AN INVESTIGATION OF SUT STUDENTS' RECEPTIVE KNOWLEDGE OF ENGLISH NOUN SUFFIXES

Jitlada Chuenjundaeng

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การศึกษาความรู้เชิงรับสารเกี่ยวกับนามปัจจัยในภาษาอังกฤษของนักศึกษา มหาวิทยาลัยเทคโนโลยีสุรนารี

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วิทยานิพนธ์นี้เป็นส่วนหนึ่งของการศึกษาตามหลักสูตรปริญญาศิลปศาสตรมหาบัณฑิต
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ปีการศึกษา 2549

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Suranaree University of Technology has approved this thesis submitted in partial fulfillment of the requirements for a Master's Degree.

Thesis Examining Committee

_____

(Dr. Sanooch Segkhoonthod)

Chairperson

_____

(Assoc. Prof. Dr. Jeremy Ward)

Member (Thesis Advisor)

_____

(Dr. Sirinthorn Seepho)

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งานวิจัยนี้มีจุดประสงค์เพื่อศึกษาความรู้เชิงรับสารของคำศัพท์ที่ประกอบด้วยนามปัจจัย 4 ตัวได้แก่ *–tion -er -ment* และ *–ity* การวิจัยนี้ได้ศึกษากลยุทธ์การใช้ส่วนประกอบของคำ ซึ่งถือเป็นกลยุทธ์หนึ่งที่ช่วยให้จำคำศัพท์ได้ กลุ่มตัวอย่างได้แก่นักศึกษาระดับปริญญาตรีจำนวน 167 คนซึ่งกำลังศึกษารายวิชาภาษาอังกฤษ ณ มหาวิทยาลัยเทคโนโลยีสุรนารี เครื่องมือที่ใช้ในการเก็บข้อมูลได้แก่ แบบทดสอบการแปลคำศัพท์ ซึ่งนักศึกษาจะต้องให้ความหมายภาษาไทย (ภาษาที่ 1) แก่คำศัพท์ภาษาอังกฤษ (ภาษาที่ 2) แบบสัมภาษณ์กึ่งโครงสร้างถูกนำมาใช้เพื่อเก็บข้อมูลเพิ่มเติมเกี่ยวกับการจำคำศัพท์ของกลุ่มตัวอย่าง

ผลการศึกษาพบว่ากลุ่มตัวอย่างมีความรู้เชิงรับสารเกี่ยวกับคำศัพท์ที่ประกอบด้วยนามปัจจัยทั้ง 4 ตัวเพียง 13.5% ของคำศัพท์ทั้งหมด 64 คำในแบบทดสอบ ปัจจัยที่มีผลต่อการจำคำศัพท์ที่เป็นไปได้คือ ความถี่ของคำที่กลุ่มตัวอย่างพบในชีวิตประจำวัน แม้กลุ่มตัวอย่างบางคนจะแสดงให้เห็นว่ามีความรู้ภูมิหลังเกี่ยวกับกลยุทธ์การใช้ส่วนประกอบของคำ แต่มีจำนวนน้อยที่ใช้ความรู้นี้ในการตอบคำศัพท์ในแบบทดสอบ ดังนั้นผลการศึกษานี้ไม่สนับสนุนสมมติฐานที่ว่ากลยุทธ์การใช้ส่วนประกอบของคำช่วยให้ผู้เรียนที่มีความรู้คำศัพท์น้อยจำคำศัพท์ที่อยู่ในสกุลเดียวกันได้

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WORD-BUILDING STRATEGY/ RECEPTIVE KNOWLEDGE/
ENGLISH NOUN SUFFIXES

This study aims to investigate the receptive knowledge of words with the four common English noun suffixes *-tion, -er, -ment* and *–ity*. The study researches the use of word-building strategy, which is one of the strategies supposed to help word recognition. The subjects are 167 undergraduate students who are studying in English compulsory courses at Suranaree University of Technology. Their knowledge is measured through translation tests, which require them to give Thai (L1) translation to English words (L2). The semi-structured interview is used for getting more information about how the subjects recognize the tested words.

The results show that the subjects' receptive knowledge of words with the four suffixes is low with only 13.5% knowledge of all 64 tested words. The factor affecting word recognition appears most likely to be the frequency of words the subjects encounter in their daily life. Although some subjects show that they have background knowledge of word-building strategy, few of them use the knowledge to answer the tests. Thus, the results in this study do not support the hypothesis that

word-building strategy helps learners with low vocabulary knowledge to recognize words in the same family.

School of English

Academic Year 2006

Student's Signature _____

Advisor's Signature _____

Co-advisor's Signature _____

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Chapter 1

Introduction

This chapter gives an introduction about the importance of the present study. The topics are background and rationale, purposes of the study, research questions, significance of the study, scope of the study, and definition of terms.

1.1 Background and Rationale

Vocabulary plays an important role in English language study. It is central to language and crucially important for second language (L2) students. The mastery of vocabulary is an essential component of second language acquisition. Wilkins (1972) [online] states that "Without grammar, very little can be conveyed, without vocabulary nothing can be conveyed." Moreover, Meara (1996) points out that there is significant evidence to show that vocabulary skill is very essential and useful to all aspects of L2 proficiency.

Many linguists, then, tried to create a framework in order to explain what knowledge language learners should have in knowing a word completely, both receptively and productively (Richards, 1976; Nation, 1990, 2001). Vocabulary knowledge consists of the spoken form of a word, the written form of a word, the grammatical behavior of a word, the collocational behavior of a word, how frequent the word is, the stylistic register constraints of a word, the conceptual meaning of a word, and the association of word with other related words. However, it is not easy to investigate all types of vocabulary knowledge at the same time.

This study investigated one aspect, the knowledge of derivational morphology. This is a part of grammatical knowledge and I investigated receptively.

Written texts are an important source of learning for university students (Mori and Nagy, 1999). It is necessary for the students to be able to read English texts –especially academic texts. Thus, Thai university students should have as much academic vocabulary as possible in order to help in reading academic texts. The problems could happen when the students read with low vocabulary. As mentioned by Levine and Reves (1998), "lack of adequate vocabulary is one of the obstacles to text comprehension" (p. 302). Although many learning strategies, such as rote memorization, mnemonic devices, keyword technique, inferring meaning from glosses, and guessing meaning from context, are introduced in order to help L2 students acquired words, L2 students still have reading problems when encountering texts outside the class. One way to help students is to motivate them to infer or to find the meaning of the unknown words without direct instruction. Guessing meaning from context, which is not being investigated in this study, is believed to be one effective vocabulary strategy for dealing with unknown words in reading. Students use the information in the context to guess the meaning of the unknown words in order to comprehend the L2 texts. However, there are some weak points about this as a vocabulary learning strategy. Nation (2001, 2005) states some weak points of guessing from context as follows: it is based on the idea of incidental learning. That is, students are supposed to learn new words through an attempt to comprehend the text, not to learn and define only the unknown word. Nation (2001) disputes that incidental learning is an efficient way to acquire vocabulary. Next is that the students need clues – linguistic clues such as the part of speech of word and the conjunction

relationships and background knowledge clues. Other researchers such as Laufer (1989) also mentions that it is very important that the readers should have enough vocabulary that is familiar to them (about 95% of the tokens, i.e. running words in the text) otherwise the guessing may not succeed. On the other hand, inferring the meaning of an unknown word from its word parts, which is under investigation in this study, does not have to rely so much on the understanding of the context.

This research study focused on the strategy of using word parts to infer the meaning of a whole word. In this study we refer to this strategy as "word-building". The impact of word parts and word families is often discussed at the same time. Bauer and Nation (1993) have mentioned that the learners require less effort to learn new word that includes parts, which the learners are familiar, then they can guess the meaning.

The knowledge of word parts and word families may have two positive impacts: one is for remembering words, the other is for inferring the meaning of words in their reading.

As to the first impact, according to Nation (2001, 2005), students can learn unknown words if they recognize the word parts then make use of each part to understand the meaning of the whole. Word-building strategy is used by the students when they recognize the words (see that the new word consists of stem, which is a free form or bound form, and affixes, which are prefixes and/ or suffixes). Then, the students use the information from the headword (stem) and affix (es) to infer the meaning of the whole word (relate the meaning of each word part in order to infer the meaning of the whole word). The knowledge of word parts is claimed to facilitate the recognition of the words with the same stem. (Schmitt and Zimmerman, 2002;

Schmitt, 2000). Schmitt and McCarthy (1997, p. 277) mention that knowing how words are made up "can help students to have at least a receptive knowledge" of the words in the same family. Nattinger (1988, p. 69) states that the impact of word parts is such that "many words built about a particular root are gathered so that the associations among them can be seen. Even though the meanings of these words may be slightly different, clustering them will aid students in remembering their general meaning". Inferring from word parts becomes a strategy for vocabulary learning since it makes learning more successful and decreases the difficulty in vocabulary learning.

Moreover, word-building strategy has an impact on students' reading. The ability to recognize the meaning after seeing the word parts facilitates reading comprehension (Richard and Schmidt: 2002). Paribakht (2004) mentions that L2 students use the grammatical knowledge of inflections and derivations to attack the unknown L2 words in their reading.

Many English books, which are used as materials for English teaching, in Thailand are created under the belief that the strategy of using word parts to infer the meaning helps L2 students decrease the difficulty in vocabulary learning. Many textbooks that Thai high school students use have included word-building strategy in, such as Super Goal (Santos, 2004) and Framework (Mayer, 2004). Sample textbooks that university students use are "An English I Tutorial Book" (Suranaree University of Technology, 1997) for undergraduate students at Suranaree University of Technology, and "English Syntax I" (Banpho, 2000), which is offered to undergraduate students at Rajabhat Institute Thonburi. Both include word parts

study as an important vocabulary skill. The explanation about the word parts is given together with exercises for the students to practice. For reading, the books include a lesson of word parts study in order to help students infer the new words in their reading without instruction from the teacher or the use of dictionary. Sample textbooks are "Systematic Reading I" (Chalermpatarakul, 1996) designed for students at Thammasat University, as well as "Reading Techniques" (Sayankena, 1998), a practice book for EFL beginners at Mahasarakham University, both of which mention that knowing word parts helps students in reading. This is similar to many other commercial books, which are used as a source for vocabulary learning and teaching, for example, "how to Teach Vocabulary" by Thornbury (2002). The book has mentioned word-building strategy as a classroom technique for vocabulary learning and practice. Many other books have mentioned a strategy as an effective strategy to deal with unknown words in reading. The books are, for example "ASAP: Academic skills achievement program" (Linville, 1994), "From Reader to Reading Teacher: Issues and Strategies for Second Language Classrooms" (Aebersold and Field, 1997), "Reading Together: a Reading Activities Text" (Krahnke, 1998), "Reading Matters 2: an Interactive Approach to Reading" (Wholey, 1999), and "Steps to Academic Reading 3: across the board" (Zukowski and Faust, 2002).

The purposes of grouping words into family are for the purpose of teaching and learning vocabulary and estimating the size of vocabulary (not the purpose of this study). Many words, which are built from a particular headword (stem), are grouped into a word family. They usually have closely related meanings. The words can consist of a headword (stem) and affixes (prefix and suffix). For example, the word "walking" consists of a headword *walk* and a morpheme (inflected form) *–ing*.

Or the derived word “unbelievable” has *believe* as a headword and two morphemes *un-* as a prefix, and *–able* as a suffix. A family can have both inflected form and derived form, for example, a headword *approach* with its derivatives *approachable* and *unapproachable*, as well as its inflected forms *approached, approaches, approaching.*

Inflected forms, which are not being investigated in this research study, are suffixes that are added at the end of word according to the rules of syntax. For example, inflected form *-s* for plural and third person singular, *-ed* for the past tense, *-er* and *–est* for comparative and superlative. The inflection is used without changing the word class or the meaning of the word that it is attached to (O’ Grady, Dobrovolsky, and Katamba, 1997; Read, 2000).

Derived forms have affixes, which are added in order to form new words that may or may not change the concepts of word, but usually, change the part of speech. The affix could be a prefix, a morpheme which is put in front of the base, or suffix, a morpheme that is added at the end of the base. This study is interested in the suffix knowledge, especially four noun suffixes, *-er*, *-tion*, *-ment*, and *-ity*. Bauer and Nation (1993) propose useful criteria to grade words based on its frequency, regularity, productivity, and predictability, which I will discuss more in Chapter 3.

Word families also play an important role in making word lists. Word families are used to count words in the Academic Word List (AWL). The AWL was created by Coxhead (2000) by “examining the range and frequency of words outside the first 2,000 most frequently words” (p. 213) from 3.5 million words in academic textbooks. The AWL contains 570 word families which give approximately 10% coverage of the total words-tokens in the textbooks in each four discipline: arts,

commerce, law, and science with a total of 28 subjects areas. Moreover, the list compiles only word families which occur at least in 15 of the 28 subject areas and does not include "technical or specialist words" (Victoria University of Wellington, 2005) [Online]. It is likely that the students who are studying in the four disciplines may encounter words from the AWL in their academic reading. The words are divided into ten rank-ordered sublists from sublist 1 (the most frequent in the corpus) to sublist 10 (the least frequent in the corpus). More than 82% of the words in the list "are of Greek and Latin origin" (Coxhead, 2000, pp. 228-229), indicating that the study of affixes could be useful to the students who are expected to learn words from AWL.

From the four criteria in Bauer and Nation (1993), the researcher also consulted Cambridge Guide to English Usage (2004) dictionary to help with the selection of noun suffixes. The researcher found that the four most frequent noun suffixes are *–er, -ment, -tion,* and *–ity*, respectively. The four noun suffixes are in level 3 and level 4 according to Bauer and Nation (1993). A suffix *–er* is in level 3, which consists of the most frequent and regular derivational suffix. Other suffixes, *-ment , -tion,* and *–ity*, are in level 4, which consists of the frequent, orthographically regular suffixes. The researcher did not investigate suffixes from Bauer and Nation's first two levels since the first level counts each form as a different word (*book* and *books* are not treated as the same family) and level 2 are inflected forms (the suffixes added with grammatical purpose). Levels 5 to 7 comprise the levels of suffixes that are regular but infrequent, or frequent but irregular and classical roots and suffixes, and are not chosen because the rules of building words may be too complex for the

students. After choosing four noun suffixes, the researcher chose words which could be derived by the four noun suffixes from the AWL for the study.

To measure students' suffix knowledge, it is necessary to have an instrument that measures exactly what the students know (headword, suffix, both headword and suffix, or nothing). A translation test was used in this research study in order to measure students' receptive knowledge.

Some interesting studies (Schmitt & Meara, 1997, and Mochizuki & Aizawa, 2000) used different types of test to measure L2 students' affix knowledge but the design of the instruments did not show whether the students really have affix knowledge. Schmitt and Meara's (1997) study examined the Japanese students on their verbal suffixes and word association knowledge. The researchers had the students write as many suffixes as they knew for each given word in order to measure the students' productive knowledge. Then, they asked the students to choose acceptable suffixes for each given word in order to measure their receptive knowledge. The point was discussed more in Chapter 2 about why this test does not seem to measure students' suffix knowledge of the given words. Mochizuki and Aizawa (2000) investigated the order of affix acquisition. They had the students choose the meaning of the prefix from four choices because the prefix could affect the words' meaning; then had the students choose the word class of each given word in order to measure the students' suffix knowledge. They defined the meaning of suffix knowledge as the ability to infer "the meaning of a new word by indicating the word class of the word" (p. 293). The weakness of the definition about suffix knowledge was discussed more in Chapter 2. However, the study by Mochizuki and Aizawa in 2000 presented an interesting claim about affix acquisition by the students in that

"affixes known by more learners are acquired earlier than those known by fewer" (Mochizuki and Aizawa, 2000, p. 279). They found that the knowledge of suffixes (as they define this) correlated to students' vocabulary size.

The researcher in the present study agreed with other studies that word families could help students in expanding vocabulary knowledge and L2 students should gain benefits from the word parts. However, very little has been mentioned about the use of word parts by the students when they studied language on their own out of class. That means the students may or may not recognize the words by parts (but as a whole word). So, it is necessary to know what knowledge the students have at present, and this is the purpose of this study. There is no previous study about receptive knowledge of noun suffixes with Thai undergraduate students. Thus, this study investigated the students' knowledge of four noun suffixes, *–tion, –er, –ment,* and *–ity,* with a specific interest in receptive vocabulary knowledge; also to see the order of the four noun suffixes difficulty of undergraduate students who took English compulsory courses at Suranaree University of Technology. The focus of this investigation was not on any longitudinal students' development, but the current suffix knowledge. The subjects' knowledge was measured by using a translation test. The reasons for choosing a translation test were described in Chapter 3.

1.2 Purposes of the Study

At this stage in the study, the receptive suffix knowledge is generally defined as the students' ability to recognize L2 forms and use word parts (word-building knowledge) to express the meaning of given words in Thai. The students perceive the

L2 form and retrieve the meaning (receptive knowledge). The purposes of this study are threefold:

1) to investigate students' receptive knowledge of noun suffixes generally by examining four examples (*–er, -tion, -ment,* and *–ity*) individually;

2) to investigate whether some noun suffixes are more difficult than others for students or not, and

3) to investigate whether the students use word parts to recognize the word meaning or not.

1.3 Research Questions

1. Do students have receptive knowledge of derived forms with four common noun suffixes *–er, –tion, –ment,* and *–ity*?
2. Is there evidence that some noun suffixes are more difficult than others?
3. Do students recognize derived forms directly or through a process of word-building?

1.4 Significance of the Study

As we saw in section 1.1, many textbooks have exercises based on the idea that word-building is a practical and useful strategy for high school and university students. Thus, to explore the current status of students' noun suffix knowledge helps English teachers to understand whether or not word part strategy plays a role in students' recognition of second language vocabulary. The knowledge of suffix also relates to the students' reading skill since it helps students to expand their vocabulary.

Moreover, this study helps English teachers in making decisions about vocabulary presentation, practice and testing.

1.5 Scope of the Study

This study focuses on students' receptive knowledge of four noun suffixes *–er, -tion, -ment,* and *–ity.* Nouns are selected to investigate because it seems less difficult than adjectives and adverbs (Schmitt and Zimmerman, 2002; Phillips, 1981). Nouns, as well as, verbs, are better learnt than other word classes (Phillips, ibid). However, this study does not focus on verbs since they could be integrated with inflections. Affixes that are added to headword and make inflections normally deal with grammatical purpose rather than the meaning of the whole word and that, nothing much about reading. Moreover, nouns occur frequently in the text (Mason, Stahl, Au, and Herman, 2003). In any language, nouns are the "vast majority of words" (Lewis, 2002, p. 102) meaning that they are the major word class. They "contribute the major content to a message" (Delahunty and Garvey, 1994, p. 110) rather than verbs, adjectives, adverbs, and all function words. Although function words, such as pronouns, articles, wh-words, prepositions, etc., occur more frequently than nouns, they act as a connector that connects the "bricks of content" (Delahunty and Garvey, ibid, p. 143). Function words do not contain the main meaning of message in the communication (in reading).

The study focuses on the investigation of the four high frequency suffixes since it could be complicated to investigate many suffixes at the same time.

1.6 Definition of Terms

Receptive and Productive Knowledge

The receptive knowledge of students concerns the students' knowledge of English noun suffixes that affects their academic reading. The students' receptive suffix knowledge of four common noun suffixes was measured whether the students recognize the meaning (retrieve the meaning) when they see L2 words in the translation test. This is the sense of "knowing" the word as it is used in this study, and which was described by Meara (1990, p. 108) as "… the basic, rock bottom skill on which all the other skills rest, the sine qua non, as it were, of vocabulary skills".

Moreover, students would refer to have receptive knowledge of English noun suffixes when they see that word is made up of parts and they are able to use the meaningful parts to re-express the meaning of the new word.

Order of Suffix Difficulty

The difficulty of noun suffixes is put in an order based on the percentage of suffix correctness that students got from the translation tests. The first suffix in the order is the suffix that most students could not answer. On the other hand, the last suffix indicates that it is the easiest suffix, since more students know it. This order shows the difficulty of a particular suffix at a particular of time. It does not imply anything about the order of suffix acquisition at all.

Headword

A headword, sometimes called base word, is a unit of word that can stand alone and has its own meaning (a free form). Sometimes headword is also a bound form (a unit of word that occurs only with a prefix or suffix).

Headword contains the main meaning of the word. In this study, the headwords are verbs, nouns, and adjectives, which are derived to form nouns after the suffixes are attached to them.

Derived Word

A derived word –which other researchers may call complex word – is a word that consists of headword and suffix (which are *-tion, -er, -ment,* and *-ity* in this study). Suffixes are added in order to change the part of speech of the headword; however, the meaning of the whole word relates to the meaning of the headword.

Noun Suffixes

Noun suffixes are bound morpheme that follow headwords and allocate the new derived words for noun word class. Noun suffixes in the present study are *-tion, -er, -ment,* and *-ity*.

Chapter 2

Related Literature Review

Several researchers became interested in studying the relationship between different types of vocabulary knowledge from the year 1997 until present. This chapter discusses previous research studies that studied several aspects of vocabulary knowledge (all the aspects of vocabulary knowledge are already mentioned in section 1.1). Schmitt and Meara (1997) were the first researchers who used vocabulary knowledge as a framework to study the relationship between two different aspects of vocabulary knowledge, i. e. suffix *-tion* and word association. Other researchers focused on different aspects like vocabulary size—how many words do students know, and depth –how well the students know the words (Nurweni and Read, 1999); vocabulary size and affix knowledge (Mochizuki and Aizawa, 2000); productive derivational knowledge and general language proficiency (Schmitt and Zimmerman, 2002). In this chapter, the previous studies are discussed in terms of vocabulary knowledge, word-building strategy and word recognition, and possible order of suffix difficulty as these relate closely to our research questions.

2.1 Vocabulary Knowledge

This section reviews what the dimensions of vocabulary knowledge are and how the researchers could study on different dimensions. The dimensions of vocabulary knowledge are used to suggest the researchers about how to understand

the construct of vocabulary knowledge. Researchers understand the students' knowledge of vocabulary through the measurement in different dimensions of vocabulary knowledge such as receptive and productive knowledge, breadth, and depth (Henriksen, 1999).

Zareva, Schwanenflugel, and Nikolova (2005) mention that receptive and productive dimension is used as a bridging dimension between vocabulary competence (the use of vocabulary for reading and listening) and vocabulary performance (the use of vocabulary for writing and speaking). While breadth dimension focuses on the important of vocabulary size, depth dimension focuses on the important of quality of knowing a word.

The researcher discusses receptive and productive dimension in section 2.1.1, then the relationship between this dimension and breadth and depth dimension in section 2.1.2.

2.1.1 Receptive and productive knowledge

Knowing a word may be divided into receptive knowledge which relates to reading and listening skills, and productive knowledge which relates to writing and speaking skills. Many researchers try to give distinction between two types of knowledge, receptive and productive, in order that they can say which types of knowledge the students have. However, there is no clear indication at what level the receptive passes to productive status (Read, 2000). "There are productive features in the receptive skills" (Nation, 2001, p. 24), thus Nation attempts to define the receptive as the ability to retrieve and comprehend a particular language feature from reading, while productive is the ability to "produce language form" (p. 24) through speaking or

writing. Some research studies were done in order to measure students' receptive knowledge by measuring whether students understood the words from their listening or reading or not. On the other hand, the ability to produce a word through speaking or writing was considered to be productive knowledge.

The researchers could research a particular language feature through receptive and productive aspect in order to know how many words students know (breadth) or how well students know a word (depth). The next section reveals the relationship between receptive and productive knowledge and breadth and depth of vocabulary.

2.1.2 Breadth and depth of vocabulary

Breadth of vocabulary is studied through the vocabulary size which shows how many words students have. This quantity of knowing words is contrasted to the quality of knowing a word (depth). Depth of vocabulary knowledge refers to how well a word is known, for example, measuring knowledge of the associations of word, the collocations of word, the conceptual meaning of a word, or the grammatical behavior of the word (which includes suffix knowledge, the focus of the present study). These two dimensions, breadth and depth, are discussed together because some research studies found that they relate to each other. Some studies researched on different dimensions such as the depth of vocabulary was studied with the receptive and productive dimension. The collocational behavior of a word (depth of vocabulary) could be investigated receptively by measuring whether the learners recognize the typical collocations of words or not. That is the learners recognize that *strong* occurs with *tea*, *access* occurs with *to*, *by* occurs with *accident*. Another example is the suffix knowledge (depth of vocabulary) that could be investigated

receptively through the ability to recognize that word is made up of parts and knows that the word has a particular meaning.

The depth of vocabulary is also studied productively such as the depth of the associations of word. The learners have to be able to produce other words that can be used instead of the tested word. Or the depth of suffix knowledge which measured by the learners' ability to write the derived word with correct spelling and use right word parts.

Not only that the depth of vocabulary relates to receptive and productive, but also relates to the breadth. According to Vermeer (2001), depth of vocabulary plays role in expanding breadth of vocabulary. That is, "a deeper knowledge of words is the consequence of knowing more words, or that, conversely, the more words someone knows, the finer the networks and the deeper the word knowledge." (p. 222). Likewise, in the sense of suffix knowledge, once students have knowledge of derivational morphology, they should use the knowledge to identify one word to another or to contribute the meaning of other words. In turn, their breadth of vocabulary should be greater.

Some of the following researches had studied receptive and productive dimension and breadth and depth of vocabulary. They studied different depth of vocabulary knowledge such as word associations and grammatical knowledge of words.

One interesting study is Schmitt and Meara's (1997). They explored the interrelationship between suffix and word association knowledge on receptive and productive tasks with a group of Japanese students who studied English as a second language. The subjects were 67 undergraduate English major students aged between

18-20 years old with approximately 6 years experience in English study and 28 high school students with 5 years prior English study. The researchers had the subjects answered a test which contained three sections; receptive knowledge test, productive knowledge test, and vocabulary size tests. This test was distributed at the beginning and near the end of the term in order to compare students' knowledge before and after the language course. The words in the tests were compiled from Brown corpus – a collection of one million words of "sample of American printed English of the year 1961" (Sinclair, 1991, p. 23).

On the receptive test, students were to choose suffixes that make sense when adding to a word given. The researchers provided 14 suffixes as a choice for the students to choose and four word choices that the word given could be associated with. For example, a given word *quote*, student chose appropriate suffixes whether this word could be attached with suffixes *–able, –age, –al, –ance/–ence, –ed, –ee, –er/–or, –ing, –ion, –ive, –ly, –ment, –s,* and *–ure*. Then, s/he had to choose three of associations of *quote* from a set of choices, i.e. *ground, famous, say,* and *person*. On the productive test, which is not related to the present study, students were to write appropriate suffixes and three of its association to a word given.

On the vocabulary size test, the results showed that according to the Levels test (Nation, 1983, 1990), students gained about 330 new words after they passed about 59 hours class with native-speaking instructors and their scores on TOEFL language proficiency test also increased. This study showed that students' suffix knowledge is poor. Even after learning English for 13 weeks with a native-speaker teacher (with three 90-minute classes per week), students mastered only a derivative suffix *–ment* and inflectional suffixes (which are, of course, rule-based).

Students tended to answer correctly on inflectional suffixes because the headword was a verb that can be attached to the inflection.

The study also showed that suffix knowledge and association knowledge were slightly related to each other with 0.3 to 0.5 correlations. The figures showed that the correlation is light. Comparing to the correlations between the suffix knowledge and vocabulary size and language proficiency or between association knowledge and vocabulary size and language proficiency, the figures showed stronger relationship among suffix knowledge and association and vocabulary size and language proficiency (with 0.3 to 0.7 range). The correlations of the knowledge were examined both in the first test (test at the beginning of the term) and the second test which took place at the end of term. It showed that the correlations in test 2 were higher than the first test. This means, when students have learnt English through the language course, their vocabulary size and language proficiency increase as well as partial of word knowledge including suffix knowledge and association knowledge. After the language course students produced more associations. Also they used knowledge of derivative suffixes to access other words in the same word family, indicating that the more familiarity with derivations, the larger vocabulary size the students have.

Mochizuki and Aizawa's (2000) study is another study that tries to explore the interrelationship between students' vocabulary size and affix knowledge and to find the order that students acquire affixes. They investigated 98 Japanese high school and 305 university students. To measure students' vocabulary size, the researchers used Vocabulary Level Test, which Mochizuki (1998b) modified from Nation (1990). The result showed that students' vocabulary size correlate to their affix knowledge. They divided students into groups according to the vocabulary size (over 2,000,

over 3,000, over 4,000 and over 5,000 words).

To measure students' affix knowledge, they used Umeda's (1983) lists of important prefixes and suffixes and asked students to choose the appropriate meaning of prefixes from the four choices given (this is because the researchers believed that prefix affects the meaning of the derived word). For example, the test consisted of a set of words attached with prefix *anti-*, then, students were to choose the meaning of prefix *anti-* whether it means *human, of antenna, opposed,* or *ancient*. The choices were originally given in L1 (Japanese). Moreover, suffix knowledge was assumed from the students' ability to choose correct word class of the derived words.

Mochizuki and Aizawa found that students with low vocabulary size understood little affixes than students with greater vocabulary size (students in the 2,000 words range showed 45% affix knowledge, students in the 3,000 words range showed 61% affix knowledge, students in the 4,000 words range showed 70% affix knowledge, and students in the 5,000 words range showed 77% affix knowledge). The researchers used the increasing percentage of affix correctness and the vocabulary size to summarize that the affix knowledge correlates with the vocabulary size. The correlation between affix knowledge and students in 2,000, 3,000, 4,000, and 5,000 words range were 0.45, 0.61, 0.7, and 0.77, respectively. Moreover, the researchers assumed the order of suffix accuracy (i.e. the score on the test which were supposed to show their suffix knowledge) as the order of suffix acquisition. In fact, it seems to be very difficult to assume from this cross-sectional study that the order from the study is the order of acquisition. There is no evidence to support whether the subjects' knowledge would be the same when they were to take the tests again. If the subjects were tested again and the results were not consistent,

then this is not the order of acquisition. Thus, the conclusion of the study could go with the idea of order of receptive knowledge of affixes not the order of acquisition.

Schmitt and Zimmerman (2002) researched students' productive knowledge of derivative words and their global vocabulary knowledge (based on students' TOEFL scores). The subjects were 106 non native speaker including 50 advanced students who studied English as a second language (ESL) in an intensive English course, 36 advanced ESL undergraduate and graduate students who were taking an ESL writing course, and 20 graduates ESL who completed master's degrees from the United Kingdom. The first two groups had TOEFL mean score of 518 and the M.A. group had TOEFL mean score of 610. The researchers borrowed words from the Academic Word List (AWL) which were expected to be known by all subjects. The subjects were to complete two tasks; self-rating and filling the blanks. The study showed that the ability to produce appropriate derivation relate to students' overall word knowledge. The high productive knowledge were nouns' and verbs' derivations. This study relates to the present study in the sense that word-building knowledge was useful for English noun suffixes study.

Another study which measured L2 students' vocabulary knowledge was done by Nurweni and Read (1999). They attempted to measure if the students knew the words (to see vocabulary size or breadth) and how well they knew (to see the depth of vocabulary knowledge). For breadth, the subjects were measured their knowledge through translation test. The researchers provided 200 items for 324 Indonesian students to give a translation in Indonesian. The given words were compiled from the General Service List (GSL), which consists of 2,000 most frequent word families in English and the University Word List (UWL), which is a small corpus of 1 million

words. The students were tested on the quality of vocabulary knowledge (depth of vocabulary knowledge) through a word association test and an interview.

The results showed that Indonesian students had some knowledge of words in GSL. The students acquired, on an average, 986 out of 2,000 most frequent words and they knew, on an average, about 240 out of 800 items in UWL. The total words known by the students did not reach to the "threshold level for independent reading of unsimplified texts" (Nurweni and Read, 1999, p. 161). As mentioned by some other researchers, students should have a vocabulary size of 4,000 – 5,000 words before reading independently (Laufer, 1992; Sutarsyah et al., 1994). It means that students' vocabulary size was less and they were not ready to read on their own. For depth of vocabulary knowledge, students showed the lack of depth of knowledge (the mean scores were lower than 50%). The results from the word association test were compared with the vocabulary size and it seemed that students with high proficiency worked better on both vocabulary size test and word associations test. On the other hand, students with low proficiency performed poorly and did not show any depth of vocabulary knowledge.

The researchers speculated that the reasons of poor vocabulary knowledge were because students guessed and students knew some other words rather than the words in the test which might be words from their high school or other written sources. Moreover, words that seemed to be familiar to the students were few. Although the researcher added some more words in the tests and had the students do it again, their ability to answer the words was not better and their vocabulary size was still modest (their knowledge from six years of English learning did not help to answer the meaning of tested words).

In sum, the researchers who are interested in studying learners' vocabulary could study on breadth and depth. The depth of vocabulary could also be studied on both receptive and productive. Moreover, the results from the above research studies show that one type of vocabulary knowledge (depth) seemed to relate to another type; suffix knowledge slightly related to word association and the suffix knowledge and word association related to students' vocabulary size and language proficiency (Schmitt and Meara, 1997), affix knowledge related to vocabulary size (Mochizuki and Aizawa, 2000), productive knowledge of suffix related to vocabulary size (Schmitt and Zimmerman, 2002), and word association related to students proficiency (Nurweni and Read, 1999).

2.2 Word-Building Strategy and Word Recognition

Some previous researches that studied on affix or suffix knowledge of second language learners had investigated both receptive and productive knowledge of English affixes or suffixes. The knowledge of word-building (grammatical behavior of words or would be specified as suffix knowledge in some studies) was investigated by many researchers and was considered to relate to other types of vocabulary knowledge such as word associations, vocabulary size, and productive knowledge. Using word-building strategy is mentioned as a strategy that students use to recognize words and it seems to facilitate the recognition of other words in the same family (words with a particular headword). Word-building strategy helps word recognition because there are identifiable parts in the derived word. The meaning of each part indicates the meaning of the whole word. It means that one word is identifiable from another word. As suggested by Bauer and Nation (1993, p. 253) "the important

principle behind the idea of a word family is that once the base word or even a derived word is known, the recognition of other members of the family requires little or no extra effort". Schmitt and Zimmerman (2002) discussed the facilitation of word parts in recognizing unknown words in a family by native speaker children. They discussed many studies done with native speaker children and found the facilitation in word recognition. The children recognized the stems within a word (they recognized words using parts, not as a complete word in one time). The recognition of the stem helped children in recognizing a complete word (see also Taft, 1994) and then, it facilitated understanding for native speaker children.

The following studies have been done with non native speakers in order to understand the affix knowledge by looking at whether or not the learners use word-building. Schmitt and Meara's (1997) study showed the results that students' suffix knowledge was poor. The students were English major Japanese students. The subjects, as a group, showed 62-66% achievement (with 57% mastery of inflection on the receptive section). On the productive section, students mastered 59% of inflection and 15% of derivation. The top four verbal suffixes that subjects gave were three inflections *(-ed, -ing* and -*s*) and a derivation (-*ment*).

Schmitt and Meara explained the difference in the inflection and derivation scores in terms of inflections being more rule-based (students know that inflectional suffixes in the tests can be added to verbs). On the contrary, derivations in the study needed idiosyncratic knowledge (Schmitt and Zimmerman, 2002). That means student need to memorize L2 derived word because there is no principal way to recognize or recall the tested word from its word parts. In this case, the students could not make so much use from the patterns of word formation.

Mochizuki and Aizawa's (2000) study on students' affix knowledge using the affix tests borrowed from Mochizuki (1998a) who investigated 127 Japanese students' affix knowledge. The test was designed to measure prefix knowledge by asking students to define the lexical meaning (in L1) of the prefix. The words were chosen from Umeda's (1983) lists of important prefixes and suffixes.

From the suffix test, the highest scores were "*-ation, -ful*, and *–ment*". Although the researcher tried to assume that the suffixes students answered correctly represented the general development of suffix knowledge, it did not imply to the order of suffix acquisition. What seemed to be the conclusion about suffix knowledge from this study was that students as a group understood suffixes that make noun (*-ation* and *–ment)* better than other word classes.

The study by Schmitt and Zimmerman's (2002) researched the suffix knowledge with different word classes such as nouns, verbs, adjectives, and adverbs. Although some previous studies mentioned that word-building facilitate word recognition for native speakers, there are two issues have not been explored in the previous studies: the facilitation in word recognition for non native speakers and facilitation of word parts on production. Thus, Schmitt and Zimmerman focused on productive knowledge of the four word classes.

The results showed that students could produce around 37.6 words out of maximum possible of 64 words or around 58.8%. That was from the four word classes used in the study –nouns, verbs, adjectives, and adverbs—students produced only two word classes. The two word classes were nouns and verbs. While students as a group produced appropriate noun and verb forms of the headword, they could not produce appropriate forms for adjective and adverb. If the word family was being

used here, then students should be able to make use of word parts and produced all word classes. However, the results were against the idea that knowing one word in a family helps students to know other words in the same family. The researchers assumed that knowing some words in a family did not "imply productive knowledge of all (or even most) of the other word forms" (Schmitt and Zimmerman, 2002, p. 158).

The result of Schmitt and Zimmerman's study was very interesting. They suggested that the word family (words which building from the same stem and share the meaning) did not play role in facilitating in word production. If it was true, then we have to think back to receptive knowledge about whether is it true that word family facilitates the word recognition. There was one example of study showed that students could not make use of word-building strategy even they knew word consisted of parts. Paribakht (2004) studied the role of grammar in second language lexical processing which, later, led to vocabulary acquisition. The study aimed to find strategies learners used to construct the meaning of unknown words in their reading. Students were instructed how to read in think-aloud procedures. Students were to read a text on the topic of Acid Rain and express what they were thinking during the reading. Although the result showed that students saw parts in a word—both inflection and derivation, they could not give the meaning or re-express the meaning of the whole word from word parts that they saw. This showed that, in fact, students did not have knowledge of word morphology. They could not make use of parts in a word. The results only showed that students might have some background about word morphology (or in the present study called word-building knowledge). This showed that word-building did not lead to vocabulary learning and did not

promote comprehension in reading. To my knowledge, the study by Schmitt and Zimmerman (2002) and Paribakht (2004) were the only two studies mentioned that word-building did not always facilitate in vocabulary learning.

2.3 Order of Suffix Difficulty

Order of language acquisition is considered when asking about "Do learners acquire some target-language features before others?" (Ellis, 1994, p. 73). Answering such a question, researchers have to find out what a particular language feature learners are able to perform. Most researchers studied on a particular language feature and claimed the order of acquisition based on the rank order of accuracy. That is language features which learners can use accurately were acquired or learnt before. The other that is not accurately produced is assumed to acquire or learn later.

It is possible to assume the order of acquisition whenever the order is universal (Ellis, 1994). That is, when a particular language feature is studied, it shows the same order or development as in other studies. The learners should acquire or learn language in a fixed order (from one developmental stage to another).

Developmental stages of native-speaking children start with the production of language as a "ready-made chunks like *I don't know*. And *What's this?*" (Ellis, ibid, p. 20). Later, they have learnt to use the elements instead of using as a chunk and finally use each element to form complex structures (Wong-Fillmore, 1976; Ellis, 1984). Likewise, in morphological study, researchers studied on learners' morphological knowledge and found that there is a stage of the use of past tense verb forms. At the early stage, learners used correct irregular form "*went*", then they

added *–ed* to the verb "*goed*". Finally, they produce the correct form "*went*" again. The studies on L1 order of acquisition are valuable for the L2 acquisition. The patterns of morphological acquisition in L2 are similar to L1 order of acquisition. From many cross-sectional and longitudinal studies, learners acquired present progressive *–ing,* plural *–s,* auxiliary verb, article, past irregular, past regular, and third person singular *–s*, respectively (Krashen, 1977)

Although the order of morphological acquisition (inflection) for L1 and L2 learners may be universal, there were no studies claiming the order of other morphological knowledge such as affixes acquisition. The order of affix acquisition could affect learners' knowledge of academic words most of which are Greek and Latin origin (the words attached by affixes). Teachers could use the order of affix acquisition in helping learners to focus on some affixes.

A previous study, Mochizuki and Aizawa's study, was a cross-sectional study which aimed to find the order of affix acquisition. They collected the data with second language learners (Japanese) and collected it from a single point in time. Cook (2001) states that the difficulty that students find at a single point in time does not imply to the order of acquisition. Thus, the results of Mochizuki and Aizawa's study might not represent any stages of suffix acquisition but the difficulty of the suffixes that students found in the tests. Furthermore, the order that found from the study was not the universal order of affix acquisition. Although the results might not show the order of suffix acquisition, it was merely claimed as order of suffix difficulty. Mochizuki and Aizawa drew the conclusion of the order based on the

percentage of students' ability to answer tested words. The suffixes *-ation, -ful,* and *–ment* might not be as difficult as the suffixes *–ish, -y,* and *–ity.*

There are two more factors affecting to order of acquisition or order of difficulty; frequency and language proficiency. Palmberg (1987 as cited in Oxford and Scarcella, 1994, p. 234) suggested that frequency of exposure to words indicated which words are stored in learners' brain. Many linguists mention that learners retain word if they encounter at least 7 times (Nation, 1990; Kachroo, 1962; Nagy, 1997). And if the words are not repeated after the retaining, partial knowledge of words could be forgotten.

Another is the language proficiency of the learner which affects the learners' ability to use vocabulary strategies to deal with new words. As mentioned by Schmitt (2000), beginning learners are better using word-building strategy and the advanced learners may use other strategies such as guessing meaning from context.

In sum, most of morphological studies that aimed to find out the order of acquisition were done with the inflectional morphology. However, there was one study tried to find out the order of affix acquisition, which was used as the basis for the present study. Although the findings might not reveal the order of affix acquisition, the percentage of learners' knowledge would suggest the order of difficulty.

2.4 Measurement of Vocabulary Knowledge

There are two factors that might affect the results of the previous studies. The first factor is the types of vocabulary test that the researchers use, the other is the

source of vocabulary to be tested. This section reviews different types of tests, sources of tested word in order to come up with a certain type of test and source for measuring the knowledge of English noun suffixes.

2.4.1 Types of vocabulary test

Types of vocabulary test affect the result of the studies in the way that it yields different kinds of information from the students. The researchers in the following research studies used different types of test according to their purposes of the study.

Schmitt and Meara (1997) studied the relationship between students' knowledge of suffix and word association and students' vocabulary size. They borrowed words from Brown corpus and used them in receptive and productive tests. On measuring receptive knowledge, which relates to the present study, the researchers had the students chose allowable suffixes – suffixes that could add to the given word. The researchers also provided allowable word association in a test. Examples are given in table 2.1.

Table2.1: Example of a test on receptive knowledge of suffix

Given word	**Choose allowable suffixes**	**Allowable word associations**
Use	–able –age –al –ance/–ence –ed –ee –er/–or –ing –ion –ive –ly –ment –s –ure	computer employ tool speak
Quote	–able –age –al –ance/–ence –ed –ee –er/–or –ing –ion –ive –ly –ment –s –ure	ground famous say person

Although the students gave correct answers, in my point of view, it was difficult to assume whether or not the students recognized or recalled the words when they encountered them in real contexts. To start with, the test put the given word separately from the choices and the students were not informed that words chosen for the test were verbs that required "a one-letter change to take a suffix (*indicate* to

indication)" (Schmitt and Meara, 1997, p. 21). The students saw very clearly the difference between the stem (base) and the suffixes. This was different from the real word that the students found in their reading or in other contexts. For example, from the test the students chose allowable suffix *–able* for a given word *use*. But this did not show whether students recognized a correct derived form of *usable* when they encountered in receptive task (listening and reading) or in productive task (speaking and writing). Moreover, it was difficult to assume from the test that the students recalled a correct derived form of *usable* (the *"e"* at the end of base word is cut) not *useable.*

Moreover, two pairs of suffixes (*-ance/ -ence* and *–er/ -or*) did not present whether the students had receptive knowledge for the stems that these two pairs can add to. Although the students chose correct suffix *-ance/ -ence* or *–er/ -or* to each stem, the researchers could not assume that students had receptive suffix knowledge of the word given. In their reading text, for example, students might not know whether the stem *use* with *-er* or with *–or* referred to someone who used a product, machine or service. Similar to *reference* and *referance*, students might not know which word meant "a mention of something".

The second study was Mochizuki and Aizawa's (2000). They measured students' affix knowledge by dividing the tests into two main sections; prefix test and suffix test. All the words in the tests came from Umeda's (1983) lists of important prefixes and suffixes. On prefix test, students were asked to choose the meaning of prefix from the given choices, *inner, between, indirect,* or *outer*. The prefix section of the affix knowledge was tested by asking the students to choose the meaning of each prefix since the prefix affected to the meaning of the word it attached to. Although

the present study did not measure the students' prefix knowledge, the researcher may mention two weak points of the prefix test. One was that because the words given were pseudowords –not real words. Although the result of the test showed the knowledge of 7.24 prefixes out of 13, students could not find and make use of words from the test in their daily life. That is, students would never encounter such words like *semi-bogon, ante-jaazal, bonerless, givitize,* or *quifable* in their language learning. The other point was that the prefix *inter-* did not always mean "between" when it was added to the stem. For example, the meaning of a word *interest* did not relate to "between" but it meant "sympathetic or curious attention".

In part of measuring suffix knowledge, students' knowledge was measured by choosing the correct part of speech for the given words. For example, students were to choose the part of speech for a set of words (pseudowords), which had similar suffix *"-er"* in "krin*er*, parv*er*, and neash*er*" (whether the words were noun, verb, adjective or adverb). But actually this did not measure the students' knowledge of suffixes. That was because Mochizuki and Aizawa (2002) gave a definition of suffix knowledge as the knowledge that "facilitates inferring the meaning of a new word by indicating the word class of the word" (p. 293). For example, the students were given a set of given words *wadly, blagely,* and *courly*, then, they were to choose if these three words are noun, verb, adjective or adverb. To know only the word class (part of speech) did not show that the students retrieved the form or the meaning of the word. In fact, students' receptive knowledge of affixes is the ability to recognize the word form and retrieve the meaning of the whole word from the meaningful word parts (McCarthy, 2002). Thus, it was not possible to assume students' receptive knowledge from the knowledge of word class. Finally, the test was a multiple choice which the

students might get credit of guessing. According to Wesche and Paribakht (1996 as cited in Read, 2000, p. 78), the students might "choose the right word by a process of elimination". That was the students deleted the choices that they were unsure until one choice was left.

The studies above (Schmitt and Meara; 1997 and Mochizuki and Aizawa; 2000) had some weak points as mentioned. Thus, the following paragraph reviews another type of test that is probably useful to measure the knowledge of English noun suffixes. From the definition of receptive and productive knowledge, it led to the decision to choose the type of test. As mentioned in Chapter 1, translation test was one type of test that could use to measure students' receptive knowledge of English noun suffixes. The knowledge was measured by students' ability to translate the meaning of English words (L2) into Thai (L1). Translation test could use to measure both receptive and productive knowledge of a word. The researcher discussed the translation test which gave a comparison between measuring receptive and productive knowledge. According to Read (2000) a translation test was used to measure the students' receptive knowledge by measuring students' ability to recognize the meaning of English word in their first language. That is students remember the meaning of L2 words. In contrast, if the students were to give an L2 word when the L1 word was shown it means that students have productive knowledge (recall). That is students are able to retrieve the form of the L2 word. .

Nurweni and Read's (1999) study focused on the use of translation test to measure if the students knew the words in GSL and UWL. They aimed to measure students' receptive knowledge. This was similar to Read's (2000) and Nation's (2001) purpose of using translation to test students' recognition. Indonesian students

needed to give L1 translation to the word given. The result showed that Indonesian students "had some knowledge of 1226 English words, a figure that fell far short of the 3,000 – 5,000 word range that was widely considered the threshold level for independent reading of unsimplified texts" (Nurweni and Read, 1999, p. 161).

In sum, there are various types of test that the researchers could use to measure learners' vocabulary. Of course, the decision depends on the purpose of different studies. The other factor that affects the results of the studies is the tested words which are borrowed from different sources. The next section discusses about the tested words.

2.4.2 Tested words

Another factor that affects the results of each study is the words tested which come from different sources such as UWL, GSL, AWL, Umeda's (1983) lists of important prefixes and suffixes, etc. In previous studies, it is very important that the researchers have to choose words from different sources according to the purpose of their studies.

Previous studies borrowed words from Brown corpus, Umeda's (1983) lists of important prefixes and suffixes, GSL, and UWL in order to investigate the vocabulary knowledge of students at the university level. For university students, they were expected to study in academic context. Meaning that they were to encounter academic words. The academic words were provided in the AWL. As mentioned in Chapter 1 that source of words in the present study was AWL which compiled from 3.5 million words covering 4 disciplines of arts, commerce, law, and science (with 28 subjects areas). The list did not include technical words. Each word in the list occurs

in at least 15 of the 28 subject areas. It means that a word in the list can occur in every discipline and learners in every discipline have a chance to encounter the words in their studies. Thus, students who were studying science, for example, might know words in scientific textbook; however, it was not because of his major was science but something else. Likewise, students in other fields who could not answer words in scientific textbooks were not considered because of their major were not in science. Moreover, more than 82% of the words in the list "are of Greek and Latin origin" (Coxhead, 2000, pp. 228-229), indicating that students who were expected to learn words from AWL can use affixes to help in learning words. Thus, the AWL is the most appropriate for study which aims to investigate students' suffix knowledge.

The following point discusses why the other word lists were not use in measuring the knowledge of English noun suffixes. Brown Corpus (Kucera & Francis, 1967) is a corpus compiled from American printed English of the year 1961. It collected various 2000-word texts from fifteen genres covering press, religion, skill and hobbies, popular lore, fiction, and humor. However, it "did not purport to be a valid sample of each genre" (Sinclair, 1991, p. 24). Its vocabulary was controlled with limitation of 2,000 words on continuous text. This list did not represent the importance to the study with SUT students who were expected to comprehend academic contexts. Umeda's (1983) lists of "important" prefixes and suffixes may not be suitable for measuring students' knowledge of affixes; Mochizuki and Aizawa had not mentioned which corpus the affixes were compiled from. Thus, it was not clear whether the affixes occurred in the academic context or not. So, the results might not be reliable since the source of words tested did not concern students' vocabulary knowledge at university level. The GSL (West, 1953) is a corpus of high frequent

2,000 word families. Words in the list were compiled from written material, such as textbooks, encyclopedias, novels and poetry, which was useful for the basis of English language learning. However, it has been criticized on its age. The UWL is a corpus created by Xue and Nation (1984). It consists of 808 word families with 2,000 common words which is to be useful for students who are going to learn English in the college or university (Bauman, 2005) [online]. Although the words occurred in academic textbooks, they did not "contain a wide and balanced range of topics" (Coxhead, 2000, p. 214) and the list was replaced by AWL.

Although the AWL was chosen for the present study, there was a comparison of the occurrence of four noun suffixes between the AWL and the GSL which covered the same disciplines.

Table2.2: The occurrence of four noun suffixes in GSL and AWL

Suffixes	**GSL1**	**GSL2**	**AWL**
-ment	21	19	33
-tion	59	43	195
-ity	33	17	66
-er	It takes too long to give the number.		
Total words in a list	4,100	3,600	3,112

Remarks: GSL1 is the first thousand most frequent words in the GSL
GSL2 is the second thousand most frequent words in the GSL

Although the total words in the AWL was less than the GSL, the occurrence of the four common noun suffixes was greater. Noun suffix *–er* took too long to give the number because it included the *–er* that used to form the comparative of adjectives and adverbs which were different from the purpose of the present study.

After choosing words from the list, there is another point to consider. Researchers sometimes used pseudowords in order to prevent students from knowing a word because it was familiar to them. Mochizuki (1998b) tried to avoid familiar

words in the tests by using pseudowords on both prefix and suffix tests. The pseudowords are words that do not exist in the real language. For example, students were given a set of pseudowords which contains the same prefix "*inter-*", *inter*teme, *inter*wourne, and *inter*shale. Pseudowords were not useful to the study – at least for the present study— because students would not encounter in their language use.

However, before choosing words from the AWL, there were two other sources that the researcher chose the highest frequent noun suffixes which were the criteria proposed by Bauer and Nation and Cambridge Guide to English Usage 2004. This was for the purpose of making the word choosing more variable for the tests.

Affixes were grouped into seven levels by Bauer and Nation (1993) in order to help in vocabulary learning and teaching. That is the levels can be used as a guide to introduce the suffixes to students at different time based on students' levels of language development. Throndike (1941) and Bauer and Nation (1993) mentioned that low intermediate students may start learning affixes in early levels (from levels 1 to 5). They suggest criteria including the frequency, regularity, productivity, and predictability of the words. The more frequency, regularity, productivity, and predictability the affix displays, the lower the level it is assigned to. For example, the very frequent and regular prefix *un-* is at level 3, while the frequent but irregular suffix *–ic* is at level 6.

The first criterion, frequency, will look at the affix which could be attached to a large number of headwords. High frequency affixes like *–less* (sleepless), which could be added to many headwords, is grouped in a lower level (level 1), while affixes like *–ling* (gosling) is grouped as a higher-level infrequent affixes group, e.g. level 6.

The second criterion, regularity, could also help to recognize words. It is divided into five sub-categories. First, the regularity of the written form of the base relates to whether the change of written form of the headword is predictable. If an affix could be separated from headword and its headword does not show any change in orthography (for example bright + *ish*) so this affix is in the lower level. But when the affix is divided, the form which is left does not show the exact form of the headword (for example *sacrilegious*) then the affix is grouped in the higher level. Second is the regularity of the spoken form of the base. After dividing the affix from headword, the headword has no change in phonology, like *establishment, selective,* while the higher levels do not show the spoken form of the headword, *permeable* and *dramatize.* Third, the regularity of the spelling of the affix, some affixes has only one written form like *bi-*. Others, however, have several forms like the *in-* prefix giving a negative meaning "not". However, it has the form *im-* when the stem begins with *m, b,* or *p* (for example *immortal, improper*); the form *ir-* when the stem begins with *r* (for example *irregular*); or *il-* before *l,* for example, *illegal.* Fourth is the regularity of the spoken form of the affix. The affix that is added to a headword could be unpredictable, for example, *-s* has three spoken forms as follows: /s/, /z/, /iz/ and *–ed* has three spoken forms as follows: /t/, /d/, /id/. Finally the regularity of function is considered. It relates to knowing of how an affix is attached to which word class and produces a new word in a particular word class. For example, *-age* attaches to verbs and produces nouns.

Next, the productivity criterion is used to group the affixes according to their productivity of forming a new word. Bauer and Nation (1993) suggest that it is a way to produce words that may not be listed in the dictionary; the students have to know

their related base in order to understand the meaning. The affixes like *–ly* and *–ness* are more productive than *–most* and *en-*, such as *topmost, innermost, enlighten* and *enthrone.*

The last criterion, predictability, groups the most predictable meanings of the affix at the lower levels. For example, a suffix *–less* is in a lower level as its meaning is predictable, it "has only two meanings, one of which is rare" (Bauer and Nation, 1993, p. 256). Other example is a suffix *–s* meaning is predictable when the part of speech of headword which it is added is known. For example, *–s* suffix indicates the plural form when the base (stem) is noun. While the base is a verb, the suffix indicates the present tense and "the subject of the verb is the third person singular" (Flexner, 1979, p. 274).

The researcher chose noun suffixes from levels 3 and 4 in Bauer and Nation's criteria of word family. As mentioned in Chapter 1 that the researcher did not investigate suffixes from the first two levels since the first level counts each form as a different word (*book* and *books* are not treated as the same family) and level 2 were inflected forms (the suffixes are added with grammatical purpose). While from levels 5 to 7, the levels of suffixes were regular but infrequent, frequent but irregular and classical roots and suffixes so they were not chosen because the rules of building words may too complex for the students.

Moreover, after consulting Cambridge Guide to English Usage Dictionary (2004), most four common noun suffixes from the Cambridge International corpus were *–tion, -er, -ment,* and *–ity.* Then, the researcher chose the headword and the derivatives of the four common noun suffixes from the AWL.

In conclusion of this chapter, there was a study mentioned that word-building strategy did not facilitate the production of word. This brings us back to the purpose of the present study to investigate the use of word-building strategy by the students in order to recognize the meaning of the derived forms. Although students –at least in Thailand—have learnt word-building strategy from high school through the university, we never know whether such knowledge is used by them after class or not. The result of the present study might reflect on students' use of word-building when encountering unknown words in the reading. Subsequently, it might be possible to see the role of word-building in reading comprehension by SUT students. As mentioned above, different researchers studied different aspects of vocabulary knowledge because it was too complex to study every part or many parts at the same time. In this study the researcher solely measured on grammatical knowledge –suffix knowledge– and investigated it receptively. It was very important to choose appropriate test type to measure students' suffix knowledge. The present study used translation test and assumed that students who give correct Thai translation of the given word had receptive knowledge of English that words. Moreover, some students would be asked some questions through a semi-structured interview in order to gain more information about their knowledge of suffixes (see questions in section 3.3.2). The high frequent four noun suffixes were chosen from Cambridge Guide to English Usage 2004, also based on Bauer and Nation's criteria. Words in the tests were academic words which were borrowed from the AWL because they played an important role for the students who were studying in university. If we know what suffixes seem to be difficult for the students, teachers can plan for vocabulary teaching and help students to deal with each suffix more effectively.

Since the time was limited, the present study (a cross-sectional study) aimed to investigate if some noun suffixes were more difficult than others and would not discuss the results in term of acquisition because it could only be investigated through a longitudinal study. The findings should indicate whether students give correct translation of the derived forms of the four common noun suffixes or not. If yes, then what suffixes were well-known by the students, in turn what suffixes seemed to be difficult or easy for the students. The percentage that showed the students' performance will be discussed in an order of difficulty.

Chapter 3

Research Methodology

This chapter presents research methodology including the pilot study, population of the study, data collection instruments and how to create them, procedures of the study, and data analysis.

3.1 Pilot Study

A pilot study was done with the purposes to see the time duration that students used to respond to a test and to see if the words were too difficult. The pilot study was done with 114 undergraduate students at Mahasarakham University (MSU) in term 1 of academic year 2005. All students had passed one English course (Preparatory English) in the previous term at the university and were studying in the second course (Foundation English 1). The students were majoring in Mathematics, Politics, Marketing, Tourism and Hotel Management, Creative Arts, Architecture, Management Information System, and Computer Science. The subjects were to read academic textbooks which contain words in AWL and which they are supposed to find in their study.

The researcher used the results from students who participated in two tests and excluded the students who cheated. The information finally came from 66 students. The results showed that most students could finish the test in ten minutes (with approximately 9% who could not finish in time). However, there were five words

which few students can not respond either headword or its derived form (*derive* and *derivation*, *enforce* and *enforcement*, *involve* and *involvement*, *rigid* and *rigidity*, and *terminate* and *termination*), so they were scratched from the tests. Moreover, four words were changed because they were borrowed to use in Thai language as a loan word (*final* and *finality*, *locate* and *location*, *promote* and *promotion*, and *transport* and *transportation*). The reason for scratching words is discussed more in section 5.3.

3.2 Population

The target population was SUT students. In this study, SUT students were 167 undergraduate students who were taking English 2 and English 5 (compulsory courses) in term 3 of academic year 2005. Along with English 1 to English 4 courses, students practice their reading skills from commercial reading materials series "*Steps to Academic Reading*" in which the passages offer academic content. For each course, students were supposed to read about ten to fifteen passages. The last compulsory course (E5) did not require students to practice reading but to focus on English for future careers. In vocabulary teaching and learning, there is an attempt to teach students about the affixes, although it took only little part in each course. Students have learnt word-building as a strategy for vocabulary learning from their high school through compulsory courses in the university (as mentioned in Chapter1). Affixes took little part in each course; moreover, there was no prior test to measure the subjects' proficiency, thus, there was no anticipated that different group of students were different in their suffix knowledge.

3.3 Data Collection Instruments

3.3.1 Translation Tests

As described above in Chapter 2, the researcher used a translation test. The translation from English (L2) words to Thai (L1) was used to assess the students' receptive knowledge that was to see their recognition (see Appendices A and B). The instruction was given in Thai on the first page of the test. Also the researcher explained the instruction before the test in order to ensure that the instruction was fully understood. Students had to respond to thirty two words within ten minutes (the time was figured out from the pilot study). The students were informed that the test was for a research purpose and did not affect their current study. Moreover, to ensure that the students would not prepare for the second test, they were not informed about the test on the following week.

The researcher distributed the test before describing and showing an example of how to answer the test. In the example, the suffixes used were *–ness,* and *–able* which are different from those in the test.

3.3.1.1 Word Selection

The aim was to create two lists of words that have both headwords and derived words in each list. To help in the word selection, the researcher followed the criteria and the levels of word families from Bauer and Nation (1993) as described in Chapter II section of tested words. The process to select words was in accordance with the purpose to measure students' receptive knowledge of high frequency English noun suffixes, which related to their study (especially for reading) in academic context.

The target noun suffixes were chosen for the tests on a basis of frequency.

The researcher consulted a dictionary, Cambridge Guide to English Usage (2004), to find the highest four frequency noun suffixes and the meaning of each noun suffix. The dictionary compiled of over 500 million words from both spoken and written English (British English and American English). The words were from Cambridge International Corpus which included many specialized types of English, for example Law, Computer, and Science. The most four high frequency noun suffixes were *-er, –ment, -tion* and *-ity* (*-er* in level 3 and the other three in level 4 of Bauer and Nation's levels). The meanings of each suffix were as follows; *-er* means the person or thing that does the activity, for example, *exporter* is the person who sells and sends goods to other countries. Noun suffix *-ment* means the action or process described by a verb, or its result, for example, *achievement* means a process of achieving something. Noun suffix *-tion* means the process of the action described by the verb, or the act of, for example, *creation* means the act of creating. And noun suffix *–ity* means the state or quality or behavior that describes the adjective, for example, *security* means the state of being secure.

Then, the researcher randomly selected the words which students might be expected to know from the Academic Word List (AWL). The AWL consisted of 570 word families which were common to a wide range of academic texts (arts, commerce, law, and science disciplines). Since the word families in the AWL occured at least 10 times in each four disciplines and technical words were excluded, the students did not have the advantage of knowing or not knowing the words by the factor of subject areas. The AWL provided useful information that helped students to understand academic textbooks. The words were chosen from different sublists.

The words selected were sixty four in total. They were divided into two tests

in order to prevent the subjects from getting idea about the difference between headword and derived word. Each test had headwords (HW) and the derived words (DW). Test 1 had 16 derived words such as *assignment, exporter, complexity,* and *indication,* with the 16 headwords of these four, *assign, export, complex,* and *indicate* in Test 2, while Test 1 had 16 headwords like *achieve, lecture, secure* and *violate,* with their 16 derived words, *achievement, lecturer, security* and *violation* in the other test.

After a pilot study was done, there were 9 words need to be changed. The reasons were discussed above in section 3.1. The researcher looked again at the 10 sublists in AWL and chose new words as follows:

1) *occupy* and *occupier*
2) *challenge* and *challenger*
3) *assess* and *assessment*
4) *equip* and *equipment*
5) *estimate* and *estimation*
6) *construct* and *construction*
7) *select* and *selection*
8) *diverse* and *diversity*
9) *intense* and *intensity*

The next table summarizes words for translation test 1 and test 2.

Table: 3.1 Tested words in two translation tests

Test 1		Test 2	
Headwords	**Derived Words**	**Headwords**	**Derived Words**
Design	*Challenger*	*Challenge*	*Designer*
Lecture	*Exporter*	*Export*	*Lecturer*
Publish	*Occupier*	*Occupy*	*Publisher*
Consume	*Researcher*	*Research*	*Consumer*
Equip	*Assignment*	*Assign*	*Equipment*
Require	*Achievement*	*Achieve*	*Requirement*
Invest	*Assessment*	***Assessment***	*Investment*
Establish	*Adjustment*	*Adjust*	*Establishment*
Violate	*Prediction*	*Predict*	*Violation*
Estimate	*Creation*	*Creation*	*Estimation*
Select	*Construction*	*Construct*	*Selection*
Define	*Indication*	*Indicate*	*Definition*
Secure	*Complexity*	*Complex*	*Security*
Similar	*Intensity*	*Intense*	*Similarity*
Capable	*Diversity*	*Diverse*	*Capability*
Flexible	*Validity*	*Valid*	*Flexibility*

3.3.1.2 Scoring of the Translation Tests

To check the meaning of the sixty-four words, the researcher followed the translation from two English-Thai dictionaries. First, A New English – Thai dictionary: Sentence and Phrase Structures Edition compiled by Thiengburanathum (2000). The meanings of vocabulary had been made on the basis of frequency of occurrence in many citation files. Second was an Oxford River Books English – Thai Dictionary (2004). The dictionary gave a clear translation together with examples of how to use the word.

The responses were marked as 1 for correct translations and 0 for the incorrect and non-response since the subjects did not show the basic knowledge of a word. The following table shows examples of students' answers from the two translation tests and how the researcher scored them. The descriptions of the examples are given under the table.

Table 3.2: Examples of scoring

Item (example)	Student's translation		Scoring
1. Assign	มอบหมายงาน	to give someone a piece of work to do	1
2. Definition	คำนิยาม	a statement giving the meaning of a word (✓)	1
	สัตว์ที่อาศัยในทิเบต	an animal in Tibet (✗)	
3. Establishment	การก่อตั้ง	the act of creating a system ,	1
	องค์กร	an organization	
4. Adjust	ปรับ	to change something for more effectiveness (adjust)	0
	การปรับ	a small change that is made to something (adjustment)	
5. Prediction	การทำนาย	to say that it will happen	0
6. Similar	ความคล้ายคลึง	features that things that are the same to each other	0
7. Lecture	จดบันทึก	to take note	0

In item 1 the student gave completely correct meaning, then s/he got 1.

Item 2 was an example which student thought that the tested word had various meanings. The students wrote some answers that could be the meanings of the tested word based on their knowledge, one which was completely correct another which was wrong. The translation which was wrong was given because the students recognized a wrong meaning of the tested word. However, the students recognized another meaning which was completely correct, thus they got 1 for this item.

Student who answered item 3 gave two correct meanings which one was abstract meaning—the meaning that considered relating to the meaning of headword or base word and another was concrete meaning—the meaning of derived word which

did not necessarily share the concept with the meaning of headword or base word (Bauer, 2003).

Item 4 showed an example where the student gave both the meaning of headword and that of derived word which shows that s/ he was ambivalent about the meaning of the item in conjunction with the suffix. In order to see what exactly the students knew about the word and to be able to compare the differences between students' responses from the two tests, the translation was counted as correct only if the meaning of the headword or derived word was accurately represented. That was, the word *similarity*, ความคล้ายคลึง (kwam klai klung) was counted as correct, but not คล้ายคลึง (klai klung) because it lacked of the affix that distinguishes *similar* from *similarity*. This example was different from example in item 2 where the tested word was translated because students recognize words with unrelated meanings. However, the answers in this example had one concept which the students were unsure what were the exact meaning (whether the meaning of headword or derived word).

Items 5 and 6 were example of responses where students gave a partially correct meaning of the words, thus it was considered as incorrect.

And item 7 showed that the student did not know the right meaning of the given word so s/he got 0.

3.3.2 Semi-structured Interview

A semi-structured interview was used for 2 purposes: first, to check the reliability of the students' responses from the two translation tests and to find more information about the students' use of word-building strategy to recognize derived words. However, the interview might not be used as a primary tool in answering

research questions in case that students' responses were not coincided with the results of the two translation tests. Although this study did not focus on only stronger students, the researcher interviewed them rather than weaker students because stronger students should be able to give information about the use of word-building strategy. From 24 stronger students, there were 22 students who volunteered to the semi-structured interview. The interview was conducted in Thai and tape-recorded by the researcher. During two weeks each of the 22 students were interviewed for an average of 35 minutes.

The students were interviewed in order to a) check if students give the same translation as in the translation tests. Each student would be asked about 17-21 words including both headword and derived word. Students were asked to read the words carefully and give the meaning in Thai so that the researcher could write according what the meaning the word is. The other 5-7 words which had both abstract and concrete meaning were asked the meaning as with the previous words, then the subjects were to read the words again and said if words had some other meaning or not. This was to know whether the meaning students know was the basic of headword attached with suffix or not. They were free to choose any word that they preferred to answer first. b) To explain if there are any parts in the word help in recognizing the meaning of word. If any, the student should be able to explain. The words in this part were derived words together with a few headwords. The subjects were expected to break derived word into parts but, of course, to do nothing with the headword. c) To explain if they knew only the suffix *–er, -tion, -ment,* and *–ity* or not. Students were expected to give the related meaning of each suffix and/ or the syntactic category of the suffix. The answer of this question was taken into

consideration whether students recognized the meaning of the suffix or not. From question a) through question c), the researcher would not imply anything that the interview students could use for answering the meaning of the suffixes. So the answer from the students' were not affected by the interview procedures but came from the students' knowledge. Words that were asked about were different for each student according to what they could answer correctly in their translation tests; however, in the part that asked about the abstract or concrete meaning the words might be the same since there were not many words in the test that had both abstract and concrete meaning. d) To rank vocabulary learning strategies that they often used or which were never used by them. The researcher introduced in Thai about what the vocabulary learning strategies are in Thai, then, had students to rank from the most used to least used. The results were expected to give the idea whether word-building strategy was important to the students or not. If yes, so the students should be able to use and answer the tested word. And e) to ask if the interviewed students looked up the meaning of words between the first and the second tests in the dictionary. If yes, how many words? The information might show that meaning checking from dictionary affected the scores in the second test or not.

In the second part, the subjects were shown their answer sheets from the two translation tests and asked about how they responded to each word in the tests. The researcher started to ask about the suffix type that students knew the meaning and/ or the syntactic category (from question c) in the semi-structured interview. All correct headword and derived word of such a suffix that the students answered was shown to them before asking why other derived form (s) of the same suffix was (were) not translated into Thai. Why sometimes the student translated only the

derived word, not the headword. This could show whether student could or could not translate the word because of headword or the suffix. At the end of the interview the researcher asked if students saw the importance of word-building strategy in recognizing the meaning of words. A table below summarizes the issues used to answer questions in the semi-structured interview.

Table 3.3: The analysis of the semi-structured interview

First part of the interview	
Interview question	**Analysis**
a) After reading word carefully, could you please give the meaning of words in Thai again?	All responses were compared with the answer in their own translation test. The consistency is presented in percentage.
b) Are there any parts in the word help you to recognize its meaning?	Students were expected to separate the parts for DW and did not do anything with HW.
c) Do you think the suffixes *–tion, -er, -ment* and *–ity* have any meaning? If yes, what are they? Do you know how to use such suffixes?	Students were expected to give correct meaning of each suffix. The second question is an alternative.
d) Please rank vocabulary strategies that you use (put 1 for strategy which you usually use, then 2, 3, …, until 7 which is the strategy that you rarely use). The list consists of 1. word list, 2. synonym & antonym, 3. mnemonic technique(sound similarity to Thai), 4. mnemonic (pictures), 5.word parts, 6.context clues, and 7. others.	Comparing the strategies used by the students
e) Have you looked up the meaning of words in the first test in the dictionary? If yes, how many words?	Finding the number of students who looked up the meaning of words in the dictionary.
Second part of the interview	
The researcher had the interview student looked at their answer sheets and started to ask the meaning of DW and HW from suffix type that they could answer best. For each suffix type, the researcher pointed to a pair(s) of words that student know both HW and its derived form. Then, in the same suffix type, why student could give the meaning for only HW or only DW?	Extracting the information from the interview students in order to understand better why sometimes they give correct meaning for both HW and its derived form, but sometimes only HW or only DW.

However, as mentioned before that if students' responses were different from the two translation tests (it was not reliable) or few students had enough knowledge to respond in the semi-structured interview, then, these results would be discarded. In such cases, the results might merely provide some information that might guide future study.

3.4 Procedures

All data was collected in the third term of academic year 2005 with the students at Suranaree University of Technology.

3.4.1 The students were tested by two translation tests separated by a week so that the students' responses in the first test would not affect the second. The researcher gave the first test to the students in the first week without informing about the second test in the following week. The instruction of the test was given in Thai by the researcher in order to ensure that the students knew how to carry out the test. The examples and their meanings were given with a different suffix from the test, *-able* and *–ness.* The students were informed that the test was for research purposes and did not affect their course grades. In each test, after the instruction, students had to give their names and student ID and checked a box if they could participate in the interview.

3.4.2 The researcher gave another test to the same group of students the week after. The instruction and examples were the same as the first test. The students followed the same procedure as the first test.

3.4.3 Students' answer sheets were marked with 0 for incorrect and 1 for correct answer in order to a) check reliability (KR20) of the test using Item Response

Theory Software version 2004c, and b) calculate student's total scores.

3.4.4 The total score between tests 1 and 2 were compared using paired-sample *t*-test in order to see if it is different. The score was expected to be equal between the two tests if subjects can answer both headword and derived word. However, there might be other factors affecting the score of the second test, such as students looking up the meaning of word in the dictionary. But it did not affect directly because words in the two tests are different words.

3.4.5 The answers between the two translation tests were compared in order to code the answer into four levels of receptive knowledge of noun suffixes (Level 1 for words which headword and its derived word were correct, Level 2 for only headword that was correct, Level 3 for only derived form that was correct, and Level 4 for words which both headword and its derived form were incorrect). Students who got highest score and volunteered to the semi-structured interview participated in the interview because they might give more information about using of word-building strategy rather than weaker students.

3.4.6 The researcher calculated percentage of the four levels for each word family. The percentage of level 1 showed students' knowledge of both headword and derived word (which may or may not be because of word-building knowledge). The percentage of levels 2 and 3 showed students' knowledge of headword only or derived word only. From these figures, it was clear that the students did not have word-building knowledge of the words. The percentage of level 4 showed that

students did not have basic knowledge of the words (to answer research questions 1 and 2).

3.4.7 The researcher calculated the numbers of correct pairs (word families) in order to know how many pairs in a suffix type student could answer (to answer research question 3).

3.4.8 The researcher analyzed the responses from the students who were chosen for the interview, then drafted the questions to ask each of them. The researcher interviewed and tape-recorded, then transcribed the tape.

3.4.9 The researcher transcribed the responses in the semi-structured interview and checked whether it coincided with the answers in the translation tests (to support research question 3).

3.5 Data Analysis

The two translation tests were estimated for the reliability through Kuder-Richardson formula 20 (KR20). The answers from the two translation tests were scored as 1 for correct responses and 0 for non-responses and incorrect responses and calculated through the formula. The KR20 “provides an estimate of the average split-half reliability for all possible splits in a test without requiring actually splitting the test” (Mason and Bramble, 1997, p. 276). The reliability suggested whether the tests were reliable or they need to be adjusted in order to make them reliable.

The percentage of correctness of headwords and derived words was used to present the outcome from the two translation tests. The responses of the two tests were compared and interpreted into the four levels as classified in table 3.4.

Table 3.4: The four levels of receptive knowledge of noun suffixes

Levels	Responses for headword	Responses for derived word	Meaning
1	Correct	Correct	Students knew both headword and its derived form which may or may not be because of knowledge of word parts. For example, *create* and *creation* were translated as "to invent" (สร้างสรรค์) and "invention" (การสร้างสรรค์).
2	Correct	Incorrect	Students knew only headword and did not know that suffix. For example, in the pilot study, headword *assign* was translated correctly "to give someone a work to do" (มอบหมาย), but the derived word *assignment* was incorrect "to sign name" (เซ็นชื่อ).
3	Incorrect	Correct	Students knew only derived word but not by learning from word parts. For example, headword *define* was translated as "not fine" (ไม่สบาย) which is wrong, while the derived word *definition* was translated correctly "a statement giving the meaning of word" (คำนิยาม)
4	Incorrect	Incorrect	Students did not know both headword and its derived form. For example, headword *lecture* was translated as "take note" (จดบันทึก) and derived word *lecturer* was translated as "note taker" (ผู้จด). The answers were completely wrong.

The responses were added up and calculated through frequency using SPSS program in order to answer the research questions. The following table summarizes about how to answer each research question. Level 1 represented that students may or may not use word-building strategy because they could answer both headword and its

derived word. Levels 2 and 3 showed that students did not use word-building strategy because they knew only headword or only derived word in stead of knowing both. Level 4 showed that students knew nothing about the tested words.

Table 3.5: Summary of research questions, research instruments and data analysis

Research question	Research instrument	Data analysis
1 Do students have receptive knowledge of derived forms with four common noun suffixes *–er, –tion, –ment,* and *–ity*?	translation tests	Students' total scores, Scores of each word family from the four levels of receptive knowledge of noun suffixes
2 Is there evidence that some noun suffixes are more difficult than others?	translation tests	Percentage of levels 1 and 3 correctness of each suffix types
3 Do students recognize derived forms directly or through a process of word-building?	translation tests and semi-structured interview	Percentage of level 1 comparing to percentage of levels 2+3 Number of correct word families (pairs) that students answer for each suffix type. Students' responses from the interview

To answer the first research question "Do students have receptive knowledge of derived forms with four common noun suffixes *–er, –tion, –ment,* and *–ity*?", total scores, and scores of each word family from the four levels of receptive knowledge of noun suffixes were considered. Moreover, the researcher followed the previous study and used the percentage of correctness was used to predict the order of difficulty of four common noun suffixes according to research question two "Is there evidence that some noun suffixes are more difficult than others?" The percentage of level 1 and level 3 were combined in order to show the total percentage of derived word knowledge of each suffix type. Then, the percentage was ranged from the lowest to

highest in order to show the order of difficulty. Also, the order in the present study was compared with the results in other previous study which was done by Mochizuki and Aizawa (2000). To answer research question three "Do students recognize derived forms directly or through a process of word-building?", the information came from a) percentage of each level 1 (which may or may not represent the use of word-building strategy) comparing to percentage of levels 2 and 3 (which was not because of word-building strategy), b) number of correct word families (pairs) that students answered in each suffix type, and c) responses in the semi-structured interview which coincided with their answers in the two translation tests. The responses in the interview may give information about how the subjects recognized the tested words.

CHAPTER 4

RESULTS

This chapter presents the results of the study according to the following four topics: 4.1) the overall results, 4.2) scores of each word classified by the four levels of receptive knowledge of noun suffixes, 4.3) scores of each suffix type, and 4.4) results from semi-structured interview

4.1 The Overall Results

The overall results include 4.1.1) reliability of two translation tests, 4.1.2) students total scores, and 4.1.3) total scores of each translation test.

4.1.1 Reliability of two translation tests

The two vocabulary tests were estimated for reliability through Kuder-Richardson formula 20 (KR20) using Item Analysis System program (version 2004c). The KR20 values of two tests were 0.84 for the first test and 0.86 for the other, which indicated high reliability. That was, if students were to take the tests again there would be about 71% probability of students to achieve the same score for the first test and about 74% probability of students to achieve the same score for the second test.

4.1.2 Students' total scores

Before the total scores were calculated, their responses were checked and marked 1 point for correct answer and 0 for incorrect. The maximum total scores for

each student from the two translation tests was 64 points – with 32 points each test. The following table shows the total scores of E2 and E5 students.

Table 4.1: E2 and E5 students' total scores from both translation tests

E2		**E5**	
Score	**No of students**	**Score**	**No of students**
0	6	0	1
1	7	2	1
2	18	3	1
3	14	4	5
4	3	5	2
5	5	6	4
6	8	7	3
7	2	8	2
8	4	9	5
9	4	10	4
10	2	11	3
11	3	12	2
12	3	13	3
13	4	14	2
14	1	15	2
15	1	16	1
16	1	17	2
17	1	18	2
18	1	19	3
21	1	20	3
25	1	21	3
30	1	22	5
37	2	23	1
Total	93	24	2
		25	2
		28	2
		29	2
		30	1
		33	1
		34	1
		36	1
		37	1
		39	1
		Total	74

The first column was the total scores that E2 students got. The second column was the number of students who got different scores. That is, for example, there were

six students who got zero out of 64 points, seven students who got one out of 64 points, and so on. The third and the fourth column showed the same figures for E5 students.

The actual scores that E2 students got were from 0 to 37, meaning that the best E2 student got 37 points out of 64 and the worst students got 0 out of 64 points. The mean score that the students made from the two tests was 6.7.

The actual total scores of subjects from E5 were from 0 to 39, meaning that the best E5 student got 39 points out of 64 and the worst students got 0 out of 64. The mean score of the two tests was 15.6.

The actual total scores that subjects as a group (both E2 and E5) got from the two translation tests ranged from 0 to 39 out of 64 points and the mean score that all students made was 11 out of 64 points.

The total scores of 93 E2 and 74 E5 students were also calculated through independent-samples *t*-test in order to find whether students in both group were significantly different in their suffix knowledge or not. The following table presents the significant differences between two groups of student.

Table 4.2: Results of the *t*-test analysis of E2 and E5 total scores

	n	Mean	Std. Deviation	*t*-value
E2	93	6.7	7.250	6.749*
E5	74	15.61	9.334	

*$p < .001$

Statistical significance showed the differences between groups that E5 students as a group knew tested words much more than E2 students as a group ($t = 6.749$, $p < .001$). The mean scores of E5 students (15.61) were higher than E2 students (6.7).

4.1.3 Total scores of each translation test

This part presents the total scores that E2 and E5 students got from each test. It was expected that students would get the same scores from both tests since each test consists of word in the same family – a headword in one test and derived word in the other test. The results were shown according the total scores of each translation test that each student group got. Also, the researcher compared the scores of both tests using a paired-samples *t*-test. The researcher first showed the scores and the *t*-value of E2 group, then E5, respectively. The following table shows the total scores that E2 get.

Table 4.3: E2 students' total scores of both translation tests

Test 1		**Test 2**	
Score	**No of students**	**Score**	**No of students**
0	13	0	12
1	27	1	23
2	15	2	13
3	14	3	8
4	2	4	9
5	7	5	7
6	5	6	6
7	5	7	3
11	1	8	2
13	2	9	2
16	1	10	3
18	1	11	1
Total	93	12	1
		17	1
		19	1
		21	1
		Total	93

The first column was the total scores that E2 students got from the first translation test out of the maximum total scores of 32. The second column showed the number of students who got different total scores. For example, there were 13

students who got 0 out of 32, 27 students who got 1 out of 32, etc. The third and the fourth column showed the same figures for test 2 as in the first and the second column show the total scores for test 1. That meant, there were 12 students who got 0 out of 32, 23 students who got 1 out of 32, etc.

The actual total scores that E2 student got varied from 0 to 18 for the first test and 0 to 21 for the second test. The mean scores were 2.99 for the first test and 3.71 for the second test. The following table shows the significant difference between the scores in tests 1 and 2.

Table 4.4: Results of the *t*-test analysis of E2 total scores of both translation tests

	Mean	Std. Deviation	*t*-value
Test 1	2.99	3.383	4.127*
Test 2	3.71	4.031	

* $p < .001$

The calculation showed that the average scores of students in both groups was significantly different ($t = 4.127$, $p < .001$). It meant that E2 students could answer words in test 2 better than in test 1.

Next, the total scores that E5 students got from each translation test were shown in order to know how many words students could answer. The following table shows the total scores of E5 students.

Table 4.5: E5 students' total scores of both translation tests

Test 1		Test 2	
Score	**No of students**	**Score**	**No of students**
0	2	0	1
1	1	1	4
2	8	2	3
3	10	3	4
4	4	4	7
5	6	5	4
6	7	6	10
7	8	7	3
8	4	8	3
9	5	9	4
10	6	10	3
12	3	11	5
13	5	12	8
15	1	13	2
17	2	14	2
18	1	15	2
19	1	16	1
Total	74	17	3
		18	2
		20	2
		21	1
		Total	74

This table showed the total scores of E5 students. The first column showed the total scores that E5 students got from the first translation test. The next column showed the number of students who got different total scores, such as there were 2 students who got 0 out of maximum total scores of 32, 1 student got 1 out of 32, etc. The third and the fourth column showed the same figures for the second translation test. There was 1 student who got 0 out of 32, 4 students got 1 out of 32, etc.

The actual total scores varied from 0 to 19 in test 1 and from 0 to 21 in the second test. The mean scores were 6.96 for test 1 and 8.65 for test 2. The total scores of both tests were also compared through paired-samples *t*-test in order to see whether they were statistically different or not. The following table shows the results of the

t-test analysis of E5 total scores in both translation tests.

Table 4.6: Results of the *t*-test analysis of E5 total scores in both translation tests

	Mean	Std. Deviation	*t*-value
Test 1	6.96	4.415	5.621*
Test 2	8.65	5.235	

* $p < .001$

The *t*-value showed that there was a significant difference between two tests ($t = 5.621$, $p < .001$). The figures indicate a significant total scores for test 2 (Mean = 8.65, SD = 5.235) over test 1 (Mean = 6.96, SD = 4.415). This meant that E5 students could answer words in test 2 better than in test 1.

In sum, it was found that the total of both tests were significantly different for both E2 and E5 groups. The discussion of the low scores and the difference between the two tests were given in Chapter 5.

4.2 Scores of Each Word Classified by the Four Levels of Receptive Knowledge of Noun Suffixes

The scores of each word could easily be calculated from the students' ability to translate the meaning of words correctly. However, the researcher presented the scores by dividing the students' knowledge of word in four different categories, called the four levels of receptive knowledge of noun suffixes. Results in this section showed students' knowledge of each word family.

Students' answers on each word were compared between headword and its derived word, and then they were coded into the four levels of receptive knowledge of noun suffixes. As described in Table 3.4, level 1 was given to words that students know both headword and its derived word. The example of this level is *Select* in test

1 and *Selection* in test 2 that translated correctly as to choose, and the act of selecting respectively. However, it was not clear whether the students knew the derived form because of word building strategy or not, since they may have learnt the two words quite separately. Level 2 showed students' knowledge of the headword only. That was, student gave correct answer for *Construct* (to build or to make something) but not its derived form *Construction.* Level 3 showed students' knowledge of derived word only that was student responds with the correct Thai meaning for *Equipment* (things which are used for a particular purpose) but not its headword *Equip.* In Levels 2 and 3, it was clear that students did not have word-building knowledge, since they replied to only headword or derived word but not the other word in the same family. The last level showed that the subject did not know headword or its derived form. The student did not respond or responded to both headword and its derived form wrongly.

The results were presented in percent. The following tables show the percentage of each level for each word family. The percentage was presented for each noun suffix. The figures give a clear picture about what students know about words.

Table 4.7: Percentage of each word with derivative *–tion*

Pair	Level 1 Both HW and DW	Level 2 HW only	Level 3 DW only	Level 4 None
1.Select/ Selection	40.7	23.4	3.0	32.9
2.Create/ Creation	22.2	32.9	1.8	43.1
3.Predict/ Prediction	13.2	7.2	3.0	76.6
4.Construct/ Construction	11.4	2.4	24.0	62.2
5.Estimate/ Estimation	10.8	1.8	7.2	80.2
6.Define/ Definition	6.0	4.8	6.6	82.6
7.Indicate/ Indication	3.0	3.6	7.2	86.2
8.Violate/ Violation	0	0	0.6	99.4

The first column was the word families that have the suffix –*tion*. The second column showed the percentage of students who knew both headword and its derived word which may or may not because of word-building knowledge. The third column showed the percentage of students who knew only headword but not its derived word. Next, the column showed percentage of students who knew only derived word but not its headword. Both the third column and this column showed that subjects were definitely not using word-building, although they should/ could do so –they know one of either headword or derived word. The last column showed the percentage of students who did not know either headword or derived word. This showed that subjects lacked the basic knowledge necessary for word-building. This also indicated that the subjects lacked basic academic words.

The figures in levels 1, 2, and 3 showed students' knowledge of words. It showed that pair of words that most students knew were *select* and/ or *selection* (67.1%), *create* and/ or *creation* (56.9%), *construct* and/ or *construction* (37.8%), *predict* and/ or *prediction* (23.4%), *estimate* and/ or *estimation* (19.8%), *define* and/ or *definition* (17.4%), *indicate* and/ or *indication* (13.8), and *violate* and/ or *violation* (0.6%), respectively.

Table 4.8: Percentage of each word with derivative *-er*

Pair	Level 1 Both HW and DW	Level 2 HW only	Level 3 DW only	Level 4 None
1.Design/ Designer	64.6	10.2	15.0	10.2
2.Research/ Researcher	26.3	12.0	7.8	53.9
3.Export/ Exporter	18.6	26.9	0.6	53.9
4.Challenge/ Challenger	10.2	12.6	3.6	73.6
5.Consume/ Consumer	10.2	1.2	11.4	77.2
6.Lecture/ Lecturer	6.6	4.2	11.4	77.8
7.Publish/ Publisher	1.2	0	5.4	93.4
8.Occupy/ Occupier	0	1.2	0	98.8

Table 4.8 showed the same figures for the *–er* word families. The majority of students knew *design* and/ or *designer* (89.8% gathering from levels 1, 2, and 3). For the other pair, most students knew *research* and/ or *researcher* and *export* and/ or *exporter* (46.1%), *challenge* and/ or *challenger* (26.4%), *consume* and/ or *consumer* (22.8%), *lecture* and/ or *lecturer* (22.2%), *publish* and/ or *publisher* (6.6%), and *occupy* and/ or *occupier* (1.2%), respectively.

Table 4.9: Percentage of each word with derivative *–ment*

Pair	Level 1 Both HW and DW	Level 2 HW only	Level 3 DW only	Level 4 None
1.Require/ Requirement	15.6	10.2	7.2	67.0
2.Establish/ Establishment	6.0	1.8	1.8	90.4
3.Assign/ Assignment	4.8	5.4	9.0	80.8
4.Achieve/ Achievement	4.2	2.4	3.0	90.4
5.Adjust/ Adjustment	3.6	4.8	1.2	90.4
6.Invest/ Investment	2.4	0.6	1.8	95.2
7.Equip/ Equipment	1.2	0	34.1	64.7
8.Assess/ Assessment	0	2.4	0	97.6

Table 4.9 showed the same figures for *–ment* word families. The figures showed that pairs that most students knew were *equip* and/ or *equipment* (35.3% gathering from levels 1, 2, and 3), *require* and/ or *requirement* (33%), *assign* and/ or *assignment* (19.2%), *establish* and/ or *establishment, achieve* and/ or *achievement,* and *adjust* and/ or *adjustment* (9.6%), *invest* and/ or *investment* (4.8%), and *assess* and/ or *assessment* (2.4%), respectively.

Table 4.10: Percentage of each word with derivative *-ity*

Pair	Level 1 Both HW and DW	Level 2 HW only	Level 3 DW only	Level 4 None
1.Similar/ Similarity	10.8	15.0	0.6	73.6
2.Secure/ Security	9.0	6.6	20.4	64.0
3.Complex/ Complexity	3.6	8.4	0.6	87.4
4.Flexible/ Flexibility	3.6	3.0	4.2	89.2
5.Diverse/ Diversity	3.0	4.2	9.6	83.2
6.Capable/ Capability	1.2	0	7.8	91.0
7.Intense/ Intensity	1.2	1.2	3.6	94.0
8.Valid/ Validity	0	7.2	0	92.8

Table 4.10 showed the same figures for *–ity* word families. The figures showed that the majority of students knew little about words in the table. However, pairs that most students knew were *secure* and/ or *security* (36% gathering from levels 1, 2, and 3), *similar* and/ or *similarity* (26.4%), *diverse* and/ or *diversity* (16.8%), *complex* and/ or *complexity* (12.6%), *flexible* and/ or *flexibility* (10.8%), *capable* and/ or *capability* (9%), *valid* and/ or *validity* (7.2%), and *intense* and/ or *intensity* (6%), respectively.

4.3 Scores of Each Suffix Type

This section presents the results that show what English noun suffixes students know. It indicates which suffix types seem to be more or less difficult to the students (which suffix types most students could answer).

The results in this part are also presented using the four levels of receptive knowledge of noun suffixes. The previous sections presented the four levels of each word, which show what students know on an individual word. However, this part shows the four levels of different type of suffix *–tion, -er, -ment,* and *–ity*, which

gives an overall picture about students' knowledge of each suffix. The next table shows frequency and percentage of students' knowledge of each noun suffix as a group (167 students).

Table 4.11: Percentage of students' knowledge of each noun suffix

Level	***-tion***	***%***	***-er***	***%***	***-ment***	***%***	***-ity***	***%***
1. Both	127	9.51	114	8.53	46	3.44	76	5.69
2. HW only	179	13.40	230	17.22	63	4.72	54	4.04
3. DW only	89	6.66	92	6.89	97	7.26	78	5.84
4. None	941	70.43	900	67.36	1,130	84.58	1,128	84.43
Total	1,336	100	1,336	100	1,336	100	1,336	100

The first column of the table consisted of the levels which indicate students' knowledge of words whether they know both headword and its derived word (1.Both), knew the headword but not the derived word (2. HW only), knew the derived word but not the headword (3. DW only), or knew nothing (4. None). The second column showed the number of students' responses on suffix *–tion* with its percentage in the next column. The fourth column showed the number of students' responses on suffix *–er* with its percentage in the next column. The sixth column showed the number of students' responses on suffix *–ment* with its percentage in the next column. The eighth column showed the number of students' responses on suffix *–ity* with its percentage in the next column.

The total score of each suffix type was 1,336 that was 167 students multiplied by 8 word families (pairs) in each suffix type. For the first suffix type *–tion*, there were 70.43% students (E2 and E5) who did not know the meaning, which means, 29.57% students knew headword and/ or derived word (level 1, 2 or 3). The second type, suffix *-er*, there were 67.36% students (E2 and E5) who did not know either headword or its derived word, which means, 32.64% students knew headword and/ or

derived word (level 1, 2 or 3). The third suffix type, *-ment*, there were 84.58% students (E2 and E5) who did not know either headword or its derived word, which means, 15.42% students knew headword and/ or derived word (level 1, 2 or 3). The last suffix, *-ity*, there were 84.43 % students (E2 and E5) who did not know either headword or its derived word, which means, 15.57% students knew headword and/ or derived word (level 1, 2 or 3).

4.4 Results from Semi-Structured Interview

The procedures in the semi-structured interview were repeated briefly here. Students were shown their translation tests. The questions asked students to describe how they recognize words in the tests. The researcher asked only a word family (pair such as *define* and *definition*) at a time before moving to ask other word families (pairs). Although the main purpose of interview was to gain more information about how students recognize words in the tests, the results were not impressive. It was found that their responses were different from their knowledge in the two translation tests. The interviewed students might notice the interview questions and realize that the purpose of the study is to investigate word-building knowledge. This may create distortion due to subject expectation. For example, Student 13 said "*Suffix –ment is just like suffix –tion because both of them are used to make nouns. When I see words ending with –ment, I know that its Thai meaning must begin with Karn or Kwam.* While in his translation tests he answered the same meaning for *require* and *requirement*, he gave the reason in the interview that he was unconscious of his answers. Thus, the semi-structured interview could not be a primary tool in

answering the research question. However, there were some interesting issues that might be some food for thought. The researcher summarized them in table 4.12.

Table 4.12: Summary of findings from the semi-structured interview

Question to interview	Findings
After reading word carefully, could you please give the meaning of words in Thai again? (to crosscheck with the translation test)	58.88% of words were translated similarly to the translation test, 28.4% of words were given the meaning that was slightly changed from their translation tests, 12.72% of words were given the meaning that is completely different from translation tests
From a given list of word, do you think that there is other meaning of words in the list or not? (to check whether students know abstract and/ or concrete meaning)	45.79% of words were translated in abstract meaning, 9.35% of words were translated in concrete meaning, 5.6% of words were translated in both abstract and concrete meaning 39.26% no translation given
Have you looked up the meaning of words in the first test in the dictionary? If yes, how many?	59% or 13 students out of 22 interviewed students said they looked up in the dictionary (each student looked up only a word or few words)

Cross-check of the meaning of words in the interview and in the translation tests

From the table, about 58.88% of words that subjects gave the same meaning in either the interview or the translation tests. Some responses were slightly changed from their translation tests (28.4%). For example, in the translation test *Assignment* was translated correctly as “a piece of work that you are given to do”, but in the semi-structured interview it was translated as “responsibility or the duty to deal with job”. Or the meaning of the headword was given to its derived form. In this case, it showed

that the result of the semi-structured interview was may not be reliable in that it contrasted to the results from the two translation tests. Other 12.72% of words were translated differently from the translation tests.

Abstract meaning or concrete meaning

It showed that 45.79% of words were given in abstract meaning. That is, interviewed students may or may not use word-building strategy to express the meaning of derived words since the meaning of the derived form was simply the meaning of stem and its affix. For example, *Investment* means the act of giving or lending money for a profit. Other 9.35% of words were given in concrete meaning which was not simply stem and its affix, i.e. an abstract meaning, but it has a concrete meaning. For example, *Construction* was translated as "an object that had been built". Other 5.6% of words were translated both in abstract and concrete meaning. For the less 39.26%, there was no translation given.

Looking up the meaning of words during the two weeks

There was about 59% of interviewed students who looked up the meaning of words in the dictionary during two weeks. This result coincided with the comparison between total scores of the two translation tests. That is, students' score in both tests were significantly different. The higher standard deviation in test 2 suggests that there were more students who got higher scores in the second test; certainly some of those students would have been those who looked up words.

In conclusion, this chapter showed the results of the study which were used for discussing and answering each research question in the following chapter. The results from the two translation tests were the primary tools in answering research questions,

while the results from the semi-structured interview would take a small part in supporting the results in the translation tests.

CHAPTER 5

DISCUSSION, CONCLUSION, PEDAGOGICAL IMPLICATIONS, LIMITATIONS, AND RECOMMENDATIONS

This chapter repeats some figures from the previous chapter and discusses them according to research questions one, two, and three, and then the conclusion of results. The pedagogical implications, limitations and recommendations for further study are reported at the end of the chapter.

5.1 Discussion of Research Question One

Do students have receptive knowledge of derived forms with four common noun suffixes *–er, -tion, -ment* and *–ity*?

From the overall scores, it shows that students have little knowledge of the academic words with the derivative of *–er, -tion, -ment* and *–ity*. The overall score of 93 E2 students are 0 to 37 points out of 64. The mean score is 6.7, meaning that, on average; E2 students know only about 7 words (out of 64). The overall score of 74 E5 students are 0 to 39. The mean score is 15.6, meaning that, on average; E5 students know only about 16 words out of 64. While the overall scores of 167 students are 0 to 39 out of 64 points. The mean score is 11 points out of 64 or only about 17% of words in both tests that students know.

Besides, both E2 and E5 students have higher total scores in the second test. The statistical analysis shows the difference of total scores between two tests is highly significant. One possible reason for this is that the subjects looked up the meaning of words in test 1 during the week before they did the second test in the week after. Although some subjects looked up the meaning, this did not affect the results directly since both tests included different words.

The scores of words in the four levels of receptive knowledge of noun suffixes also reveal what students know about words in the tests. The figures from tables 4.11 show that students do not know words well. The table is repeated to show the figures.

Table 4.11 (repeated): Percentage of students' knowledge of each noun suffix

Level	***-tion***	***%***	***-er***	***%***	***-ment***	***%***	***-ity***	***%***
1. Both	127	9.51	114	8.53	46	3.44	76	5.69
2. HW only	179	13.40	230	17.22	63	4.72	54	4.04
3. DW only	89	6.66	92	6.89	97	7.26	78	5.84
4. None	941	70.43	900	67.36	1,130	84.58	1,128	84.43
Total	1,336	100	1,336	100	1,336	100	1,336	100

After the students' responses were compared and coded into each of the four levels of receptive knowledge of noun suffixes (table 3.4), the total possible score of each suffix is 1,336 (that is 167 students multiplied by 8 word families). The figures that show the students' knowledge of derived form comes from the scores in levels 1 (both headword and derived word) and 3 (derived word only). The number of the correctness of derived forms lets us know whether students have receptive knowledge of the derivatives of the four common noun suffixes or not, as well as what suffixes students know (research questions one and two). However, the figures do not show that students know the derived form because of word-building strategy. The numbers of students who know levels one and three of each suffix type are gathered then

convert the number into a percentage in order to compare the figures between different suffix types. All four noun suffixes are equal to a hundred per cent, thus each suffix is equal to 25 %. The percentage is listed in descending order of their accuracy (ability to give the translation of words).

To answer this research question, the table below is repeated and shows the percent of correctness of the derived forms.

Table 5.1: Percentage of students' knowledge of derived forms

Suffix	**Number of correct answer** (levels 1,3)	**Percentage** (maximum25% each)
-ment	143	2.7
-ity	154	2.9
-er	206	3.9
-tion	216	4.0
Total	719	13.5

The figures show that from total possible score that students could get (5,344), the students know 719 derived form or about only 13.5%. The remaining 86.5% could be in the knowledge of headword only, or no knowledge of either headword or derived word. The correct derived words are 143 out of 1,336 for *–ment* derivatives, 154 out of 1,336 for *–ity* derivatives, 206 out of 1,336 for *–er* derivatives, and 216 out of 1,336 for suffix *–tion*. The figures show that students' knowledge of derived form is little. There are only 13.5% of all responses that students answered correctly on the derived word.

The total scores and scores of each suffix seem to show that students' vocabulary knowledge is low. But we must be cautious about assuming that their overall vocabulary knowledge is as low as these results would indicate. It might be that students know other words which are not in the two translation tests.

As mentioned in the study by Nurweni and Read (1999) which aimed to measure first-year Indonesian university students' vocabulary knowledge, the students were inadequate in vocabulary for their independent reading –academic reading. Nurweni and Read (ibid) explained that students became short of useful vocabulary for university study because "students knew other words: ones that have Indonesian cognates, ones that they encountered in their high school textbooks and other written sources, and so on" (p. 171). The same evidence happened in the present study. The words in the present study is different from what the students knew from high school, especially for English 2 students who are studying in their first year. This indicates that the vocabulary that the students have learnt in their high school is not useful for their study in the university. The learning in high school that did not prepare students for the university study results in the students' lack of sufficient vocabulary. Ward (2004) found that engineering students at SUT are short of vocabulary knowledge. The study shows that students know 1,200 words out of the most common 2,000 general words based on the Brown corpus. According to the Ministry of Education, students are expected to know about 3,600 to 3,750 words (Tregoson, Prettiprapa, & Kamutmase, 2001). Therefore, the figure indicates that students have only one third of the amount of vocabulary knowledge that they should have before or during their study in the university.

Moreover, from Nurweni and Read's study, Ward's study as well as Foley's (2005) study, English language studies in the high school and in the university discourage students from their specialized studies such as engineering, information technology, etc. Even English foundation courses in the university do not seem to be

enough and do not help students to survive in university when they were to read academic texts on their own.

The first reason for the low score is that students misunderstood the spelling of words (orthographical errors) then gave other meaning of different word such as, *violate* and *violation* and *publish* and *publisher*. The following table shows the misunderstanding by the subjects.

Table 5.2: Orthographical errors

Word	Correct translation	Students' answer	% of students' responses
Violate/ Violation	To break the law or promises or to disturb someone's privacy	Purple color (Violet)	21
Publish/ Publisher	To print a piece of writing, book or magazine	Relating to all the people in community (Public)	11

The figures show that the first pair, *violate* and *violation*, 21% of students' responses showed the misunderstanding of the spelling of words. That is, from the maximum score for this pair which is 334 (167 students multiplied by 2 words), there were 69 responses that translated as *purple color*. Similarly, there is 11% (or 38 responses out of 334) of students' responses that misunderstood the spelling of *publish* and *publisher*.

These show that students confused the spelling of words then they give other meanings which are the meaning of words that spelling are quite similar – orthographically similar (Field, 2003). This issue is not about word-building knowledge but the awareness when reading the words. In this study, these wrong translations decrease the total scores. But if the student were to encounter the word in his or her own reading, he or she might get confused when trying to understand

a sentence or paragraph.

The second reason is that some students see parts of word and misunderstand that the parts convey the same meaning, such as *occupy* and *occupier* and *assign* and *assignment*. The following table shows the sample words.

Table 5.3: Confusion about word parts

Word	Correct translation	Students' answer	% of students' responses
Occupy/ Occupier	To fill or cover the place, to live or work in a particular place	Job or something that you spend time doing (Occupation)	8
Assign/ Assignment	To give someone the work to do	To write name on document (Sign)	6

The 8% (or 27 responses out of 334) showed that some students misunderstood the meaning of *Occupy* and *Occupier* because these two words had parts that similar to the other word *Occupation.* Other examples were *Assign* and *Assignment*. The 6% (or 19 responses out of 334) showed the misunderstanding of the word parts. There were some students thought the two words had similar parts as in *Sign.*

The third reason is that students try to use word as a loan word (Thai word). The loan words should be scratched after a pilot study. However, some loan words that include in the translation tests are a matter of mistake since it is not easy to say which words are loan words. However, the meanings of these loan words were completely wrong. For example, *Lecture* and *Lecturer* were translated as *takes notes* or *a person who takes notes* (33%). Based on the two English-Thai dictionaries used in the present study, the meanings of *Lecture* and *Lecturer* were *to teach about a particular subject* and *a person who teach about a particular subject especially in the*

university. Another word was *Complex* and *Complexity* which was translated as *department store* or *center* (14%), which different from the meaning provided in the two dictionaries as *a group of buildings that connected to each other*. This shows the disadvantage of using loan word without understanding. This problem can be solved if students know the meaning of headword and use word parts to guess the meaning of the derived word.

Fourth, scores from the translation tests were affected by the students' answers where the meaning of headword and its derived word were translated the same. Whenever students give the same translation, they will get only 1 point for one which is completely correct. So the translation which was partially correct is scored as zero. This result confirms that students do not know the connection between headword and suffix or they do not have word-building knowledge. Some students do not pay attention to the importance of giving correct meaning to such a word. From the semi-structured interview, 17 students said they did not pay attention to what exact meaning of the word is. Although students said by themselves that they know how to use such a suffix, they still produced errors by giving the meaning of derived word (noun word class) interchangeably with its headword (verb or adjective word class). Thus they gave the meaning of the base (headword) for its derived form or the meaning of derived form for its headword and thought that it can be used interchangeably. Note that the subjects in the semi-structured interview were the strongest students.

To summarize the students' knowledge of words with derivatives *–tion, -er, -ment* and *-ity* in the two tests, students' word knowledge is very low and may not reach even low-intermediate language level. Throndike (1941) and Bauer and Nation

(1993, as cited in Nation, 2001) propose that students with low-intermediate level are able to start learning suffixes in early levels. The four common suffixes in the present study are in early levels (levels 3 and 4). However, students in the present study did not show the receptive knowledge of the four noun suffixes. This reveals that students are not ready to read academic English texts. Students did not show the ability to use the strategy. This might be because the teaching of word-building strategy was not done systematically. Thus, the subjects could not make use of the strategy with academic words. This is not surprising then that students found difficulty in their reading which touch on academic content (*Steps to Academic Reading 3: across the board* or *Steps to Academic Reading 5*: *between the lines*).

Another point to discuss is the difference between two student groups. The mean scores show that E5 students as a group are better than E2 students as a group ($t_{(166)} = 6.749$, $p < .000$). This seems to indicate that language studies in the university affect their knowledge but the level seems to remain rather low. However, examining into each student's total score found that some E2 students' word knowledge was greater than some E5 students. Factors affecting students' total scores are discussed in section 5.3

In sum, the translation test used to measure students' receptive knowledge of four common English noun suffixes is reliable. Although the measurement shows that E5 students as a group understand words better than E2 students as a group, students' receptive knowledge of the four noun suffixes of both of students groups is little and not impressive. It is impossible to assume from the study that students know the derived words. They almost know nothing about academic words, thus it's not surprising that students have problems in reading academic textbooks.

5.2 Discussion of Research Question Two

Is there evidence that some noun suffixes are more difficult than others?

The figures in table 5.1 are also used to answer this research question. The following repeated table shows the percentage of derived word knowledge (levels 1 and 3) which answers this research question.

Table 5.1 (repeated): Percentage of students' knowledge of derived forms

Suffix	**Number of correct answer** (levels 1,3)	**Percentage** (maximum25% each)
-ment	143	2.7
-ity	154	2.9
-er	206	3.9
-tion	216	4.0
Total	719	13.5

The percentage of knowledge of derived form shows that most of students (E2 and E5) know suffix *–tion* better than the other three suffixes. The following suffixes that students know are, in descending order, *–er*, *-ity*, and *–ment.* In turn, suffix the few students could answer and seems to be the most difficult suffixes are *–ment*, *-ity*, *-er*, and *–tion*, respectively.

The order in the present study reveals the difficulty of suffixes that students found at the moment (when they did in the two translation tests). As mentioned by Cook (2001), the measurement of particular language features at a particular time indicates the difficulty not the acquisition of language. Thus, from this study, which investigates the knowledge at a time, there is no evidence to verify that the difficulty of four suffixes will be in the same order if students were to encounter them after this study (as claimed by Mochizuki and Aizawa (2000) as an order of acquisition).

The order of suffix difficulty of students in this study were compared to the order of accuracy in previous study, Mochizuki and Aizawa's (2000) study –the study which try to explore the order of affix acquisition. The following table shows the order of difficulty (or order of acquisition according to other researchers' assumption). The suffix in the first level is the most difficult suffix and few students can correctly give the meaning of derived words. The fourth suffix is the suffix that is the least difficult. That is, most students can provide the meaning correctly.

Table 5.4: Comparison of order of suffix difficulty

Present study	**Mochizuki & Aizawa's study** (Previous study)
1–*ment*	1 –*ity*
2 –*ity*	2 –*er*
3 –*er*	3 –*ment*
4 –*tion*	4 –*tion*

It is clear from the table that the order of suffix difficulty is not consistent (not universal). There is only one suffix that is in the same position in the order. Suffix –*tion* was easiest for students in both studies. Although the rest of the suffixes were in different order, the order showed that suffix –*er* is somehow easier than suffix –*ity*.

Factor affecting the order of difficulty (or the order of acquisition according to Mochizuki and Aizawa) might be that the subjects understand individual words rather than using word-building strategy. The next section (discussion of research question three) will discuss more about why the subjects understand individual words rather than using word-building strategy to recognize or re-express the meaning of words.

In sum, the difficulty of the four noun suffixes is different for students in different groups. Thus, it is difficult to make claims about what exactly the order of suffix difficulty is.

5.3 Discussion of Research Question Three

Do students recognize derived forms directly or through a process of word-building?

As mentioned in previous chapters that level 1 show the knowledge of headword and its derived form; however, it might or might not because of word-building knowledge. Levels 2 and 3 show clearly that students did not use word-building knowledge because they answered only headword or only derived word. Thus, the researcher compared the figures in level 1 with the figures in levels 2 and 3. A table below shows the percentage of students' answer that classified into different levels of receptive knowledge of English noun suffixes. However, the researcher presented only the percentage from levels 1, 2, and 3.

Table 5.5: Percentage of receptive knowledge from levels 1, 2, and 3

Level	*-tion* %	*-er* %	*-ment* %	*-ity* %
1. Both HW and DW	9.51	8.53	3.44	5.69
2. HW only	13.40	17.22	4.72	4.04
3. DW only	6.66	6.89	7.26	5.84

Consider that the percentage of levels 2 and 3, which are much higher than level 1, shows that in most cases this group of students did not understand these suffixes. Instead, they understand individual words (not word families).

However from the examination into each word family (table 4.7 to table 4.10), there are two possible word families (pairs) that students' responses in level 1 are greater than levels 2 + 3. They are *select* and *selection* and *design* and *designer*. Tables 4.7 and 4.8 are repeated in order to show the figures of levels 1, 2, and 3.

Table 4.7 (repeated): Percentage of each word with derivative *–tion*

Pair	Level 1 Both HW and DW	Level 2 HW only	Level 3 DW only	Level 4 None
1.Select/ Selection	40.7	23.4	3.0	32.9
2.Create/ Creation	22.2	32.9	1.8	43.1
3.Predict/ Prediction	13.2	7.2	3.0	76.6
4.Construct/ Construction	11.4	2.4	24.0	62.2
5.Estimate/ Estimation	10.8	1.8	7.2	80.2
6.Define/ Definition	6.0	4.8	6.6	82.6
7.Indicate/ Indication	3.0	3.6	7.2	86.2
8.Violate/ Violation	0	0	0.6	99.4

Level 1 (40.7%) of *select* and *selection* is greater than levels 2 and 3 (26.4% in the total).

Table 4.8 (repeated): Percentage of each word with derivative *–er*

Pair	Level 1 Both HW and DW	Level 2 HW only	Level 3 DW only	Level 4 None
1.Design/ Designer	64.6	10.2	15.0	10.2
2.Research/ Researcher	26.3	12.0	7.8	53.9
3.Export/ Exporter	18.6	26.9	0.6	53.9
4.Challenge/ Challenger	10.2	12.6	3.6	73.6
5.Consume/ Consumer	10.2	1.2	11.4	77.2
6.Lecture/ Lecturer	6.6	4.2	11.4	77.8
7.Publish/ Publisher	1.2	0	5.4	93.4
8.Occupy/ Occupier	0	1.2	0	98.8

Level 1 (64.6%) of *design* and *designer* is greater than levels 2 and 3 (25.2% in the total).

These four words – *select* and *selection* and *design* and *designer*—might affect the total scores of suffixes *–er* and *–tion* to reach 9.51% and 8.53%, respectively, and make them higher than the total scores of suffixes *–ment* and *–ity* (3.44% and 5.69%).

After examining into each word family (pair), the researcher also checked each subjects' answer sheets with the expectation to see whether any subject tend to

use word-building strategy or not. If not, then the summary of results in table 5.5 could be true that all subjects in this study did not have knowledge of word-building.

The researcher, then, went back to the answer sheets and checked at each suffix type and counted how many word families (pairs) that students could answer. Since there is no previous study to refer to, this study, for purposes of argument, considers students to be a word-builder if s/he could answer headword and its derived word for at least half of all word families in the same suffix. Thus, we make the highly tentative assumptions that students who got 50% of all words (or at least 4 out of 8 word families or pairs) are word-builders.

From the examination, there are only four subjects (out of 167 subjects) who could be considered to be word-builder. Students2 and Student7 were the two students who may have used word-building strategy to recognize the meaning of derivative form *–tion.* Student2 knew both headword and its derived word of the base *predict, select, create,* and *construct.* Student7 knew both headword and its derived word of the base *estimate, select, create, define, indicate,* and *construct.* Two other students, Student 4 and Student 14 may have used word-building strategy to recognize the meaning of derivative form *–er.* Student4 knew both headword and its derived word of the base *research, export, challenge,* and *design.* Student14 knew both headword and its derived word of the base *lecture, research, challenge, export, design,* and *consume.*

From the finding, only 4 students out of 167 students seem to have word-building knowledge. Thus, the examination confirms the result that students, as a group, do not have word-building knowledge. This examination also suggests

that the knowledge of word-building strategy does not depend on the number of language courses that the students have taken but something else. Students 2, 7, 14 are E2 students and student4 is the only E5 student who might have shown word-building knowledge. The result shows that students as a group have poor word-building knowledge. Subjects' ability to answer the meaning of tested words was not the knowledge of word-building but something else.

From the semi-structured interview, although students' responses were not reliable (they may have tried to convince the interviewer that they used word-building strategy), there is an important issue to indicate how meaning of words was learnt. From the semi-structured interview, it was found that the factor affecting the recognition of words is the frequency that students encounter words in their daily life.

Students could not guess the meaning of the unknown words although they know one word in the same family. The following examples show that students do not make use of word parts (word-building strategy), but rather recognize words separately. Students 5 and 12 recognize only the derived form which they encounter often.

> *I found the word Consumer (DW) very often in my study and I'm not familiar with Consume. So I could not translate the word Consume.*
>
> [Student5]

> *I know the meaning of Security(DW). I never see the word Secure so I did not give the translation of this word.*
>
> [Student12]

Also, Student 10 who knows the meaning of *construction* in test 1 but he did not answer *construct* in test 2. Although he said he knows how to use suffix *–tion*, he did not see the connection of the suffix and the headword *construct.*

Of course, there are a number of frequent words including *design* and *designer, select* and *selection,* and *equipment*. *Design, designer,* and *equipment* are used as Thai words. The researcher must acknowledge that these loan words in the translation tests were a mistake. In fact, the loan words should be discarded after the pilot study; however, it is very difficult to say which words will or will not be used as loan words in Thai. For example, companies in Thailand use English words in their names, e. g., "*Phuket Inter Chemicals Co., Ltd"*, in a way which is not predictable.

While *design, designer,* and *equipment* are used as Thai words, *select* and *selection* are found often when they use a computer. Students did not use word-building strategy to recognize all these words (frequent words) but they stored the whole word in a time. Thus, the frequency of tested words that drew from different sublist in the AWL did not relate to subjects' word knowledge. Although the subjects should answer words in early sublist, such as *estimate* and *estimation* (19.8%) or *indicate* and *indication* (13.8%) in sublist 1, many subjects could answer words in later sublist, such as *predict* and *prediction* (23.4%) in sublist 4 or *lecture* and *lecturer* (22.2%) in sublist 6. Besides, the researcher finds the correlation between students' word knowledge from the two translation tests and the Brown corpus in the way that word frequency in this corpus might correlate with students' word knowledge. Spearman's rho statistic shows that there is no significant correlation between students' answer and frequency of words in Brown corpus. This is probably because students' reading has been in language contexts which do not include words in this corpus.

Bybee (2005, p. 6) suggests that "words with derivational affixes become less transparently related to their base forms as they become more frequent". The derived

words which are accessed more by the students have a chance to be stored in brain as an unanalyzed unit. The case does not happen only to learners who study English as a second or foreign language, but the native speaker also (Nation, 2001). Native speaker children do not pay attention to the history of word or the derivation but they concern with the obvious meaning of word. Moreover, the frequency of use is different in each student because they encountered different words in their lives. Of course, the differences affect the order of difficulty (research question 2).

Besides the frequency of use, there are other reasons to support that students did not succeed in using this strategy. First, it is possible that students become less accurate in using word-building strategy because they do not use the strategy in their language learning. Cohen (1987) mentions that when language learners are away from using a strategy, they tend to become less accurate in using the strategy as well. Other reason to support that students are not successful in using word-building strategy is that subjects misunderstood what suffixes do. Although the subjects recognize that suffixes in the tests were used to make noun, they did not relate the meaning of the nouns to the meaning of the headword.

> *I know the meaning of Assignment; however, it is not because of I know Assign and suffix –ment. But it is because suffix –ment makes a noun and I try to guess which Thai word is likely to be the correct meaning of Assignment. It doesn't mean that I have to re-express the meaning from Assign + ment.*
>
> [Student5]

> *I wrote the meaning of Selection and Definition because suffix –tion makes a noun. Then, I guess which Thai meaning is possible to be the meaning of Selection and Definition.*
>
> [Student12]

This result is against the results from Mochizuki and Aizawa's (2000) study. It argues that knowing word class does not indicate students' affix knowledge.

Although the words in this study are high frequent words from the AWL, they are not frequent words to the students. Students encounter some other words which might not exist in the AWL. In turn, students have less exposure to academic textbooks. Of course, it is possible that students have problems in their academic reading since they have little knowledge of academic words and little word-building knowledge.

For this reason, the derived words that the students answered in this study might not be because of word-building knowledge but the recognition as unanalyzed word which students encounter often in their daily life. This result also refers to the students' response in the semi-structured interview. It argues that students convince the researcher that they have word-building knowledge. In fact, from both translation tests and the semi-structured interview, they could answer only on headword or derived word. Although the interview students tried to show positive thinking towards word-building, they did not show evidence that the word parts are useful to them. Students answered few of derived words although the words are semantically transparent (the meaning of word is from the parts). So far that the students were taught to analyze complex word (using word-building), there is no evidence that students make use of the word parts. Even students who remember what suffixes are (they are attached at the end of word) and what they do (change word class and making noun), they could not rephrase the meaning of the parts (headword and suffix).

In sum, the results from both translation tests and the semi-structured interview show that a few students have some background knowledge about the word-building strategy with the four common English noun suffixes. However, at present,

when they encountered words in the two tests, they do not reveal that they make use of this strategy. The teaching of word-building strategy to this level of students might not help them to recognize and re-express the meaning of derived word. This also indicates that in vocabulary teaching, the teachers should teach word-building strategy systematically in order to make sure that students could re-express the meaning of the derived words.

The ability to answer derived words in the test is not because of word-building knowledge but the recognition of individual words especially high frequent words or loan words. Thus, from the results of this study, frequency of word used in students' lives is the main factor affecting the ability to recognize the meaning of words.

5.4 Conclusion

The results of this study show that SUT students have little receptive knowledge of the four English noun suffixes *–tion, -er, -ment* and *-ity*. They might not be prepared for their study in academic context since they know little of academic words and they are unaware of using useful vocabulary learning strategies such as word-building strategy. The students do not make use of the word parts although they have learned that for more than 4 years from their high school. In turn, the meaningful word parts are not meaningful to the students in this level of language

proficiency. As mentioned by Throndike (1941) and Bauer and Nation (1993), word-building strategy seems to be useful for learners with low-intermediate level. Although it is not possible to be certain that the subjects' language proficiency is lower than low-intermediate level, subjects' suffix knowledge is low. Their suffix knowledge did not meet the ability to understand the suffixes that learners with low-intermediate level could do (which are the four suffixes in this study). It could be the case that the teaching of word-building strategy is not effective.

The factor that affects students' word recognition in the present study is more likely to be the frequency of word that they often find in their lives, which is not only headword or derived word. The subjects recognize the frequent words but do not associate them with word parts to infer the meaning of another word with the same stem. This indicates that the word families could not help the students to expand their vocabulary size. In turn, word families have no meaning for this group of students. Psycholinguistic research also could not explain to what extent does "learners' acquisition of a word relates to their knowledge of the other words in the word family" (Schmitt and Zimmerman, 2002, p. 146). On this evidence, the relationship hardly seems to exist. The frequency of use which is a primary factor affecting students' word recognition and, of course, the frequency is different in each subject depending on various reasons, such as what kind of books students read, how often they approach to language context, etc.

5.5 Pedagogical Implications

5.5.1 The study suggests which suffix types that language teachers should consider when teaching word-building strategy (whether to focus on the difficult suffixes or easy suffixes). The results show that at least for Thai university students, the difficult suffixes are *–ment* and *–ity,* while the easier are suffixes *–er* and *–tion*.

5.5.2 Language teachers should teach word-building strategy to the students systematically, as well as teaching them new headwords. The teachers may start teaching with the suffix types which are not too difficult for the students such as suffixes *–er, -tion* and deal it with only a suffix at a time. The teachers may refer to the criteria for grouping the affixes by Bauer and Nation (1993). The criteria are guideline to which suffixes are reasonable to teach for beginner in terms of the written form of the derived word, spoken form, etc. Teaching the strategy explicitly may help the students to see the connections between headword and suffixes. Moreover, the teachers should focus on the headwords which relates to their students' need.

5.5.3 Expose students to academic reading where they can see more academic words and get to practice word-building strategy effectively.

5.6 Limitations of the Study

5.6.1 The present study is a cross-sectional study which could represent only the receptive knowledge of noun suffixes. It would be more interesting to investigate in a long period of time, then the researcher may see the order of suffix acquisition.

5.6.2 It was recommended by the interview students that the words should be tested in a sentence not as an individual word. However, the test type must be considered according to the purpose of the study.

5.6.3 Since there is no previous study to refer to, this study considers students to be a word-builder if s/he could answer headword and its derived word for about 50% of tested words in the same suffix type.

5.6.4 The researcher has to be careful of the interview questions which might let the subjects mislead you.

5.7 Recommendations for Further Study

5.7.1 Other studies should be done with other suffixes so we—as teachers—understand more how word-building strategy affects the students' vocabulary knowledge. Maybe, the study explores whether word families expand vocabulary size or is there any order of suffixes acquisition.

5.7.2 Later study may use words from different word lists and investigate whether students have receptive (or productive) knowledge of the derived word or not. However, the word list must relate to students' learning context.

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APPENDICES

APPENDIX A

BACKGROUND INFORMATION AND TEST 1

ข้อมูลทั่วไปของผู้ตอบแบบทดสอบคำศัพท์

ชื่อ-นามสกุล _____

รหัสประจำตัวนักศึกษา _____

นักศึกษายินดีให้ความร่วมมือในการสัมภาษณ์ (ถ้ามี) เพื่อการทำวิจัยโดย ไม่มี ผลต่อการเรียนในชั้นเรียนปัจจุบันของผู้ตอบแบบทดสอบคำศัพท์ □ ใช่ □ ไม่ใช่

คำแนะนำในการตอบแบบทดสอบคำศัพท์

แบบทดสอบคำศัพท์นี้มีจุดประสงค์เพื่อวัดความสามารถในการให้ความหมายของคำศัพท์ภาษาอังกฤษเป็นภาษาไทย ซึ่งประกอบด้วยคำศัพท์ภาษาอังกฤษจำนวน 32 คำ ให้ตอบโดยใช้เวลา 10 นาที

นักศึกษาควรอ่านคำที่ให้อย่างระมัดระวังและเขียนความหมายของคำเป็นภาษาไทยให้ชัดเจนในช่องว่างทางขวามือ

ตัวอย่างการตอบแบบทดสอบคำศัพท์

	คำ	ความหมาย
1	Deny	*ปฏิเสธ*
2	Unique	*ที่มีอยู่อันเดียวไม่ซ้ำใคร*
3	Believable	*น่าเชื่อถือ สามารถเชื่อถือได้*
4	Goodness	*ความดี*

นักศึกษาควรเขียนความหมายให้ครบทุกคำ และผลของการทำแบบทดสอบคำศัพท์นี้จะ ไม่มี ผลใดๆกับการเรียนในชั้นเรียนปัจจุบันของผู้ตอบแบบทดสอบคำศัพท์

....

	คำ	ความหมาย
1	Prediction	
2	Estimate	
3	Select	
4	Assignment	
5	Equip	
6	Design	
7	Creation	
8	Achievement	
9	Lecture	
10	Challenger	
11	Publish	
12	Complexity	
13	Construction	
14	Exporter	
15	Intensity	
16	Indication	
17	Diversity	
18	Violate	
19	Consume	
20	Secure	
21	Define	
22	Similar	
23	Flexible	
24	Invest	
25	Assessment	
26	Occupier	
27	Capable	
28	Require	
29	Adjustment	
30	Validity	
31	Establish	
32	Researcher	

ขอขอบคุณที่ให้ความร่วมมือ

APPENDIX B

BACKGROUND INFORMATION AND TEST 2

ข้อมูลทั่วไปของผู้ตอบแบบทดสอบคำศัพท์

ชื่อ-นามสกุล _____

รหัสประจำตัวนักศึกษา _____

นักศึกษายินดีให้ความร่วมมือในการสัมภาษณ์ (ถ้ามี) เพื่อการทำวิจัยโดย ไม่มี ผลต่อการเรียนในชั้นเรียนปัจจุบันของผู้ตอบแบบทดสอบคำศัพท์ □ ใช่ □ ไม่ใช่

คำแนะนำในการตอบแบบทดสอบคำศัพท์

แบบทดสอบคำศัพท์นี้มีจุดประสงค์เพื่อวัดความสามารถในการให้ความหมายของคำศัพท์ภาษาอังกฤษเป็นภาษาไทย ซึ่งประกอบด้วยคำศัพท์ภาษาอังกฤษจำนวน 32 คำ ให้ตอบโดยใช้เวลา 10 นาที

นักศึกษาควรอ่านคำที่ให้อย่างระมัดระวังและเขียนความหมายของคำเป็นภาษาไทยให้ชัดเจนในช่องว่างทางขวามือ

ตัวอย่างการตอบแบบทดสอบคำศัพท์

	คำ	ความหมาย
1	Deny	*ปฏิเสธ*
2	Unique	*ที่มีอยู่อันเดียวไม่ซ้ำใคร*
3	Believable	*น่าเชื่อถือ สามารถเชื่อถือได้*
4	Goodness	*ความดี*

นักศึกษาควรเขียนความหมายให้ครบทุกคำ และผลของการทำแบบทดสอบคำศัพท์นี้จะ ไม่มี ผลใดๆกับการเรียนในชั้นเรียนปัจจุบันของผู้ตอบแบบทดสอบคำศัพท์

....

	คำ	ความหมาย
1	Flexibility	
2	Lecturer	
3	Diverse	
4	Establishment	
5	Designer	
6	Predict	
7	Achieve	
8	Estimation	
9	Publisher	
10	Requirement	
11	Assess	
12	Definition	
13	Selection	
14	Indicate	
15	Create	
16	Violation	
17	Security	
18	Challenge	
19	Adjust	
20	Capability	
21	Occupy	
22	Consumer	
23	Equipment	
24	Export	
25	Assign	
26	Investment	
27	Valid	
28	Research	
29	Intense	
30	Construct	
31	Complex	
32	Similarity	

ขอขอบคุณที่ให้ความร่วมมือ

APPENDIX C

SEMI-STRUCTURED INTERVIEW QUESTIONS

Part I

1. After reading word carefully, could you please give the meaning of words in Thai again?
2. Are there any parts in the word help you to recognize its meaning?
3. Do you think the suffixes *–tion, -er, -ment* and *–ity* have any meaning? If yes, what are they? Do you know how to use such suffixes?

** Words which were asked in the semi-structured interview questions 1-3 were different in each subject depended on what they could answer in the translation tests.

4. Please rank vocabulary strategies that you use (put 1 for the most used and do not put rank the strategy that you never use). The list consists of 1. word list, 2. synonym & antonym, 3. mnemonic technique(sound similarity to Thai), 4. mnemonic (pictures), 5.word parts, 6.context clues, and 7. others.
5. Have you looked up the meaning of words in the first test in the dictionary? If yes, how many words?

Part II

The researcher had the interview student looked at their answer sheets and started to ask the meaning of DW and HW from suffix type that they could answer best. For each suffix type, the researcher pointed to a pair(s) of words that student know both HW and its derived form. Then, in the same suffix type, why student could give the meaning for only HW or only DW?

CURRICULUM VITAE

Ms. Jitlada Chuenjundaeng was born in Nakhon Ratchasima on March 4, 1980. She graduated her B.A. (English) from Mahasarakham University in academic year 2002. She worked as a secretary to factory manager in a Malaysian company for a year. In 2003, she joined the Master of Arts program in English Language Studies offered by Suranaree University of Technology (SUT). She worked as a teaching assistant for a year at SUT and was responsible for English I and English II compulsory courses. She is now working as a research assistant at the School of English, Suranaree University of Technology. Her research interest is related to vocabulary learning strategies.