal that the students often gain vocabulary knowledge through the use of English language media and online sources. Hence, English teachers could integrate English language media to their language courses. Movies and songs, for instance, can be used as parts of vocabulary lessons. Since the students believe that they gain vocabulary knowledge through movies and music, adding movies and songs to the language courses can make the contents of language lessons more interesting and enjoyable. Moreover, it should be noted that vocabulary learning in classroom contexts might be inadequate to increase vocabulary knowledge. Thus, the use of online sources for vocabulary study should also be promoted.

Most importantly, regular and systematic vocabulary assessment should be considered. Regular vocabulary knowledge assessment can potentially make the students aware of the importance of vocabulary knowledge and thus encourage them to study vocabulary regularly.

5.3.2 Vocabulary learning strategy training

As the process of vocabulary acquisition is effort demanding and the great amount of vocabulary knowledge is required in academic studies, it is important to encourage the students to be strategic language learners. Vocabulary learning strategies play an important role in vocabulary knowledge development. Thus, the importance as well as the benefits of using vocabulary strategies should be emphasized.

First of all, English teachers should introduce varieties of vocabulary learning strategies to their students. Teachers can create language courses that allow the students to experience as many vocabulary learning strategies as possible. It is important to recognize individual learner's difference in using vocabulary learning strategies so teachers can support the students to use strategies they prefer and suggest other suitable strategies for them. The findings revealed that the students preferred using dictionaries to discover the meaning of new vocabulary. Thus, training students to use both English-English and English-Thai dictionaries effectively would be worthwhile. Moreover, the findings also reveal that students often guessed the meaning of unknown words from contextual clues. Teachers should teach their students to make the most of contextual clues and guess intelligently. For example, teachers can train their students to scan the texts, look at pictures, and look for words they have already known to formulate some idea before reading the texts.

Besides training the students to acquire new vocabulary effectively, it is also essential to teach them how to retain and expand their vocabulary knowledge. According to the findings, although vocabulary knowledge is perceived as an important factor contributing to language learning success, the students stated that they did not have time to study vocabulary on a regular basis. The findings of the questionnaires also revealed that cognitive strategy and metacognitive strategy were the two least often used vocabulary learning strategy groups. Therefore, cognitive strategy and metacognitive strategy should be promoted. Though seem to be shallow compared to other vocabulary learning strategies, the importance of cognitive strategies such as note taking, verbal and written repetition should not be overlooked. The use of these strategies can be directly taught. For example, teachers can train their students to pay attention to new vocabulary and take notes of vocabulary that will be

relevant and useful to their academic studies. Moreover, metacognitive strategies can also be promoted in classroom context. Nation (2001) suggests that a combination of incidental learning and deliberate learning can potentially lead to better vocabulary learning. Therefore, language teachers can promote the use of these strategies by encouraging the students to be more self regulated and more responsible for their own study. The students should be encouraged to set their learning goals, write reflective journal about their learning progress, and deliberately practice vocabulary regularly both inside and outside classroom contexts. The importance of planning and evaluating the student's own learning should be emphasized.

Additionally, language teachers can promote self-regulated vocabulary learning behavior through English language media use. Besides adding some vocabulary contents from English language media to language courses, teachers can recommend the students to seek more access to vocabulary learning sources outside classroom contexts. As frequent exposure to vocabulary inputs makes vocabulary become more familiar and easier to recall, it would be useful to teach the students to maximize their learning from learning sources outside classrooms contexts, particularly from online learning materials. Moreover, setting vocabulary learning objectives and frequent self evaluation should also be recommended to the students in order to promote self-regulated learning habits.

Finally, positive feedback should be given to students' attempts to use vocabulary learning strategies in class. In order to promote the students' awareness and confidence in using vocabulary learning strategies, affirmative comments and suggestions on how to use vocabulary learning strategies effectively should be provided when students try to use vocabulary learning strategies regardless of the strategies' effectiveness.

In conclusion, this chapter presents the discussions of vocabulary knowledge and vocabulary learning strategy. The findings revealed that the participants' vocabulary knowledge is limited despite using various kinds of vocabulary learning strategy. The students' use of each vocabulary learning strategy is discussed. It is evident that although all strategies were used when acquiring and consolidating vocabulary, there is a lack in continuity of strategy uses which might be responsible for the participants' inadequate vocabulary knowledge. Therefore,

pedagogical implications are proposed to improve the students' vocabulary acquisition.

In order to improve vocabulary knowledge, it is important for English teachers to emphasize the importance of vocabulary knowledge as an essential fundamental knowledge for foreign language acquisition. Teachers should encourage their students to be independent learners who can learn vocabulary both inside and outside classroom contexts.

Moreover, teachers should encourage their students to see the importance and benefits of employing vocabulary learning strategy to develop vocabulary knowledge. Introducing various vocabulary learning strategies through classroom activities would be beneficial to the students. Most importantly, teachers should encourage the students to set their language learning objectives and plan their learning accordingly.

The next chapter presents the conclusions and limitations of this study as well as recommendations for future studies.

CHAPTER VI
CONCLUSIONS

The present study aims to explore the Thai science undergraduate students' vocabulary knowledge in terms of their vocabulary size and their vocabulary learning strategies employed when acquiring and retaining vocabulary knowledge. Three research instruments namely the Vocabulary Levels Test, questionnaires, and four sessions of interviews were used to obtain the data.

6.1 Summary of the Findings

It was found in the Vocabulary Levels Test scores that the average test scores for the 2,000, 3,000, and 5,000 word levels are 20.92, 19.98, and 14.90 out of 30. The participants' academic vocabulary knowledge was also examined in this study. The students' average score in the academic vocabulary section is 18.71 out of 30. The average score is also below the mastery criteria of 26 out of 30 (Schmitt et al., 2001). The majority of the students' Vocabulary Levels Test scores were below mastery criteria of 26 out of 30 for each tested section, suggesting that the students' vocabulary size is inadequate for their academic level.

The data regarding the students' vocabulary learning strategies were obtained from the questionnaires and the interviews. The findings revealed that the students employed all kinds of vocabulary learning strategies namely determination strategies, social strategies, memory strategies, cognitive strategies, and metacognitive strategies. However, some strategies were found to be employed more frequently than the others. The most frequently employed vocabulary strategy was determination strategies. This strategy group includes vocabulary learning techniques that can be used independently such as using dictionaries and guessing from contextual clues. These strategies are considered convenient and less time consuming. The least frequently employed strategy group is cognitive strategies. Cognitive strategies refer

to mechanical means that language learners use to facilitate their vocabulary knowledge retention such as making notes, highlighting, verbal and written repetition. These strategies were found to be the least used by the participants. The participants stated that they did not practice or study vocabulary often due to time constraint.

It can be concluded that the participants have limited and insufficient vocabulary knowledge. Moreover, the use of vocabulary learning strategies is at moderate level. It can be interpreted that the participants might not be fully aware of the benefits of using vocabulary learning strategies to enhance their vocabulary knowledge and language proficiency. Thus, the importance and the use of vocabulary learning strategies should be introduced and promoted in order to support vocabulary learning outside classroom contexts, ensure deliberate, continuous, and systematic vocabulary acquisition as well as encourage the students to become more self-directed, strategic, and independent language learners. The following sections present limitations of the study and recommendations for futures research.

6.2 Limitations of the Study

The first limitation of this study was the absence of 4th year participants due to time constraints and schedule conflicts. It would be interesting to observe the test score patterns and vocabulary learning strategies employed by this group of students since they are studying in the last year of the science program. However, the number of the 2nd and 3rd year participants was sufficient to provide reliable research findings.

Secondly, although the present study's findings are of a case study which could not be generalized, the study provides useful insights regarding vocabulary knowledge and vocabulary learning strategies employed by Thai undergraduate students in a science program. The students' vocabulary knowledge, their vocabulary learning strategies, and their potential shortcomings in vocabulary acquisition were acknowledged in this study. Moreover, pedagogical implications were provided as a contribution to improve English teaching in EFL context.

Lastly, the self-reported data obtained from the questionnaires might not represent the participants' use of vocabulary learning strategies accurately. Some

participants might have reported what they believed they did rather than what they actually did. Therefore, other research instruments such as class observation and think-aloud procedure might be required to obtain more understandings of the issues.

6.3 Recommendations for Future Studies

In order for future research to investigate further on vocabulary knowledge and vocabulary learning strategy, the use of other alternative research instruments and procedures such as class observation and think-aloud procedure would be recommended. Class observation prior to questionnaires designing, for instance, would benefit the production of a research instrument that contain relevant questions and reflects the student's learning habits more accurately. The thorough investigation involving well designed research instruments with more research participants may reflect the reality of the situations and provide more generalizable findings.

In addition, the present study was conducted with participants from a provincial campus with limited exposure of English. Thus, it would be interesting to conduct a research on the students studying in a city campus to find out whether there are some similarities or differences in terms of vocabulary knowledge and vocabulary learning strategy since there may be several factors affecting their awareness of vocabulary acquisition and uses of vocabulary learning strategy.

Finally, future research could be planned to study vocabulary knowledge and vocabulary learning strategy of students from other programs of study whether there are similarities or differences among the students from different majors of study. This may offer useful findings that can contribute to vocabulary acquisition and language teaching in general.

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APPENDICES

APPENDIX A

CERTIFICATE OF ENROLLMENT FOR THE ETHICS

IN HUMAN RESEARCH PROGRAM

Faculty of Graduate Studies, Mahidol University

It is hereby certified that
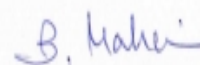
Miss MUTHITA CHINPAKDEE

has attended the required classes on "GRID 521 RESEARCH ETHICS"
2nd Semester, Academic Year 2011
at The Faculty of Graduate Studies Building, Mahidol University (Salaya)

(Associate Professor Sukumal Chongthammakun)

Deputy Dean for Research

(Professor Banchong Mahaisavariya)

Dean of the Faculty of Graduate Studies

APPENDIX B

แบบทดสอบวัดระดับคำศัพท์ภาษาอังกฤษ (Vocabulary Levels Test)

คำชี้แจง: แบบทดสอบนี้เป็นแบบทดสอบวัดระดับความรู้คำศัพท์ภาษาอังกฤษของนักศึกษา ประกอบด้วยข้อสอบวัดระดับคำศัพท์ภาษาอังกฤษจำนวนทั้งสิ้น 4 หน้า ให้นักศึกษาจับคู่คำศัพท์ ภาษาอังกฤษที่ตรงกับความหมายภาษาไทยที่กำหนดให้ทางด้านขวามือ ขอให้นักศึกษาตั้งใจอ่าน และทำข้อสอบทุกข้อ ทุกหน้า

ตัวอย่างคำถาม

1. business

2. clock   _____ กำแพง

3. horse   _____ ม้า

4. pencil   _____ ดินสอ

5. shoe

6. wall

ตัวอย่างการตอบที่ถูกต้อง

1. business

2. clock   ___6___ กำแพง

3. horse   ___3___ ม้า

4. pencil   ___4___ ดินสอ

5. shoe

6. wall

The 2,000 word level

1. copy	_____ ส่วนยอดสุด	1. admire	_____ ยืดออก
2. event		2. complain	
3. motor	_____ เครื่องยนต์	3. fix	_____ แนะนำ
4. pity		4. hire	
5. profit	_____ สิ่งเลียนแบบ	5. introduce	_____ เลื่อมใส, นับถือ
6. tip		6. stretch	

1. accident	_____ เสียงคำราม	1. arrange	_____ พัฒนา
2. debt		2. develop	
3. fortune	_____ หนี้สิน	3. lean	_____ จัดเรียง
4. pride		4. owe	
5. roar	_____ ความภูมิใจ	5. prefer	_____ ชอบมากกว่า
6. thread		6. seize	

1. coffee	_____ เงินค่าจ้าง	1. blame	_____ ผลิต
2. disease		2. elect	
3. justice	_____ กระโปรง	3. jump	_____ เลือกตั้ง
4. skirt		4. manufacture	
5. stage	_____ ความยุติธรรม	5. melt	_____ ละลาย
6. wage		6. threaten	

1. clerk	_____ ไวน์	1. ancient	_____ ยาก
2. frame		2. curious	
3. noise	_____ พนักงาน	3. difficult	_____ โบราณ
4. respect		4. entire	
5. theater	_____ เสียงรบกวน	5. holy	_____ ศักดิ์สิทธิ์
6. wine		6. social	

1. dozen	_____ โอกาส	1. bitter	_____ สวยงามน่ารัก
2. empire		2. independent	
3. gift	_____ โหล, จำนวน 12	3. lovely	_____ เล็กน้อย
4. opportunity		4. merry	
5. relief	_____ ภาษี	5. popular	_____ เป็นที่นิยม
6. tax		6. slight	

The 3,000 word level

1. bull 2. champion 3. dignity 4. hell 5. museum 6. solution	_____ ความมีเกียรติ _____ ผู้ชนะเลิศ _____ พิพิธภัณฑ์
1. abandon 2. dwell 3. oblige 4. pursue 5. quote 6. resolve	_____ อาศัยอยู่ _____ ไล่ตาม _____ ละทิ้ง
1. blanket 2. contest 3. generation 4. merit 5. plot 6. vacation	_____ วันหยุด _____ คุณความดี _____ ผ้าห่ม
1. assemble 2. attach 3. peer 4. quit 5. scream 6. toss	_____ จ้องมองอย่างใกล้ชิด _____ หยุด _____ กรีดร้อง
1. comment 2. gown 3. import 4. nerve 5. pasture 6. tradition	_____ ชุดเสื้อคลุมยาว _____ สินค้านำเข้า _____ เส้นประสาท
1. drift 2. endure 3. grasp 4. knit 5. register 6. tumble	_____ อดทน _____ ถัก _____ กำแน่น, ยึด
1. administration 2. angel 3. frost 4. herd 5. fort 6. pond	_____ ฝูงสัตว์ _____ เทวดา _____ การบริหาร
1. brilliant 2. distinct 3. magic 4. naked 5. slender 6. stable	_____ ผอมบาง _____ มั่นคง _____ เปลือย
1. atmosphere 2. counsel 3. factor 4. hen 5. lawn 6. muscle	_____ คำแนะนำ _____ สนามหญ้า _____ ไก่ตัวเมีย
1. aware 2. blank 3. desperate 4. normal 5. striking 6. supreme	_____ ธรรมดา _____ สำคัญที่สุด _____ รู้สึกตัว

The 5,000 word level

1. analysis 2. curb 3. gravel 4. mortgage 5. scar 6. zeal	_____ ความกระตือรือร้น _____ การจำนอง _____ กรวด	1. contemplate 2. extract 3. gamble 4. launch 5. provoke 6. revive	_____ ไตร่ตรอง _____ ฟื้นฟู, ทำให้คืนชีพ _____ ยุแหย่
1. cavalry 2. eve 3. ham 4. mound 5. steak 6. switch	_____ เนินดิน _____ วันหรือคืนก่อนวันหยุดเทศกาล _____ ทหารม้า	1. demonstrate 2. embarrass 3. heave 4. obscure 5. relax 6. shatter	_____ พักผ่อน _____ แตกละเอียด _____ ทำให้อาย
1. circus 2. jungle 3. nomination 4. sermon 5. stool 6. trumpet	_____ ทรัมเป็ต _____ ม้านั่งไม่มีพนักพิง _____ คำเทศนา	1. correspond 2. embroider 3. lurk 4. penetrate 5. prescribe 6. resent	_____ ติดต่อกันทางจดหมาย _____ ดักซุ่ม _____ ขุ่นเคือง
1. artillery 2. creed 3. hydrogen 4. maple 5. pork 6. streak	_____ ต้นเมเปิล _____ หลักความเชื่อ _____ ปืนใหญ่	1. decent 2. frail 3. harsh 4. incredible 5. municipal 6. specific	_____ อ่อนแอ _____ เกี่ยวกับเทศบาล _____ ยากที่จะเชื่อ
1. chart 2. forge 3. mansion 4. outfit 5. sample 6. volunteer	_____ แผนผัง _____ คฤหาสน์ _____ โรงตีโลหะ	1. adequate 2. internal 3. mature 4. profound 5. solitary 6. tragic	_____ เพียงพอ _____ เจริญเติบโตเต็มที่ _____ โดดเดี่ยว

Academic Vocabulary

1. area	_____ หนังสือสัญญา	1. alter	_____ เปลี่ยนแปลง
2. contract		2. coincide	
3. definition	_____วิธีการ	3. deny	_____ ปฏิเสธ
4. evidence		4. devote	
5. method	_____ หลักฐาน	5. release	_____ ระบุรายละเอียด
6. role		6. specify	

1. debate	_____ แผนการ	1. correspond	_____ รักษาไว้
2. exposure		2. diminish	
3. integration	_____ตัวเลือก	3. emerge	_____ สอดคล้องกัน
4. option		4. highlight	
5. scheme	_____ การรวมกัน	5. invoke	_____ เน้น, ทำให้เด่น
6. stability		6. retain	

1. access	_____ เพศ	1. bond	_____ ลดขนาดลง
2. gender		2. channel	
3. implementation	_____จิตวิทยา	3. estimate	_____ ประมาณ
4. license		4. identify	
5. orientation	_____ ทางเข้า	5. mediate	_____ ระบุตัวตน
6. psychology		6. minimize	

1. accumulation	_____ การสะสม	1. explicit	_____ สุดท้าย
2. edition		2. final	
3. guarantee	_____ การประกัน	3. negative	_____ แข็ง, ไม่ยืดหยุ่น
4. media		4. professional	
5. motivation	_____ แรงกระตุ้น	5. rigid	_____ เป็นการปฏิเสธ
6. phenomenon		6. sole	

1. adult	_____การสิ้นสุด	1. abstract	_____ ใกล้ชิด, ข้างเคียง
2. exploitation		2. adjacent	
3. infrastructure	_____ ยานพาหนะ	3. controversial	_____ ซึ่งช่วยเสริม
4. schedule		4. global	
5. termination	_____ ตารางเวลา	5. neutral	_____ เกี่ยวกับโลกทั้งหมด
6. vehicle		6. supplementary	

APPENDIX C

แบบสอบถามเกี่ยวกับกลยุทธ์การเรียนรู้คำศัพท์ภาษาอังกฤษของนักศึกษาระดับปริญญาตรี
หลักสูตรวิทยาศาสตรบัณฑิต

คำชี้แจง แบบสอบถามฉบับนี้มีวัตถุประสงค์เพื่อรวบรวมข้อมูลเกี่ยวกับกลยุทธ์การเรียนรู้คำศัพท์
ภาษาอังกฤษของนักศึกษาระดับปริญญาตรีหลักสูตรวิทยาศาสตรบัณฑิตโดยนำข้อมูลที่ได้ไป
ประกอบการวิจัยเพื่อศึกษาหาข้อมูลเพิ่มเติมในเรื่องความรู้คำศัพท์ภาษาอังกฤษของนักศึกษาและกล
ยุทธ์การเรียนรู้คำศัพท์ภาษาอังกฤษที่นักศึกษาใช้ <u>ทั้งนี้ไม่มีคำตอบใดที่ถูกหรือผิดและข้อมูลใน</u>
<u>แบบสอบถามนี้จะไม่มีผลกระทบใดๆทั้งสิ้นต่อผู้ตอบแบบสอบถาม</u>

แบบสอบถามนี้แบ่งออกเป็น 3 ตอน โปรดตอบทุกตอนและทุกข้อ

ตอนที่ 1 คำถามเกี่ยวกับข้อมูลผู้ตอบแบบสอบถาม มีจำนวนทั้งสิ้น 6 ข้อ

ตอนที่ 2 คำถามเกี่ยวกับกลยุทธ์ที่ผู้ตอบแบบสอบถามใช้เมื่อต้องการรู้ความหมายของคำศัพท์และ
จดจำหรือเพิ่มพูนคำศัพท์

    ภาษาอังกฤษ มีจำนวนทั้งสิ้น 40 ข้อ

ตอนที่ 3 คำอนุญาตในการเก็บข้อมูลเพิ่มเติมมีจำนวนทั้งสิ้น 1 ข้อ

        ผู้วิจัยใคร่ขอความกรุณาจากท่านให้ตอบแบบสอบถามที่ตรงกับพฤติกรรมการเรียนรู้
คำศัพท์ภาษาอังกฤษของท่านมากที่สุด โดยหวังเป็นอย่างยิ่งว่าจะได้รับความร่วมมือจากท่าน และ
ขอขอบคุณที่ท่านกรุณาสละเวลาให้ความร่วมมือในการตอบแบบสอบถามฉบับนี้มา ณ ที่นี้

                        นางสาวมุทิตา ชินภักดี
                        นักศึกษาหลักสูตรศิลปศาสตรมหาบัณฑิต
                        (วิชาเอกการสอนภาษา)
                        สาขาวิชาภาษาและวัฒนธรรมเพื่อการสื่อสารและการ
                        พัฒนา
                        สถาบันวิจัยภาษาและวัฒนธรรมเอเชีย มหาวิทยาลัยมหิดล

ตอนที่ 1 ข้อมูลส่วนตัวของผู้ตอบแบบสอบถาม

คำชี้แจง โปรดอ่านข้อความต่อไปนี้และทำเครื่องหมาย✓ลงใน [ ] หน้าข้อความที่ตรงกับความเป็นจริงของท่าน

1. เพศ   [ ] ชาย   [ ] หญิง
2. ปัจจุบันท่านอายุ   [ ] 19 ปี   [ ] 20 ปี   [ ] 21 ปี   [ ] 22 ปี
3. ปัจจุบันท่านศึกษาอยู่ชั้นปีที่   [ ] 2   [ ] 3   [ ] 4
4. สาขาวิชาที่ท่านศึกษา [ ] สาขาวิชาเทคโนโลยีการอาหาร   [ ] สาขาวิชาชีววิทยาเชิงอนุรักษ์
                              [ ] สาขาวิชาวิทยาศาสตร์การเกษตร   [ ] สาขาวิชาธรณีศาสตร์
5. วิชาภาษาอังกฤษที่ท่านเคยศึกษาและกำลังศึกษาอยู่

       [ ] English level 1

       [ ] English level 2

       [ ] English level 3

       [ ] English level 4

       [ ] English level 5

       [ ] English level 6

6. ท่านใช้ภาษาอังกฤษเมื่อใดบ้าง

       [ ] อ่านบทความหรือวารสารวิชาการ (papers/journals) [ ] ดูภาพยนตร์ ฟังเพลง ร้องเพลง

       [ ] เขียนบทความวิชาการ (papers)   [ ] ใช้อินเตอร์เน็ต

       [ ] นำเสนองาน (presentations)   [ ] เล่นเกม แชท

       [ ] สัมมนา (seminar)   [ ] ท่องเที่ยว

       [ ] อภิปรายในชั้นเรียน (class discussion)

       [ ] อื่นๆ โปรดระบุ _____

ตอนที่ 2 แบบสอบถามเกี่ยวกับกลยุทธ์การเรียนรู้คำศัพท์ภาษาอังกฤษ

คำชี้แจง แบบสอบถามนี้มีทั้งหมด 40 ข้อ กรุณาอ่านคำถามแต่ละข้อและตอบโดยทำเครื่องหมาย ✓ ลงในช่องที่
ตรงกับพฤติกรรมการเรียนรู้คำศัพท์ภาษาอังกฤษของท่านมากที่สุดเพียงข้อละ 1 ช่องเท่านั้น

เมื่อฉันพบคำศัพท์ภาษาอังกฤษที่ไม่รู้ความหมาย ฉัน...	ระดับการใช้				
	ใช้มากที่สุด	ใช้มาก	ใช้ปานกลาง	ใช้น้อย	ใช้น้อยที่สุด
1 ตรวจสอบลักษณะของคำ (part of speech) ว่าเป็น คำกริยา, คำนาม, ฯลฯ					
2 มองหาส่วนที่ฉันรู้ในคำนั้น เช่นรากศัพท์, prefix, suffix หรือ คำประสม (ex**port**, **im**possible, color**ful**, **seafood**)					
3 ดูภาพประกอบหรือท่าทางต่างๆ ที่มีในขณะนั้นเพื่อช่วยในการเดาความหมายคำศัพท์					
4 ใช้ประสบการณ์เพื่อช่วยในการเดาความหมาย					
5 เดาความหมายจากบริบท เช่นคำ วลี หรือ ประโยคที่อยู่ใกล้เคียงหรืออยู่รอบข้าง					
6 ใช้พจนานุกรม อังกฤษ-ไทย					
7 ใช้พจนานุกรม อังกฤษ-อังกฤษ					
8 ถามความหมายของศัพท์จากครู หรือผู้รู้					
9 ถามความหมายของศัพท์จากเพื่อนๆในชั้น					
10 ศึกษาคำศัพท์นั้นกับเพื่อนๆในชั้น					
11 ขอให้ครูช่วยตรวจดูความหมายของศัพท์ให้ว่าถูกต้องหรือไม่					
12 พูดคุยกับเจ้าของภาษา					
13 วาดภาพคำศัพท์เพื่อช่วยจำ เช่น dog = สุนัข					
14 สร้างภาพในใจจากความหมายของคำศัพท์					
15 เชื่อมโยงคำศัพท์กับประสบการณ์ส่วนตัว					
16 เชื่อมโยงคำศัพท์ใหม่กับคำศัพท์ที่รู้ความหมายแล้ว					
17 เชื่อมโยงคำศัพท์กับคำอื่นๆที่มีความหมายคล้าย (synonym) หรือตรงข้ามกัน (antonym)					
18 จดจำคำศัพท์เป็นลำดับ เช่น always-often-sometimes-never = เป็นประจำ-บ่อยๆ-บางครั้ง-ไม่เคย					

	เมื่อฉันพบคำศัพท์ภาษาอังกฤษที่ไม่รู้ความหมาย ฉัน...	ระดับการใช้				
		ใช้มากที่สุด	ใช้มาก	ใช้ปานกลาง	ใช้น้อย	ใช้น้อยที่สุด
19	จัดกลุ่มคำศัพท์เป็นหมวดหมู่เพื่อศึกษา					
20	ใช้คำศัพท์ในประโยคใหม่ๆ					
21	เขียนย่อหน้า (paragraphs) โดยใช้คำศัพท์ใหม่ๆ					
22	ศึกษาการสะกดคำของคำศัพท์					
23	ศึกษาเสียงของคำศัพท์					
24	พูดคำศัพท์นั้นออกมาขณะศึกษา					
25	นึกภาพตัวสะกดคำศัพท์ในใจ					
26	จดจำคำศัพท์จากคำที่เติมเข้ามาข้างหน้าหรือข้างหลังคำศัพท์นั้น (affixes) หรือรากศัพท์ (im-, un-, -able, -ful, -ment, ex-)					
27	จดจำคำศัพท์จากรูปแบบของคำ เช่น คำกริยา คำนาม คำคุณศัพท์					
28	ถอดความหมายของคำศัพท์ออกมาเป็นภาษาของตัวเอง					
29	ใช้ท่าทางประกอบเมื่อเรียนรู้ศัพท์ใหม่ๆ					
30	พูดคำศัพท์นั้นซ้ำๆหลายๆรอบ					
31	เขียนคำศัพท์นั้นซ้ำๆหลายๆรอบ					
32	สร้างลิสต์คำศัพท์ใหม่ๆเอง					
33	ใช้บัตรคำเพื่อช่วยจดจำคำศัพท์ใหม่ๆ					
34	จดหรือเน้น(ไฮไลท์)คำศัพท์ใหม่ๆในห้องเรียน					
35	ติดป้ายคำศัพท์ภาษาอังกฤษบนสิ่งของต่างๆ					
36	มีสมุดที่ใช้จดคำศัพท์					
37	ใช้สื่อภาษาอังกฤษ เช่น เพลง ภาพยนตร์ อินเตอร์เน็ต					
38	ทดสอบคำศัพท์ด้วยตัวเอง เช่น ทำข้อสอบหรือแบบฝึกหัดคำศัพท์ภาษาอังกฤษ					
39	เล่นเกมคำศัพท์ภาษาอังกฤษ					
40	ศึกษาและทบทวนคำศัพท์อย่างต่อเนื่อง					

ตอนที่ 3 คำอนุญาตในการเก็บข้อมูลเพิ่มเติม

ในกรณีที่ผู้วิจัยต้องการขอข้อมูลเพิ่มเติมเกี่ยวกับการใช้กลยุทธ์การเรียนรู้คำศัพท์ภาษาอังกฤษของข้าพเจ้า...

[   ] ข้าพเจ้ายินดีที่จะให้ผู้วิจัยขอข้อมูลเพิ่มเติม ได้ที่

ชื่อ-สกุล:

_____

สาขาวิชาที่ศึกษาอยู่:

_____

หมายเลขโทรศัพท์มือถือ:

_____

E-mail address:

_____

(หมายเหตุ: ข้อมูลของท่านจะถูกเก็บไว้เป็นความลับและใช้เพื่อการศึกษาวิจัยครั้งนี้เท่านั้น)

[   ] ข้าพเจ้าไม่สะดวกที่จะให้ข้อมูลเพิ่มเติม

*** **ขอบพระคุณที่ให้ความร่วมมือ** ***

APPENDIX D
INTERVIEW QUESTIONS

1. How long have you been studying English?
   นักศึกษาเรียนภาษาอังกฤษมาแล้วกี่ปี

2. What do you think about learning English?
   นักศึกษาคิดอย่างไรกับการเรียนภาษาอังกฤษ

3. What do you think are your problems in learning English?
   นักศึกษาคิดว่าอะไรเป็นปัญหาในการเรียนภาษาอังกฤษของตนเอง

4. Where do you usually learn new English vocabulary from?
   โดยปกติแล้วนักศึกษาเรียนภาษาอังกฤษจากแหล่งใดบ้าง

5. What do you do when you hear words that you do not understand? Please explain.
   นักศึกษาทำอย่างไรเมื่อได้ยินคำภาษาอังกฤษที่ตนเองไม่เข้าใจ โปรดอธิบาย

6. What do you do when you read a passage or a textbook written in English and find words that you do not understand?
   นักศึกษาทำอย่างไรเมื่ออ่านบทความหรือหนังสือเรียนที่เป็นภาษาอังกฤษแล้วพบคำที่ไม่เข้าใจ

7. What do you do when you see the unknown words for the first time? Do you prefer discovering the word meanings by yourself or asking other people?
   นักศึกษาทำอย่างไรเมื่อเห็นคำศัพท์ที่ไม่เข้าใจเป็นครั้งแรก นักศึกษาชอบหาความหมายด้วยตนเองหรือถามจากคนอื่นๆ

8. What do you do to retain your vocabulary knowledge?
   นักศึกษาใช้วิธีการอะไรบ้างในการเสริมสร้างความรู้คำศัพท์ภาษาอังกฤษของตนเอง

9. Do you prefer studying and practicing English vocabulary by yourself or with other people? Why?
   นักศึกษาชอบศึกษาคำศัพท์ด้วยตนเองหรือศึกษากับคนอื่นๆ ทำไมจึงทำเช่นนั้น

10. What do you do to help you learn and remember English vocabulary better?
    นักศึกษาใช้วิธีการอะไรบ้างในการช่วยให้ตนเองจำคำศัพท์ภาษาอังกฤษได้ดีขึ้น

11. What do you do to keep track of your vocabulary development, monitor, and evaluate your vocabulary progress?
    นักศึกษาใช้วิธีการอะไรบ้างในการติดตามความก้าวหน้าในการเรียนคำศัพท์และประเมินความรู้ทางคำศัพท์ภาษาอังกฤษของตนเอง

APPENDIX E
INTERVIEW TRANSCRIPT OF FOOD TECHNOLOGY
MAJORED STUDENTS

Interview Date: January 23, 2013

Participants: 7 students

Question 1:	**How long have you been studying English?**
S1:	Since kindergarten
S2:	Kindergarten
S3:	Kindergarten
S4:	First grade
S5:	First grade
Question 2:	**What do you think about learning English?**
S1:	I like learning English because it's useful.
S2:	Right, I use it especially when going online.
S3:	I like it because it helps me with my GPA. For me, English doesn't take much time to study like any other subjects. Only 1 hour of studying is enough for the exam. Also, I can use English to communicate with foreigners when going abroad.
S1:	I like it. I think it's easier than Thai. The grammar is less complicated, so it's easier to remember. Thai grammar is so complicated.
S5:	I don't like it. I wish there was only one language in the world.
I:	**Please explain more**
S5:	English is ok. For me, English lowers my GPA. I have to say I don't like it, but I have to use it anyways.
S6:	I like it because I think it's easier than Thai. I can use it to chat with my foreign friends online.
S4:	I like English but let alone its grammar. It's very useful when I

	communicate with my friends overseas.
I:	**Do you use English when you study?**
S4:	Not really. Most of the time, I use English skills when watching movies. I like to watch them with no subtitle.
S7:	I like it. English is a universal language that everyone uses.
I:	**What about in the future? Do you think it will be more important?**
S7:	Of course, it will be even more important when we join the ASEAN community.
S5:	It's necessary even we didn't join the ASEAN community.
Question 3:	**What do you think are your problems in learning English?**
S1:	The problem is that not everyone has the same basic English knowledge. Their learning ability is also different. Some people take a long time to remember a word while some can remember 10 words in a minute. Also, English is not our language and we, Thai people, will not be enthusiastic enough to use English unless we're forced to. Right now, we're becoming a member of the ASEAN community and some teachers start using English on their lecture presentations. We have to try and pay attention. We start using dictionaries application on our mobile phones to translate what the teachers said.
S4:	My problem is that I get so shy when I have to speak English.
S1:	Exactly.
S4:	Shyness is the real problem. If we learn English but we don't use it, it's useless.
S2:	Yes, I agree with him.
S3:	For me, I think my family has helped me a lot. My parents encouraged me to study English since early childhood. They also talked to me in English, so I am quite familiar with it. Sometimes, parents didn't know how to speak to their kids in English. That can make English sounds intimidating to the kids when they grow up.

S5:   I think the problem is our educational system. Like I said, why don't the teachers teach in English when their lecture presentations are all written in English? Even the teacher don't use English, we see no point in using it. I used to be an exchange student and the situation was different. Everything there was in English. So, I need to try hard to understand them.

I: **So, you mean that it is no use to learn English when you don't get to use it in real life?**

S5:   Even the English teachers didn't speak English.

I: **Do you want them to teach in English?**

S5:   We can't do anything about that. They need to make up the situations.

S3:   Like forcing us to use English.

S1:   Thai people need to be forced sometimes.

S7:   I didn't like it at first because I grew up speaking Thai. When I had to study it, I don't like it. However, I realized English could make me become successful in my study.

S6:   Like everyone said, Thai students have to be forced. If you don't force them, they will reject it.

Question 4:   **Where do you usually learn new English vocabulary from?**

S4:   I learn from many sources. I studied in the English program when I was in High school. During that time, I used to study the word from the English newspapers.

S2&S3:   Student Weekly

S4:   Right, so I learned a lot of new words. I also helped my friend recite SAT English vocabulary.

S6:   Luckily, I like listening to music and watching movies. It's like I'm forced to understand English.

I: **You're motivated by the need to understand what's going on in the movie?**

S6:   Right

I: **Did you learn a lot from that?**

S6:   It's very fun. Actually, I learned a lot from movies and music. Actually, the reason I like English is because I like Justin Bieber. I want to be able to talk to him through Twitter. So, it helped I guess.

S7:   I read comics online.

I: **You mean Japanese comics?**

S7:   Yes, the English translated version. The English version was released faster. I learned new words from it. I use dictionary to find the meaning of the unknown words I read.

S5:   I was an exchange student and when I heard the words I don't know, I didn't get them at first.   I needed to hear the words more than4-5 times to understand them. If I don't get those words, I asked my American friends

I: **You learned from your friends. What about movies and comics?**

S5:   Yeah, I read some comics online because the English translated version is released faster. I also collect some English comic books I bought from Siam Paragon. Besides, I watch movies both with and without subtitles.

S2:   Mostly, I learn from the internet. I am a fan of Korean singers. Their news are updated in English. Sometimes it is about lawsuit and I really want to know it. I couldn't wait for Thai translation, so I read it in English. I also listen to some music online.

I: **What kind of music? English or Korean?**

S2:   Both. Korean lyrics are translated into English, so I try to learn the lyrics. If it's an English song, I will find the lyrics to read.

S3:   I also learned from several sources. I read comics and watch Japanese animations with English subtitle. If there're words that I don't understand, I use dictionaries. I also learn from speaking English with my mother. My mother only let me study English with native speakers so I had talk to them in English. The teachers would assign outside reading books such as Sherlock Holmes. There're some new vocabulary in the story with the English definition at the back of the

book. I learn the meaning of the new English vocabulary from that.

Question 5: **What do you do when you hear words that you do not understand? For example, when you watch movies, listen to music, or speak with foreigners. Please explain.**

S3:   ask them directly.

S5:   Mostly, I would have the problems understanding the different variation of English accents. Russian English, Indian English, or French English, for example, are hard to understand. I often turn on English subtitle with these movies. If the actors use American English I would have no problem understanding the movie at all because they speak clearly.

S1:   We're familiar with that.

S5:   I often get confused with different accents of English.

I: **You turn on the subtitle**

S5:   Yes. There are subtitles for British English and American English available for you to choose from.

S1:   I use the dictionary application on my mobile phone.

I: **Was it a bilingual or monolingual dictionary?**

S1:   I use the bilingual one.

I: **What do you do when you don't have the dictionary with you?**

S1:   I look at the contexts

I: **Such as….**

S1:   If I read, I look for the words in bold letters and look at the surrounding words to get some idea. Sometimes I look at the speakers' gestures.

S7:   If I watch a movie, I would guess from the plot to see where the story is going. I guess it helped.

S2:   You'll know it.

S7:   I use dictionary application on my mobile phone when reading comics.

S4:   I also look at the person's facial expression and look at the textual context if I read. I watch a lot of movies, so I often guess from the facial expression. If I couldn't really get the meaning, I used common sense.

I: **Did you get the right meaning?**

S4:   Sometimes.

S6:   Yes, just like everyone said. If I take a test, I would look at the context. If I listen to English conversation and didn't understand, I would look at the speakers' action.

S2:   I look at the context

S3:   I guess or I use dictionary. If I was speaking with foreigners, I would ask them directly for the word meanings and tell them that I don't understand.

I: **All of you use quite similar strategies which are guessing from the verbal and textual context. What are the advantages and disadvantages of guessing?**

S3:   The good thing is that you can get it right. Yet, if you didn't get it right, the meaning could be completely changed.

S5:   I don't guess. I need to see the word for 4-5 times until I have the need to know the meaning. If I watch movies or talk with friends, I would pretend to understand, but actually I don't. It's not necessary to know the meaning immediately because when you hear it many times, you'll get it eventually.

Question 6:   **O.K. next question, what do you do when you read a passage or textbook written in English and found words that you do not understand?**

S1:   I subscribed to the magazine called "I Get English". There are some English articles with Thai translation on the other side of the magazine. First, I read them in English. If I don't understand, I look at the Thai translation. I use dictionary to find the meaning of words I don't know, but after that I never really remember the words. Also, I ask my aunt to read and translate for me.

S7:   I skip the part I don't know. I just need to understand overall idea.

S6:   If I don't understand what I read, I would skip the unknown words. If I skip all of them and I still don't understand the text, I have to find the definitions.

I: **Did you do that immediately?**

S6:   Yes, so I won't forget it.

I: **Did you use the dictionaries or you ask someone?**

S6:   I use Google.

S4:   I often skip the unknown words except the words I really need to know. If those words are necessary, I use the dictionary. Mostly, I don't use dictionary I just try to understand it in my own way.

I: **You guess?**

S4:   Not really. I skipped.

S2:   If I skipped the word and I understand the text, I wouldn't use the dictionary. I use it if I get stuck.

I: **What did you use to find the words' meanings?**

S2:   Google.

I: **You mean Google Translate?**

S2:   No, I used dictionary websites.

S1:   Exactly, I also go to the dictionary websites.

S3:   If I don't know the word I usually skip it. Well, if the word is the keyword I go online for translation.

I: **How do you know which word is the key word?**

S3:   The keyword is the word that clarifies the whole sentence.

S5:   I skip the unknown words.

I: **So, you said that you skip the unknown words and continued reading. You only use dictionaries only when you really want to know what the word means?**

All: Yes.

S5:   I know when to use the dictionary.

I: **When?**

S5:   When I play games like crosswords. I used to play in 6th grad and knew a lot of words.

S3:   Anagrammer

S5:   It's kind of incidental.

I: **Is skipping good for your vocabulary learning?**

S5:	I need to see the words more often.
S3:	Right. Those need to be seen again.
S1:	I need to see the words many times before I know them. There're words in my Biology textbooks which appear in every page. After skipping those for many times I had to look for the meaning eventually.
S1:	Like I said. I often skip unless I see those words frequently.
All:	Yes, that's right.
Question 7:	**What do you do when you see the unknown words for the first time? Do you prefer discovering the words' meanings by yourself or asking other people?**
S3:	I find it myself because asking my roommate doesn't help.
I:	**You do it all the time?**
S3:	Mostly when I read. Finding the meaning by myself makes me remember the word better. Asking someone else would get you the meanings, but the memory fades quickly.
S2:	I often discover the new words meaning by myself.
S1:	Me, too. I like doing it by myself.
I:	**You mean by using the dictionary?**
S1:	Yes.
I:	**Do you use anything else besides the dictionary?**
S3:	The dictionary alone.
I:	**The online dictionary?**
S1:	I use the dictionary application on my phone. If I was reading something online, I use Google.
S5:	I usually cut the words into parts; the words that come before and after the main word. I look for the root of the words and their prefixes and suffixes as well.
I:	**You look for the part that you know?**
S4:	Roots
S5:	Prefix and suffix
I:	**You look for the parts you know before using the dictionary?**
S5:	I used to like a Spanish song which can be translated into English as

"Unbelievable" I asked my mother for the meaning and got told to do it myself.

S3:   Yeah, I can relate to that.

S5:   So, I was a little upset and tried what I've been taught. I cut –able and un- and "believe" was the only thing left.

I: You cut words into parts?

S5:   Yes, if I still don't get it, I just leave it there.

S7:   I use dictionary. I don't ask people.

I: Bilingual dictionary?

S7:   Both. I have both monolingual and bilingual dictionary on my phone.

I: Which one do you prefer?

S2&S7:   The bilingual one.

S4:   I don't really like to use dictionary. When I was younger I always asked my foreign teacher. So, I'm not familiar with using it. I usually talk to friends who know and ask them for the meanings.

I: How do to know who to ask?

S4:   I choose the one who's good at English and who can clearly explains it to me in a simple way.

I: You choose to ask other people first?

S4:   Yes, and if I don't get it I have to use the dictionary.

S6:   For me, it depends on the situation. If my friends are around I ask them first. If no one knows, I find the meaning of that unknown word in the dictionary.

I: Does it help your vocabulary learning? Did you usually forget them afterwards?

S1, S2, &S6: Right.

S5:   It helps but we need to do it many times.

S4&S1:   Yes, exactly.

S5:   It's a skill that needs to be practiced repeatedly.

S1:   When I look for the word meaning for the first time I usually forget it. If I see the word again and look it up again I think I can remember it.

Question 8: **After you learned some new words, what do you do to retain your vocabulary knowledge?**

S5:   I do practice sometimes.

I: When you're at home?

S1:   Not really.

S3:   Only before the exams.

S7:   Not really. It's like seeing the words again and again and then you kind of remember them.

I: Does anyone write new vocabulary down in their notebooks and study?

S1&S2:   Rarely.

S1:   I don't study vocabulary. I use them in real life situation.

S3:   Keeping vocabulary notebook is for kindergarten. I don't do that.

I: Do you have any other ways to study vocabulary?

S3:   I recite some before the exams.

S1&S2:   Write them down on some papers and recite.

S3:   I write them down on papers and repeat them aloud.

I: Word cards or Lists?

S3:   Yes I use word cards and color them differently for easier memorization.

I: Did anyone sing vocabulary song?

S6:   I used to, but I didn't like it. It made me feel sleepy. I want to know only 1 word why do I have to memorize the entire song to get it? Still, singing works for me.

S5:   I feel stupid doing that. I failed the test once because the person next to me kept singing all the time.

S1:   If you're good at remembering, singing is not really necessary. It depends on individual's learning style. What works for me might not work for other people.

I: Who use singing here?

S1&S6:   I do.

S6:   I like singing pop songs and I got new words form it. I don't sing

vocabulary songs.

I: **So, you study only before the exams?**

S5:   It won't help.

S1:   Rote memorization doesn't help because we don't get the idea. The lecture note, for example, needs to be translated first before being memorized.

S5:   Challenging friends helps. I like taking turn with my friends to ask and answer vocabulary questions before the exams. It's fun.

S2&S3:   Absolutely fun.

S5:   Challenging comes with a little bit of pressure which I think is encouraging. Sometimes I challenge my friends in a word spelling game.

Question 9: **Do you prefer studying and practicing English vocabulary by yourself or with other people? Why?**

S3:   Depends on the situation.

S5:   If I have someone to pair up with, I'll do it in pair.

S3:   Or if the exams are approaching, some friends will ask us to study vocabulary with them. I used to find some bad words to argue with friends but not a real serious argument though. I learned a lot.

S2:   I often study alone. I can concentrate more.

I: **Do you go study with your friends after that?**

S2:   Yes, sometimes I let my friends ask me the meaning of the words and I'll try to answer. I study it all once and then go to my friends.

S1:   I study all the vocabulary by myself first. On the exam day, half an hour before the exam, I would ask my friends "what does the word mean". It really helped. After the exam I forgot them anyways.

I: **You have your friend recite for you?**

S1:   Yes. This way I can learn more words.

S5:   I study with friends because it feels like I have something to do. If I sing alone I'll think it's a little bit silly.

I: **Anybody?**

S7: I did a similar thing. First, I study alone and then just before the exam time I go talk to my friends. I can memorize all the words. It's weird how I can remember those well in such a short period of time.

S1&S2: Yes.

I: **Only before the exam time?**

S7: Yes.

S5: Listening to friends' talk before the exam gives me a little pressure. If my friends already got it I must get it, too. While listening to different people, I also get different words. More people means more words.

I: **You learn from listening?**

S5: If friends recite them out loud I will listen and memorize them.

S6: I prefer studying alone because I can try to use my imagination to help memorization. Listening to people before the exam time also helps, but it makes me feel even more nervous.

Question 10: **What about memorization techniques? What do you do to help you learn and remember English vocabulary better?**

S6: I repeat them many times.

S4: I use imagination

S6: The words need to be seen more often.

S4: I just say them aloud. When I get home I tutor my younger friend, help him remember the words on the lists. I also remember those words as well.

I: **Did you bring your own lists?**

S4: No. They're his.

I: **Are the words grouped on the list?**

S4: No, just randomly selected words.

S4: When I read something in English such as my textbook, I often write the meaning right above the word in the text, or I write it down in the corner of the page to make me remember.

I: **Do you imagine words and picture together?**

S4:   No.

S7:   I remember words with similar meaning in groups. That way I can remember more words.

S3:   Right.

I: **Is it effective for you?**

S7:   I might not remember all of the words, but if I see them again, they look familiar. That might help.

S1:   If I really need to remember a word, I would write it down repeatedly for at least 10 times until I can remember what it means. Simple words such as 'apple' can be related pictures, but words I use nowadays such as the word "analyze" cannot be easily related to picture.

S5:   When speaking of the word "analyze" I think of my teacher.

S1:   Yes, it's like trying to relate it to our experience.

S5:   Words with abstract meaning can be related to pictures. For example, some adjective like "ugly". When I hear that I think of my friend's face. I can also relate it to many more words with the similar meaning. Instead of translating English to Thai, I translate the English word to pictures. If I hear the word "Mango" I will relate it to the yellow fruit. Even the abstract idea can be related to something. "Analyze" for example, can be related to my teacher's face. I know what the word means from that.

S6:   I usually write the meaning next to the words, so I don't have to find it again. If the word is hard to remember, I try to relate it to myself by using my imagination.

I: **You relate the word to your experience?**

S6:   when I try to remember the word 'analyze', for example, I often think of the time when I calculate something or when I do something in the lab. It helps me remember the word better.

I: **What makes the word easy or difficult?**

S3:   Difficult words are words that are not seen frequently.

S2:   It makes the word seem more difficult. Sometimes, spelling causes

	problems, too.
I:	**Long word with unfamiliar spelling?**
S1:	Words that are not met frequently.
S5:	Infrequently met word which we see less than 2-3 times. Pronunciation is also the case. When I see a new word, I often cut them into syllables for easy pronunciation. My brain doesn't need to memorize the whole thing.
I:	**You like cutting words into parts?**
S5:	Yes. I need to cut it into 'smaller blocks'. "Blackberry", for instance, is not easy to remember as a whole word. So, I just cut it into "black" and "berry". Maybe those lead to more vocabulary.
I:	**Is it effective for you?**
S5:	I learn the word as an individual unit and a whole word.
I:	**Is it like expanding your knowledge?**
S5:	I just want to cut it. Sometimes, the parts lead to other similar words. Give me an example of words that can't be cut.
I:	**"banana"**
S5:	This can't be cut based on their meaning, so I'll cut it according to its pronunciation "ba- na- na"
I:	**How do you cut it?**
S5:	Cut it according to its pronunciation. If we pronounce it wrong someone will tell us. Recently I've just found that my girlfriend pronounces "Awesome" as "A-we-some". So I correct her that there are 2 syllables in this word and she remembers it well now.
S7:	Word familiarity is important. The word itself may not be difficult, but we rarely meet it. Therefore, it seems difficult to us. If we see it frequently it is easy.
S6:	Exactly, frequently met words are easier than words that we rarely meet.
I:	**Do you cut it in parts?**
S6:	I do. I read words aloud. If there's a word that I don't know how to pronounce, I cut it to make it easier to pronounce.

S4:   Spelling matters, too. Some words are pronounced differently from the way they're written. Those are a bit tricky. I remember them separately as a whole unit.

S5:   Words with French cognates.

Question 11: **What do you do to keep track of your vocabulary development, monitor, and evaluate your vocabulary progress?**

S4:   I do it online.

S3:   I took the Toefl test once but I failed. I still want to take it again. I also took the SAT test. I study more to achieve my goal which is passing the Toefl test.

S2:   Not really. I give myself some feedback only before examinations

S1:   I don't. If I didn't take a course I can't get my feedback. You get grades from taking courses. I'm now considering the Toefl test, too because it will be necessary for scholarship application and going abroad.

S5:   I evaluate my vocabulary knowledge by re-reading the same book again to see if I still get the same level of understanding. If I give myself 3 out of 5 for the first time, the next time I read I must get more score. If it gets worse, I will re-read it again. This also applies to watching movies. I compare my understanding when watching the same movie again without the subtitle against the first time watching the movie with subtitle.

S7:   I didn't know until I took the Vocabulary Levels Test. I'm thinking of taking more tests to see if I have increased my knowledge.

S1:   Taking the VLT is fun. We're happy to take it. Like I mention earlier, we need to be forced to do something. We need to see if our knowledge has been developed. We need to be evaluated.

S6:   I rarely check my progress. I can notice if I haven't use the language for a long time, my knowledge decreased. Sometimes I read new books just to check if I understand them.

I: **Does anyone continue studying vocabulary? Do you have a schedule for it?**

S1:   No.

S4:   Playing games is a good way to study words. I play "Word Challenge" everyday. It's a game about vocabulary.

S5:   I think testing depends on your luck, too. If you read what's on the test, you're lucky. There's no test that can really evaluate all aspects of knowledge.

I: Are you happy with your grades?

S4:   I am.

I: Do you think you need to improve your vocabulary knowledge?

S3:   Of course, I'm not really satisfied with my score on international tests.

S4:   I evaluate myself by using the language and vocabulary in real life situation. If I go somewhere and a foreigner asks me something. I'll try to answer it. If I could make him understand I think I'm quite good.

I: That's all for today. Let me sum up our talk. Today we talked about how you learn vocabulary. You all learned from many different sources with different strategies. You think that you still need to improve your knowledge. That's it for today. Thank you so much for coming. Do you have any suggestions or ideas that you want to share?

S6:   I want you to come and arrange the test again.

APPENDIX F

INTERVIEW TRANSCRIPT OF AGRICULTURAL SCIENCE
MAJORED STUDENTS

Interview Date: January 24, 2013

Participants: 5 students

Question 1:	**How long have you been studying English?**
S1:	Kindergarten
S2, S3, &S4:	Grade 1
Question 2:	**what do you think about learning English?**
S1:	I do like learning English. I love speaking in English and I want to talk to foreigners.
S3:	I used to like learning English when I was younger because everything was easier. I don't really like it now because I have to learn the same things again and gain.
S4:	I think it's fun, but I don't think I can use English to communicate in real life situations.
S2:	The fun part is that I can learn a lot of new vocabulary. I think we need to know English because all the instruction manuals of the lab devices are in English. I think it's something we must learn.
Question 3:	**What do you think are your problems in learning English?**
S1:	Grammar. My grammar is not perfect, but I can still communicate with foreigners.
I:	**Do you have any other problems?**
S1:	I also have problems understanding some signs and instructions.
S4:	I also have the same problem which is grammar. I'm satisfied with my speaking skills.

S3:	It's hard to understand what foreigners say. Sometimes they speak too fast.
I:	**Can you still communicate with foreigners successfully?**
S3:	Yes, but I use incorrect grammar.
S2:	I have problems with reading. Sometimes I don't understand what I read. I also have problems with writing. I can't compose grammatically correct sentences. I often use wrong tense, synonyms, and antonyms. Listening is also difficult. I can hardly catch what foreigners say. The main problem is that I can't use what I learned.
Question 4:	**Where do you usually learn new English vocabulary from?**
S1:	Magazines like Student Weekly. I like reading English language fashion magazines, so I learned many new words. I also like watching movies with subtitle and chat with foreigners.
S3:	I read comic books and some magazines.
S2:	I read Times magazine, newspapers, novels, and all kinds of books including textbooks. I read product labels and logos. I think it's a good way of learning. I also like listening to English language music and watching foreign movies such as Indian movies, Japanese, and Korean movies with subtitle. Sometimes and I read the song lyrics and try to translate the lyrics.
Question 5:	**What do you do when you hear words that you do not understand? Please explain.**
S1:	I think about roots of words and try to guess the meanings of the words or use Google Translate.
I:	**What else do you do?**
S1:	I ask the speakers if I don't understand. Some words are ambiguous and short. I will ask the speakers to clarify the meanings for me or give me other similar words.
S5:	I use dictionaries. English-Thai dictionaries
I:	**Do you look up the words' meanings immediately or later?**
S5:	I memorize those words and look them up later.

S3:   I guess or ask friends. If my friends don't know the meanings, I have to use dictionaries.   I use both printed version of dictionaries and electronic dictionaries.

S1:   I think that asking the speakers works for me. I have some classes with foreign teachers and I often ask the teachers if I don't understand the meanings of some words. Using dictionaries on mobile phone is also very convenient.

Question 6:   What about reading? What do you do when you read a passage or a textbook written in English and find words that you do not understand?

S2:   If I come across some unknown words, I would look at the surrounding textual context and try to guess what the text is all about. Actually, I like guessing.

I: Do you use other techniques such as looking at prefixes and suffixes?

S2:   Yes. I look at affixes as well as roots of words. Then, I use dictionaries. I use both English-English and English-Thai dictionaries just to make sure I get the correct meanings.

I: Does anyone look at pictures and other clues?

S1:   I look at pictures in my textbooks. First, I scan the text for the words I know and then I will look at vocabulary glossaries in the books to help me guess.

S3:   I use Google Translate to do my homework.

I: Is it effective for you?

S5:   I also use Google Translate

S1:   Yes. I need to know what the words mean in order to read the text.

Question 7:   What do you do when you see the unknown words for the first time? Do you prefer discovering the words' meanings by yourself or asking other people?

S4:   I like doing it by myself because I can remember the words better. I often write down the unknown words and then use dictionaries. Sometimes I ask friends and my teachers.

S1:   If there's a word that I don't know, I will write it repeatedly so I can remember it better.

S5:   I prefer asking my teacher for definitions of new vocabulary. If I do it myself, there's a chance that I could get it wrong. I think it's better to ask someone who knows. I can be more certain when asking my teacher.

S2:   First I would guess and then I would write the words down to get familiar with the spellings. After that I would look them up in the dictionaries or ask other people.

I: How do you choose the people to ask?

S2:   I usually ask my friends and my teachers or other people who seem to have more vocabulary knowledge.

Question 8:   Next question, what do you do to retain your vocabulary knowledge?

S1:   I have a small notebook and I often write down some new words that I can use in my daily life. Most of the words are technical terms.

I: How often do you do that?

S1:   I do that very often because I learn many words such as 'Cattle' and 'Dairy'.

I: Do you recite or say the words aloud.

S1:   I always do that.

I: Do you sing vocabulary song?

S1:   Always.

S3:   I used to write vocabulary down to recite them. I used to sing vocabulary songs because songs are good for my memorization.

S1:   Can I add something? I think I learned most when I was younger. I used to sing many vocabulary songs and remembered a lot of words. After I finished high school, my vocabulary knowledge declined.

S2:   I like watching English language teaching TV shows. I sometimes write down new vocabulary and study them.

I: Do you play vocabulary games?

S2:   Yes. I play vocabulary-related games on my mobile phone. It helps a lot because I can get daily vocabulary updates. I can study these words anywhere and anytime I want.

S4:   I used to keep a vocabulary notebook. I think I had about a thousand words in there, but honestly I don't remember all of them.

I: **Do you still keep a vocabulary notebook now?**

S4:   No, not anymore.

I: **Do you take notes when learning new words?**

S1:   I like writing the words down and marking them with different colors, but I don't write down every word I learned. I only write technical vocabulary that would benefit my studies. If they aren't technical vocabulary, the words must be interesting enough for me to jot them down.

S5:   I like playing vocabulary games on Facebook. The games I play every day is about matching pictures with correct vocabulary.

Question 9:   **Do you prefer studying and practicing English vocabulary by yourself or with other people? Why?**

S1:   I prefer studying alone because I can actually learn something.

S3:   I also prefer studying alone because there are so many people talking at the same time during group studies which makes things more confusing.

S5:   I prefer studying alone because I can concentrate better. I often talk rather than study whenever I join a group study with friends.

I: **Do you play vocabulary games with friends?**

S5:   I used to play vocabulary guessing games with my friends.

S2:   I study alone and join study groups. I like to find something new and challenging.

S1:   Studying vocabulary with friends can be fun. It's a good way to enhance my memory. However, the knowledge I gained will fade soon after I use it.

S2:   It depends on our concentration and our readiness to learn.

Question 10: **What are the techniques that you use to improve your memorization? What do you do to help you learn and remember English vocabulary better?**

S4:   When I learn a new word, I will try to learn its synonym. I can learn more words instead of only one word.

I: **Do you use your imagination to link words with pictures, your experience, and existing vocabulary knowledge?**

S1:   New words 'Volumetric Flask' for example, is a rose apple shaped flask. I often draw a rose apple instead of writing the words down. This helps me remember difficult words or technical words better than rote memorization.

S3:   I focus on repetition. I like watching movies on YouTube and listen to the same songs repeatedly.

I: **Do you relate vocabulary to your experience?**

S3:   I relate new words to what I already know. When I hear some words, I often think back to the times when I learn them in class then I can recall their meanings.

I: **Does anyone remember words in groups?**

S2:   I used to sing vocabulary songs that contain synonyms. There was a song with the words 'Peril', 'Danger', and 'harm'. Those are words with similar meanings. I remembered them all. I also look at prefixes and suffixes and try to remember them. I write some long and difficult words and study them.

S5:   Speaking of connecting things, I don't really connect vocabulary to anything I know. I draw pictures of the words instead of writing the full words down.

S1:   Besides drawing pictures, I also say words aloud. If there are new words with slightly different meanings, for example, 'boar' 'sow' 'piglet', it is necessary for me to eliminate my own confusion by saying them out loud when I study them.

I: **Do you feel that these are the most suitable strategies for you?**

S3:   I think they work for me. If I change the techniques I might not remember some words.

S4:   I think these are suitable for me. Changing strategies is like starting to learn in a new way. You have to adjust your learning styles and that even takes more time in memorizing words.

Question 11:   What do you do to keep track of your vocabulary development, monitor, and evaluate your vocabulary progress?

S1:   I did some vocabulary exercises online. Actually, I like taking tests.

I: How often do you test yourself?

S1:   Not so often

S3:   I took language courses at a language school and took some tests, but it was a long time ago.

S1:   My father suggested me to attend a speaking course, so I took that course and I think it was OK.

I: Have you thought about taking such courses in the first place?

S1:   Yes. I really like English and I want to participate in every activity and courses that are related to English. My main problem is that I don't really have time to do so and I don't have time to evaluate myself.

S2:   I play vocabulary games on my mobile phone. There are some vocabulary matching games and games that you have to select the vocabulary that doesn't belong to the given categories. My friends used to ask me to go to take English proficiency tests in Bangkok. If I have time, I will read some English grammar books and do some English exercises.

I: Do you study regularly?

S2:   No.

I: Do you think that self evaluation is important to your vocabulary development?

S2:   It's very important.

S1:   It's something you must do regularly. Classes that I take are now in English, so I need to work harder. When I read my textbooks and see some words that I don't know, I always look them up in the

dictionaries. Next year, I will have to take an advance research course, so I need to prepare myself as much as possible.

I: **What about other people? Do you evaluate your vocabulary learning progress or how do you prepare to learn?**

S5: I don't usually evaluate my progress.

I: **Do you have the feeling that you need to do so?**

S5: Not really.

S1: I talk to foreign friends every day on Skype chatting program partly because I want to learn new vocabulary. My second reason is that I want to develop my vocabulary knowledge and English knowledge in general. I want to be able to communicate in English. The third reason is that I want to go study abroad, so I need to improve my language skill. If we don't keep track or plan our study we could have problems in class.

S2: I watch English language movies and I try to answer questions in English during class time. I want to test myself and see if I can use English to respond to what my teacher said. I try to use new words and try not to be afraid when I make language mistakes. I also talk to foreigners online to practice my language knowledge, grammar, spellings, vocabulary, and writing. Most importantly, I try to gain more confidence in using English.

I: **What prevents you from studying vocabulary regularly?**

S3: It might be that I didn't realize that English is important and I need to use it every day. I only use English occasionally either for the exams or for talking to foreigners I rarely meet.

S1: May I add something? Whenever I talk to foreigners and don't understand what they said, I would ask them immediately to clarify what they said or I would remember those words and look them up in the dictionaries.

I: **There's no more question for today. Do you have any other ideas to share with our group?**

S1:   May I speak on behalf of my friends. I often hear my friends complain about our new English Program class. They said that the program might be excellent for students who like learning in English, but it's very confusing for other students with less background knowledge of English. The program made some students dislike English even more. They prefer gradual changes, not sudden changes like these. In my opinion, I think the program is challenging. I don't have any problem with that. Teaching materials including handouts and slideshows are in English. I had read a lot of journals and textbooks in English. Recently I had to translate 5 English articles. I agree that we need a gradual change.

I: You mentioned that you had to translate some articles. How do you translate those articles?

S1:   Word by word. If I don't have much time, I would read for the main ideas of the articles and guess.

S3, S4, &S5: I agree.

S2:   I see your point but I have to disagree here. I think foreign language courses should begin with and focus on vocabulary. If we know which words to use, we can at least say or write something in English. Vocabulary is also important for reading and listening. We need to understand what we read and hear first and then we can respond properly. I think acquiring English skills is not an impossible task for us. It just takes time and efforts. Language courses overlooked the importance of vocabulary knowledge and focus on other things. I see the English Program as our teachers' means to prepare us for the ASEAN community. They want us to be active learners. The program has both good and bad points. The bad thing is that sometimes it can be demotivating, but the good thing is that it also encourages us to develop our vocabulary skill and language proficiency. We need to see that English is going to be used more often in our future career.

I: **You have concluded our discussion very well. So, if you don't have other comments or suggestions I thank you all for joining our discussion today. Thank you very much.**

APPENDIX G

INTERVIEW TRANSCRIPT OF GEOSCIENCE MAJORED STUDENTS

Interview Date: January 24, 2013

Participants: 4 students

Question 1:	**How long have you been studying English?**
All:	Kindergarten
Question 2:	**What do you think about learning English?**
S1:	I don't really like it. I used to like learning English when I was younger because the vocabulary was easier compared to what I learned in high school. I don't like learning English, but I don't hate it either.
S2:	I like English since I was in middle school. I read some grammar books and I would like to know more about English.
S3:	I still like learning English even the grammar is too complicated.
S4:	I graduated from international school where I used English regularly, so I like learning English. I also like watching English movies and listening to English songs.
Question 3:	**What do you think are your problems in learning English?**
S1:	Vocabulary. Some words are long. There are also slangs and synonyms that make vocabulary more confusing to me.
S2:	The use of English. Vocabulary is already hard too acquired, but the use of English in real life situations is even harder. I don't understand what foreigners say and I don't know how to response to what they say.
S3:	Speaking and listening are my problems. I don't know which tense to use when I have to converse in English

S4:   Communicating in English in real life situation is my main concern. What is said and done in real life situations are totally different from what I learned in language classrooms.

Question 4:   Where do you usually learn new English vocabulary from?

S1:   Movies. I watch some English language movies with Thai subtitle.

S2:   I sometimes listen to English songs and I also learn from vocabulary books.

I: Do you understand the meaning of the songs you listen to after first time listening?

S2:   Not really. I only know some words in the songs and I read the lyrics. I also study how the words are pronounced.

S3:   Mostly I learn new words from watching cartoons with Thai subtitle. I try to translate what the characters say to understand what was going on.

I: Does it make you understand vocabulary better?

S3:   I guess yes because when I see or hear the same words for a couple times I can understand what they mean.

S4:   I read novels, watch movies, and listen to music. I like reading Oxford's graded readers books, but I don't really have time to read often. Mainly, I learn English vocabulary from movies and music.

Question 5:   What do you do when you hear words that you do not understand? Please explain.

S2:   I often look at the speakers' body language, facial expression, and tone of voice.

S3:   I make a guess based on what the conversation is about.

S4:   I ask the speakers immediately. If I have a dictionary with me, I will look up the words in the dictionary. If dictionaries are not available at that moment, I will guess from the speakers' gestures.

S1:   I think I will ask them or guess from their body language.

I: Are those techniques useful?

S1:   Yes. At least I gained some confidence for conversing in English.

S4:   Agreed.

I: **Do you have any other techniques?**

S1:   If I don't ask the person I was talking to, I would write the words down or remember those unknown words and ask my teachers.

Question 6: **What do you do when you read a passage or a textbook written in English and find words that you do not understand?**

S2:   I try to read for the main ideas of the texts. If there are words I don't understand I will use dictionaries.

S4:   I often skip the unknown words and try to connect what I knew using my own background knowledge before translating the text. If I was in a hurry I would use the dictionaries. I use dictionary applications on my mobile phones.

S3:   I would try to read the whole thing first and guess from what I already understood.

S1:   I would underline those words and look them up in the dictionaries.

I: **What kind of dictionaries do you use?**

S1:   I use printed version of English-Thai dictionary.

S4:   I use Google Translate.

I: **Has anyone used dictionary websites?**

S3:   I used to look up words' meanings on the English-English dictionary website once. It was too complicates, so I used dictionaries on my mobile phone instead.

S1:   I used to have an English-English dictionary, but words definitions in English made things more complicated.

All: Right.

S4:   I prefer using Google Translate. They have a lot of definitions for me to choose from.

I: **What are the advantages of using dictionaries?**

S4:   Using dictionaries on my mobile phone or using Google Translate can be quick and convenient, but it doesn't make me remember the words better.

S2:   I often write the definitions down. So I won't forget them.

S4:   I would write the definitions down only if they're related to my studies.

Question 7: **What do you do when you see the unknown words for the first time? Do you prefer discovering the words' meanings by yourself or asking other people?**

S2:   I prefer doing it by myself.

S1:   I think it depends on the situation. If I can look them up by myself I will not have to ask friends. If there is no dictionary I will ask my friends.

S4:   If the people I ask seem to know the words meaning, I will ask them. They can also tell me how to use the words correctly.

S2:   I like to discover words meaning by myself. I like to learn by myself first. I will ask my friends only if I want to know more about the words.

S3:   It depends on the situation. I would like to look it up myself first if I could. If I didn't get it, I had to ask other people. Mostly I like asking people because they knew the words. They can explain those words to me in an understandable way.

S2:   I can learn more about the words by asking other people. Besides learning what the words mean, I also learn how the words are used.

Question 8: **What do you do to retain your vocabulary knowledge?**

S3:   I don't practice often.

S1:   I try to use new vocabulary with my foreign teachers, so I can learn to use the words correctly.

S2:   I like some interesting words, 'efficiency' for example, is an advance vocabulary, so I try to read it repeatedly.

S4:   I practice by watching movies and listening to music.

S4:   Some words that I see frequently are easier to remember.

I: **Does anyone have vocabulary notebook?**

All: No.

S1:   Vocabulary notebooks are only for examination times.

All: Yes.

S2:   I sometimes read vocabulary books.

S1:   When I need to study some words, I would say them repeatedly in my free time for a day or two. Then, when I see or hear those words again I can quickly recall their meanings.

S1:   I also think about the pictures that represent the words I learn and say the words out loud.

S3:   I rarely study English vocabulary. Mostly I watch cartoon and remember the word meanings from the characters' actions.

S1:   I'm quite proud of myself when I can understand the story of the cartoon shows I watch.

S3:   Right.

I: Do you play vocabulary games?

S1:   I play online games. They are in English.

S4:   I also play games on Facebook which I need chat in English in order to distract my opponents. Most the words are game-related.

S1:   Speaking of computers, the menus on the computers and in the games are all in English. It's kind of mandatory that we need to understand those vocabulary to use to computers and play games. It's fun because we don't realize that we're actually learning vocabulary.

S2:   I listen to English songs and sing along sometimes. I also try to think of lyrics.

I: Do you use other media besides games, movies, and movies to study vocabulary?

S4:   I use my own imagination. If I see my friends doing something, I try to make up some English sentences to explain what I see.

S1:   I love playing vocabulary games on my phone. I sometimes play crossword games, but vocabulary finding games and vocabulary matching games are my favorite ones which I play every day.

I: Do you underline or highlight new words on your textbooks or other reading materials?

All: Yes.

S1:   I underline words that my teacher often says.

S4:   Those are technical words that we can never use in real life situation.

S2:	Words like 'Stream' and 'Beded stream' something like that.
S4:	I also highlight words in my textbooks.
I:	**Do you underline or highlight other kinds of vocabulary besides technical terms?**
S1:	Biology vocabulary such as 'Crystallization'. We understand these kinds of words better in English.
S4:	It's better than translating them into Thai.
S1:	Yes. Most of them are technical terms both in English and Thai.
All:	We don't like it that our handouts are in English.
S4:	We got used to it eventually.
S1:	It's better than reading those in Thai.
Question 9:	**Do you prefer studying and practicing English vocabulary by yourself or with other people? Why?**
S1:	We don't study vocabulary quite often, but we say them every day during in our classes. It's like we read them every day when we read our text books.
S4:	We see them every day.
S1:	I like talking to myself in English. I try to speak or think in English and randomly point at things.
S2:	I like studying vocabulary alone. I repeat some new vocabulary in my head and the concepts of the words become clearer in my mind.
S1:	We imagine things.
S2:	It's like we conceptualize the word meanings by ourselves. We talk to friends and ask them some vocabulary we don't know before taking exams.
S1:	Sharing ideas and vocabulary knowledge
S3:	I think studying vocabulary with friends is better. It makes me remember words better. Exchanging ideas allows me to know how my friends think. We often form groups and study together before exams.
S4:	Most of the time I study alone. I sometimes study with my friends, but I prefer study alone because I can remember vocabulary better.

Question 10: What do you do to help you learn and remember English vocabulary better?

S1:   Use the words more often and think about the words and create mental images.

S4:   Some words have common roots, so I can guess from the roots. I also imagine pictures that are related to the words.

S1:   Sometimes I think about my teacher.

S4:   There are some words that my teacher usually says. When I hear those words outside the class, the teacher's face usually pops up in my head and I will know what those words mean because I might have related his face to some vocabulary.

S1:   Some of those words don't have anything related to the teacher. I don't really know how I made that up.

S2:   Sometimes I write vocabulary on a piece of paper and study them in my free time. Sometimes I use imagination. For example, when I see the word 'Beded Stream', I often think of the stream and river then I can understand what the word means.

S3:   I don't really memorize. I remember vocabulary because I've heard them before in cartoon shows that I watched.

I: What is your best memorizing technique?

S4:   Looking at word roots and affixes. For example, in the words 'Aggradation' and 'Degradation', 'Ag' means to increase while 'De' means to decrease.

S2:   I memorize words in pictures and link them to vocabulary or some situations.

Question 11: What do you do to keep track of your vocabulary development, monitor, and evaluate your vocabulary progress?

S3:   I took vocabulary test online and talked to foreigners to see if I can communicate with them. I keep practicing by chatting with foreigners.

S2:   I evaluate myself by using new vocabulary in class and see if I can compose some grammatically correct sentences.

S1:   I always give myself some feedback, but I never take any vocabulary test. I also try to talk to foreign tourists in my hometown. I approached them first when I want to talk to them. I may look strange, but later that I always get positive reactions from foreigners. I'm satisfied that I can use English to communicate with them. I see my learning progress gradually developed. I took the TOEIC test once. It was very difficult. I did some exercises online which show my scores immediately after I finish them, but I don't do it very often. I only do it when I want to.

S2:   I test myself every once in a while, but I think the results are not accurate.

S3:   I wanted to take the TOEIC and TOEFL tests and tried to listen to language learning CDs. I think they can help me when I have to take the listening test because I will be familiar with the accents. I also play vocabulary games on my mobile phones in my free time. I think I'm learning something new, but I think it's not enough to take the international tests. I will keep on studying.

S4:   I test myself by watching movies and trying to understand the story without reading subtitles. I had problems with listening part in the TOEIC test. I couldn't catch what they were saying. I try to listen to music and see if I can understand the song meanings. If I understand the meaning of the songs, this means that I do better.

S1:   I read online comic strips.

I: Do you study vocabulary regularly?

S1:   I study only before the examinations.

S3:   I also do the same.

S4:   I only memorize words that I think will be in the test.

I: Why do you only study before the exams?

S1:   I'm lazy.

S2:   It's a habit. I don't remember anything even I study hard and prepare very well. So, I think studying shortly before the exams would be more effective.

S1:   I don't like reading or studying. I don't read if it's not necessary. Mostly, I prepare and study only 1 or 2 days before the exams. I can still remember some words until today, but some words are forgotten already. I got A's, so I think this might be OK.

I: Do you think that you need to improve your vocabulary knowledge?

S1:   Definitely. Our future careers require English skills, so I have to develop my English language skills. I might have to use English more often in my workplace.

S2:   I really think that we all need to develop our foreign language skills as we're becoming a part of the ASEAN community.

I: How do you plan to develop your vocabulary knowledge and foreign language skills?

S2:   I need to force myself to study more often.

S4:   In the present time, English should be the language that we already know. I need to practice using it every day.

S1:   It's something we have to use when we graduate and have a job. So, I might take some language courses.

S2:   We gain so little from taking courses. We still don't know how to use English in real life situations.

S3:   We need to use it more.

I: Interesting. Does anyone want to add something? If no, thank you so much for coming today.

APPENDIX H

INTERVIEW TRANSCRIPT OF CONSERVATION BIOLOGY MAJORED STUDENTS

Interview Date: January 24, 2013

Participants: 5 students

Question 1:	**How long have you been studying English?**
All:	Kindergarten
Question 2:	**What do you think about English?**
S1:	I think it's fun and interesting, but I am not good at it.
S2:	I like learning English. It is fun and we can learn something new. Currently, I'm not good at English, but I'm trying to enjoy learning it.
S3:	I didn't enjoy learning English much when I was in primary school. I started to enjoy learning English more when I was in high school because I have watched some English movies and listened to some music. I might like English more because I got familiar with the accents. I prefer learning grammar in class because there are rules. We just have to remember and use them correctly. I didn't learn many new words because I didn't like to memorize them.
S4:	I don't really like it but I can study it if I have to. Sometimes I don't understand what was taught, but I like outside reading assignments. Reading the stories is more fun.
S5:	I like English because I had to practice and learn the same things over and over again. I like doing English exercises. It's better than Physics and Biology.

Question 3: **What do you think are your problems in learning English?**

S1:   I cannot remember vocabulary and my grammar is poor. It usually takes a long time for me to think about what to say when I need to communicate in English.

S3:   Vocabulary is my major problem. I often forget the previously learned words when I learn the new ones. Another problem is that I don't get opportunities to use English regularly, so I sometimes have problems understanding what the teacher said. I need to think really hard when I want to make up some sentences and communicate in English.

S2:   The spelling of words is my problem. I can think of the words but not their spellings. Sometimes when the speakers speak too quickly, I couldn't catch what they said.

S5:   Exactly, I have problem speaking to foreigners. I can't think of the answers right away. I cannot think in English. Some words are easy to remember after seeing them for 5 days straight, but some long words in my studies are so complicated.

S4:   It's very confusing when talking to foreigners. I can't think of words to say.

Question 4: **Where do you usually learn new English vocabulary from?**

S1:   I like listening to music. When I listen to the songs for the first time, I don't understand the meaning of the songs. I have to find the lyrics and try to translate them. Also, I like browsing the National Geographic websites. I read some articles there and see some nice photos. I didn't understand the whole articles, but I read them anyways. I used to have the feeling that I need to talk to foreigners, but I don't think I have enough courage since I can't formulate the sentences correctly.

S3:   I listen to English songs and try to find meanings of the words I don't understand. I also watch English-language TV series online with Thai subtitle.

S4:   I watch movies and listen to music. My friend suggests that I try to find the lyrics of the songs and translate them. I never read English magazines. I prefer watching movies with subtitle.

S2:   I watch movies. If I listen to some songs I will try to listen to them for 2 or 3 times then I will try to think of the words I already know. If I don't understand the meanings of the songs, I will look at the lyrics and guess from what I know. I also watch English language movies with subtitle.

S1:   I also watch some documentaries without subtitle.

S5:   I listen to music and take some English courses in my free time. I was given some vocabulary lists to remember which I think is beneficial because I can choose words to use more easily.

Question 5: What do you do when you hear words that you do not understand? Please explain.

S3:   I would say 'again, please' or I will make confusing face. If I was listening to some songs and don't understand what they mean, I will find the lyrics and use dictionaries to help.

All: Google Translate

S2:   Google Translate is useful, but I will try my best to understand the unknown words before using Google Translate.

S4:   I use it right away or I use dictionaries.

S3:   I use both printed and online dictionaries. I have English-English dictionaries and I also use dictionary websites. I try to spell the words I hear and look them up on those sites.

I: How do you know which definition to choose?

S1:   I choose the one that is related to what we hear or read.

S5:   I look at the contexts.

Question 6: Now, when you speak to foreigners and there are some words that you don't know, what do you do to understand those words?

S3:   Guess

S5:   I guess from the speakers' facial expression.

S2:   Look at the body language. I used to watch cartoons which I didn't really know what was going on, but I guessed from the gestures and facial expressions of the characters.

S1:   I will ask the speakers to slow down or repeat the words again

S2:   I think guessing from body language helps, but it doesn't make me understand the words. It just helps me to understand the overall ideas.

S4:   Right.

S3:   Sometimes I get the meaning entirely wrong from guessing.

I: How about when you read? What do you do when you read a passage or a textbook written in English and find words that you do not understand?

S3:   If I don't understand what I read, I would read it again. Sometimes I try to read the adjacent sentences to see what the text is about. I guess from previous sentences.

I: Do you look at word parts, roots, prefixes and suffixes?

S3:   Yes. Words end with –ly should be adverbs or adjectives.

S2:   I would look at the part of speech and affixes. I also use dictionaries.

I: Do you try to read and use the pictures to help you guess?

S2:   Actually, pictures are important. If I read the text and didn't fully understand it, I will try to look at the pictures and try to relate them to the text. I will look at the pictures for confirmation.

S4:   I guess from the surrounding sentences. I don't look at roots or affixes. I will look at the pictures and use the English-Thai dictionaries. If I feel lazy to find the meanings myself, I will ask friends.

S5:   I use English-English and English-Thai dictionaries to check the meanings of the words. I don't usually look up the meanings immediately when I read. I will highlight the words first and continue reading. If I still don't understand the words, I will use dictionaries.

I: Do you look at word parts?

S2:   I look at affixes but it won't be so helpful if I don't know the core words.

S1:   I read the whole text and look up some words in the dictionaries.

I: What are the differences between printed and online dictionaries?

S1:   The online version is faster. I also use dictionary applications on my phone. Both are very convenient.

Question 7: **What do you do when you see the unknown words for the first time? Do you prefer discovering the words' meanings by yourself or asking other people?**

S3:   I prefer discovering the meanings by myself. I use the dictionary websites. It's more convenient. If I wasn't using the computer, I will use the printed version of dictionary on my desk. I can remember words better if I discover the meanings by myself. Seeing the words many times makes the words easy to remember. I only look up the meanings, but I don't pronounce the words.

S5:   I listen to the pronunciation and try to pronounce the words.

S4:   I like asking other people because they already knew the words and they are studying the higher level of English.

S2:   If I can't find it myself, I will ask friends. If that words are not interesting I will just leave them there. It depends on the situation. Personally, I like asking friends.

I: **Which one is more effective?**

S5:   Both, but I need to do it repeatedly until I can remember the words and the meanings. I also ask my aunt who graduated from abroad. I ask her about the word meanings, how to use the words, the underlying meanings of the words, and other things.

S2:   I ask my cousins. I think their English is better than mine because they study languages, so I ask them.

Question 8: **Next question, what do you do to retain your vocabulary knowledge?**

S1:   I used to recite some words before university admission examinations, but now I don't do that very often. Actually, I like keeping vocabulary notebook. I write down some interesting words I read or words from the song lyrics and recite them. When I study vocabulary I often read and recite words in my head for many times.

S2:   I sing vocabulary songs that contain words with similar meanings.

S5:   I also sing. There were songs which put synonyms together in the lyrics. One of my friends told me that remembering words in sets is

better than remembering individual words. So, I create word lists with sets of words and put them on my bathroom walls, on the refrigerator, etc. Those words are adjectives and adverbs.

S2:   The words I practice pronunciation are the words related to my major of study.

S4:   There was one day when I had fried fish for lunch. I tried to relate vocabulary describing fish parts to what I was having at the moment.

S2:   Mostly technical terms

I: Does any of you play vocabulary games?

S5:   Actually, I learned a lot from playing vocabulary games because I play them every day. The more I see the words, the more I remember them.

S4:   In my free time, I often play vocabulary games which I need to match pictures with correct vocabulary. If I get the words wrong, the words will reappear then I can remember them.

S3:   I used to play Facebook games which I need to match vocabulary with pictures. Some words are familiar, but some are new to me.

S5:   I play that game, too.

I: How do feel when you play vocabulary games?

All: They're better than learning in class.

S4:   I like repetition and playing vocabulary games.

I: When you say you like repetition, do you do it often and deliberately?

All: Only before exams

S3:   I write vocabulary on A4 papers and then fold them in two halves. I only look at the words and try to guess the meanings on the other half of the papers. Mostly I do this alone. When I recite words I try to think about the pictures related to the words, synonyms, I also relate sound with meaning. For example, the word 'jealous' the 'j' sound is stressed and it sounds like someone is feeling jealous.

S5:   I do that, too. I often imagine the words meaning and think of something to relate with them.

S4:   I make some vocabulary lists and study them sometimes.

S2:   I have my own set of vocabulary to repeat aloud. I have the list divided into two columns which I put words and their meanings in each column. I repeat those words many times until I can remember them all.

S2:   Whenever I come across some unknown vocabulary on my handouts, I would circle the words and put a big question mark next to them. After that I will try to find their definitions and remember them.

Question 9:   Do you prefer studying and practicing English vocabulary by yourself or with other people? Why?

S5:   Studying with friends is better for memorization. We can exchange our ideas and techniques.

S1:   I usually study alone. If my friends are around I will study with them. It is fun and quite challenging.

Question 10: What do you do to help you learn and remember English vocabulary better? Do you have any techniques of memorizing words?

S3:   I use saying aloud and related the word to what I know. For example, 'infrared' is similar to 'far'. They might have the similar meaning related to long distance. Some words which is related to our body parts are easy to remember. I would point at parts of my body and say the words aloud.

I: What about words with abstract meanings?

S3:   I use imagination and acting out. If I want to memorize the word 'happy' I would act like I'm happy.

I: Does any of you relate words to your personal experience?

S5:   I relate them to easy words or words I already know. Sometimes I group words together and draw pictures when I study them. For the word 'shy' for example, I would draw a shy face. This way I don't have to find the meaning in Thai. I learn and understand the meaning from the pictures.

S2:   No techniques. I just keep reciting.

S1:   I relate words to songs I listen to. Some words are in the lyrics of my favorite songs, so when I see them I can remember the meaning easily.

S4:	I don't have any technique. I only recite. I don't use connecting techniques. I just keep thinking and using dictionaries.
S3:	I think my techniques work well. I like acting out. It's easy for word recall.
S5:	I repeat the words many times until I can remember them.
Question 11:	**What do you do to keep track of your vocabulary development, monitor, and evaluate your vocabulary progress?**
S1:	I used to take vocabulary test online. I sometimes take English exercises to check my proficiency level.
S3:	I test myself with some grammar and vocabulary exercise online. I prefer listening to English language music.
S5:	I like reading stories. There are books that I was assigned to read outside my English classroom. I read James Bond last semester.
S4:	I don't give feedback to my progress.
S2:	I chat in English. I often use some simple words, but I chat online with my Turkish friend every day. I think it might improve my vocabulary skill. I never take any language test.
S5:	I thought of taking the TOEFL test, but the test center is too far away. I don't have time to travel. I used to help my friends sell shirts to foreign customers and I could communicate successfully. I was proud of myself.
I:	**Do you play vocabulary games?**
S5:	I play the game called "Draw Something" which I must draw pictures that represent some given vocabulary and have my opponent guess what they are.
S1:	I use an application on my phone which is like vocabulary training program that presents 25 words every day.
I:	**Do you think that vocabulary test can help you improve your vocabulary knowledge?**
S3:	I think the test motivates me to study more. Some words on the test were so familiar, but I could not remember their meanings.
S5:	It's exciting, but if I had to travel to take the test I wouldn't take it.

S3:   Yes, it would be nice if we have language testing center nearby.

I: Does anyone have anything to add or comment?

S5:   I wonder when I will be able to communicate in English. I have been studying English for almost 20 years, but I understand that it's not our native language and we don't use it every day.

I: Does anyone want to share your idea? If there's no more comments or suggestions then thank you for coming and participating in our discussion.

BIOGRAPHY

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