



Investigating Vocabulary Learning Strategies in Thai High School Students: Science Program, Language Program and English Program

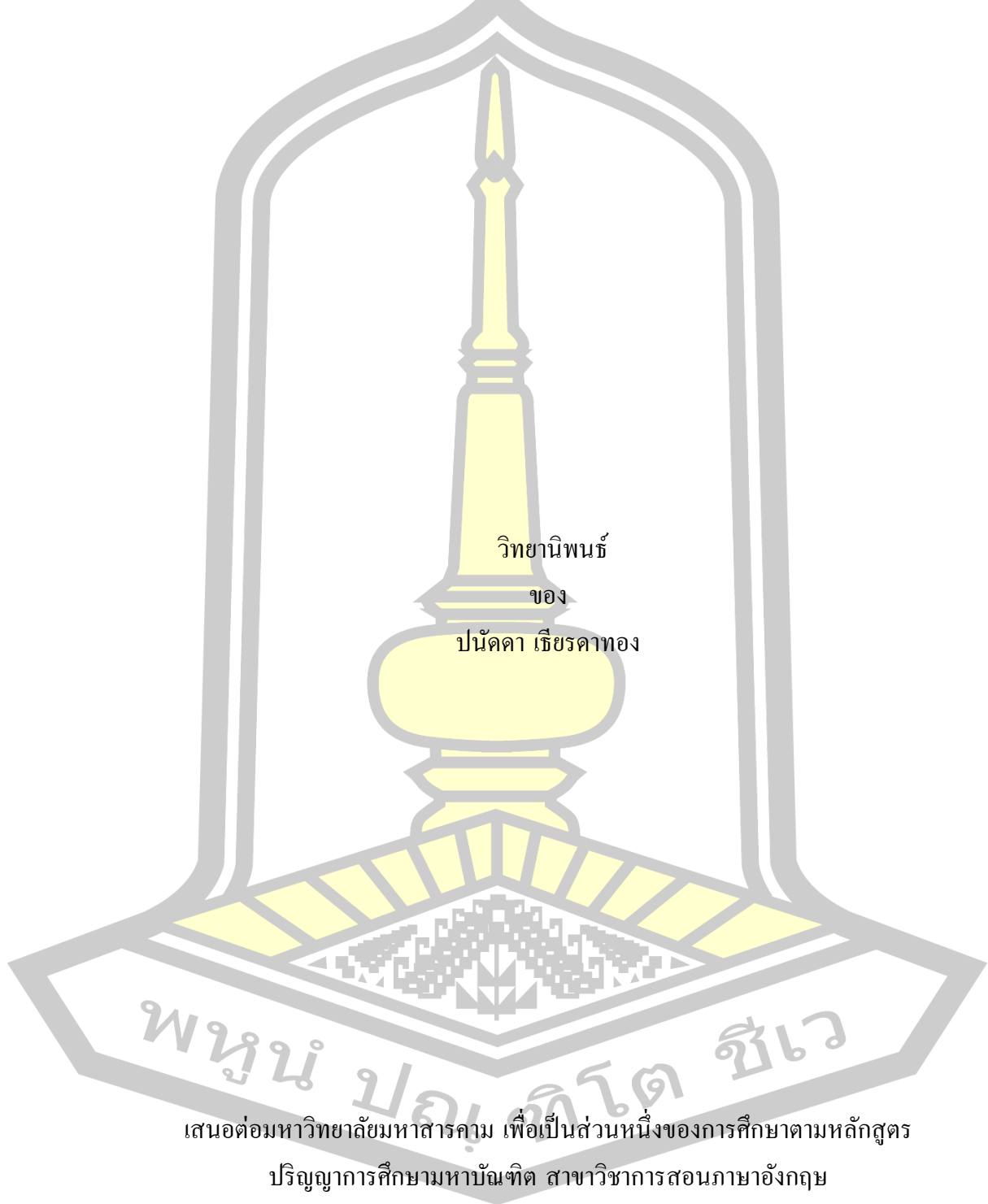
Panadda Thiendathong

A Thesis Submitted in Partial Fulfillment of Requirements for
degree of Master of Education in English Language Teaching

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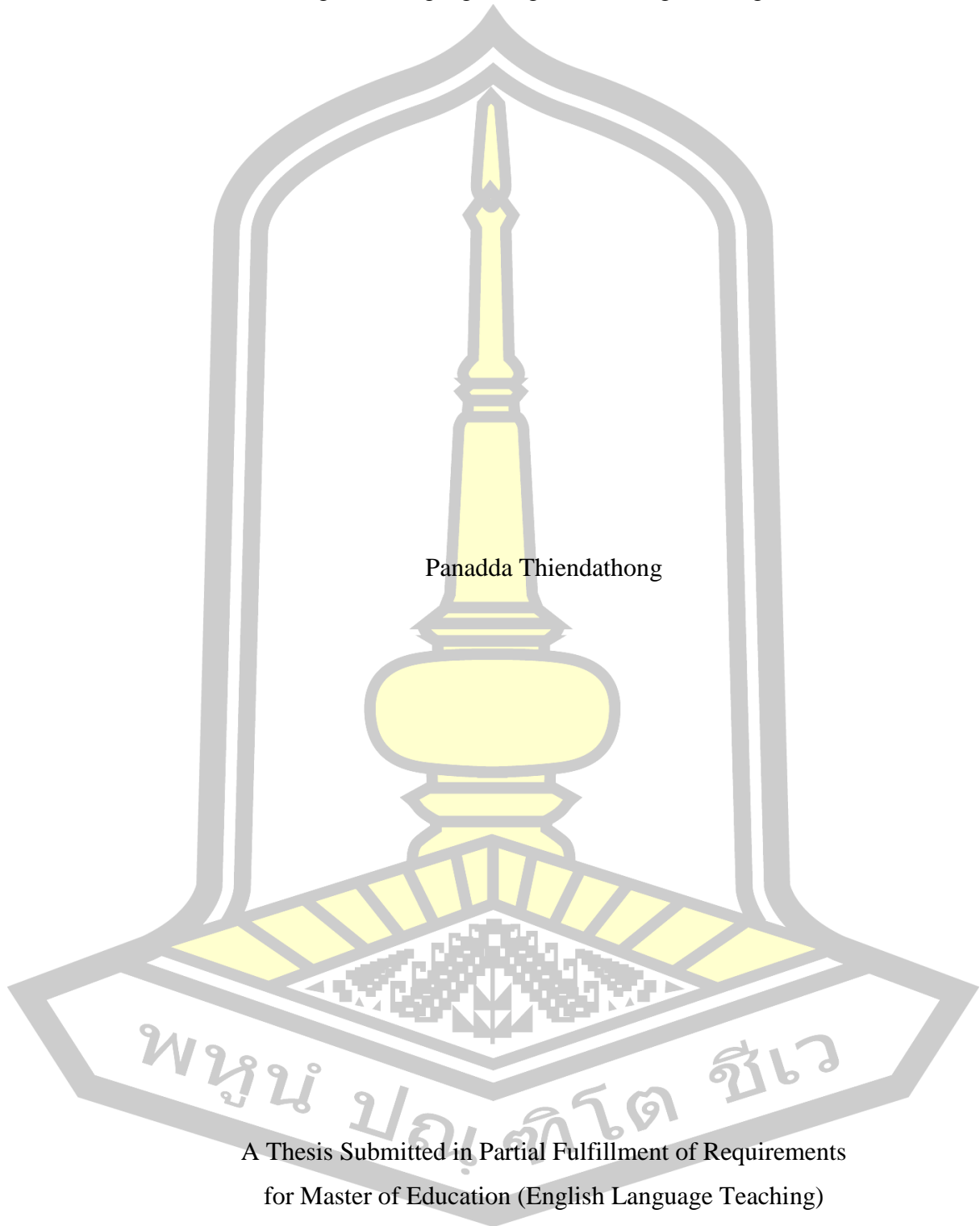


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Panadda Thiendathong

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for Master of Education (English Language Teaching)

April 2020

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ABSTRACT

This study investigated the vocabulary learning strategies used in Thai high school students. The aims of the project were threefold: (1) to identify the strategies used most and least frequently by the high school learners studying in different academic programs; (2) to compare if there are any differences in the uses of vocabulary learning strategies between different programs of study; and (3) to examine the relationship between strategy use when students learning vocabulary. A total of 491 high school students from different academic disciplines participated in this current study. A 47-item-questionnaire of vocabulary learning strategies was given to participants. Also, the qualitative data were collected through the semi-structured interview with 21 students. The interview recordings were immediately transcribed verbatim and translated from Thai into English to capture how things were said. The results indicated that the most frequently used strategies were determination strategies, whereas the least use fell into memory strategies. Indeed, the findings indicated that Thai high school participants used vocabulary learning strategies based on learning contexts. The qualitative findings further evinced the variety of vocabulary learning strategies with numerous degrees of strategy use. To conclude, this study highlighted the interrelatedness between vocabulary learning strategies and the use of strategies depends on the conditions for vocabulary learning.

Keyword : Vocabulary learning strategies, conditions of vocabulary learning, science program, language program, English program

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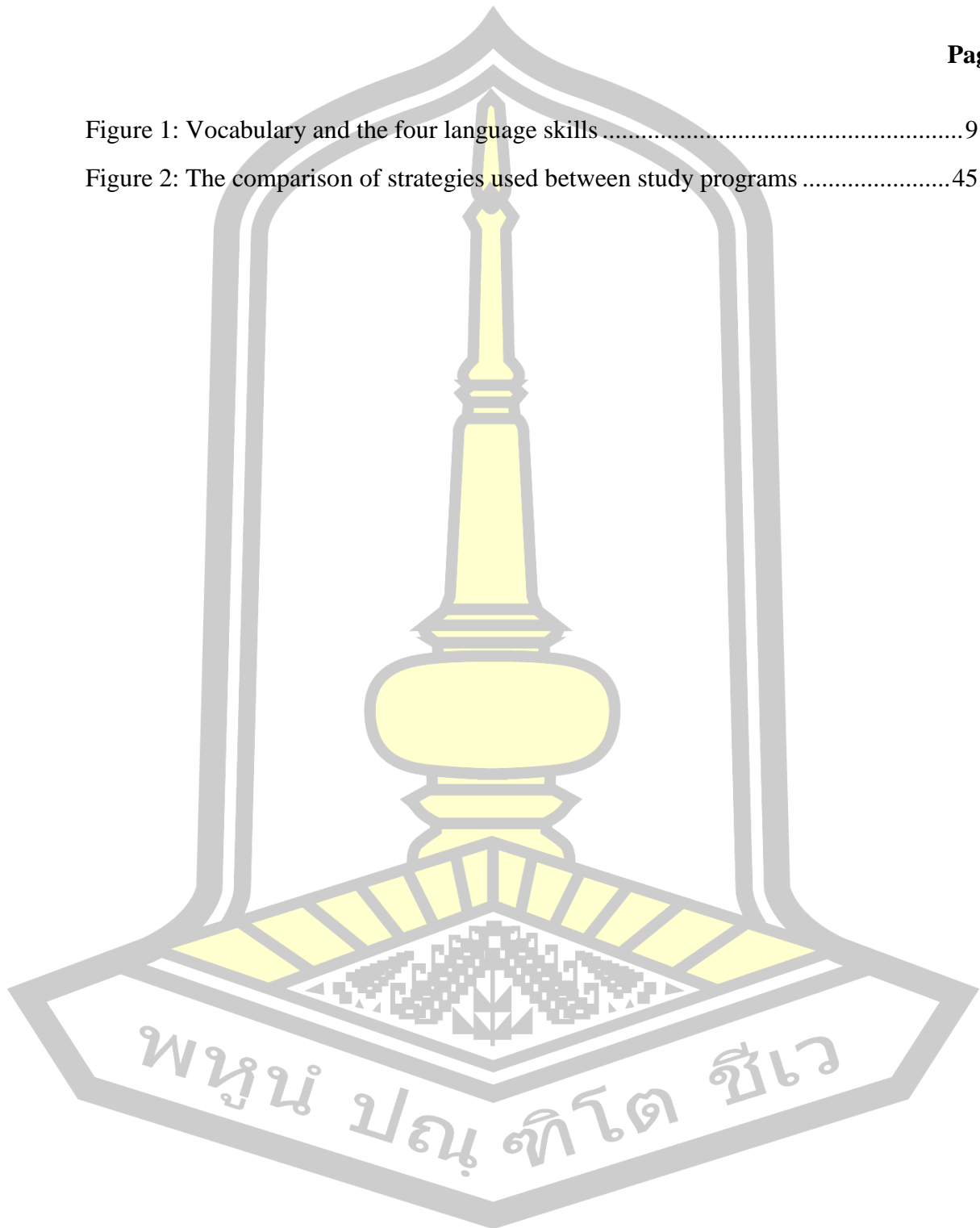
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CHAPTER I

INTRODUCTION

1.1 Background

English language learning and teaching have been promoted and given much attention in EFL contexts for decades. However, the English language competence of the students in EFL contexts, specifically in Thailand, has not reached the standard point. According to the EF English Proficiency Index (2019), Thailand was placed 74th out of a total of 100 non-native speaking countries and labeled a very low proficiency, showing that the English proficiency of Thai students has dropped drastically. Similarly, according to the Ministry of Education (MoE, 2018), Thai high school students appeared to have low English language proficiency, with an average of about 25 percent of the Ordinary National Educational Test in English. In Thailand, high school learners are struggling with English vocabulary resulting in difficulty in developing overall language proficiency. More specifically, the English proficiency of Thai students in the northeast labeled a very low proficiency lags behind other regions with an average score of 43.32 (EF EPI, 2019).

According to Huckin and Coady (1999), lacking of vocabulary knowledge is one of the most important factors that impede the English language improvement of EFL learners. As inadequate exposure to acquire L2 causes insufficient vocabulary knowledge, Thai high school students are encountering many difficulties in language learning. Read (2000) states that words are the basis of language, a unit that helps language learners understand the meaning of larger structures. When language learners know many words in a target language, it is easier to use language in both receptive and productive manners. From the phenomenon in Thai contexts, many researchers and also English language teachers have tried to find effective vocabulary teaching to enhance the students' language competence. However, vocabulary teaching is among less important jobs that English language teachers should not waste time on, as there is a substantial amount of vocabulary that EFL learners need to know (Nation, 2008).

Accordingly, the use of vocabulary learning strategies has been suggested in order to improve the student's vocabulary knowledge. Research on L2 vocabulary indicated that the issue of vocabulary learning strategies plays a pivotal role in language learning. That is, vocabulary learning strategies facilitate vocabulary knowledge and enlarges students' English language attainment. Many students may use different strategies to acquire vocabulary knowledge if they feel those strategies are practical, convenient and efficient for them.

Vocabulary learning strategies, hereafter VLSs, can be defined as various techniques or actions that language learners employ to acquire and retain vocabulary knowledge. According to Schmitt (1997), VLSs can be whatever tactics that affect vocabulary practice. Using different techniques of vocabulary learning helps language learners improve their vocabulary competence. In the field of second language (L2) acquisition, L2 learners occupy various learning styles to obtain the meaning of new words. Oxford (2011) also states that learners will develop greater proficiency and self-confidence when they employ exact vocabulary learning strategies that are suitable for their learning styles. Thus, language learners need to be instructed with various types of VLSs as many as possible to deal with vocabulary learning. In addition to this, when language learners have an awareness of VLSs, they will have more alternatives in vocabulary learning strategies.

Previous studies on L2 vocabulary indicates that Thai learners at tertiary education use different VLSs. Pookcharoen (2011) studied VLSs employed by 400 Thai EFL university students, along with examining how their perceptions relate to their strategy uses. The use of a questionnaire and semi-structured interviews were used. The results indicated that Thai EFL university students' the most strategy used was determination strategy, while cognitive strategy was the least used strategy. In this study, it revealed that there was a relationship between the students' perceptions and the students' frequency of strategy. Also, there were some factors impeding them from using useful VLSs. A study by Komol and Sripetpun (2011) examined the VLSs used by 192 university students, together with differences of VLSs used between the students with high and low vocabulary size. With the use of VLSs questionnaire adapted from Schmitt' s, this study revealed that the students in a tertiary level

employed determination strategy as the most frequently used strategy, while social strategy appeared to be the least among the others. Besides, it was found that there was a relationship of strategies used between students with high and low vocabulary size.

More studies on VLS at the tertiary level have been conducted in regard to different fields of study. Chiramane and Nirattisai (2014) explored VLSs used by 257 Thai university students in six different fields of study; medicine, dentistry, nursing, engineering, accounting, hospitality and tourism, and the relationship between employed VLSs and their vocabulary size. The use of the questionnaire and the vocabulary size test were administered. The results showed that the determination strategy was the most used strategy, whereas the social strategy was the least one. Besides, the students' VLSs and their vocabulary size were correlated. Phonhan (2016) investigated in 165 second-year students in different majors, including Mathematics, Science, Thai language, and Social studies major. Using a questionnaire adapted from Oxford (1990), the findings revealed that the compensation strategy was the most frequently used, while the least used strategy was social strategies. Furthermore, Boonnoon (2019) investigated VLSs in 267 undergraduate students majoring in four different faculties, namely Health Sciences, Engineering, Agriculture, and Business, and found that Thai university students were moderate strategy users when learning the English language. The finding also showed that the use of bilingual dictionaries was the most common VLS, while the strategy of note-taking was the least VLS used among Thai undergraduates. Furthermore, Health Science students seemed to use VLS more frequently than other academic majors.

Regarding to secondary level, there has been some research investigating the high school students' VLSs. Srimanee and Laohawiriyanon (2010) explored the VLSs used by successful students in grade 9. The use of pre- and posttest was administered to select top-ten learners representing successful students. In addition, to gain in-depth qualitative data on how those students use VLSs, an oral interview was conducted. By Ahmed's taxonomy (1989), the result found that the popular strategies were guessing word meaning from contextual clues and asking peers for L1 translation. Besides, the result revealed that the students employed these strategies because they were concrete

and practical. Another study of VLSs in high school level by U-pitak (2011) examined the VLSs of grade 9 and grade 12 Thai students using the VLS questionnaire adapted from Kudo's (1999) and found that memory strategies and cognitive strategies were employed in a high frequency, while metacognitive strategies and social strategies were less frequently used. These results also indicated that the students in both grades were the same in the use of VLSs because they were close in terms of their levels.

There has been extensive research in the area of vocabulary learning strategies in Thai context. However, not much research into vocabulary learning strategies has been conducted with high school learners, especially in northeastern Thailand. Therefore, the vocabulary learning strategies employed by high school students need to be investigated along with their perspective in strategy use. Also, with the premise that learners in different learning contexts may perform various vocabulary learning strategies, the analysis of differences and similarities between different study programs need to be examined. Besides, to look into strategy use when students learning vocabulary, the relationship between vocabulary learning strategies should also be examined in order to elaborate on the VLS use in high school students.

As such, this study attempted to examine the use of vocabulary learning strategy in Thai high school students and to investigate differences and similarities of VLS use in different study programs. More specifically, the method of VLSs questionnaire adapted from Schmitt's (1997) was administered to seek out vocabulary learning strategies in Thai high school students and to examine the use of VLS between different study programs. Furthermore, a semi-structured interview was conducted to elaborate and back up the students' VLS use in this study.

1.2 Purposes of the research

The current study aims to explore vocabulary learning strategies employed in English vocabulary learning of the students in the three different programs. More specifically, this study seeks to answer the following questions.

- 1 What are the most and the least frequently used vocabulary learning strategies in Thai high school students?

- 2 Are there any differences and similarities in VLSs between learning programs of study in Thai high school students?
- 3 What is the relationship between VLSs used by high school students?

1.3 Scope of the research

The current study focuses on the use of vocabulary learning strategy in Thai high school students in the northeastern part of Thailand, especially the strategies which the students use the most and the least, and emphasizes differences and similarities in the vocabulary learning strategy use between different study programs. Schmitt (1997)'s taxonomy of vocabulary learning strategies will be employed since this taxonomy was developed based on the research conducted with EFL learner and teachers' recommendation. The taxonomy of Schmitt (1997) was categorized into five aspects under two main headings, which were discovery and consolidation.

To get to the purposes, the settings of this study are public high schools in northeastern Thailand, which provide all three study programs mentioned in this study; science program, language program, and English program. Also, the settings in this study have a similar size of the student population. Moreover, the participants in this study are in senior high school level studying in different programs.

1.4 Significance of the study

The study will assist high school teachers, and course designers promote appropriate vocabulary learning strategies to the students in their particular classroom settings. The English language teachers can use the knowledge of vocabulary learning strategies to modify their vocabulary instruction and also create appropriate classroom materials to use in order to nurture the use of vocabulary learning strategies in high school students.

Language learners and other people who are interested in enhancing vocabulary knowledge may employ vocabulary learning strategies that fit their learning styles and preferences. Providing that the students are equipped with sufficient vocabulary learning strategies as many as possible, they can independently choose any of them to learn vocabulary inside and outside the classrooms, and they can eventually achieve their goals in English language learning.

Lastly, the findings of this study may offer beneficial implications for curriculum developers as they can develop an English language curriculum that encourages the English language learners in EFL contexts, especially for high school students, to apply various vocabulary learning strategies in order to enhance their vocabulary knowledge.

1.5 Definitions of terms

Vocabulary

Vocabulary in this study refers to all words with meanings used to convey messages in a particular event. In language learning, vocabulary plays an essential role as language users communicate or use vocabulary in all kinds of English language skills. In receptive skills, listening and reading, if the language learners know the vocabulary, they can comprehend the meaning of texts. Similarly, language learners can produce language in both speaking and writing by the knowledge of vocabulary.

Vocabulary Learning Strategy

Vocabulary learning strategy or VLS can be defined broadly as whatever tactics, actions and practices that can assist language learners in acquiring and retain vocabulary.

The Science program students

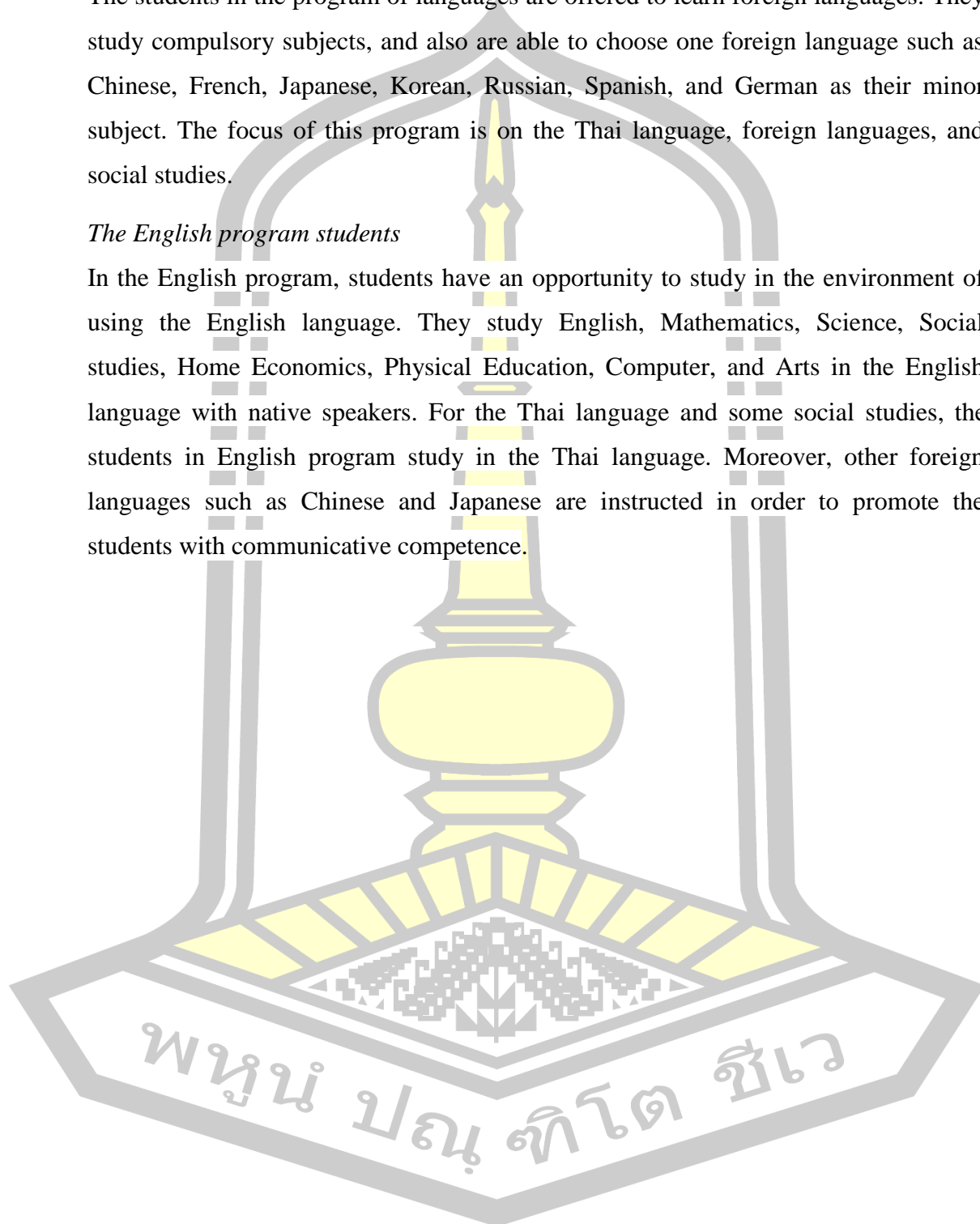
The students in the Science program mainly study in the field of sciences and mathematics subjects. Physics, Chemistry, Biology, and Mathematics are their main emphasis. The objectives of the science-mathematics program are to support those students in high school levels who are interested in the field of science and mathematics, to provide effective instruction and laboratories in order to develop an educational environment and positive attitudes toward the field of science and mathematics to the students. Consequently, the content of those subjects in the field of sciences and mathematics are very intensive that the students can apply for their further study.

The Language program students

The students in the program of languages are offered to learn foreign languages. They study compulsory subjects, and also are able to choose one foreign language such as Chinese, French, Japanese, Korean, Russian, Spanish, and German as their minor subject. The focus of this program is on the Thai language, foreign languages, and social studies.

The English program students

In the English program, students have an opportunity to study in the environment of using the English language. They study English, Mathematics, Science, Social studies, Home Economics, Physical Education, Computer, and Arts in the English language with native speakers. For the Thai language and some social studies, the students in English program study in the Thai language. Moreover, other foreign languages such as Chinese and Japanese are instructed in order to promote the students with communicative competence.



CHAPTER II

LITERATURE REVIEW

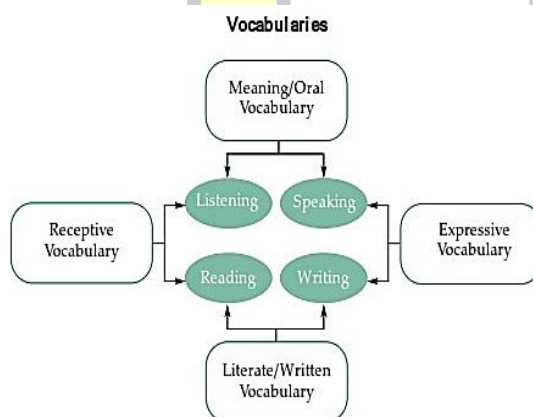
This chapter will first present an overview of vocabulary, along with its levels and its types in language learning. Then, vocabulary learning and teaching in the EFL context are explained. Next, to introduce to vocabulary learning strategies, related issues such as learning strategies, language learning strategies are provided. In this chapter, the definition and taxonomy of vocabulary learning strategies from many scholars are discussed. Finally, this chapter concludes by giving previous studies on vocabulary learning strategies that impact the present study.

2.1 Vocabulary

Vocabulary has been considered as one of the crucial areas when talking about language learning. Burns (1972) defines vocabulary as the stock of words that is conveyed by an individual, class, or profession. Hornby (1995) simply defines vocabulary as all words with their meanings in a language. Similarly, Diamond and Gutlohn (2006) define vocabulary as the knowledge of words and their meanings. Later, Barcroft, Sunderman, and Schmitt (2011) broadly define vocabulary as the entire words of a language.

Nation (2008) proposes four levels of vocabulary divided based on its frequency in a language. High-frequency words occur very frequently in all kinds of language use, and they are needed in everyday use. The high-frequency words are generally short. Most of them are content words, and they are ubiquitous to even young native speakers. Academic words are seen frequently and widely in a specialized area, but they do not include in the most frequent 1,000-2,000 words. Academic words are words from four main areas, namely Arts, Science, Commerce, and Law. Although academic words do not occur the most frequently in everyday life, they are essential for learners who will use English in a particular area. Later, technical words, the more special words, are ubiquitous in one particular area. The technical words may occur in more than one specialized area, some have the same meaning, and some may have a different meaning in other areas. The last level of vocabulary proposed by Nation is low-frequency words. They are the biggest and diverse group. The low-frequency words rarely occur and are not worth teaching in a language classroom.

By far, most prominent researchers in the field of language learning divided vocabulary knowledge within the scope of its use in either the skills of listening, speaking, reading and writing. Thus, by those scopes of the language use, they divide vocabulary knowledge into two groups, namely receptive vocabulary and productive one (Laufer, 1998; Laufer & Paribakht, 1998; Nation, 2001; Read, 2000; Schmitt, 2014). The first group, receptive vocabulary, refers to words that learners meet, recognize, and understand in a context of listening and reading, but they do not know how to produce in speaking and writing. The latter, productive vocabulary, is a word that learners can understand, pronounce, and use correctly and constructively in a productive way of speaking and writing. Pkulski and Templeton (2004) proposed a diagram of vocabulary knowledge and the four language skills which provide a clear picture of the relationship between vocabulary and language skills.



(Adopted from Pkulski and Templeton, 2004)

Figure 1: Vocabulary and the four language skills

To summarize, vocabulary can be described as all kinds of words with its meaning, which language users know how to use in a particular context. The classification of vocabulary can be divided into two main kinds as the ways of using it. Firstly, when language users receive knowledge of vocabulary, whether by listening or reading texts, it is called receptive vocabulary. The latter one, productive vocabulary, involves the vocabulary produced by language users in order to communicate in both spoken language and writing. In order to enrich language learners with the appropriate amount of English vocabulary, the importance of vocabulary learning and teaching will be described in the next part.

2.2 Vocabulary Learning

Vocabulary is an essential component to assist language efficiency. Knowing vocabulary enables language users to understand the meaning of the texts and also convey meaningful language in a productive way. Schmitt (2000) underscored that vocabulary knowledge is a principle to language competence and to second language acquisition. The knowledge of vocabulary and the use of language are related to each other. In other words, vocabulary knowledge empowers the use of language, and language use enlarges knowledge of vocabulary. In English as a second language (ESL) and English as a foreign language (EFL), vocabulary learning plays a pivotal role in all language skills (i.e., listening, speaking, reading, and writing). Vocabulary learning is a process for language learners to obtain ability and proficiency in knowing words in target languages.

In listening skills, it does not seem to be any problem for native learners to comprehend spoken language because, in their lives, native speakers will gain 1,000 words a year. That is, within 10 years, native speakers can obtain 10,000 words, which adequate to understand English in language use. The learners in the contexts of ESL and EFL; on the contrary, they have little chance of English language exposure, so they do not obtain much vocabulary knowledge. Consequently, the learners have insufficient vocabulary, and this causes them many problems to understand spoken language. In speaking skills, there is a correlation between vocabulary and speaking skills. That is, an English language learner needs to be equipped with the adequacy of vocabulary to say most of the things that they need to convey. Also, according to Nation (2008), to develop learners' spoken English vocabulary, the English language learners need to be given enough practice to be able to say a lot using a small number of words.

Similarly, vocabulary is essential in the skill of reading. In both intensive and extensive reading, vocabulary also plays a crucial role in enabling a language learner to comprehend texts. In addition, reading is the best source of learning and enjoyment. If learners read as many texts as they can, they will obtain rich vocabulary from those texts. Previous and new vocabulary and grammar can be established and learned by reading activities. Lastly, writing is a skill that a language learner uses to

produce language. It shows the productive ability of a language learner that he or she can use vocabulary in the proper contexts. In conclusion, vocabulary is essential in all language skills that both language teachers and learners need to pay attention to vocabulary learning.

As Meara (1980) was identifying vocabulary learning as a “neglected aspect” in language learning, substantial research on the vocabulary learning, as well as the vocabulary acquisition, were studied and has become one of the most intriguing areas in second language acquisition research (Lightbown & Spada, 2011). Vocabulary learning has been an essential part of L2 acquisition. Nation (2001) quotes the relationship between vocabulary knowledge and the use of language. That is, they are supplementary to each other: vocabulary knowledge empowers the language use, and the language use enlarges vocabulary knowledge. In the context of both ESL and EFL, where English language exposure is somewhat limited to a language learner, learning vocabulary is vital in all language skills. Though the learners cannot use proper grammatical morphemes or pronounce perfectly, they can communicate by using words. On the other hand, without a sufficient amount of vocabulary, language learners cannot use language to produce comprehensible communication.

Schmitt (1997) suggests that there are two approaches to vocabulary learning that language learners encounter in order to acquire the knowledge of vocabulary. The first approach, incidental vocabulary learning, refers to a process of learning vocabulary to learn another. The second approach, which is called explicit vocabulary learning is the learning of vocabulary based on learning words explicitly, regardless of context.

In conclusion, vocabulary is vital in all kinds of language use. For a language user, it is worth learning vocabulary in order to apply in those language skills. Especially for L2 learners, gaining an adequacy of vocabulary to convey meaning in all English language skills is needed. On the contrary, it is surprising that teaching vocabulary is among the least important job that language teachers need to realize (Nation, 2008). Since there are too many words that L2 learners need to know, vocabulary instruction seems to be a time-consuming process that the teachers have to spend time on.

But nonetheless, it is sensible and possible to spend some time teaching high-frequency words, academic words, and technical words. Nevertheless, for low-frequency words, which are in a substantial amount, it is suggested that instructing learners with strategies to deal with thousands of low-frequency words is more helpful than spending time teaching individuals (Nation, 2008). However, vocabulary teaching is still necessary for language learning. Teaching vocabulary will be the most effective when learners feel it is most needed. Whenever the learners are involved with message-focused activities, the importance of vocabulary teaching occurs. In the EFL context, learning and teaching the English language differs from which in the native context. L2 learners need to acquire more English vocabulary than L1 learners. The size of the English vocabulary of EFL learners is elaborated in the following part.

2.3 Vocabulary Size needed for High School Students in an EFL Context

English language learning in the context of EFL differs from the context of native speaker's language learning. According to Nation (2006), before we decide to determine the goal of vocabulary learning, we, as language teachers, have to examine native speaker's vocabulary size. It is found that there are approximately 20,000 word families, or around 32,000 word items an English native speaker knows (Goulden et al., 1990), whereas there are only around 8,000-9,000 word families that a highly educated non-native speaker has in vocabulary size. Having compared the vocabulary size between those two English language speakers, a highly educated non-native speaker knows vocabulary less than half of an English native speaker (Nation, 2006).

Second, language vocabulary learning takes a longer time than native speakers. The native speaker can acquire 1,000 words each year, and they know approximately 20,000 words by the age of 20, whereas this rate can be difficult and unrealistic to second language learners. It is because of less English language exposure, insufficient input that causes the second language learner to encounter this situation.

Thai high school students need to be skillful and be able to know around 3,600-3,750 words according to Core Curriculum B.E. 2551. Mastery of such vocabulary would enable high school graduates to communicate about themselves, families, schools, the environment, foods, beverages, interpersonal relationships, free time and recreation, health and welfare, selling and buying, climate, education and occupations, travel for

tourism, provision of services, places, language and science and technology. According to Wiriyachitra (2002), there may be various causes that contribute to Thai EFL learners having low English proficiency, such as teachers' heavy teaching loads, education technology, teachers' insufficient English language skills, lack of opportunity to use English in daily life or being too shy to speak English with others. However, one problem for Thai students that causes difficulty in using English is insufficient vocabulary (Chawwang, 2008; Jamtawee, 2000; Supatranont, 2005).

To conclude, there is a far cry difference between the vocabulary size of English native speakers and non-native speakers, especially in the EFL contexts. It is tough for L2 learners in the EFL contexts to acquire the similar size of the English vocabulary to the English native speakers. Insufficient exposure to the English language and other factors such as teachers' English language competence and English language instruction are reasons why L2 learners cannot have an adequate number of vocabulary. As such, language learners must be introduced to the knowledge of learning strategies in order to acquire vocabulary, therefore improving their vocabulary size and overall language proficiency.

2.4 Learning Strategies

The learning process requires a strategy to be used to fulfill the purposes of learning. Many scholars have defined the term "learning strategies" in different ways. Brown (1980) simply defines learning strategies as processes that lead students to learn. Chamot (1987) provides further definition of learning strategies as four words, namely processes, techniques, approaches, and actions that learners employ to facilitate their learning and recollect linguistic and content areas of information. Wenden (1987) defines the term of learning strategies as several procedures that learners use to acquire their learning. Oxford (1990) defines "learning strategies" as a specific action that learners utilize in order to gain learning more effectively. The definition of learning strategies provided by Oxford covers not only language learning, but also other subject areas. Furthermore, William and Burden (1997) mentions "learning strategies" as the process in which learners use different resources to fulfill a learning task or to solve a problem. O'Malley and Chamot (1990) describe learning strategies in two words, namely techniques and tactics used by L2 learners to

remember and organize second language learning. Ghani (2003) defines learning strategies as procedures that learners employ in order to assist their learning successful as much as possible.

In summary, learning strategies can be defined as specific techniques, tactics, processes, approaches, procedures, and actions that individual learners utilize to succeed in learning any subjects. The next part will present another area of language learning to which learning strategies relate.

2.5 Language Learning Strategies

The critical part of learning strategies is the strategies of language learning. Language learning strategies are several ways or techniques used by language learners to acquire, store, and retrieve language. There has been a considerable amount of attention to language learning strategies for two decades. However, many researchers examining language learning strategies have provided many taxonomies of language learning strategies so far.

Rubin (1987), who firstly brought in the concept of language learning strategies, defines the term as behaviors, steps, or techniques that learners utilize to acquire language. Wenden (1987) describes language learning strategies from the aspect of language learning behavior, such as learning and regulating the meaning of a second or foreign language, cognitive theory, such as learners' strategic knowledge of language learning, and the effective point of view, such as learners' motive, attitude. From the aspects, it is mentioned that these three points of view dedicate to language learning strategies.

O' Malley and Chamot (1990) classified language learning strategies under three main groups: cognitive strategies involving a specific technique to a particular task such as repeating, reasoning and analyzing, metacognitive strategies relate to the process of learning such as organizing, planning, and monitoring, socio-affective strategies entail the interacting with oneself and others such as cooperative learning.

Oxford (1990) divided language learning strategies into two main categories; direct and indirect, which further subdivided into six categories. In the term of language learning strategies explained by Oxford, memory strategies are used to store

information. Cognitive strategies are mental strategies that learners employ to make sense of their learning. Compensation strategies assist learners in overcoming knowledge gaps to continue communication. Metacognitive strategies help learners control and evaluate their learning. Affective strategies are about learners' feelings needed in language learning. Social strategies involve interaction with other people in order to learn a language.

To conclude, the term language learning strategies have been defined as a particular means which language learners use to attain language competence. Those taxonomies provided can be classified into various categories. In the next part, it will be more specific in language learning strategies, which entails the strategies that language learners employ to learn English vocabulary. The development, the definitions, and its taxonomies will be present in the next part.

2.6 Vocabulary Learning Strategies

According to Schmitt (1997), the increasing interest of vocabulary learning strategies had begun when a shift from teaching-centered approaches to a child-centered perspective that mainly focuses on how learners learn vocabulary. Generally speaking, the term vocabulary learning strategies is a part of the language learning strategy. Therefore, studying vocabulary learning strategies and language learning strategies should be correlated. Many scholars have examined the development and the term of vocabulary learning strategies, and they have classified different taxonomies of VLS. Porte (1988) and Ahmed (1989) cooperated and investigated how second language learners employed the strategies of vocabulary learning. Ahmed (1989) classifies the strategies of learning vocabulary into two main sets: macro-strategies, which consisted of memorization, practicing, note-taking, and using various information sources; and micro-strategies, which included specific behavior within one of the macro-strategies.

Oxford (1990) presents a comprehensive taxonomy of VLS by dividing it into two main categories as follow:

Table 1: Oxford's (1990) taxonomy of vocabulary learning strategies

Direct strategies	Memory strategies Cognitive strategies Compensation strategies
Indirect strategies	Metacognitive strategies Affective strategies Social strategies

Sanaoui (1995) classified vocabulary learning strategies into two distinctive groups of learners concerning those who structured vocabulary learning and the others who did not structure theirs.

Gu and Johnson (1996) investigated the use of vocabulary learning strategies employed by Chinese learners, and classified vocabulary learning strategies into eight categories as;

1. Belief about vocabulary learning
2. Metacognitive regulation
3. Guessing strategies
4. Dictionary strategies
5. Note-taking strategies
6. Memory (using rehearsal) strategies
7. Memory (using encoding) strategies
8. Activation strategies

Moreover, Lawson and Hogben (1996) divided VLSs into four broad categories. The individual VLSs were classified under four different categories:

Table 2: Lawson and Hogben's (1996) taxonomy of vocabulary learning strategies

Category 1	Repetition	Reading of the related word Simple rehearsal Writing of word and meaning Cumulative rehearsal Testing
Category 2	Word Feature Analysis	Spelling Word classification Suffix
Category 3	Simple Elaboration	Sentence translation Simple use of context Appearance similarity Sound link
Category 4	Complex Elaboration	Complex use of context Paraphrase Mnemonic

Schmitt (1997) developed and identified vocabulary learning strategies, adapted from Oxford's, as five subcategories under two main categories; Determination, Social, Memory, Cognitive, and Metacognitive strategies. Determination strategies occur when learners encounter discovering the meaning of a new word without resorting to any help from another person's experience. Social strategies pertain to learning a new word by interaction with others. Memory strategies emerge when learners link their learning of a new word by associating their previous knowledge with a new word. Cognitive strategies are relevant to the repetition and employing mechanical means for vocabulary learning. Lastly, metacognition strategies entail a consciousness used in the learning process and help students use the best ways to study. The following is the strategy inventory proposed by Schmitt (1997):

Table 3 Schmitt's (1997) taxonomy of vocabulary learning strategies

Category 1	Discovery strategies	Determination Strategies (DET) Social Strategies (SOC)
Category 2	Consolidating strategies	Social Strategies (SOC) Memory Strategies (MEM) Cognitive Strategies (COG) Metacognitive Strategies (MET)

Nation (2001) states that language learners mostly encounter language problems when they have inadequate knowledge of vocabulary learning. Accordingly, language learners need to be equipped with VLSs in order to find the appropriate strategies to maintain vocabulary effectively. With the help of vocabulary learning strategies, a language learner can independently study without the presence of a teacher. In addition, as learners are different in their language ability, and they apply various strategies, it is essential that language learners be instructed on the use of vocabulary learning strategies. He also classified his taxonomy by providing a distinction between the sources of vocabulary knowledge and learning processes. Thus, three classes of vocabulary learning strategies as follow:

Table 4: Nation's (2001) taxonomy of vocabulary learning strategies

Category 1	Planning (choosing where and how to pay attention to the word) <ul style="list-style-type: none"> • Choosing words • Choosing the aspects of word knowledge • Choosing strategies • Planning repetition
Category 2	Sources (finding information about the word) <ul style="list-style-type: none"> • Analysing the word • Using word parts • Learning from word cards • Using context • Using a dictionary • Consulting a reference source in L1 and L2 • Using parallels in L1 and L2
Category 3	Processes (setting up word knowledge) <ul style="list-style-type: none"> • Noticing • Retrieving • Generating

2.7 Definition and classification of VLS by Schmitt

In Schmitt's taxonomy, vocabulary learning strategies are divided into two main groups, namely; Discovery strategies and Consolidation strategies. Schmitt also provides five subcategories, including in two main strategies. Determination strategies and Social strategies are included in Discovery strategies, and Social strategies,

Memory strategies, Cognitive strategies, Metacognitive strategies are in Consolidation strategies.

Discovery strategies

Determination strategies

Determination strategies occur when learners do not know a word. They then discover its meaning by guessing from the word's structural knowledge, guessing from a similarity to the first language, guessing from contextual clues, and using reference materials. The strategies of determination assist language learners gain knowledge of a new word that they meet for the first time.

The structural knowledge of the language, such as parts of speech, word building can help language learners predict the meaning of the new word they meet. However, the use of guessing from the word's structures can lead to misunderstanding or get the wrong meaning of the word. Therefore, it is also suggested that the strategy of guessing from the word's context can create a better understanding.

Cognates are words in different languages. They can be loanwords that languages borrow from other languages. In language learning, it is easier when L1 and L2 are similar. Language learners can easily understand L2 when it is close to their first language.

Guessing a word from its context refers to deducing the meaning of a word from its surroundings. This strategy is useful for a written text where the language learners can make use of other words, which may give clues to meaning.

The use of both bilingual and monolingual dictionaries directly helps language learners find the meaning of the words. The advantage of bilingual and monolingual dictionary is promoting and assisting learners' acquisition. However, there are differences between both kinds of dictionary. Although bilingual dictionary is universally preferred by learners, especially in L2 learners since it can provide L1 translation for L2 learners, monolingual seems to provide more exposure to foreign language.

Social strategies

A second way to discover a new meaning employs the social strategy of asking someone who knows the meaning of the word. The role of teachers is important for this strategy. Language learners can ask their teachers to give meaning to the words which are new to them. The teachers can be asked to give help in a variety of ways: giving the meaning by translation into L1, giving a synonym, giving a definition by making use of paraphrasing, giving an example by using the new word in a sentence, or any integration of these.

Giving L1 translations can trigger both advantages and disadvantages in language learning. It is acceptable that L1 translations might be fast and comfortable for the students to understand. However, the realization of the students' first language is crucial for the teacher in L1 translation, and most translation creates erroneous in transferred knowledge.

Social strategy also involves providing synonyms of the new words. Although the synonym is in other words with similar meanings, it is needed to give students an extensive explanation of how differences in those synonyms such as collocations, forms of use, and grammatical usage. Paraphrasing is a way of saying the same item in different words.

When the students interact with their friends or classmates to find the definition of the new words, the social strategy is employed. In addition, pair work and group where the students have a chance to be introduced and discover new words are also included in social strategy.

Consolidation strategies

Social strategies

In consolidation strategy, social strategy can also be the situation that there is the use of cooperative learning, but the emphasis is to learn or practice vocabulary. Working in a group affects effectiveness in language learning: it boosts the active processing of the information and cross imitation, and it supports cooperative learning. Group work also promotes interaction in language learning. According to Krashen (1982), interaction with native speakers is an outstanding way of language acquisition to obtain the rich input of vocabulary knowledge.

Memory strategies

Traditionally called mnemonics, memory strategies entail when students learn vocabulary by retention of the previously learned vocabulary.

In memory strategies, the use of pictures and imageries can be employed in order to learn words by pairing with L2 words. Similarly, using mental images to learn vocabulary or even passage reading promotes students to create a mental connection. If the learners can relate new words with their own personal experience or the mental connection, it is more productive than only learn new words by repetition.

Word association can be used to help learners learn new vocabulary by linking L2 words with the previously learned words. Related words such as coordination, synonyms, antonyms can be employed in this taxonomy. Using word association helps learners create semantic maps that promote vocabulary consolidation.

Besides word association or related words, unrelated words can also help learners learn vocabulary. Memorization of rhyme, for example, aid learners create an image on their mind, and the words in the rhyme can be remembered.

Grouping in a category is a way to recall words by organizing them into the same group. By grouping the words, if the words are organized in some way before memorization remembering is improved. However, grouping seems to be more effective and work better for native-speakers and proficient L2 learners (Chamot, 1987). Another way to memorize vocabulary in the memory strategy entails word's spelling and pronunciation form. Learners can study spelling and pronunciation of the words explicitly, or they can conceptualize the spelling of a word in the hope of memorizing it.

The Keyword Method involves pairing the similar sound of L1 and L2. With the Keyword Method, learners create a combination of two words as an image. Whenever they hear the L2 word, the similar sound calls upon the image that they created, which provokes the meaning of L2 word.

Cognitive strategies

Similar to memory strategy, but cognitive strategies refer to when learners repeatedly write and oral repetition. Cognitive strategies are not emphasized in manipulative mental processing.

Mechanical means such as flashcards, word lists, and note-taking are used in order to help learners use their mechanical means to study vocabulary. Gairns and Redman stated the main advantage of using flashcard is that this mean can be easily taken anywhere, and whenever the students want to learn, they can use them in their free moment. Thornburry (2002) also mentioned about the use of word list as a strategy to learn vocabulary. It is still one of the vocabulary learning strategies that the students use for a long time because it is not expensive. In addition, taking notes in class and keeping vocabulary notebooks are also helpful and recommended by many teachers and writers (Schmitt, 1997).

Metacognitive strategies

According to Schmitt (1997), metacognitive strategies refer to the tactics designed to assist learners in thinking about the way they learn or think. Students use metacognitive strategies to control and evaluate their own learning. Although this strategy is broad, it is concerned to be an efficient language learning strategy. Teachers employing metacognitive strategies can encourage students to develop the process of the students' learning. As the students know how they learn, they will eventually use the suitable ways to acquire new information effectively. Sinclair and Thang (2009) referred to learner autonomy as taking much effort for one's learning and actively seeking out new knowledge, and they also argued that being autonomous requires specific metacognitive knowledge regarding one's self as a learner, the subject matter to be learned, one's learning context and the processes of learning. Therefore, metacognitive strategies can promote students to be autonomous learners. In other words, if the learners can know and choose their appropriate learning styles, they will be independent whenever they want to learn. The use of L2 resources such as books, magazines, newspapers, and movies in order to control and evaluate one's language use is one of the ways to expose the second language and receive rich input. The interaction with native speakers is considered as a way to receive excellent

language input. Also, testing provides positive reinforcement if progress is being made.

Table 5: Schmitt's (1997) taxonomy of vocabulary learning strategies

Discovery Strategies	Determination strategies	<ul style="list-style-type: none"> • guessing from the word's structural knowledge • guessing from a similarity to the first language • guessing from contextual clues • using reference materials
	Social strategies	<ul style="list-style-type: none"> • asking someone who knows the meaning of the word
Consolidation Strategies	Social strategies	<ul style="list-style-type: none"> • cooperative learning
	Memory strategies	<ul style="list-style-type: none"> • pictures and imageries • word association, unrelated words • grouping • word's spelling and pronunciation form The Keyword Method
	Cognitive strategies	<ul style="list-style-type: none"> • written and oral repetition • word lists • flashcards • note-taking
	Metacognitive strategies	<ul style="list-style-type: none"> • books • magazines • newspapers • movies • the interaction with native speaker

2.8 Studies on Vocabulary Learning Strategies

The vocabulary learning strategies used by language learners have held attention among teachers and researchers for a long time. In the context of ESL and EFL, it is agreed that language learning in such these two contexts is different from language learning in the context of native speakers. Studies on vocabulary learning strategies employed by language students have focused on what are the most and the least strategies that are used by language learners in different levels of education.

Fan (2003) investigated the relationship between strategies use and second language vocabulary proficiency of Hong Kong university students. Vocabulary test and vocabulary learning strategies questionnaire were administered as research instruments. In addition, the participants were also asked to rate both frequency and usefulness of strategies. The results showed that strategies of guessing, making use of known word, and dictionary use were most frequently strategies. On the contrary,

strategies of keyword and memory strategies were rarely employed by the participants. The findings also indicated that the frequency and usefulness of strategies were not related. Besides, the participants revealed that a guessing strategy was easily applied, and dictionary use always gave good results but took time and limited language use.

Bernardo and Gonzales (2009) examined the vocabulary learning strategies in Pilipino university students across five academic majors: liberal arts and education, computer science and engineering, business education, hospitality management, and allied medical science. The findings of this study revealed that there were statistically significant differences in the use of determination and social VLS across the academic majors. Another finding showed non-significant differences in the employment of memory, cognitive, and metacognitive VLS. The results also indicated significant differences between allied medical science students and liberal arts and education with liberal arts and education using determination VLS with greater frequency and between allied medical science and computer science and engineering with allied medical science employing social VLS with lesser frequency. This study concluded that different fields of study might incorporate different styles of learning vocabulary.

Bin Mustapha and Asgari (2010) examined the types of vocabulary learning strategies used by Malaysian university students majoring in Teaching English as a Second Language (TESL). The method of conducting in this research was an open-ended interview, which was conducted individually with a total of ten students. The findings revealed that the popular strategies that the students in this study are keen on are the learning a word through reading, the use of a monolingual dictionary, the use of various English language media, and applying new English word in their daily conversation where are related to memory, determination, metacognitive strategies respectively. Based on this study, it is recommended that the individuals' differences of language learners from primary to university level, the effect of culture, residence condition, peer group, effective teaching approaches, and classroom atmosphere on vocabulary learning strategies be conducted as further studies.

Another related study of Zhang (2011), the use of vocabulary learning strategies questionnaire was employed in a group of Chinese university students, which were

divided into two groups, namely good and poor language learners. The finding revealed that good language learners used vocabulary learning strategies more frequently than poor learners, also implied that vocabulary learning strategies were positively related to language learning outcomes.

Heng (2011) investigated the strategies in learning vocabulary used in teaching and learning English in a school in Cambodia. This study was emphasized what the most effective strategies are and how they are used. The method employed in this study was semi-structured interviews with ten selected students. From this study, the findings showed that there is a variety of useful strategies for learning vocabulary the students used for learning vocabulary. From the students' perceptions, effective vocabulary learning strategies include the use of practice using words in writing and speaking, reading exposure, the use of a dictionary, note-taking, and asking teachers and peers, respectively. The most effective strategies for vocabulary learning that the teachers in this study mentioned were the use of extensive reading, putting the words into practice, memory strategies, respectively.

Han (2014) explored the underlying factors of vocabulary learning strategies in order to describe the students' use of vocabulary learning strategies and studied the differences in frequency of VLS use between the two language groups: alphabet-based languages (ABL) and character-based languages (CBL) and to identify the effects of gender, college major, motivation, and other factors on the VLS use. The findings of the study revealed that the students' major field of study was among the factors that were significantly related to student's overall VLS use.

Nie (2017) examined vocabulary learning strategies used by excellent English language learners in China. Three postgraduates who proved to be successful in vocabulary learning were involved in this study as participants. The instruments used in the study were the 22-item questionnaires and open-ended interviews. The findings showed that metacognitive strategies were the most powerful role in vocabulary learning among excellent students in this study. Besides the use of metacognitive strategies, repetition and social mediation were the common strategies used by the participants. Hence, it was concluded in this study that three different types of

vocabulary learning strategies, namely metacognitive strategies, cognitive strategies, and social strategies, should be used as a combination rather than in isolation.

In the Thai context, where students learn English as a foreign language, VLSs of the students at different levels have been put into consideration. At the tertiary level, there has been a substantial amount of research on the students' VLSs studied on different groups of learners. A study of Kongthong (2007) examined the vocabulary learning strategy use in university learners. With the method of questionnaire adapted from Schmitt's (1997), the finding revealed that the commonly used strategy was a bilingual dictionary, which falls under determination strategies. On the contrary, the cognitive strategy was not popular among the participants.

Siriwan (2007) investigated the types of vocabulary learning strategies used by undergraduate students in 12 universities in Thailand. The total amount of 1,481 subjects were asked to have semi-structured interviews and a strategy questionnaire. The researcher designed the construct of the questionnaire used in the study. Therefore, the internal consistency and reliability were checked by the use of the Alpha Coefficient or Cronbach alpha. In addition, the statistical methods, including the mean of frequency, standard deviation (S.D.), percentage, an analysis of variance (ANOVA), the chi-square test, and factor analysis were used to interpret data for the investigation. The findings of this study found that there were three main vocabulary learning strategies used by the subjects namely the discovery of the meaning of the new vocabulary items (DMV), the retention of the knowledge of newly learned vocabulary items (RKV), and the expansion of the knowledge of vocabulary (EKV). Moreover, this study also revealed that the frequency of strategy use for learning vocabulary was medium for overall students. The factors mentioned are related to the frequency of students' reported strategy use were students' gender, major field of study, previous language learning experience, and level of vocabulary proficiency.

Pookcharoen (2011) examined the use of VLSs in 400 Thai EFL university students studying in different fields of study, namely Liberal Arts, Commerce and Accountancy, Political Science, Science and Technology, Economics, Law, Journalism, and Mass Communication, and Social Administration. The purposes of this study focused on the most and the least frequently used VLSs, the relationship

between the students' VLSs used and their perception of the usefulness of the strategy, and the factors affecting their failure to use certain strategies which they consider beneficial to their vocabulary learning. The method of VLSs questionnaire adapted from Schmitt's (1997) and semi-structured interviews were conducted to answer three research questions. The results of this study showed that the use of determination strategy was the most frequently used, while the least frequently used was a cognitive strategy. In addition, the results indicated that there was a strong relationship between the students' frequency of strategy use and the students' perception of the usefulness of strategies. Besides, there were four factors contributing to the students' failure to make use of the strategies.

Komol and Sripetpun (2011) conducted research on vocabulary learning strategies in 192 Thai university students. The aims of this study were to investigate the overall use of VLSs in the university students, to examine the differences in VLSs used by the students with different levels of vocabulary knowledge with regard to high and low vocabulary size, and to seek out the relationship between the students' VLSs use and their vocabulary size. The VLSs questionnaire adapted from Schmitt's 1997 and the vocabulary level tests were administered as the research instruments. The results revealed that determination strategy was the most frequently used strategy, whereas social strategy was the least frequently used by all subjects. The findings also showed that the use of VLSs between the students with high and low vocabulary size was significantly different. Besides, there was the relationship between vocabulary learning strategy and vocabulary size score.

Nirattisai and Chiramanee (2014) investigated vocabulary learning strategies used by Thai university students from different faculties; medicine, dentistry, nursing, engineering, accounting, hospitality and tourism. Besides, the relationship between the students' vocabulary learning strategies and their vocabulary size was studied. The use of two research instruments, VLSs questionnaire adapted from Schmitt's 1997 and the bilingual English-Thai version of vocabulary size test, were carried out. The findings revealed that determination strategies were the most frequently used strategies, while social strategies were the least frequently one. It was also found that

the students' use of VLSs and their vocabulary size were correlated to a moderate degree.

Boonkongsae and Intaraprasert (2014) examined the effects of different fields of study and prior language-learning experiences on the use of VLSs in 905 Thai university students. The VLS questionnaire was employed to collect data in the study. The results of this study showed that fields of study and previous language-learning experiences affected the students' overall VLS use. Another study on vocabulary learning strategies conducted by Boonkongsae and Intaraprasert (2014) explored the VLS used by 905 Thai tertiary students with different genders; female and male, and different levels of vocabulary proficiency. The use of VLS questionnaire modified from various scholars and the vocabulary proficiency test were carried out in order to find out the VLS use of the students with different genders and different vocabulary proficiency. The results revealed that female students employed more frequency of the VLSs use than male students, and the students with high vocabulary proficiency reported more frequency of the VLSs use than those with medium and low vocabulary proficiency.

Saengpakdeejit (2014) studied vocabulary learning strategies used by 63 Thai university students in a science-oriented group and a non-science-oriented group. The method of semi-structured interviews was carried out to gather information in data collection. The results showed that the students had an awareness of using vocabulary learning strategies. The strategy of discovering the meaning of unknown words and the strategy of retaining the meaning of new words were found as two main types of VLSs among the students in this study.

Rojananak and Vitayapirak (2015) studied the vocabulary learning strategies used by Thai students at a university level and compare the VLS use between good and weak students. The 356 university students from nine faculties, namely Engineering, Architecture, Industrial Education, Science, Agribusiness, Administration, Agricultural Industry, Information Technology, Nanomaterial Engineering, and Management Technology, were asked to complete the VLS questionnaire adopted from Schmitt's 1997. The results revealed that the students use a bilingual dictionary

commonly. Besides, good students use the strategy of guessing the meaning from contextual clues while weak students prefer asking peers for the meaning.

Phonhan (2016) investigated the VLSs used by 165 Thai university students in different fields of study; Thai language, Social studies, Mathematics, and Science. The use of VLS questionnaire adapted from Oxford's 1990 was administered as the main research instrument. The findings of this study showed that the compensation strategy was the most frequently used among the overall students whereas the social strategy was the least frequently used. In addition, there was a relationship between the VLS, language proficiency, gender and field of study of Thai language students, but not a meaningful significance.

Panduangkaew (2018) analyzed research studies on vocabulary learning strategies conducted with Thai university learners. Five research studies with the VLSs questionnaire adapted from Schmitt's (1997) were selected in this analysis. The findings revealed that Thai students at a tertiary level employ a bilingual dictionary as the most vocabulary learning strategy when dealing with vocabulary learning.

Boonnoon (2019) explored vocabulary learning strategies used by Thai EFL university students and studied differences between the students' VLS and their academic fields of study. The use of VLS questionnaire adapted from Jones's (2006) was conducted in this study with 267 students from four majors; Business, Engineering, Agriculture, and Health Science. The findings revealed that the use of the dictionary and note-taking were the two most frequently used VLS. Also, the findings showed that health science-students employed VLS more frequently than the students in other fields of study.

In a high school level, there have been some studies examining vocabulary learning strategies among Thai high school students. Srimanee and Laohawiriyanon (2010) carried out a study on vocabulary learning strategies used by successful learners in grade 9. The students' use of VLS was examined in order to identify the most and the least frequently used strategies when learning English. Besides, the aspect of how the successful students achieved their vocabulary knowledge was taken into account. Pretest and posttest translation tests were administered in selecting top-ten students to participate in an oral interview. The findings of this study showed that the two most

popular strategies were guessing the meaning from the contextual clue and asking classmates for L1 translation. Because of their concrete and practicality, the two strategies were the most popular strategies.

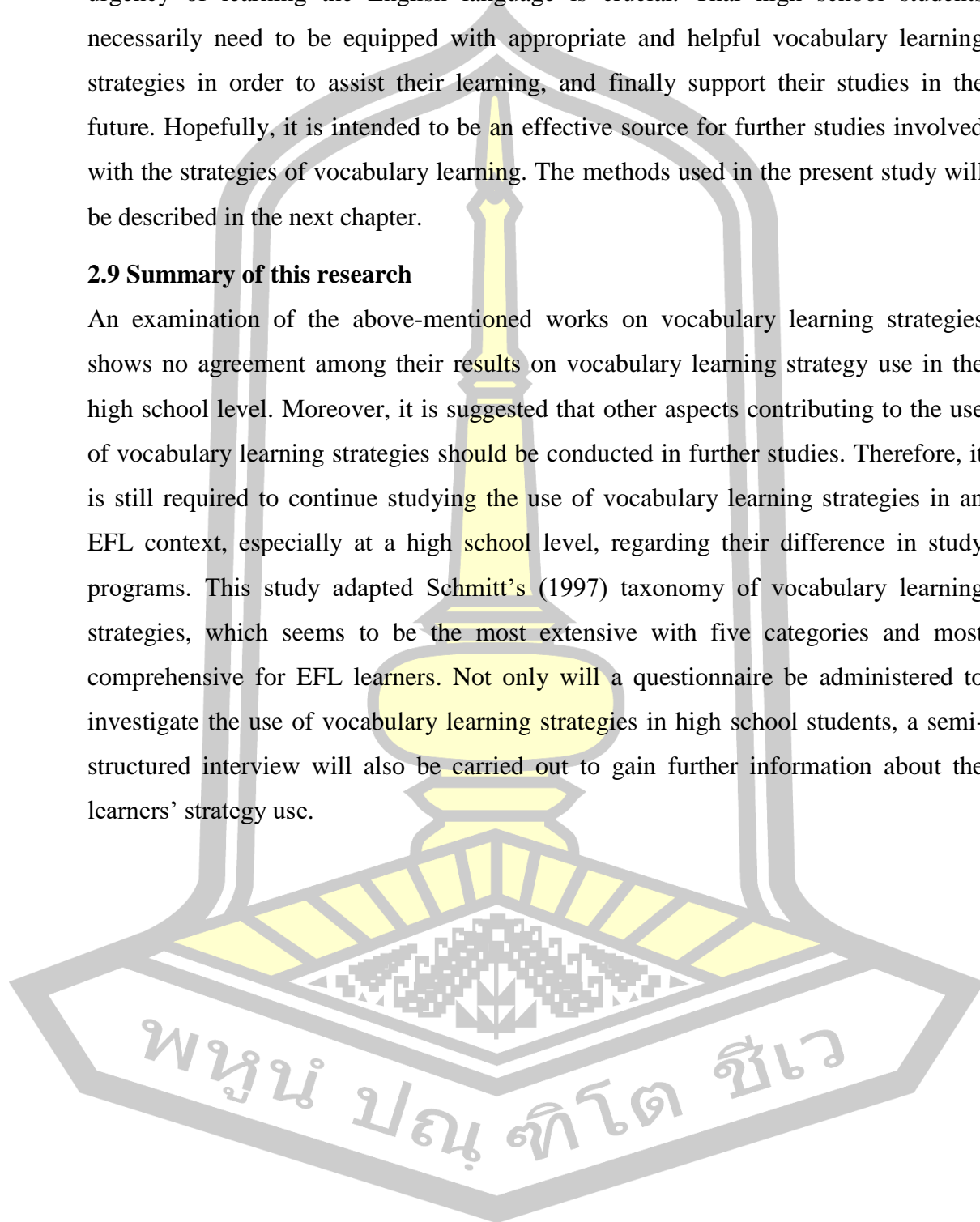
U-pitak (2011) investigated vocabulary learning strategies employed by proficient grade 9 and grade 12 students and seek out the differences in the use of vocabulary learning strategies between proficient grade 9 and grade 12 students. The use of VLS questionnaire adapted from Kudo's (1999) was the main research instrument in this study. The results revealed that the use of VLS by proficient grade 9 and grade 12 students was similar. It was found that memory strategies and cognitive strategies were the most frequently used strategies, whereas metacognitive strategies and social strategies were the least frequently used among the students. However, in grade 9 students, the use of memory strategies was the highest strategies, while proficient grade 12 used them with the second most frequency. Moreover, the differences among the vocabulary learning strategies used by two groups of students were compared and found that 28 strategies were used with high frequency, and ten strategies were used at low frequency in both groups. Proficient grade 9 students were found to use more frequently in five strategies than grade 12 students. From this study, it was possible that both groups of proficient students use the same vocabulary learning strategies because they were not much different in terms of educational level and English learning conditions.

In conclusion, several research studies on VLS in tertiary level have been conducted mostly to find out the most and the least frequency of vocabulary learning strategies used and examine the relationship between vocabulary learning strategies and various aspects such as academic fields of study, students' vocabulary proficiency, and genders. However, no studies have been carried out on vocabulary learning strategies in high school students regarding their different academic learning programs. In addition, previous studies on vocabulary learning strategies in Thai high school students made use of the questionnaire adapted from various experts, which provided findings in different frameworks. In this study, the aspect of why the students use certain strategies will be illuminated. The use of follow-up semi-structured interviews will be carried out to shed light on the reason for the students' VLS use and to back

up the finding of the VLS use. Moreover, in the context of Thailand, where the urgency of learning the English language is crucial. Thai high school students necessarily need to be equipped with appropriate and helpful vocabulary learning strategies in order to assist their learning, and finally support their studies in the future. Hopefully, it is intended to be an effective source for further studies involved with the strategies of vocabulary learning. The methods used in the present study will be described in the next chapter.

2.9 Summary of this research

An examination of the above-mentioned works on vocabulary learning strategies shows no agreement among their results on vocabulary learning strategy use in the high school level. Moreover, it is suggested that other aspects contributing to the use of vocabulary learning strategies should be conducted in further studies. Therefore, it is still required to continue studying the use of vocabulary learning strategies in an EFL context, especially at a high school level, regarding their difference in study programs. This study adapted Schmitt's (1997) taxonomy of vocabulary learning strategies, which seems to be the most extensive with five categories and most comprehensive for EFL learners. Not only will a questionnaire be administered to investigate the use of vocabulary learning strategies in high school students, a semi-structured interview will also be carried out to gain further information about the learners' strategy use.



CHAPTER III

RESEARCH METHODS

3.1 Participants and settings

A total of 491 students from public high schools in the northeastern part of Thailand were selected to complete the vocabulary learning strategies questionnaire. According to the number of public high schools in northeastern Thailand, there are approximately eleven public high schools providing all three study programs; science program, language program, and English program. More specifically, with regard to the student population, two public high schools were chosen as settings in this study.

All participants in the present study were Thai, ranging from fifteen to eighteen years old. The participants in the study have been studying English as a foreign language since they were at the age of seven in a primary school. Apparently, the participants in this study have at least ten years in English-studying experience in common, and they were assumed to have the same background of English language learning experience in school contexts.

In this study, the participants were in three different study programs, namely the science program, language program, and the English program. A total of 491 participants in this study included 180 students of the Science program, 184 students of Language program, and 127 students of the English program. Among the three study programs, in a week, they study at least two English subjects in common. Each week, the students in these three programs take a foundation English course for two sessions a week and a supplementary English course for the other two sessions. Therefore, all students in this study have at least four sessions a week to study the English language in the school context.

In the selection for an interview, the participants were asked in the questionnaire to give their telephone number if they were convenient to give further information in a personal interview a week after they had completed the questionnaire. Galvin (2015) suggests that seven to eight interviews suffice for explanatory studies. Accordingly, seven participants from each study program might be enough to achieve data saturation in this study. Hence, there was a total of twenty-one participants in this

study to give further information on why they use certain strategies in follow-up semi-structured interviews.

The Science program students

The students in the Science program mainly study in the field of sciences and mathematics subjects. Physics, Chemistry, Biology, and Mathematics are their main emphasis. The objectives of the science-mathematics program are to support those students in high school levels who are interested in the field of science and mathematics to provide effective instruction and laboratories in order to develop an educational environment and positive attitudes toward science and mathematics subjects to the students. Consequently, the content of those subjects in the field of sciences and mathematics are so intensive that the students can apply for their further study. In a week, they study two English language courses; a foundation English and a supplementary English with Thai teachers, and there are two hours a week for each course. Hence, in a week, the students in the science program study the English language for four hours.

The Language program students

The students in the program of languages are offered to learn foreign languages. They study compulsory subjects, and also are able to choose one foreign language such as Chinese, French, Japanese, Korean, Russian, Spanish, and German as their minor subject. The focus of this program is on the Thai language, foreign languages, and social studies. In a week, the students in the language program study four English language courses, which are eight hours in a week. They study a foundation English and a supplementary English with Thai teachers and two English skills with foreign teachers.

The English program students

In English program, students have an opportunity to study in the environment of using the English language. The program itself, there are two main study programs, namely language and science. They study almost every subject in the English language with native speakers. For the Thai language and some of the social studies, the students in English program study in the Thai language. In a week, the language-program

students study English language for 9-11 sessions, including a foundation English and other supplementary English courses.

3.2 Research instruments

There are two research instruments in the current study.

Vocabulary Learning Strategy Questionnaire

One of the main research instruments for collecting data in this study is a vocabulary learning strategies questionnaire (VLSQ) adapted from Schmitt's (1997) taxonomy. According to Akbari and Tahririan (2009), "Schmitt's (1997) taxonomy seems to be the most exhaustive and extensive with five aspects including Determination strategies (DET), Social strategies (SOC), Memory strategies (MEM), Cognitive strategies (COG), and Metacognitive strategies (MET), and has the advantage of being organized around an established scheme of language learning strategies." Hence, Schmitt's (1997) taxonomy has become the source of the strategies to be surveyed. According to Denscombe (2003), it is essential that the students understand the meaning of the questions. So, in order to ensure that the participants well understand the questions included in the questionnaire, the vocabulary learning strategies questionnaire used in this study was adapted and translated into Thai before the phase of collecting data (Appendix A). Consequently, five experts in the area of English education, who are familiar with English language teaching and have taught English language in Thai EFL contexts for more than ten years, were asked to assess the translated version of VLSQ employed in the present study. After assessing the questionnaire, some items were modified in order to reassure that the items would be comprehensive enough for the participants.

The VLS questionnaire employed in this study was divided into two main parts. The first part of the questionnaire requires the students' personal background information such as gender, age, type of academic program of study, GPA, experience living abroad. The latter part consists of 47 items organized and classified under five categories of vocabulary learning strategies of Schmitt's (1997) taxonomy as seven statements on determination strategies (item 1.1-1.7), seven statements on social strategies (item 1.8-2.3), twenty-one statements on memory strategies (items 2.4-2.24), five statements on cognitive strategies (items 2.25-2.29), and seven statements

on metacognitive strategies (items 2.30-2.36). According to Chomeya (2010), it was found that the Likert's scale 6 point is likely to give more discrimination and reliability than the 5-point Likert's scale. The use of a 6-point Likert's scale is suggested that if the discrimination of the answer is essential. Therefore, the frequency of use was measured by a six-point Likert scale from 0 (never), 1 (rarely), 2 (sometimes), 3 (often), 5 (usually), and 6 (always).

Table 6: Descriptions of strategies of vocabulary learning strategies

Strategy Categories	Items	Total
Determination (DET)	1.1-1.7	7
Social (SOC)	1.8-2.3	7
Memory (MEM)	2.4-2.24	21
Cognitive (COG)	2.25-2.29	5
Metacognitive (MET)	2.30-2.36	7
	Total	47

Semi-structured interview

According to Adams (2015), the use of a semi-structured interview (SSI) is suitable for a situation when there are more than a few of the open-ended questions that require follow-up queries. Yin (2009) suggests that questions on how and why are more suitable for the study than the questions concerning only frequencies or incidence. The method of semi-structured interview shows independent thinking of an individual without confronting peers in a focus group. In addition, a semi-structured interview provides an opportunity of adding some in-depth exploration. The beginning of the interview entailed general questions to establish a positive relationship between the interviewer and the interviewees. The interview questions were involved in certain strategies that the students employed when they desire to know the meaning of unknown words and when they want to retain the meaning of the newly learned words. Besides, the rationale why the students use certain strategies when learning English vocabulary was also taken into account. With regard to the reliability and validity of the questions in the interview, the question items were translated into Thai and assessed by five experts in the field of English language teaching. The guideline of the interview questions is listed in Appendix B.

Concerning the purpose of the two research instruments in a research study, to gain relevant information in most reliable and valid is vital. According to Huck (2007), reliability testing is an essential process as it is relevant to consistency across the parts of instrument measurement. Therefore, before the main study, the vocabulary learning strategies questionnaire and the interview guideline in Thai version were assessed by five experts in the area of English education, who are familiar with English language teaching and have taught English language in Thai EFL contexts for more than ten years were asked to assess the translated version of VLSQ employed in the present study. After receiving feedback and recommendations from the experts, the Index of Item-Objective Congruence (IOC) was employed so as to find the content validity.

According to Whitley (2002) and Robinson (2009), the Cronbach Alpha coefficient is the most used internal consistency measurement, which viewed as a suitable measure of reliability when Likert scales are employed. Based on DeVellis (2003), the agreement of the internal consistency coefficient should be above 0.70. After piloting with 90 participants who did not participate in the main study, the VLS questionnaire used in this study was scored 0.915 on Cronbach's Alpha, which indicates an excellent level of reliability (Hinton et al., 2004).

3.3 Data collection procedure

After permission from high school was obtained, the use of the VLSQ was carried out with high school students in all three study programs. With collaboration with the teachers in each high school, the researcher asked for their assistance to make an appointment with the students. The students in different programs met the research at different times in a day in order to make sure that the explanation of the questionnaire item would be well described thoroughly. The participants took approximately 20 minutes to complete the questionnaire, which including explaining the questionnaire's items and responding to the questionnaire.

A total of twenty-one students were randomly selected to participate in a semi-structured interview, which happened a week after the conduction of a questionnaire. Follow-up semi-structured interviews were conducted in Thai by the researcher and lasted about 45 minutes for each student. The interviews were recorded and immediately transcribed verbatim for the data analysis in order to capture how things

were said regarding features of talk such as tone of voice, emphasis, speed, and pauses. All participants in the interview verified the accuracy of the transcription, which was translated into English. A summary of the data collection procedure is shown in Table 7.

Table 7: Summary of the data collection procedure

Week	Research instrument	Time
1	VLSQ	20 minutes
2	Semi-structured interview	45 minutes/ individual

3.4 Data analysis

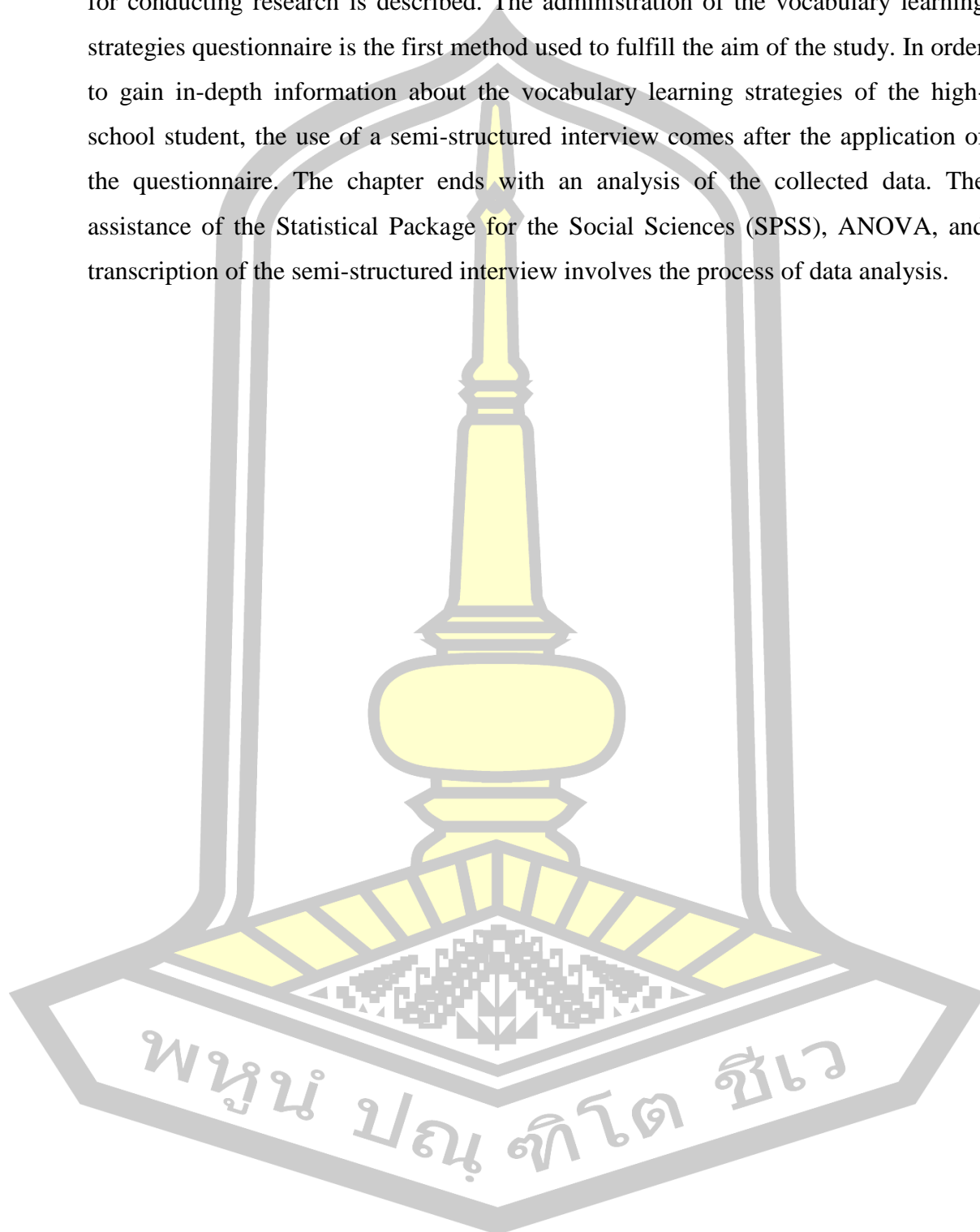
In response to the research questions mentioned in the previous chapter, the need to compare collected data from the three different groups of the participants is the essence of seeing significant differences of VLSs among science-program students, language-program students, and English-program students. The completed questionnaires are tallied and tabulated by using the Statistical Package for the Social Sciences (SPSS) to identify the students' vocabulary learning strategies use. Descriptive statistics with means and standard deviations were calculated to show the students' vocabulary learning strategies. Furthermore, ANOVA Post Hoc test was used to analyze in order to see differences between the VLS use across the students in different study programs. However, the t-test was also employed to make a comparison of two groups. Correlation was also calculated to show the relationship between strategic vocabulary learning.

The transcribed data from the semi-structured interview was interpreted by the researcher and the research advisor to explain why the students use each strategy for learning vocabulary.

3.5 Summary

This chapter has dealt with the methodology of conducting the present study. The process of preparing and modifying the vocabulary learning strategies questionnaire (VLSQ), and designing semi-structured interviewing guidelines is explained. It has been stated the characteristics of the participants involved in the study; also, the

definition of the programs of study is illuminated in this chapter. Then, the procedure for conducting research is described. The administration of the vocabulary learning strategies questionnaire is the first method used to fulfill the aim of the study. In order to gain in-depth information about the vocabulary learning strategies of the high-school student, the use of a semi-structured interview comes after the application of the questionnaire. The chapter ends with an analysis of the collected data. The assistance of the Statistical Package for the Social Sciences (SPSS), ANOVA, and transcription of the semi-structured interview involves the process of data analysis.



CHAPTER IV

RESULTS

The previous chapter presented the methodology used for the analysis of the data to answer the research questions in the present study. In this chapter, the results of vocabulary learning strategies employed by Thai high school students have been taken into account. Firstly, the overall use of vocabulary learning strategies by Thai high school learners is presented. Secondly, comparing the vocabulary learning strategies used by different study programs is shown. Finally, this chapter also gives precedence to the qualitative data, which is regarded as rationales why Thai high school students use certain strategies to acquire and retain English vocabulary.

4.1 Thai High School Learners' VLSs Used

Concerning the first research question of the present study, data collected from the questionnaire were analyzed using the Statistical Package for Social Science (SPSS). Descriptive statistics, which included means and standard deviation (SD) for each item, was employed to see the most and the least frequently used VLSs in Thai high school students. Besides, a one-way ANOVA and Fisher's least-significant difference test (LSD) were employed to analyze statistically significant differences and similarities between VLSs used among the three programs of the study.

Table 8 shows a summary of the overall vocabulary learning strategies in Thai high school participants using questionnaires. The results showed that Thai high school participants used determination strategies (DET), with an average of 54.66% (SD = .698), followed by metacognitive strategies (MET) with an average of 52.83% (SD = .893). Thai high school students had an average use of social strategies (SOC) at 49.50% (SD = .877). This finding equated to the use of cognitive strategies (COG) (SD = .860). Thai high school students recorded memory strategies (MEM) as the lowest vocabulary learning strategy, with an average of 47.83 % (SD = .760). The current findings suggest that Thai high school participants often exploit all vocabulary learning strategies.

Table 8: High school learners' overall vocabulary learning strategies used. (n = 491)

Vocabulary Learning Strategies	\bar{x}	%	S.D	Meaning
determination strategy (DET)	3.28	54.66.698	often	
metacognitive strategy (MET)	3.17	52.83.893	often	
social strategy (SOC)	2.97	49.50.877	often	
cognitive strategy (COG)	2.97	49.50.860	often	
memory strategy (MEM)	2.87	47.83.760	often	

Based on strategies to discover the meaning of a new word, the results showed that Thai high school learners often utilize strategies in the determination category. More specifically, the strongest strategy of determination category was guessing from the context with an average of 61.16 % ($\bar{x} = 3.67$, $SD = 1.063$). On the other hand, the strategy which appeared to be the least frequently used was making use of an English-English dictionary with an average of 46.00 % ($\bar{x} = 2.76$, $SD = 1.394$).

Table 9: The determination strategies used by Thai high school learners

Determination strategy (DET)	\bar{x}	%	S.D	Meaning
1.5 Guess from context	3.67	61.16	1.063	usually
1.4 Use any pictures or signs to help me guess	3.57	59.50	1.114	usually
1.6 Use an English-Thai dictionary	3.37	56.16	1.303	usually
Check if the word is also a Thai word				
1.3 <i>example</i> football = ฟุตบอล	3.29	54.83	1.193	often
1.1 Analyse parts of speech such as verb, noun, adjective, etc.	3.15	52.50	1.112	often
Analyze affixes and roots				
1.2 <i>example</i> im + possible = impossible	3.11	51.83	1.176	often
color + ful = colorful				
1.7 Use an English-English dictionary	2.76	46.00	1.394	often
Total	3.28	54.66	.698	often

Regarding social strategies that involve other people to obtain the meaning of a word, the results revealed that Thai high school students usually ask their classmates for the meaning with an average of 59.83 % ($\bar{x} = 3.59$, $SD = 1.283$). The results also indicated that asking classmates for meaning was the most popular strategy. On the other hand, asking a teacher for a sentence including the new word was the least used strategy with an average of 45.16 % ($\bar{x} = 2.71$, $SD = 1.294$).

Table 10: The social strategies used by Thai high school learners

	Social strategy (SOC)	\bar{X}	%	S.D	Meaning
1.11	Ask my classmates for the meaning	3.59	59.83	1.283	usually
2.1	Study and practice the word with my classmates	2.99	49.83	1.231	often
2.3	Interact with native speakers	2.93	48.83	1.342	often
2.2	Ask the teacher to check my definition	2.86	47.66	1.231	often
1.8	Ask the teacher for L1 translation	2.85	47.50	1.329	often
1.10	Ask teacher for paraphrase or synonym of the new word	2.83	47.16	1.249	often
1.9	Ask teacher for a sentence including the new word	2.71	45.16	1.294	often
	Total	2.97	49.50	.877	often

Table 11: The memory strategies used by Thai high school learners

	Memory strategy (MEM)	\bar{X}	%	S.D	Meaning
2.17	Say the new words aloud when studying	3.74	62.33	1.106	usually
2.16	Study the sound of a word	3.64	60.66	1.081	usually
2.15	Study the spelling of a new word	3.35	55.83	1.155	often
2.6	Connect the word to a personal experience	3.22	53.66	1.203	often
2.23	Paraphrase the word's meaning	3.11	51.83	1.132	often
2.8	Connect the word to its synonyms and antonyms	3.07	51.16	1.083	often
2.22	Remember part of speech of the word	3.03	50.50	1.134	often
2.12	Group words together to study them	3.01	50.16	2.166	often
2.7	Associate the word with its coordinates	2.98	49.66	1.166	often
2.13	Use new words in sentences	2.94	49.00	1.291	often
2.18	Imagine word form	2.88	48.00	1.274	often
2.5	Make a mental image of the word's meaning	2.83	47.16	1.385	often
2.10	Use 'scales' for gradable adjective <i>example</i> tiny – small – large – gigantic	2.82	47.00	1.220	often
2.21	Remember the meaning of affixes and roots	2.80	46.66	1.245	often
2.14	Group words together within a story	2.75	45.83	1.636	often
2.24	Use physical action when learning a word	2.67	44.50	1.473	often
2.11	Use rhymes to memorize the words <i>example</i> lace – pace – race - base	2.49	41.50	1.300	sometimes
2.20	Use Keyword Method	2.44	40.66	1.502	sometimes
2.9	Use semantic maps	2.38	39.66	1.343	sometimes
2.4	Draw a picture of the word to help remember it	2.22	37.00	1.470	sometimes
2.19	Underline or highlight initial letter of the word in order to help remember	1.94	32.33	1.459	sometimes
	Total	2.87	47.83	.760	often

About the memory category, which consists of several strategies that help English language learners retain the meaning of vocabulary; the results showed that the students in this study often implemented memory strategies. As shown in Table 11, the strongest strategy fell into the action of saying the new words aloud when

studying with an average of 62.33 % ($\bar{x} = 3.74$, $SD = 1.106$). However, the strategy of underlining or highlighting the initial letter of the word was the least strategy used in the memory category with an average of 32.33 % ($\bar{x} = 1.94$, $SD = 1.459$).

Table 12: The cognitive strategies used by Thai high school learners

	Cognitive strategy (COG)	\bar{x}	%	S.D	Meaning
2.25	Repeat the words aloud many times	3.61	60.16	1.191	usually
2.29	Take note or highlight new words in class	3.41	56.83	1.291	usually
2.26	Write the words many times	3.27	54.50	1.225	often
2.30	Use vocabulary section in textbooks	2.91	48.50	1.210	often
2.27	Make a list of new words or keep a vocabulary notebook	2.86	47.66	1.361	often
2.28	Use flashcards to record new words	2.42	40.33	1.445	sometimes
2.31	Put English labels on physical objects	2.32	38.66	1.410	sometimes
	Total	2.97	49.50	.860	often

Table 12 shows the results of cognitive strategies use. The results indicated that Thai high school learners often applied cognitive strategies. Specifically, repeating the words aloud many times was the most frequently used strategy to recollect the meaning of vocabulary, with an average of 60.16 % ($\bar{x} = 3.61$, $SD = 1.191$). Contrarily, putting English labels on physical objects was found the least frequently used strategy among others in cognitive strategies with an average of 38.66 % ($\bar{x} = 2.32$, $SD = 1.410$).

Table 13: The metacognitive strategies used by Thai high school learners

	Metacognitive strategy (MET)	\bar{x}	%	S.D	Meaning
2.32	Use English-language media (songs, movies, games, applications, podcasts)	3.91	65.16	1.190	usually
2.36	Continue studying new word overtime	3.26	54.33	1.253	often
2.33	Practice speaking with other people	3.11	51.83	1.258	often
2.34	Test myself with word tests	3.01	50.16	1.245	often
2.35	Use spaced word practice	2.59	43.16	1.249	often
	Total	3.17	52.83	.893	often

Regarding metacognitive strategies, the results indicated that Thai high school students often use these strategies when learning vocabulary overtime. Interestingly, the students usually make use of English - language media such as songs, movies, games, applications, and podcasts, as a result, that this practice was the most frequently used to enrich vocabulary with an average of 65.16 % ($\bar{x} = 3.91$, $SD = 1.190$). However, the strategy of using spaced word practice was least frequently used among the other strategies with an average of 43.16 % ($\bar{x} = 2.59$, $SD = 1.249$).

4.2 Comparing Strategies Used between Study Programs

In response to the second research question, VLSs among three programs of study have been put into consideration. The students learning in three study programs, namely science program, language program, and English program, showed various strategies to learn English vocabulary. A one-way ANOVA was used in order to see significant differences between the VLSs use of Thai high school students in different academic learning programs.

Table 14: The comparison of the use of strategies used between study programs

VLSs	Study Program	N	%	\bar{X}	S.D	F	Sig.
Determination strategy (DET)	Science program	180	53.50	3.21	.662	5.369	.005*
	Language program	184	53.66	3.22	.710		
	English program	127	57.50	3.45	.709		
Social strategy (SOC)	Science program	180	47.00	2.82	.875	16.836	.000*
	Language program	184	47.50	2.85	.870		
	English program	127	55.66	3.34	.781		
Memory strategy (MEM)	Science program	180	46.83	2.81	.736	8.587	.000*
	Language program	184	46.16	2.77	.768		
	English program	127	51.83	3.11	.737		
Cognitive strategy (COG)	Science program	180	49.16	2.95	.897	2.498	.083
	Language program	184	48.33	2.90	.847		
	English program	127	51.83	3.11	.815		
Metacognitive strategy (MET)	Science program	180	50.66	3.04	.869	9.544	.000*
	Language program	184	51.66	3.10	.930		
	English program	127	57.66	3.46	.807		

Note: *. The mean difference is significant at the 0.05 level

Table 14 shows that there were significant differences in four strategies that the students from three programs of study employ. Those strategies were determination strategies (DET), social strategies (SOC), memory strategies (MEM), and metacognitive strategies (MET) with a significant difference at the 0.05 level.

According to Table 14, the findings indicated the students in English program employed determination strategies the most with an average of 57.50 % ($\bar{x} = 3.45$, SD = .709). The following were the language-program students with an average of 53.66 % ($\bar{x} = 3.22$, SD = .710), and the students in science program with an average of 53.50 % ($\bar{x} = 3.21$, SD = .662) respectively.

Similarly, the English-program students used social strategies the most with an average of 55.66 % ($\bar{x} = 3.34$, $SD = .781$). The following are the language-program students with an average of 47.50 % ($\bar{x} = 2.85$, $SD = .870$), and the students in science program with an average of 47.00 % ($\bar{x} = 2.82$, $SD = .875$).

The strategies of memory were mostly used by the English-program students with an average of 51.83 % ($\bar{x} = 3.11$, $SD = .737$). In memory strategies, the science-program students showed more usage than the language-program students with an average of 46.83 % ($\bar{x} = 2.81$, $SD = .736$) while the language-program students' average was 46.16% ($\bar{x} = 2.77$, $SD = .768$).

Regarding cognitive strategies, English-program students used these strategies the most with an average of 51.83 % ($\bar{x} = 3.11$, $SD = .815$). The following are the science-program students with an average of 49.16 % ($\bar{x} = 2.95$, $SD = .897$), and the language-program students with an average of 48.33 % ($\bar{x} = 2.90$, $SD = .847$) respectively.

For metacognitive strategies, the results also indicated that the students in English program employed these strategies the most with an average of 57.66 % ($\bar{x} = 3.46$, $SD = .807$). The following are the use of language-program students with an average of 51.66 % ($\bar{x} = 3.10$, $SD = .930$), and the use of science-program students with an average of 50.66 % ($\bar{x} = 3.04$, $SD = .869$).

As illustrated, Figure 1 summarizes the use of VLSs among three learning programs in this study. The use of VLSs in the two programs, namely the science program and language program, was not much different. It is noticeable that the use of VLSs in the English-program students were predominant from the others, as the bars of the English-program students' VLSs use were always higher than the two study programs'.

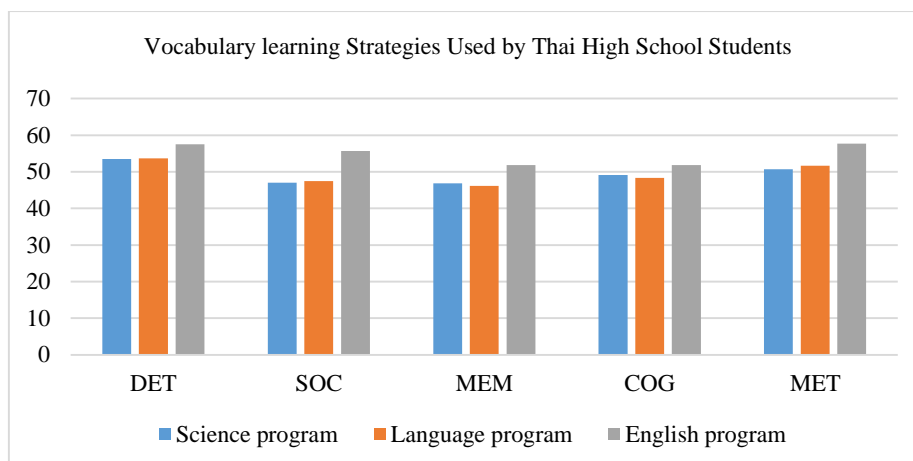


Figure 2: The comparison of strategies used between study programs

As presented in Table 14 and Figure 2, the results revealed that the use of four strategies by the high school students in three study programs are significantly different. Therefore, the use of the Post Hoc Test (Fisher's LSD) was manipulated to elaborate on the differences of VLSs between the students across programs of study, as shown in Table 15-16.

Table 15: The comparison of the mean score of determination strategies (DET) by the use of LSD

Determination strategy (DET)	Study program	\bar{x}	Science		Language		English	
			t	Sig.	t	Sig.	t	Sig.
	Science	3.21						
	Language	3.22						
	English	3.45						

Note: *. The mean difference is significant at the 0.05 level

According to Table 15, there were two pairs of study programs in which the mean scores of the use of determination strategies (DET) were significantly different. Firstly, the mean score of science-program students was lower than that of those in the English program ($t(305,259.644) = -3.050, p < 0.05$). Secondly, the mean score of language-program students was lower than the English-program students' ($t(309, 271.397) = -2.762, p < 0.05$).

Table 16: The comparison of the mean score of social strategies by the use of LSD

Social strategy (SOC) Study program	\bar{X}	Science		Language		English		
		\bar{X}	t	Sig.	t	Sig.		
Science	2.82		-.027	-.297	.766	.521*	5.369	.000*
Language	2.85					.494*	5.131	.000*
English	3.34							

Note: *. The mean difference is significant at the 0.05 level

According to Table 16, there were two pairs of study programs in which the mean scores of the use of social strategies (SOC) were significantly different. Firstly, the mean score of the students in the science program was lower than that of those in the English program ($t(305, 288.669) = -5.369, p < 0.05$). Secondly, the mean score of high school students in the Language program was lower than the English-program students' ($t(309, 288.444) = -5.131, p < 0.05$).

Table 17: The comparison of the mean score of memory strategies (MEM) by the use of LSD

Memory strategy (MEM) Study program	\bar{X}	Science		Language		English		
		\bar{X}	t	Sig.	t	Sig.		
Science	2.81		.046	.585	.559	.293*	3.434	.001*
Language	2.77					.339*	3.892	.000*
English	3.11							

Note: *. The mean difference is significant at the 0.05 level

According to Table 17, there were two pairs of study programs in which the mean scores of the use of memory strategies (MEM) were significantly different at the 0.05 level. The mean score of high school students in the science program was lower than that of those in the English program ($t(305, 271.058) = -3.434, p < 0.05$). The mean score of high school students in the language program was lower than the English-program students' ($t(309, 277.959) = -3.892, p < 0.05$).

Table 18: The comparison of the mean score of metacognitive strategies (MET) by the use of LSD

Metacognitive strategy (MET) Study program	\bar{X}	Science		Language		English		
		\bar{X}	t	Sig.	t	Sig.		
Science	3.04		-.058	-.611	.541	.420*	4.296	.000*
Language	3.10					.362*	3.561	.000*
English	3.46							

Note: *. The mean difference is significant at the 0.05 level

According to Table 18, there were two pairs of study programs in which the mean scores of the use of metacognitive strategies (MET) were significantly different at the

0.05 level. The mean score of high school students in the science program was lower than that of those in the English program ($t(305,283.098) = -4.296, p < 0.05$). The mean score of high school students in the language program was lower than the English-program students' ($t(309,293.267) = -3.561, p < 0.05$).

4.3 Relationship between Vocabulary Learning Strategies

Table 19: The correlations between each vocabulary learning strategy (Pearson correlations, r)

VLSs	Correlations (r)				
	(DET)	(SOC)	(MEM)	(COG)	(MET)
Determination strategy (DET)		.397**	.562**	.474**	.507**
Social strategy (SOC)			.603**	.513**	.425**
Memory strategy (MEM)				.665**	.577**
Cognitive strategy (COG)					.585**
Metacognitive strategy (MET)					

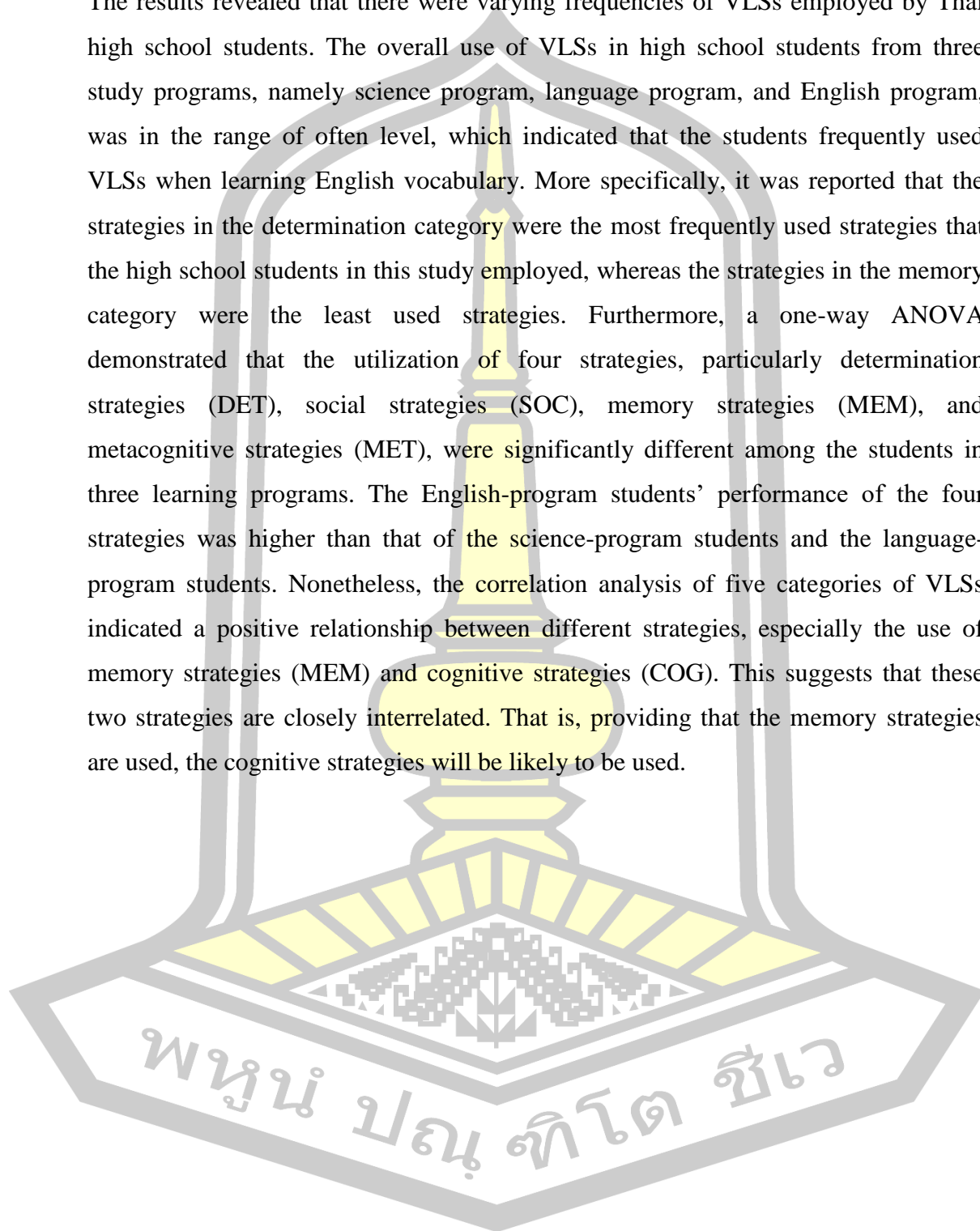
Note: **. Correlation difference is significant at the 0.001 level (2-tailed)

As shown in Table 24, the results of the analysis reported that the tests were positively correlated, revealing medium to a high degree between all five categories. Specifically, there were high correlation between the DET and the MEM ($r = 0.562$), the DET and the MET ($r = 0.507$), the SOC and the MEM ($r = 0.603$), the SOC and the COG ($r = 0.513$), the MEM and the COG ($r = 0.665$), the MEM and the MET ($r = 0.577$), and the COG and the MET ($r = 0.585$). The relationship between the DET and the SOC ($r = 0.397$), the DET and the COG ($r = 0.474$), and the SOC and the MET ($r = 0.425$) were considered medium relationship.

The correlations analysis revealed a significant relationship between different VLSs. The correlation value for the memory strategies (MEM) and the cognitive strategies was the highest ($r = 0.665$). It suggests that the memory strategies and the cognitive strategies interrelate. On the other hand, the correlation value for the determination strategies (DET) and the social strategies (SOC) was the lowest ($r = 0.397$). It indicates a slight interconnection between the two strategies.

4.4 Summary

The results revealed that there were varying frequencies of VLSs employed by Thai high school students. The overall use of VLSs in high school students from three study programs, namely science program, language program, and English program, was in the range of often level, which indicated that the students frequently used VLSs when learning English vocabulary. More specifically, it was reported that the strategies in the determination category were the most frequently used strategies that the high school students in this study employed, whereas the strategies in the memory category were the least used strategies. Furthermore, a one-way ANOVA demonstrated that the utilization of four strategies, particularly determination strategies (DET), social strategies (SOC), memory strategies (MEM), and metacognitive strategies (MET), were significantly different among the students in three learning programs. The English-program students' performance of the four strategies was higher than that of the science-program students and the language-program students. Nonetheless, the correlation analysis of five categories of VLSs indicated a positive relationship between different strategies, especially the use of memory strategies (MEM) and cognitive strategies (COG). This suggests that these two strategies are closely interrelated. That is, providing that the memory strategies are used, the cognitive strategies will be likely to be used.



CHAPTER V

DISCUSSION AND CONCLUSION

This chapter will discuss the research findings according to the current literature. Remarkably, the findings of the study provide a better understanding of the vocabulary learning strategies used in Thai high school students, especially the use of vocabulary learning strategies among three different programs of study. Besides, the rationales of the vocabulary learning strategy use to give an insightful explanation of why the students in different programs of study employ specific strategies. Finally, the chapter includes implications for vocabulary learning strategies, limitations, and recommendations for future studies.

5.1 Discussion of the current study

5.1.1 Thai High School Learners' VLS Use

Research question 1 explored Thai high school participants' vocabulary learning strategy use. The objective was to discover vocabulary learning strategies Thai high school learners used to deal with unfamiliar words and increase their language proficiency. The results indicate that Thai high school participants used different frequency levels of vocabulary learning strategies. That is, the determination strategies were the most used, followed by the metacognitive strategies. Remarkably, the social strategies equated with the cognitive strategies. By contrast, the memory strategies were the lowest used by Thai high school participants.

The current results can be accounted for by the conditions of vocabulary acquisition. More specifically, the use of contextual clues, structural knowledge, cognates, and reference materials in determination strategies most facilitate L2 learners when encountering difficulties in comprehending the meaning of unknown words because of their availability. In context, for example, other kinds of information, including parts of speech, its collocations, the things it can refer to, and various forms the word can take, can be learned (Nation, 2013). As such, the participants showed a high degree of frequency in guessing from contexts. Furthermore, these phenomena of employing a dictionary, which also falls in the determination category can also be described by its convenience. That is, the usefulness of consulting both monolingual and bilingual dictionaries provide various functions, e.g., source of information,

spelling, and pronunciation. However, the bilingual dictionary gained more popularity among the participants since it offers the learners' native language. The current results suggest that the participants in the study are substantially familiar with the application of contextual clues, structural knowledge, cognates, and reference materials when discovering the meaning of the unknown words. These current findings are in agreement with the previous studies that learners can decode the meaning of new words by making use of applying textual context, using a bilingual dictionary, and analyzing any available pictures or gestures (Fan, 2003; Kongthong, 2007; Pookcharoen, 2011; Komol & Sripetpun, 2011; Nirattisai & Chiramanee, 2014; Rojananak & Vitayapirak, 2015; Panduangkaew, 2018).

Apart from the quantitative scrutiny, the analysis of the interview can also be accounted for by the advantages of contexts, word structures, and available references, and the benefit of accessibility of dictionary as it provides crucial functions. The following excerpts can evince this claim:

“I use an online dictionary on my cell phone (Longdo) because it provides L1 translation and synonyms, which are very useful. I also make use of a word's contexts and sentence structures to help me guess the meaning of a word.” (Student 1)

“I guess from the context and its image. They help me guess the meaning of the word.” (Student 2)

“I use Google translation and an online dictionary on my cell phone because it is very easy and fast.” (Student 3)

On the contrary, the interview showed that memory strategies were employed at the least frequency in vocabulary retention of the high school participants. This finding is congruent with the previous study in term of memory strategies were employed at the least frequency (Fan, 2003). The complication of memory strategy use can explain this as it usually comprises mental processing such as the use of imagery, word association, and keyword method (Schmitt, 2000). More precisely, memory strategies occur when learners create a connection between the newly learned word and the learners' pre-existing knowledge or experience. In short, memorization is an in-depth

strategy that requires mental processing. Another explanation of this phenomenon can be accounted for by a substantial number of vocabulary that learners need to acquire.

Conversely, with the analysis of literature, there was no finding that memory strategies were at the lowest rank among other strategies of vocabulary learning. Part of the reason for this might be because of the traditional English-language instruction in the EFL context, which mostly leads learners to do rote learning. However, for this finding, there might be an excessive load of vocabulary for EFL learners; to remember, learners rarely depended on repetition. As such, the results suggest that strategies that require time to create, learn, and practice do not provide simplicity and practicality to learners.

In contrast, this current finding is inconsistent with the previous study that the method of memory strategies was the most employed by the participants, particularly in EFL settings (U-pitak, 2011; Heng, 2011). As reported in the qualitative findings, a few participants expressed the usefulness of the Keyword Method but considered as a complexity. The interview excerpt can support these findings:

“I try to use sounds and images to help me remember. For example, the word “Ant” – I try to imagine an ant whose head looks like the shape of the alphabet A- in the word “ant.” It is quite complicated but very helpful to me.” (Student 4)

It is noteworthy that the metacognitive strategy was the second employed. The quantitative findings showed that English-language media are prevalent among high school participants. A possible explanation for this is that metacognitive strategies involve being autonomous of language learners. More precisely, learner autonomy means when learners are taking control and responsibility for their learning (Nation, 2013). Therefore, these strategies can be taken place independently on learners’ decisions. Recently, there are many language learning resources that learners can make use of in order to learn, monitor, and evaluate autonomously (Schmitt, 1997). In short, the English-language resources are easily accessible.

Additionally, these resources provide relaxation, enjoyment, and stress-free condition when acquiring and involving vocabulary. Providing that there is a nervousness, this

can be perceived as a detrimental factor interfering vocabulary learning process. Accordingly, this finding implies that English-language media helps create favorable conditions and promote autonomy in language learners. This finding is congruent with the previous study that English-language media were among the most frequent of use (Mustapha & Asgari, 2010).

In contrast, this finding is not in line with the earlier study that proficient grade 9 and grade 12 students occupied metacognitive strategies at the lowest rank (U-pitak, 2011). However, the findings from the interview provide support to the quantitative results that metacognitive strategies were also popular among the high school participants in the current study. Regarding relaxation and anxiety-free conditions, the participants facilitate the strategies in the metacognitive category as the second most. The following excerpts can evidence this claim

“I always play games, watch movies, watch cartoons, and read rom-com novels in order to acquire new words. This way is convenient and very relaxing; I do not need to force myself to do these activities.” (Student 5)

“I watch cartoons, English series, and English movies on Netflix to help me learn and improve my English vocabulary. I watch these because I like entertaining, and I have a passion for learning English with entertainment. In addition, recently, these things are easily accessible and useful for improving their English skills.” (Student 6)

“I watch soundtrack movies because it helps me with some difficult words sometimes and also accent. If I have to recommend I would say “Study what you like, it will improve your English happily.” (Student 7)

The quantitative findings also indicated that the use of social strategies and cognitive strategies were equal. The finding also revealed that the strategy of asking classmates for meaning was employed at the highest frequency, among others in social strategies. It is interesting that the participants mostly rely on their peers rather than their teachers. The plausible explanation might be because the participants feel more comfortable when consulting people who are at the same age and close to them. Although social strategies seem to be spontaneous for learners to turn to when

encountering unfamiliar words, sometimes personality and relationship between learners and other people can hinder them from using. The following interview excerpts can evidence this rationale:

“I don’t like asking people because I can learn and remember effectively by discovering myself.” (Student 8)

“Unfortunately, I cannot get along well with my teacher. So, I prefer asking my classmates.” (Students 9)

Regarding cognitive strategies, the quantitative findings revealed that repeating the words aloud many times was the most frequently used among others. One possible reason can be because this strategy does not require any tools, but the learners in order to practice the meaning of the word. In other words, repeating the words aloud is easier and more convenient than other strategies in this category. However, according to the findings from the interview, the participants, especially in the science program and language program, evinced that they made use of the direct tools such as flashcards and note-taking. Concerning the learning context of the science program and language program students, they have less exposure to English use compared to English program students. As a result, science-program students and language-program students might attempt to create more opportunities to engage with English vocabulary as much as possible.

5.1.2 VLS Use in Different Programs of the Study

In response to research question 2, the analysis of the current finding showed that the participants in the English program outperformed the participants in the science and language program in all vocabulary learning strategies. These findings are in line with the previous research work, which reported significant differences in the use of VLSs across academic majors (Bernardo & Gonzales, 2009; Boonnoon, 2019). These can be explained by the disparity between the learning context of the three study programs.

Regarding English-program students, their learning contexts provide significant factors contributing to greater exposure to the English language. More precisely, there are additional chances for students in the study program to utilize the English language due to the instruction conducted within the program. In the learning and

teaching process of the English program, several subjects are mainly instructed in the English language. Moreover, with the use of authentic textbooks, the students have to deal with natural language that native speakers employed in real contexts. Besides, the circumstance, including native English speaking teachers and foreign teachers from various nationalities and cultures, embolden English-program students to encounter meaningfully conversational interaction when negotiating for meaning in the classroom. However, English-program students are EFL learners occupying English to learn English. As such, the students in the English program need to strive in their learning contexts since more exposure means more chances to undergo with vocabulary problems. As a result, they resort to more vocabulary learning strategies than other programs. For instance, the use of asking teachers could help learners obtain clearer comprehension of the word's meaning appearing in a real context. The qualitative finding of the current study can support this claim:

“When I struggle with any unknown words, especially in a science class, I ask my English teacher for a word's meaning, hints, and synonyms. They help me better understand the word and the content.” (Student 10)

Of the quantitative findings obtained from the questionnaire, the results showed that the vocabulary strategy use by the participants in the science program and language program were similar. The findings in this study were contrary to Phonhan (2016), who reported a non-significant difference in the use of vocabulary learning strategies between fields of study. This phenomenon can also be explained by the learning context of the participants in these programs. Specifically, science-program students and language-program students are EFL learners, but they make use of their native language in order to learn English. In other words, the students in both science and language programs use Thai to learn English. Such context creates less English language exposure for the students in both learning programs of study.

5.1.3 The Relationship between Vocabulary Learning Strategies

The correlational analysis also revealed a significantly positive relationship between strategic vocabulary learning, namely determination strategies (DET), social strategies (SOC), memory strategies (MEM), cognitive strategies (COG), metacognitive strategies (MET). As shown, all strategies presented a moderate to a high degree of

correlation. In other words, the results showed that the vocabulary learning strategies were highly interrelated. This indicates that each strategy is closely related when the participants are learning vocabulary. This also affirms the finding of the previous study that the use of vocabulary learning strategies should be employed as a combination rather than in isolation (Nie, 2017). Indeed, concerning the highest degree of correlation, MEM and COG were highly interconnected. This result suggests that the strategies of memorization seem to be a foundation for other strategic vocabulary learning. Under other conditions, the correlation between DET and SOC showed the least degree in a relationship. The explanation of this finding can be because of the different characteristics of the two strategies. That is, DET or determination strategy is a strategy that occurs when learners discover the meaning of an unknown word alone. On the other hand, SOC or social strategies rely on interacting with other people to obtain and retain vocabulary. However, most strategies were interrelated with a significantly positive relationship. These findings imply that the use of all categories of vocabulary learning strategies can be employed separately.

5.2 Conclusion of the current study

The current study investigates the vocabulary learning strategies in Thai high school learners and see whether there is any difference between learning programs. The results showed that Thai high school participants used the determination strategies the most, followed by metacognitive strategies, and social strategies and cognitive strategies. By contrast, the least frequently used strategy was the memory category. Indeed, the findings indicated that Thai high school participants used vocabulary learning strategies depending on the learning conditions and context. The qualitative findings also evinced the variety of vocabulary learning strategies with numerous degrees of strategy use. The current study is consistent with previous studies that choices of strategy use relate to the conditions of vocabulary learning (Fan, 2003; Kongthong, 2007; Pookcharoen, 2011; Komol & Sripetpun, 2011; Nirattisai & Chiramanee, 2014; Rojananak & Vitayapirak, 2015; Panduangkaew, 2018).

The findings of this study also showed that English-program participants used a broader range of vocabulary learning strategies and, to a greater extent of strategy use

compared to the science program and language program due to the conditions of learning. However, the statistical analysis revealed that there was no significant difference between the science program and the language program. Indeed, the learning condition and language exposure to language use indicates the likeness of the vocabulary learning strategy use between the science-program participants and their language program counterparts. To conclude, the current study provided a clearer picture of the interrelatedness of vocabulary learning strategy use, at least in a Thai high school EFL context.

5.3 Pedagogical Implication

The implications drawn from this study are that the English language teachers should promote all vocabulary learning strategies and raise awareness of the importance of vocabulary learning strategies. With more emphasis on strategy training, teachers can also encourage the students to employ strategies more productively. Regarding to the findings in this study, strategy training should be done by the awareness of different learning contexts. Notably, the students in different learning contexts need different vocabulary learning strategies appropriate to their learning styles when dealing with vocabulary.

Concerning vocabulary learning strategies training, all strategies should be stressed since the findings in this study revealed a high relationship between strategies. Moreover, with a strong relationship between the strategies, vocabulary learning strategies should be instructed as a combination rather than emphasizing a specific strategy.

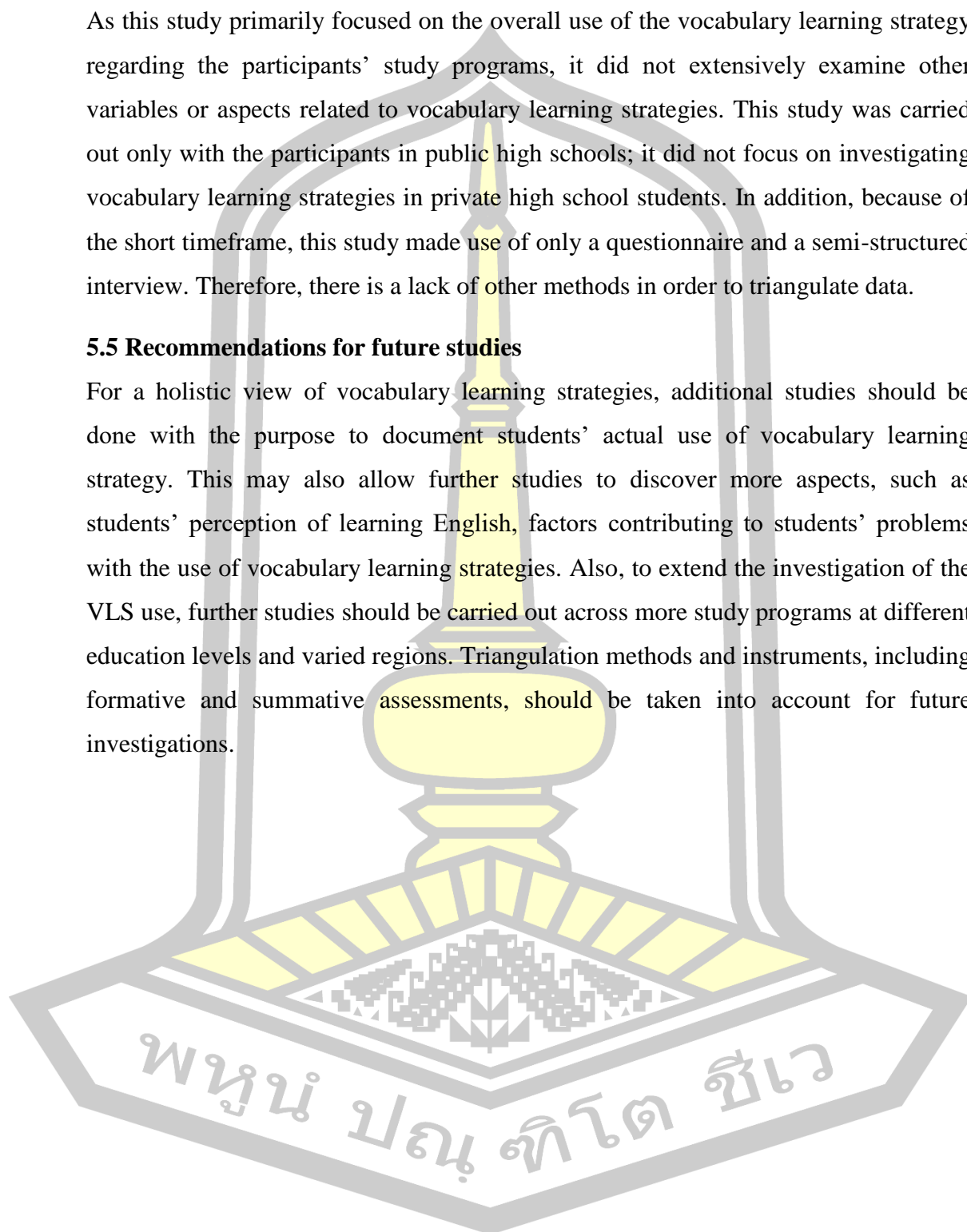
Language learners should also make use of English language exposure as much as possible since more exposure to the English language can create more opportunities to seek out vocabulary learning strategies that suit individuals' learning styles. Furthermore, language learners should confident and optimistic about trying out the vocabulary learning strategies in order to see how useful and effective strategies are regarding learners' learning styles and preferences.

5.4 Limitations for the study

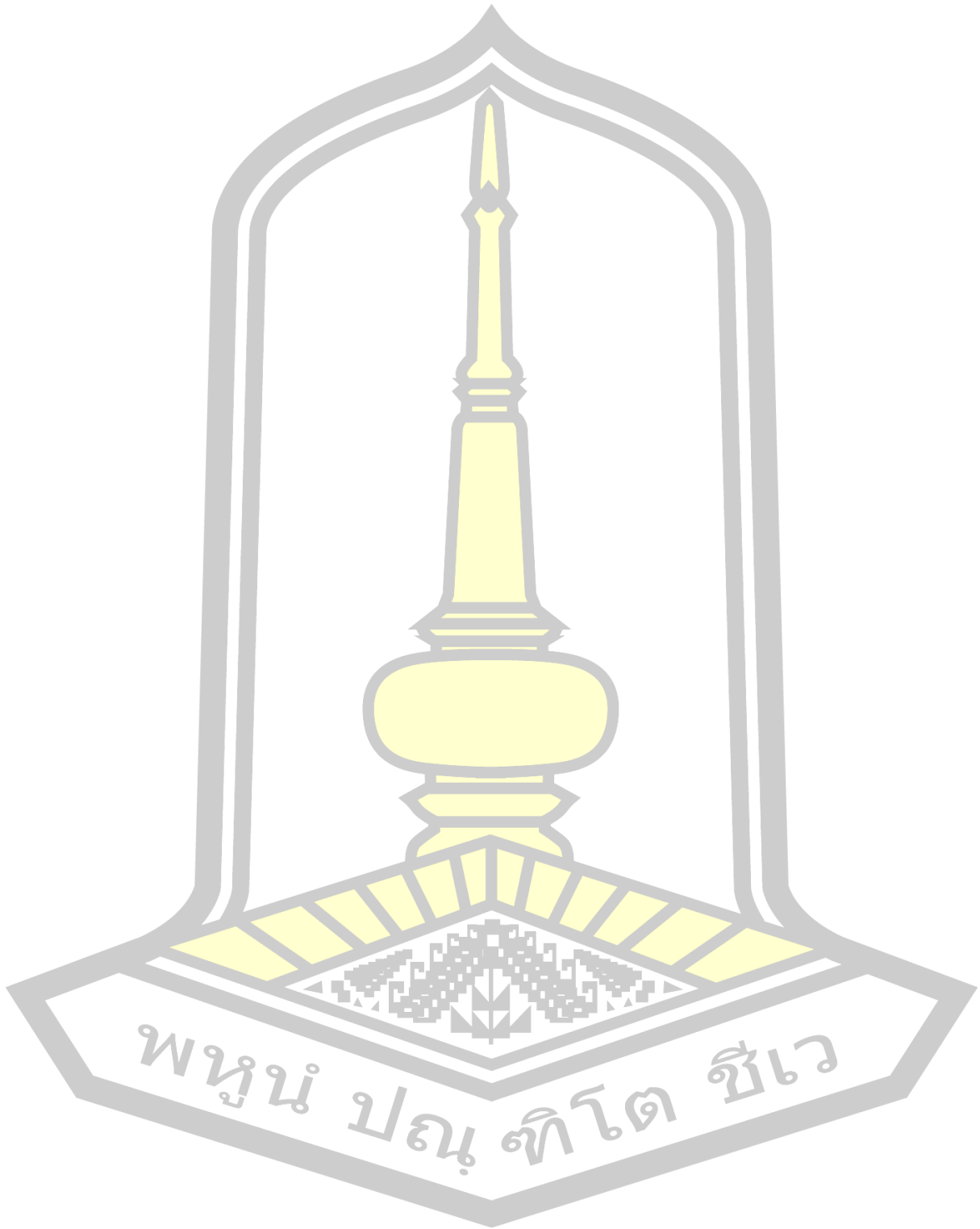
As this study primarily focused on the overall use of the vocabulary learning strategy regarding the participants' study programs, it did not extensively examine other variables or aspects related to vocabulary learning strategies. This study was carried out only with the participants in public high schools; it did not focus on investigating vocabulary learning strategies in private high school students. In addition, because of the short timeframe, this study made use of only a questionnaire and a semi-structured interview. Therefore, there is a lack of other methods in order to triangulate data.

5.5 Recommendations for future studies

For a holistic view of vocabulary learning strategies, additional studies should be done with the purpose to document students' actual use of vocabulary learning strategy. This may also allow further studies to discover more aspects, such as students' perception of learning English, factors contributing to students' problems with the use of vocabulary learning strategies. Also, to extend the investigation of the VLS use, further studies should be carried out across more study programs at different education levels and varied regions. Triangulation methods and instruments, including formative and summative assessments, should be taken into account for future investigations.



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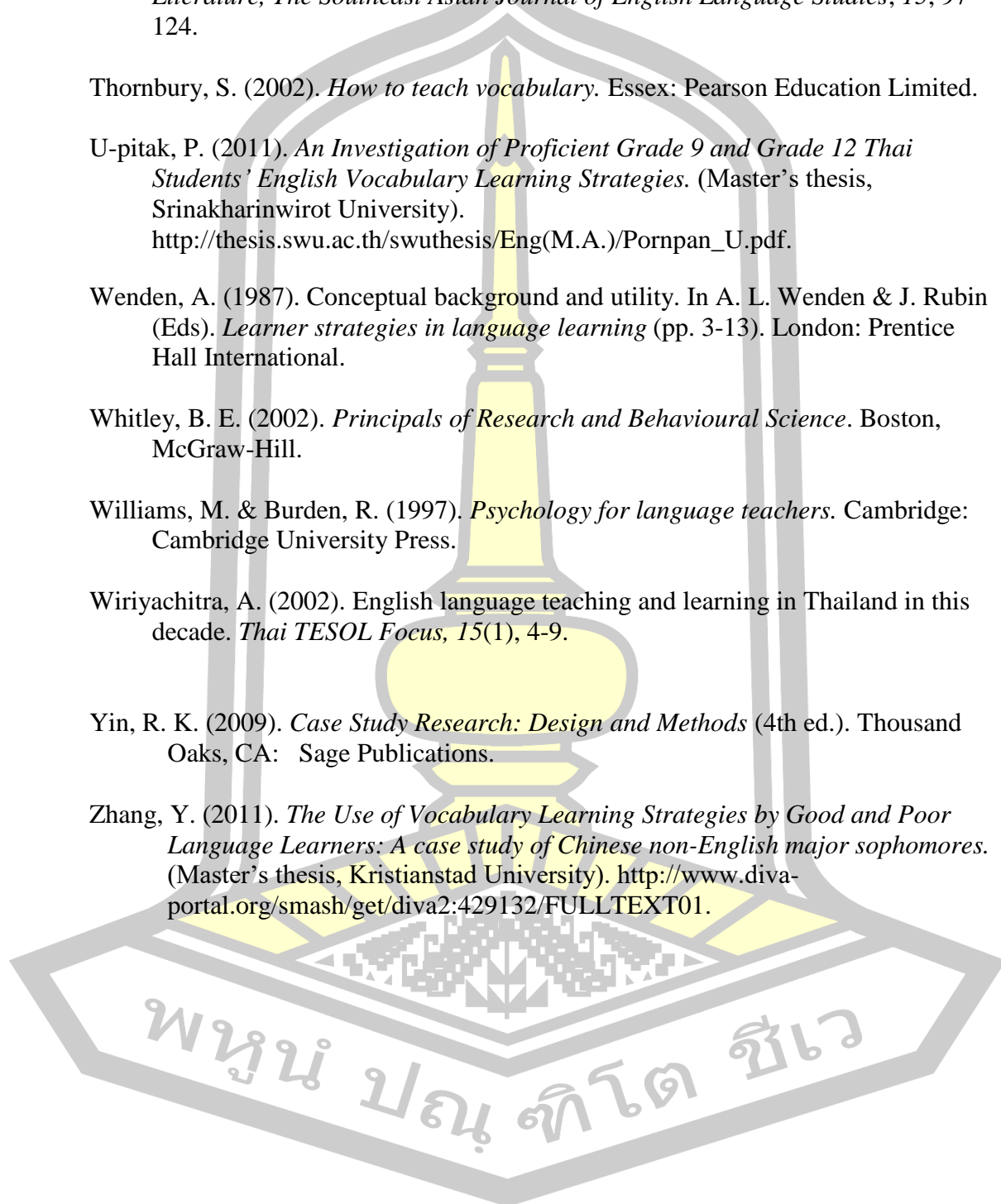
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APPENDIX

APPENDIX A: Vocabulary Learning Strategies Questionnaire (Thai version)

แบบสอบถาม

เรื่อง วิธีการเรียนรู้คำศัพท์ภาษาอังกฤษของนักเรียนมัธยมศึกษาตอนปลาย

แบบสอบถามชุดนี้มีวัตถุประสงค์เพื่อรวบรวมข้อมูลเกี่ยวกับกลวิธีต่างๆ ในการเรียนรู้คำศัพท์ภาษาอังกฤษ โดยผลจากการศึกษาจะเป็นประโยชน์ต่อการพัฒนาการเรียนการสอนวิชา ภาษาอังกฤษ คำตอบทุกข้อในแบบสอบถามชุดนี้จะไม่ได้รับการเปิดเผยแก่บุคคลอื่นแต่อย่างใด

แบบสอบถามชุดนี้แบ่งออกเป็น 2 ส่วน กรุณาตอบคำถามทุกข้อ

ส่วนที่ 1 ข้อมูลส่วนตัวเกี่ยวกับผู้ตอบ

ส่วนที่ 2 คำถามเกี่ยวกับกลวิธีการเรียนคำศัพท์ภาษาอังกฤษ จำนวน 47 ข้อ

ส่วนที่ 1: ข้อมูลส่วนตัว

- 1.1 เพศ ชาย หญิง อื่นๆ
- 1.2 อายุ 15 ปี 16 ปี 17 ปี 18 ปี
- 1.3 หลักสูตร แผนการเรียนวิทยาศาสตร์-คณิตศาสตร์
 แผนการเรียนศิลป์-ภาษา
 โครงการห้องเรียนพิเศษฯ)English Program(
- 1.4 ระดับชั้น ม.4 ม.5 ม.6
- 1.5 ระดับผลการเรียนเฉลี่ยสะสม 3.50 – 4.00 3.00 – 3.49
 2.50 – 2.99 2.00 – 2.49
 ต่ำกว่า 2.00
- 1.6 ประสบการณ์การใช้ชีวิตในต่างประเทศ ไม่มี มี
- 1.7 จากข้อ 1.6 ถ้าตอบ ‘มี’ กรุณาระบุระยะเวลา น้อยกว่า 1 ปี
 1-2 ปี
 3-4 ปี
 มากกว่า 4 ปี

พหุ ประถมศึกษา

ส่วนที่ 2: ข้อความต่อไปนี้เป็นคำถามเกี่ยวกับกลวิธีที่นักเรียนใช้เรียนรู้คำศัพท์ภาษาอังกฤษ

(ให้นักเรียนทำเครื่องหมาย)✓ (ในช่องที่ตรงกับการใช้กลวิธีการเรียนรู้คำศัพท์ภาษาอังกฤษของนักเรียน

- 0 หมายถึง ไม่เคยใช้เลย คิดเป็นร้อยละ 0(
 1 หมายถึง ใช้น้อยมาก)คิดเป็นร้อยละ 20(
 2 หมายถึง ใช้น้อย)คิดเป็นร้อยละ 40(
 3 หมายถึง ใช้น้อยมาก)คิดเป็นร้อยละ 60(
 4 หมายถึง ใช้น้อยมาก)คิดเป็นร้อยละ 80(
 5 หมายถึง ใช้น้อยที่สุด)คิดเป็นร้อยละ 100(

ข้อ	ประเด็น	ระดับความถี่ในการปฏิบัติ					
		0	1	2	3	4	5
1. กลวิธีการหาความหมายของคำศัพท์ภาษาอังกฤษ							
เมื่อเจอคำศัพท์ภาษาอังกฤษที่ฉันไม่รู้ความหมาย ฉันมักจะ...							
1.1	ศึกษาชนิดของคำนั้นว่าเป็น คำกริยา คำนาม หรือคำคุณศัพท์ เป็นต้น						
1.2	คาดเดาความหมายจากโครงสร้างของการสร้างคำ prefixes, suffixes, roots เช่น im + possible = impossible organize + tion = organization						
1.3	ศึกษาว่าคำศัพท์นั้นมีคำที่เป็นภาษาไทยหรือไม่ เช่น football = ฟุตบอล						
1.4	คาดเดาความหมายจากรูปภาพหรือสัญลักษณ์						
1.5	คาดเดาความหมายจากบริบทหรือข้อความที่อยู่ใกล้เคียง						
1.6	ใช้พจนานุกรม ภาษาอังกฤษ - ภาษาไทย						
1.7	ใช้พจนานุกรม ภาษาอังกฤษ - ภาษาอังกฤษ						
1.8	ถามความหมายภาษาไทยจากอาจารย์ผู้สอน						
1.9	ให้อาจารย์ผู้สอนยกตัวอย่างประโยคที่มีการใช้คำศัพท์นั้น						
1.10	ให้อาจารย์ผู้สอนอธิบายเพิ่มเติมหรือบอกคำอื่นที่มีความหมายเหมือนกัน						
1.11	ถามความหมายภาษาไทยจากเพื่อนร่วมชั้นเรียน						
2. กลวิธีการจดจำความหมายและเพิ่มพูนคำศัพท์ภาษาอังกฤษ							
เมื่อต้องจำคำศัพท์ที่ได้เรียนรู้มาหรือเพิ่มพูนคำศัพท์ภาษาอังกฤษ ฉันมักจะ...							
2.1	ศึกษาคำศัพท์ภาษาอังกฤษและฝึกฝนกับเพื่อนร่วมชั้นเรียน ผ่านกิจกรรมในชั้นเรียน (กิจกรรม) (คู่หรือกลุ่ม)						
2.2	ถามอาจารย์ผู้สอนเพื่อตรวจสอบความถูกต้องของความหมายของคำศัพท์						
2.3	พูดคุยกับชาวต่างชาติ						
2.4	วาดภาพเพื่อช่วยให้จำได้						
2.5	สร้างความหมายของคำศัพท์ภาษาอังกฤษเป็นมโนภาพ						
2.6	เชื่อมโยงคำศัพท์ภาษาอังกฤษกับประสบการณ์ส่วนตัวของตนเอง						
2.7	เชื่อมโยงกับคำศัพท์อื่นที่มีความสัมพันธ์กัน เช่น - สัตว์ประเภทเดียวกัน เช่น horse (ม้า), donkey(ลา) , mule(ล่อ) - ผลไม้ที่คล้ายคลึงกัน เช่น apple (แอปเปิล), orange(ส้ม) , peach(พีช)						
2.8	เชื่อมโยงคำศัพท์กับคำศัพท์คำอื่นที่มีความหมายเหมือน (synonym) หรือตรงข้ามกัน (antonym)						
2.9	จดจำคำศัพท์โดยใช้แผนภูมิความคิด (mapping)						
2.10	จดจำคำศัพท์ที่เป็นคำคุณศัพท์ (adjective) ตาม 'ระดับ' ของความหมาย เช่น tiny (เล็กมาก) - small (เล็ก) - large (ใหญ่) - gigantic (มหึมา)						

ข้อ	ประเด็น	ระดับความถี่ในการปฏิบัติ					
		0	1	2	3	4	5
2.11	จดจำคำศัพท์โดยใช้คำคล้องจองทางเสียง (rhymes) เพื่อช่วยในการจดจำ เช่น lace – pace – race - vase						
2.12	จัดกลุ่มคำศัพท์เป็นหมวดหมู่เดียวกัน ซึ่งสามารถเป็นหมวดหมู่แบบใดก็ได้ เช่น - ตามความหมาย เช่น food, animals, vehicles - ตามการสะกดคำ เช่น มีการสะกดเหมือนกันแต่คนละความหมาย (lie-โกหก, lie-นอนราบ) b - ตามชนิดของคำศัพท์ เช่น คำนาม คำกริยา คำคุณศัพท์ เป็นต้น						
2.13	นำคำศัพท์ที่เรียนรู้ใหม่ไปใช้ในการแต่งประโยค						
2.14	นำคำศัพท์ที่จัดกลุ่มไปแต่งเป็นเรื่องราว เพื่อช่วยให้จดจำ						
2.15	ศึกษาการสะกดคำของคำศัพท์						
2.16	ศึกษาวิธีการออกเสียงคำศัพท์						
2.17	ออกเสียงคำศัพท์นั้นออกมา						
2.18	จดจำโดยนึกถึงรูปแบบต่างๆ ของคำศัพท์ เช่น beauty (คำนาม) beautify (คำกริยา) beautiful (คำคุณศัพท์) beautifully (คำกริยาวิเศษณ์)						
2.19	ขีดเส้นใต้ตัวอักษรแรกของคำศัพท์						
2.20	ใช้เสียงของคำนั้นทำให้เกิดภาพ เพื่อช่วยในการจำ (Keyword Method) เช่น school มีเสียงคล้ายกับคำว่า คู หรือ ครู ในภาษาไทย ทำให้นึกถึงภาพที่ครูสอนหนังสืออยู่ที่โรงเรียน (school)						
2.21	จำความหมายของ prefix, suffix, roots (im-, in-, able, -ful, -ment)						
2.22	จำชนิดของคำศัพท์นั้น (คำกริยา, คำนาม, คำคุณศัพท์ เป็นต้น)						
2.23	ถอดความหมายและทำความเข้าใจความหมายของคำ แล้วกล่าวซ้ำด้วยคำอื่นที่มีความหมายคล้ายกัน เพื่อช่วยให้เข้าใจและจดจำ						
2.24	ใช้การเคลื่อนไหวทางร่างกายประกอบการจดจำคำศัพท์						
2.25	ออกเสียงคำศัพท์ซ้ำๆ หลายครั้ง						
2.26	เขียนคำศัพท์ซ้ำๆ หลายครั้ง						
2.27	ทำลิสหรือสมุดบันทึกคำศัพท์ที่ได้เรียนรู้ใหม่						
2.28	ใช้การ์ดคำศัพท์ (flash cards) เพื่อจดจำคำศัพท์						
2.29	จดบันทึกหรือใช้ปากกาเน้นคำศัพท์ใหม่ ขณะเรียนในชั้นเรียน						
2.30	ทบทวนคำศัพท์ที่อยู่ในหนังสือเรียน						
2.31	เขียนคำศัพท์ภาษาอังกฤษบนสิ่งของ						
2.32	ฝึกการฟัง โดยใช้สื่อภาษาอังกฤษ เพลง, ภาพยนตร์, เกม, application, podcast)						
2.33	ฝึกสนทนาเป็นภาษาอังกฤษกับผู้อื่น เช่น เพื่อน อาจารย์ผู้สอนภาษาอังกฤษ คนในครอบครัว หรือชาวต่างชาติ						
2.34	ทำข้อสอบแบบทดสอบที่เกี่ยวกับคำศัพท์/						
2.35	ใช้เวลาว่างในแต่ละวัน ฝึกฝนและทบทวนคำศัพท์						
2.36	เรียนรู้คำศัพท์ใหม่ๆ อย่างสม่ำเสมอ						

ข้อเสนอแนะอื่นๆ

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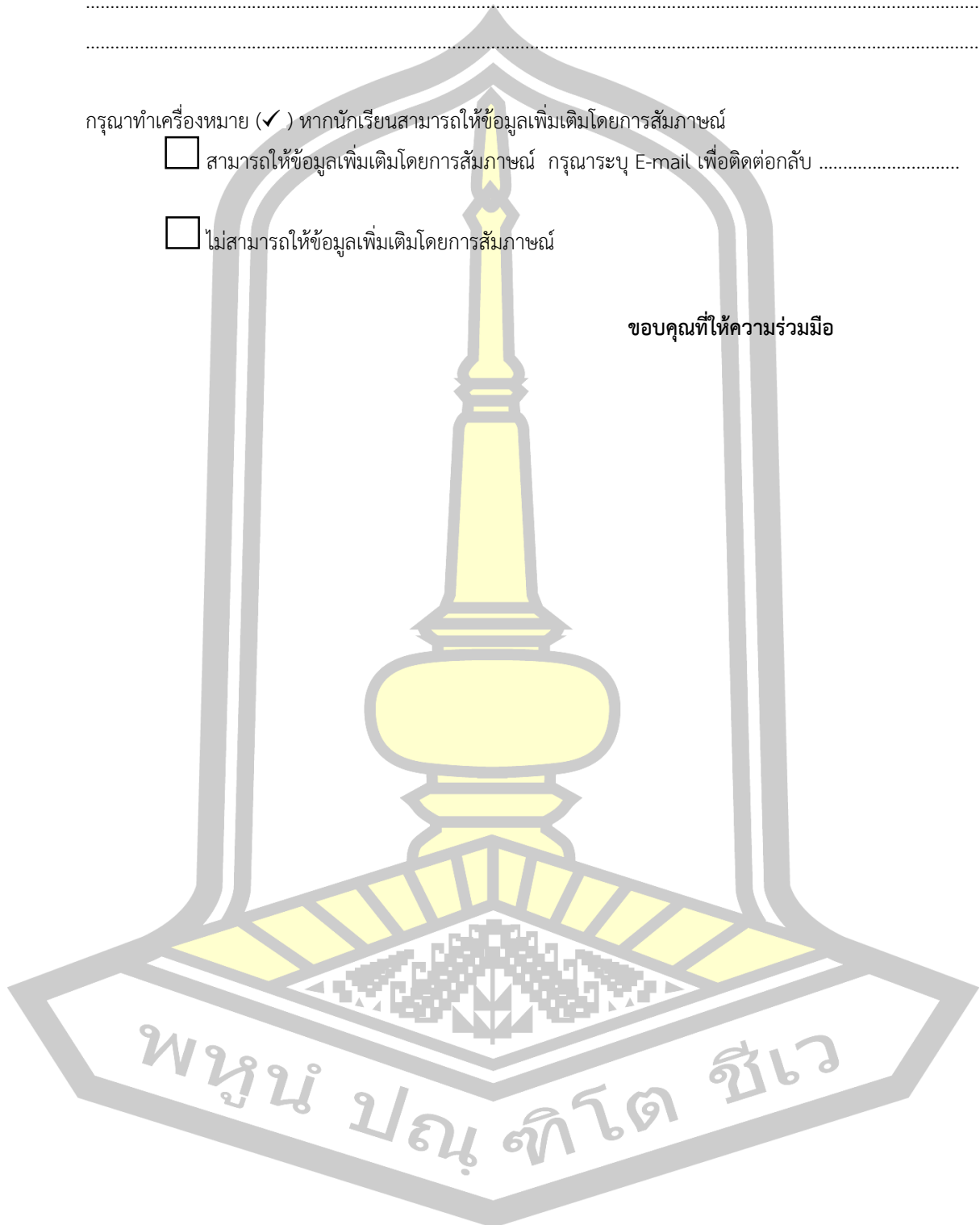
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กรุณาทำเครื่องหมาย (✓) หากนักเรียนสามารถให้ข้อมูลเพิ่มเติมโดยการสัมภาษณ์

สามารถให้ข้อมูลเพิ่มเติมโดยการสัมภาษณ์ กรุณาระบุ E-mail เพื่อติดต่อกลับ

ไม่สามารถให้ข้อมูลเพิ่มเติมโดยการสัมภาษณ์

ขอบคุณที่ให้ความร่วมมือ



APPENDIX B: Vocabulary Learning Strategies Questionnaire (English version)

The purpose of this questionnaire is to gather the information about vocabulary learning strategies which can contribute to an English language instruction. Every answer will be confidential.

The questionnaire consists of 2 sections as follow:

Section 1 : Personal information

Section 2 : The questions about vocabulary learning strategies (47 items)

Section 1: Personal information

- 1.1 Gender** Male Female Others
- 1.2 Age (years old)** 15 16 17 18
- 1.3 Study program:**
- Science-Mathematics
- Languages
- English Program
- 1.4 Level of study** Grade 10 Grade 11 Grade 12
- 1.5 GPA**
- 3.50 – 4.00 3.00 – 3.49
- 2.50 – 2.99 2.00 – 2.49
- lower than 2.00
- 1.6 Oversea experience** No Yes
- 1.7 If 'Yes' from 1.6, please tell the length of your stay**
- less than a year
- 1-2 years
- 3-4 years
- More than 4 years

พหุบัณฑิต ชีวะ

Section 2: Please mark (✓) on each box which is closest to your opinion0 means that you never use the strategy which is described in the statement (0%)1 means that you rarely use the strategy which is described in the statement (20%)2 means that you sometimes use the strategy which is described in the statement less than half of the time (40%)3 means that you often use the strategy which is described more than half the time (60%)4 means that you usually use the strategy which is described in the statement (80%)5 means that you always use the strategy which is described in the statement (100%)

Item	Strategies	Level of strategy use					
		0	1	2	3	4	5
1. Discovery strategies							
When I find a new English word that I don't know, I ...							
1.1	Analyse part of speech such as verb, noun, adjective, etc.						
1.2	Analyse affixes and roots <i>example</i> im + possible = impossible color + ful = colorful						
1.3	Check if the word is also a Thai word <i>example</i> football = ฟุตบอล						
1.4	Use any pictures or signs to help me guess						
1.5	Guess from context						
1.6	Use an English-Thai dictionary						
1.7	Use an English-English dictionary						
1.8	Ask the teacher for L1 translation						
1.9	Ask teacher for a sentence including the new word						
1.10	Ask teacher for paraphrase or synonym of the new word						
1.11	Ask my classmates for the meaning						
2.1	Study and practice the word with my classmates						
2.2	Ask the teacher to check my definition						
2.3	Interact with native speakers						
2.4	Draw a picture of the word to help remember it						
2.5	Make a mental image of the word's meaning						
2.6	Connect the word to a personal experience						
2.7	Associate the word with its coordinates						
2.8	Connect the word to its synonyms and antonyms						
2.9	Use semantic maps						
2.10	Use 'scales' for gradable adjectives <i>example</i> tiny-small-large-gigantic						

Item	Strategies	Level of strategy use					
		0	1	2	3	4	5
2.11	Use rhymes to memorize the words <i>example</i> lace – pace – race - vase						
2.12	Group words together to study them						
2.13	Use new words in sentences						
2.14	Group words together within a story						
2.15	Study the spelling of a new word						
2.16	Study the sound of a word						
2.17	Say the new words aloud when studying						
2.18	Imagine word form						
2.19	Underline or highlight initial letter of the word in order to help remember						
2.20	Use Keyword Method						
2.21	Remember the meaning of affixes and roots						
2.22	Remember part of speech of the word						
2.23	Paraphrase the word's meaning						
2.24	Use physical action when learning a word						
2.25	Repeat the words aloud many times						
2.26	Write the words many times						
2.27	Make a list of new words or keep a vocabulary notebook						
2.28	Use flashcards to record new words						
2.29	Take note or highlight new words in class						
2.30	Use vocabulary section in textbooks						
2.31	Put English labels on physical objects						
2.32	Use English-language media (songs, movies, games, application, podcast)						
2.33	Practice speaking with other people						
2.34	Test myself with word tests						
2.35	Use spaced word practice						
2.36	Continue studying new word overtime						

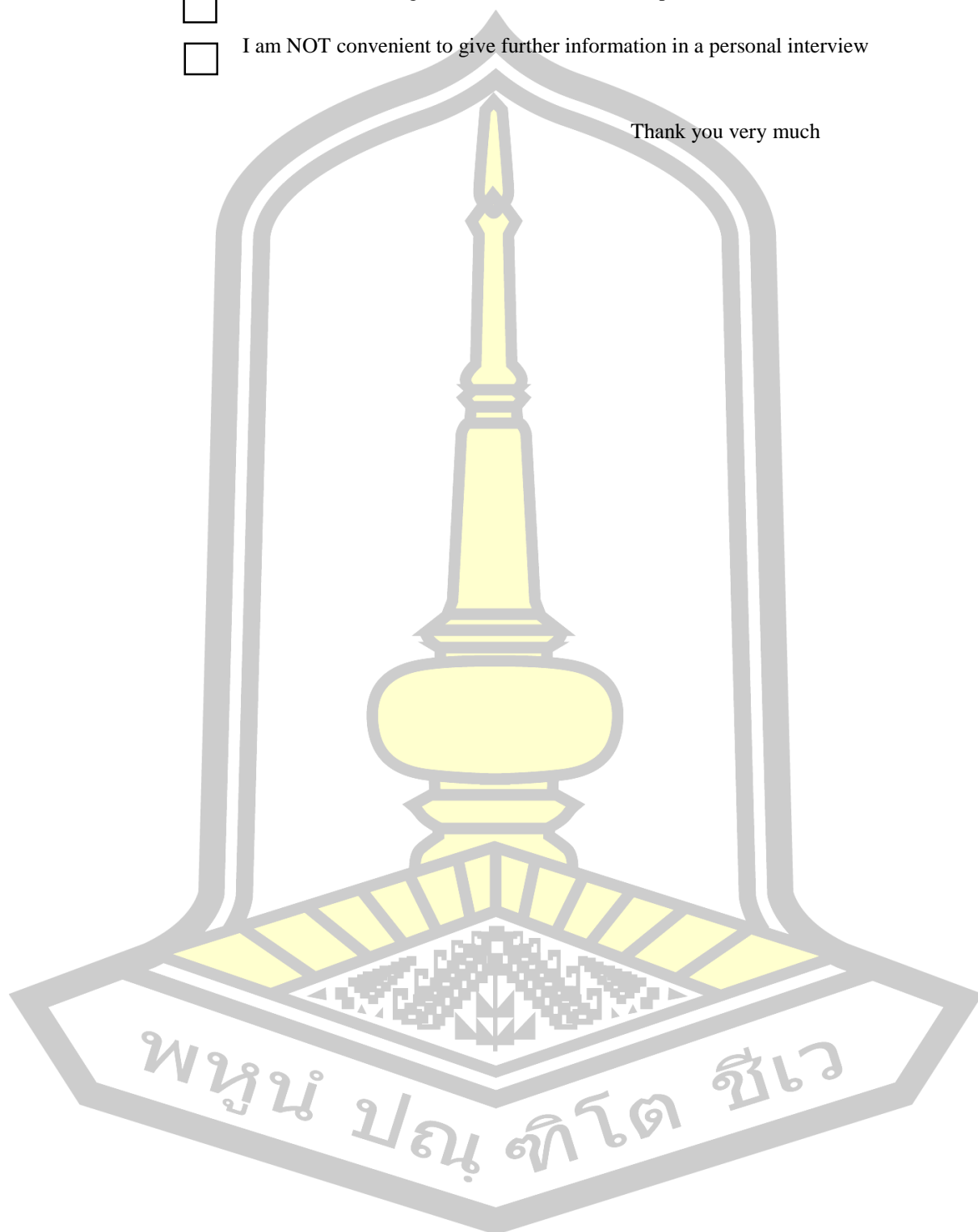
Comments

.....

Please mark (✓) if you are convenient to give further information in a personal interview.

- I am convenient to give further information in a personal interview
- I am NOT convenient to give further information in a personal interview

Thank you very much



APPENDIX C: Guideline for a semi-structured interview (Thai version)

1. ชื่อ-นามสกุล
2. นักเรียนได้เรียนภาษาอังกฤษกี่ชั่วโมงต่อสัปดาห์ ที่โรงเรียน
3. จากคำถามข้อที่2 คิดว่าจำนวนชั่วโมงที่เรียนภาษาอังกฤษนั้นมีความเพียงพอหรือไม่ อย่างไร
4. ในระดับมัธยมศึกษาตอนปลาย นักเรียนคิดว่าภาษาอังกฤษมีความสำคัญต่อชีวิตประจำวันหรือไม่
5. ภาษาอังกฤษมีความสำคัญต่ออนาคตของนักเรียนอย่างไร
6. อะไรที่เป็นสิ่งที่ยากในการเรียนภาษาอังกฤษของนักเรียน
7. สิ่งใดที่นักเรียนคิดว่าเป็นองค์ประกอบที่จำเป็นในการเรียนภาษาอังกฤษ
8. นักเรียนคิดว่าตนเองมีความรู้ด้านคำศัพท์อยู่ในระดับใด 1 (น้อยที่สุด)-10 (มากที่สุด)
9. นักเรียนมักจะทำสิ่งใดเพื่อช่วยในการค้นคว้าความหมายของคำศัพท์ภาษาอังกฤษ โดยเฉพาะเมื่อนักเรียนอยู่ในชั้นเรียน
10. นักเรียนมักจะทำสิ่งใดเพื่อช่วยในการค้นคว้าความหมายของคำศัพท์ภาษาอังกฤษ โดยเฉพาะเมื่อนักเรียนอยู่นอกชั้นเรียน
11. นักเรียนมักจะทำสิ่งใดเพื่อช่วยในการจดจำความหมายของคำศัพท์ภาษาอังกฤษใหม่ที่นักเรียนได้เรียน โดยเฉพาะเมื่อนักเรียนอยู่ในชั้นเรียน
12. จากข้อ 11 เมื่อใช้วิธีการดังกล่าวแล้วได้ผลดีมากน้อยเพียงใด
13. นักเรียนมักจะทำสิ่งใดเพื่อช่วยในการจดจำความหมายของคำศัพท์ภาษาอังกฤษใหม่ที่นักเรียนได้เรียน โดยเฉพาะเมื่อนักเรียนอยู่นอกชั้นเรียน
14. นักเรียนมักจะทำสิ่งใดในชั้นเรียน เพื่อเป็นการเพิ่มพูนคำศัพท์ภาษาอังกฤษ
15. นักเรียนมักจะทำสิ่งใดนอกชั้นเรียน เพื่อเป็นการเพิ่มพูนคำศัพท์ภาษาอังกฤษ
16. นักเรียนนำเทคนิคต่างๆ ไปใช้ในการเรียนรู้คำศัพท์ภาษาอังกฤษอย่างไร
17. นักเรียนมีข้อคิดเห็นต่อการเรียนคำศัพท์ภาษาอังกฤษชั้นเรียนของตนเองหรือไม่/ อย่างไร

APPENDIX D: Guideline for a semi-structured interview (English version)

1. What is your name?
2. How many hours a week do you study English in the classroom?
3. According to question No. 2, do you think it is enough?
4. As a high school student, how is English important in your daily life?
5. How is English important for your future?
6. What do you think is very difficult for you in learning English?
7. What language element do you think is necessary for good listening, speaking, reading, or writing English?
8. What level of your vocabulary knowledge do you think you are at?
9. What do you like to do to help you discover the meanings of English vocabulary, especially when in class?
10. What do you like to do to help you discover the meanings of English vocabulary, especially when outside class?
11. What do you like to do to help you retain the newly-learned English vocabulary, especially when in class?
12. According to question No. 10, How is the consequence of using the mentioned strategy?
13. What do you like to do to help you retain the meanings of English vocabulary, especially when outside class?
14. What do you like to do to expand English vocabulary when in class?
15. What do you like to do to expand your vocabulary, especially when outside class?
16. How do you develop a variety of techniques for your vocabulary learning?
17. Do you have any comments on vocabulary learning in your present classroom?

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APPENDIX E: Interview transcription (English version)

Determination strategies

Study programs	VLSs
Science	<ul style="list-style-type: none"> • Using an online dictionary is very convenient. I use it because it does not take a long time to search the meaning. (S1) • I use an online dictionary on my cell phone just because it is easy to access and get what I want. (S2) • I mostly use a bilingual dictionary and an online dictionary when I want to know the meaning because it is convenient. (S3) • I always use an online dictionary (Google translation, Longdo) to find the meaning in Thai because it is very easy and fast to access. (S4) • It is very easy and fast when I find the meaning of an unknown word by using an online dictionary. (S5) • I use an online dictionary in order to find the meaning of the word because it is quick to get what I want, and it is also convenient for me. (S6) • I use an online dictionary on my cell phone (Longdo) because it provides L1 translation and synonyms which are very useful. I also make use of a word's contexts and sentence structures to help me guess the meaning of a word. (S7)
Language	<ul style="list-style-type: none"> • Because a cellphone is portable, it is convenient to find the meaning of English vocabulary. (L1) • I usually use an online dictionary on my cell phone, both monolingual and bilingual, because I have my cell phone all the time. (L2) • Because of its convenience, I mostly use an online dictionary to find the meaning. (L3) • I use an online dictionary when I want to find meaning in Thai. (L4) • Contexts of a word are helpful to presume the meaning of a word. (L5) • I guess from the context and its image. They help me guess the meaning of the word. (L6) • I use an online dictionary on my phone. (L7)
English	<ul style="list-style-type: none"> • I use Google translation and an online dictionary on my cell phone because it is very easy and fast. (E1) • I use an online dictionary, and I often guess the word's meaning by guessing from its context. I see it is very helpful. (E2) • I use an online dictionary, and I can also guess from word's affixes and roots. (E3) • Actually, I use an online dictionary, and I also guess from pictures if provided. (E4) • With convenience, I always use an online dictionary. (E5) • I firstly find the meaning of a word by using an online dictionary. (E6) • I usually use an online dictionary. (E7)

Social strategies

Study programs	VLSs
Science	<ul style="list-style-type: none"> • I ask my teacher for the meaning and synonyms of the words, and I ask my friends sometimes. (S1) • I ask my teacher when I do not know the word. (S2) • I prefer asking my friends to my teacher because my teacher does not seem to understand me. (S3) • I like to ask my friends for the meaning if there are any words that I do not know. (S4) • Unfortunately, I cannot get along well with my teacher. So, I prefer asking my classmates. (S5) • I often ask teachers and friends for the meaning and hints of a word. (S7)
Language	<ul style="list-style-type: none"> • I like to ask my friends and my English teacher for the definition and further examples because I feel they are creditable to me. (L1) • I ask my friends and my teachers to give its definition and usage. (L2) • I don't like asking people because I can learn and remember effectively by discovering myself. (L3) • I learn new words by asking friends and teachers in the classroom because I cannot concentrate on the lessons alone. So, I better learn by asking other people. I also talk with my foreign friends. Whenever I see the unknown words, I note them on my cell phone and have foreigners to explain the meaning. I feel much comfortable having friends explain to me, and this strategy always works for me. (L4) • I like to ask teachers and friends. (L5) • I ask the teacher for the meaning of an unknown word. (L6)
English	<ul style="list-style-type: none"> • When I struggle with any unknown words, especially in a science class, I ask my English teacher for a word's meaning, hints, and synonyms. They help me better understand the word and the content. (E1) • I ask my teacher for a meaning of a word. (E2) • When in a classroom, I ask my teacher for a meaning of a word. (E3) • I can trust my English teacher for the meaning of a word. (E4) • I often ask my teacher and friends when I study, and I do not know the meaning. (E5) • I ask my English teacher for the meaning, hints, and synonyms. (E6) • I ask my classmates and teachers for the meaning. (E7)

Memory strategies

Study programs	VLSs
Science	<ul style="list-style-type: none"> • I try to use sounds and images to help me remember. For example, the word “Ant” – I try to imagine an ant whose head looks like the shape of the alphabet A- in the word “ant”. It is quite complicated but very helpful to me. I also study its pronunciation. I remember vocabulary by mapping, grouping. I always do mapping and grouping because it helps me recognize and connect to other related words as well. (S3) • I say the word aloud and think about the image of a word in order to remember the meaning. I group words in the same categories. I also use the words in sentences. (S7)
Language	<ul style="list-style-type: none"> • I draw pictures to help me remember. In my opinion, these strategies suit me well, and they are very helpful to me. (L1) • I sort the vocabulary by its categories. Personally, when I get used to these strategies, they help me a lot, and I can remember the vocabulary well from them, and I can use the vocabulary better in my speaking. (L5) • I use the word in my sentences. I do grouping to help me remember the meaning. I think about the mental images and make stories to help me recognize the meaning. (L6)
English	<ul style="list-style-type: none"> • I make up a story and think real situations containing words to help me recall the meaning. (E2) • I remember from images, letters, positions of the word in a page, alphabetical order. (E3) • I make sentences with learned words. (E4) • I remember its spelling. (E5) • I remember from gesture, repetition because it suits me well. (E6)

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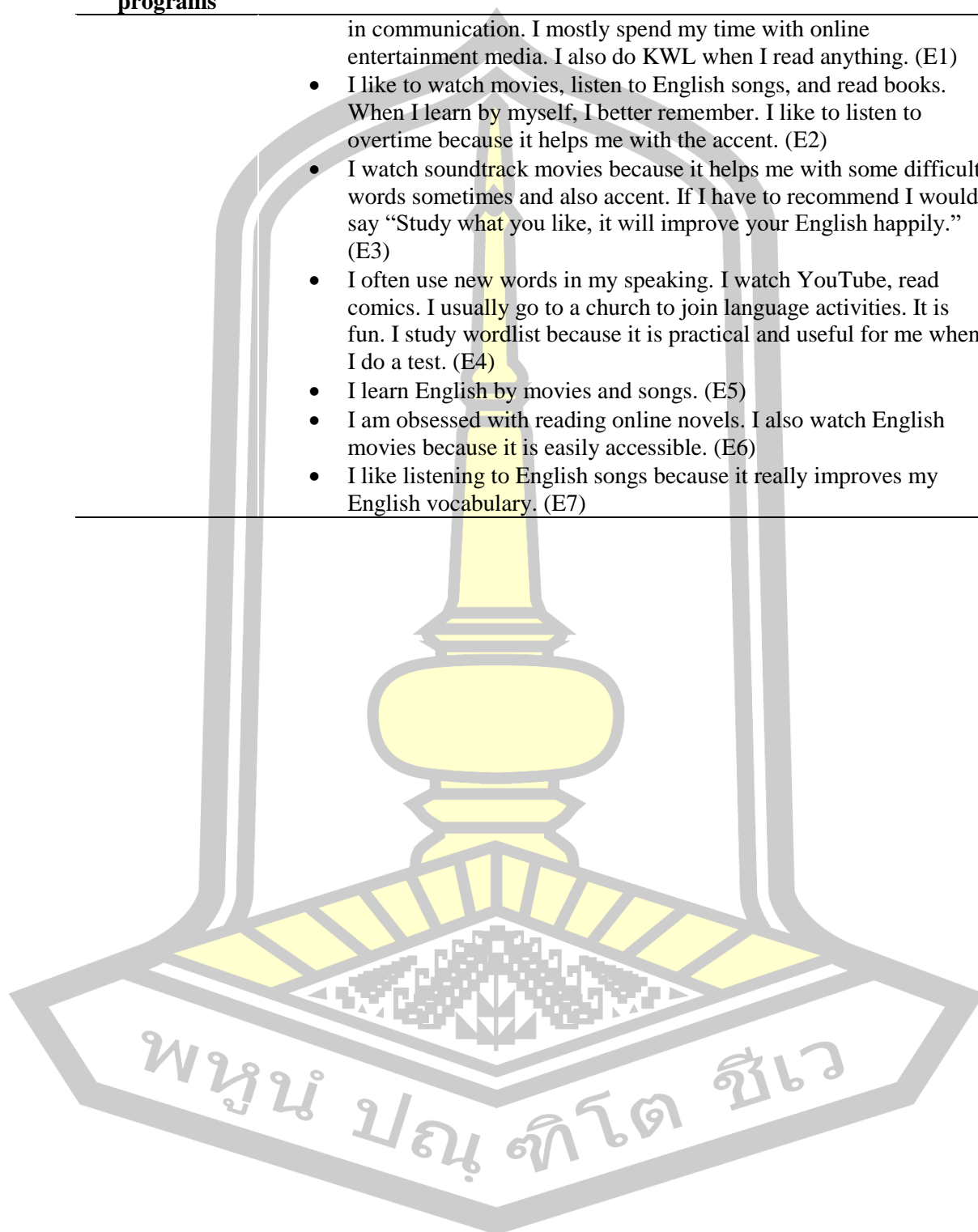
Cognitive strategies

Study programs	VLSs
Science	<ul style="list-style-type: none"> • I often study and revise the learned vocabulary from the student's book. Also, I use a highlighter pen because I think colors work well with my brain, and they help me recognize vocabulary well. It is beneficial to me. (S1) • I also have a mini-book for jotting down the unknown words. I usually repeat the vocabulary to help me remember when I have a vocabulary quiz. I also use a highlighter pen to highlight and revise them in order to help me remember. (S2) • I repeatedly write vocabulary on a paper until I can remember the vocabulary. (S4) • I have just started using flashcards to help me remember because I have seen this strategy from the Internet as a recommendation for students who are interested in the medical field. I also stick a post-it paper on the objects. (S5) • I repeatedly write vocabulary many times in order to remember the words. (S6) • I put a sticker on the word that I see many times. The use of a highlighter pen is wonderful. I use a certain color to emphasize some difficult words that I cannot remember. (S7)
Language	<ul style="list-style-type: none"> • I use post-it papers when studying wordlist, I have found that I can revise better. I also say the vocabulary out many times in order to remember. I like to use a highlighter pen when studying words. (L1) • I just jot down the vocabulary and revise it in order to help me remember. (L2) • I also take note of the vocabulary and its meaning, close the meaning, and revise the definitions. (L3) • I have a vocabulary notebook. I also use a highlighter pen for the vocabulary I do not know (different colours; blue for learned words and pink for unknown words); this is very helpful to me. (L5) • I jot down L1 meaning. I study the words many times in order to revise the meaning. (L6) • I like to take a look and read the words over time to remember from places until I can recall the meaning of the word. (L7)
English	<ul style="list-style-type: none"> • I study Ultimate Vocab for Academics. I have a notebook to jot down, it really helps. (E5)

Metacognitive strategies

Study programs	VLSs
Science	<ul style="list-style-type: none"> • I revise vocabulary once a week. I watch soundtrack movies, online VDOs, and listen to music. When I see unknown words, I jot down and find the meaning later. I also do extensive reading with Harry Potter to improve my English. (S1) • I watch soundtrack movies and listen to music to improve my English skills. (S2) • When I have a free time, I like reading proverbs in my school. In order to learn vocabulary, I often read a dictionary book and study the vocabulary by the alphabet order (A-Z). (S3) • I often watch soundtrack movies and read online novels. I learn vocabulary by these strategies because they are really relaxing, and I am keen on them. I also say the word and try to use vocabulary that I learned in my speaking to practice English. These strategies are helpful to me. (S4) • I like listening to music to improve my English. I use a function on YouTube to show lyrics and learn English vocabulary from it. I also try to practice doing English tests to learn new vocabulary because there are many advanced vocabularies from those tests. (S5) • I always play games, watch movies, watch cartoons, and read rom-com novels in order to acquire new words. These are convenient and very relaxing, I do not need to force myself to do these activities. (S6) • I often study the word whenever I have a free time. I usually listen to music and watch movies to improve my English skills. I also set up my phone in the English language version. I think we should begin learning English in what we like. I also use the words in my speaking with other people. (S7)
Language	<ul style="list-style-type: none"> • In my free time, I always surf the Internet, listen to songs, and notice new words. I like studying English, and I always revise the lessons. (L1) • I watch cartoons, English series, and English movies on Netflix to help me learn and improve my English vocabulary. I watch these because I like entertaining, and I have a passion for learning English with entertainment. In addition, recently, these things are easily accessible and useful for improving English skills. (L2) • I always read books to revise the lessons by myself. I also learn new vocabulary from the Internet, YouTube, VDO, online news about celebrities. I am interested in this entertainment. So, I can learn English vocabulary happily. (L3) • I really love to study English, and I like to speak English with my friends. (L4) • I like watching movies with English subtitles, and I like to use the vocabulary in my speaking. (L5) • I watch English news. (L6) • I watch series and play games to practice English. (L7)
English	<ul style="list-style-type: none"> • I use it (vocabulary) as much as possible in my speaking. I think because it is more practical and useful when I can use vocabulary

Study programs	VLSs
	<p>in communication. I mostly spend my time with online entertainment media. I also do KWL when I read anything. (E1)</p> <ul style="list-style-type: none"> • I like to watch movies, listen to English songs, and read books. When I learn by myself, I better remember. I like to listen to overtime because it helps me with the accent. (E2) • I watch soundtrack movies because it helps me with some difficult words sometimes and also accent. If I have to recommend I would say “Study what you like, it will improve your English happily.” (E3) • I often use new words in my speaking. I watch YouTube, read comics. I usually go to a church to join language activities. It is fun. I study wordlist because it is practical and useful for me when I do a test. (E4) • I learn English by movies and songs. (E5) • I am obsessed with reading online novels. I also watch English movies because it is easily accessible. (E6) • I like listening to English songs because it really improves my English vocabulary. (E7)



BIOGRAPHY

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