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**A COMPARISON OF SOME COMMON READING-
BASED VOCABULARY EXERCISES**

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A COMPARISON OF SOME COMMON READING-BASED VOCABULARY EXERCISES

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งานวิจัยนี้มีวัตถุประสงค์ในการค้นหาว่าแบบฝึกหัดศัพท์หลังการอ่านที่พบบ่อยแบบใดจะช่วยให้เกิดการเรียนรู้ศัพท์ในเชิงรับได้ดีกว่า งานวิจัยนี้ได้้นำแบบฝึกหัดที่ผู้เรียนไม่ต้องนำคำศัพท์ไปใช้ในบริบทใหม่ (แบบฝึกหัดประเภท A) สองแบบฝึกหัด มาเปรียบเทียบกับแบบฝึกหัดที่ผู้เรียนต้องใช้คำศัพท์ในบริบทใหม่ (แบบฝึกหัดประเภท B) อีกสองแบบฝึกหัด การศึกษาครั้งนี้ได้อ้างอิงจากสมมติฐานด้านการใช้ความพยายามทางด้านการคิด (mental effort hypothesis) ซึ่งกล่าวไว้ว่า งานที่ต้องใช้ความพยายามทางด้านการคิดมากกว่า จะทำให้ผู้เรียนเกิดการเรียนรู้มากกว่า จากกรอบความคิดนี้ อาจกล่าวได้ว่าแบบฝึกหัดประเภท B ควรจะทำให้เกิดการเรียนรู้และจำคำศัพท์ได้มากกว่าแบบฝึกหัดประเภท A เนื่องจากแบบฝึกหัดประเภท B จะกระตุ้นให้ผู้เรียนต้องใช้ความพยายามทางด้านการคิดมากกว่า เพราะนอกจากผู้เรียนจะต้องทราบความหมายของคำศัพท์แล้ว ยังจำเป็นต้องนำคำศัพท์นั้นไปใช้ในบริบทใหม่อีกด้วย ในขณะที่แบบฝึกหัดประเภท A ต้องการให้ผู้เรียนทราบความหมายของคำศัพท์เท่านั้น แต่ไม่จำเป็นต้องนำคำศัพท์เหล่านั้นไปใช้ในบริบทใหม่แต่อย่างใด

ผู้วิจัยได้ทำการทดลองสองครั้งกับกลุ่มตัวอย่างซึ่งเป็นนักศึกษาปีหนึ่ง จากมหาวิทยาลัยในกรุงเทพฯ 2 แห่ง จำนวน 122 คนในแต่ละครั้ง การวิจัยนี้ใช้แบบทดสอบก่อนเรียน (pretest) กับกลุ่มตัวอย่าง เพื่อทดสอบความรู้ของศัพท์ที่ใช้ในการทดลอง 10 คำ และใช้แบบทดสอบหลังเรียน (posttest) เพื่อวัดการเรียนรู้และความสามารถในการจำศัพท์ (vocabulary gain and retention) 3 ครั้ง ดังต่อไปนี้ 1] ทันทีหลังจากทำแบบฝึกหัด 2] หลังจากทำแบบฝึกหัด 7 วัน และ 3] หลังจากทำแบบฝึกหัด 30 วัน หลังจากนั้นจึงทำการสัมภาษณ์เพื่อให้ทราบข้อมูลเพิ่มเติมเกี่ยวกับกระบวนการจำและเรียนรู้ศัพท์ของกลุ่มตัวอย่าง

ผลการวิจัยพบว่าข้อมูลส่วนใหญ่สนับสนุนสมมติฐานที่ว่า แบบฝึกหัดประเภท B จะกระตุ้นให้ผู้เรียนสามารถจำและเรียนรู้ศัพท์ได้ดีกว่าแบบฝึกหัดประเภท A อย่างไรก็ตาม แบบฝึกหัดประเภท B ชนิดหนึ่งซึ่งควรจะเป็นแบบฝึกหัดที่ยากที่สุดเนื่องจากกลุ่มตัวอย่างทำคะแนนจากแบบฝึกหัดนั้นได้น้อยที่สุด และควรจะเป็นแบบฝึกหัดที่ช่วยให้ผู้เรียนจำและเรียนรู้ศัพท์ได้มากที่สุดเนื่องจากความยากน่าจะทำให้ผู้เรียนต้องใช้ความพยายามทางด้านการคิด (mental effort) อย่างมาก แต่ผลการวิจัยกลับพบว่าแบบฝึกหัดประเภท B ชนิดนั้น กระตุ้นให้ผู้เรียนจำและเรียนรู้ศัพท์ได้น้อยกว่าแบบฝึกหัดประเภท A อีกชนิดหนึ่งเสมอในการทดสอบหลังเรียน (posttest) ครั้งที่ 2 และ 3 ดังนั้น จากผลการวิจัยนี้ อาจกล่าวได้

ว่าแบบฝึกหัดที่ยากกว่าสามารถกระตุ้นให้ผู้เรียนจำและเรียนรู้ศัพท์ได้มากกว่า แต่หากแบบฝึกหัดนั้นยากเกินไปก็อาจจะไม่ช่วยให้ผลการจำและเรียนรู้ศัพท์ของผู้เรียนออกมาดีเท่าที่ควร

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VOCABULARY EXERCISES/ READING-BASED EXERCISES/ VOCABULARY
GAIN/ VOCABULARY RETENTION

This study aims to investigate which type of some common reading-based vocabulary exercises promotes better receptive vocabulary gain. The study compares two exercises that require learners to use the unknown words in the new context (Type B exercises) with two exercises that do not require learners to do so (Type A exercises). Following the mental effort framework, which states that tasks that require more mental effort promote more learning, Type B exercises are supposed to promote more gain and retention than Type A because they require learners to do more by using the target words in the new context while Type A require learners to only know the meaning of the target words.

Two studies were conducted with first year university students of two different universities in Bangkok (122 participants in each study). A pretest was used to test their knowledge of the ten target words and then the three later posttests were employed to see immediate, a week later, and a month later retention. Then the semi-structured interview was used to find out more information about how they gain and remember the target words.

The results mainly support the hypothesis of this study that Type B exercises (new context exercises) are supposed to promote more gain than Type A (no new context exercises). However, one B type exercise which is supposed to be the most difficult exercises because the participants got the lowest exercise scores, promotes less gain than one A type exercise in both later posttests, which suggests that difficult exercises may

promote better gain and retention but too difficult exercises may not yield a good result in learning.

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CHAPTER 1

INTRODUCTION

1.1 Rationale

It is widely accepted that vocabulary plays a crucial role in learning a language and those who know more vocabulary tend to be able to understand and use the language better than those with limited vocabulary. This awareness has been increasing over the years. A number of language teachers pay more attention to the importance of vocabulary. Many try to employ different approaches to teach vocabulary such as vocabulary acquisition through context, explicit teaching of vocabulary, teaching vocabulary learning strategies or using classroom activities such as games, pictures, dictionary work, and etc. However, it seems that they do not have conclusive ideas of how to help students to learn vocabulary as much as possible in a limited teaching time. This is also the case in Thailand, where English is used as a foreign language. In this EFL context, learners do not have much opportunity to be exposed to the language compared to the environment where English is used on everyday basis. For this reason, they may need a lot of guidance to help them learn vocabulary.

As an English teacher, I found that students can benefit a lot from reading because it seems to be the easiest way for learners in an EFL context to expose themselves to English through reading compared to through listening, speaking ,or writing because they have less chance to listen, speak, or write in such an EFL environment. Therefore, if a reading passage is accompanied by good vocabulary learning guidance, students will get a better chance to learn more vocabulary.

Reading can be a good way to promote vocabulary acquisition because learners can have multiple exposures to words in different discourse contexts (Stoller&Grabe, 1993). A

lot of research {e.g. Pitts, White, and Krashen, 1989; Day, Omura, and Hiramatsu, 1991; Cho & Krashen, 1994) provides evidence that vocabulary gain occurs after reading. However, the gain is unpredictable from reading only, that is, reading without any accompanying activities (Paribakht and Wesche, 1993). There is also evidence that learners have low rate of retention of new vocabulary from reading without vocabulary-enhanced activities (Huckin & Coady, 1999; Hulstijn, 1992). For this reason, instead of studying on how reading promotes vocabulary learning, many researchers tend to be interested in studying the effectiveness of various kinds of text-based vocabulary-enhanced activities such as highlighting the words, providing glosses, using a dictionary, manipulating reading text, providing text-based vocabulary exercises, etc.

Reading-based vocabulary exercises are one of those activities that are worth investigating because they are normally found in typical ESL or EFL text books and are ready for use by both teachers and learners. However, there have been only a few studies on them compared to other kinds of text-based vocabulary activities mentioned above. Therefore, investigating how text-based vocabulary exercises promote vocabulary learning or which kinds enhance acquisition the most deserves more attention. Studying in such field will provide a lot of useful information to be applied in ELT environment.

1.2 Some Common Reading-Based Vocabulary Tasks in Recent ESL/EFL Textbooks.

This study aims to investigate which type of text-based vocabulary exercise is the most effective to promote vocabulary learning, so the researcher extensively examined these kinds of exercises in 20 recent ESL/EFL textbooks to see some common vocabulary-enhancing exercises. (Appendix 1 shows vocabulary exercises accompanying reading texts in 20 recent ESL/EFL textbooks)

It can be concluded from Appendix 1 that text-based exercises in recent ESL/EFL textbooks that have similar features have about 19 different patterns. These 19 different patterns are shown in Table 1.1 below.

Table 1.1: List of 19 different patterns of text-based vocabulary exercises found in 20 ESL/EFL textbooks.

Exercises	Frequency
1. matching the target words with synonyms or definitions	7 books from 20 = 35%
2. matching the target words with pictures	1 books from 20 = 5%
3. matching collocations	1 books from 20 = 5%
4. finding the bold-typed words in the text to match the definitions given	1 books from 20 = 5%
5. categorizing	7 books from 20 = 35%
6. labeling pictures (using the bold-typed word from the text)	2 books from 20 = 10%
7. finding the odd word out of a set	8 books from 20 = 40%
8. inferring meaning of the target words from context : multiple choice	9 books from 20 = 45%
9. inferring meaning of the target words from context : choose the definitions or synonyms from the list	1 books from 20 = 5%
10. inferring meaning of the target words from context : no choices	4 books from 20 = 20%
11. cloze exercises : choose the target words from a list	10 books from 20 = 50%

Exercises	Frequency
12. cloze exercises : choose from the bold-typed words from the text	1 books from 20 = 5%
13. cloze exercises : multiple choice	2 books from 20 = 10%
14. open cloze exercises : choose the target words from the text (without highlighting the target word)	4 books from 20 = 20%
15. writing a story using the target words	1 books from 20 = 5%
16. answering the questions using the target words	1 books from 20 = 5%
17. making sentences using the target words	1 books from 20 = 10%
18. circling the target words in a puzzle (the words from a list)	2 books from 20 = 10%
19. filling the correct form of the target words in the chart (e.g. fill the noun forms of the verbs provided)	3 books from 20 = 15%

1.3 Text-Based Vocabulary Exercises Used in This Study

The framework used in this study to classify the exercises is mental effort hypothesis, which claims that the acquired information that requires more mental effort will promote more recall and retention (Hulstijn, 1992). For example, open cloze exercises seem to require more mental effort than inferring the meaning of the word from context and then choose the answer from multiple choices, in that open cloze exercises require learners to do more than inferring the meaning of the target word. Apart from inferring the meaning of the word, the learners have to decide where the word fits the new context by using more mental effort to read the new context in order to get some idea of the word to be filled in the blank of that new context. Therefore, open cloze exercises seems to require from learners more mental effort and hence may promote more vocabulary learning.

To classify the exercises into groups, the researcher started from analyzing the 19 exercises from 20 recent ESL/EFL textbooks and then predicted how students would respond to each exercise based on the reaction of the students to some tasks in the introspective study of Wesche and Paribakht (2000). Then the researcher classified the exercises according to mental activities each exercise seems to require. The classification in detail is in Chapter 3 (3.1).

The researcher classified the 19 exercises into 2 main categories: (1) those that do not focus on the meaning of the word; and (2) those that focus on the meaning of the word. There are only 2 exercises that do not focus on the meaning of the word: Exercise No.18] circling the target words in the puzzle (the words are from the list); and Exercise No.19] filling the correct form of the target words in the chart (e.g. fill the noun forms of the verbs provided). This study will focus on only exercises that focus on the meaning of the word.

Exercises that focus on the meaning of the target word is divided into 3 categories:

1. Exercise Type A: those that require learners to infer the meaning of the unknown word and then give a kind of answer (e.g. choosing the answer from the multiple choices or from the pictures).
2. Exercise Type B: those that require learners to infer the meaning of the unknown word and then use the word in the new context provided.
3. Exercise Type C: those that require learners to infer the meaning of the unknown word and then use the word in a new context created by the learners themselves.

Exercise Type A is different from Exercise Type B and C in that it requires learners to only infer the meaning of the word and then give a kind of answers such as choosing the answer from multiple choices, but not to have to deal with the new context while Exercise Type B and C involve the new context. The difference between Exercise Type B and C is that the new context of Type B is provided by the task (e.g. cloze exercises) while the new

context of Type C is created by learners themselves (e.g. making sentences using the target words).

After the try-out of the instrument on one of Exercise Type C (i.e. writing a story using the target words), the results showed that it is impossible for the participants to finish the exercise within the time set by the researcher (i.e. the same 20 minutes as Exercise Type A and Type B). This kind of exercise is very time-consuming and was deemed too difficult for the participants, who are the first year students of a university in Bangkok. The difficulty of doing this kind of exercise lies in the fact that the participants have not enough grammatical, semantic, and syntactic knowledge to do this exercise. For this reason, the researcher decided not to use Exercise Type C in this study.

The researcher selected 2 exercises from Exercise Type A and 2 from Exercise Type B to be used in the study in order to compare the effectiveness of the 2 exercise types: those that do not require learners to use the word in the new context provided (Exercise Type A); and those that require the learners to do so (Exercise Type B). From the researcher's assumption, the differences of the 2 exercise types seem to be on the different mental activities required by each type. That is, Exercise Type A requires learners to infer the meaning of the unknown word and then give a kind of answer while Exercise Type B not only requires learners to infer the meaning of the unknown word but also requires them to think more of how the word fits the new context provided. This kind of exercise (requiring learners to use the word in the new context provided) may also require grammatical or syntactic knowledge if those exercises require students to be able to see the difference of the unknown word such as the part of speech, the tense, the collocation, etc before deciding to fill in the blank of the new context. The other exercises of this kind may need only semantic knowledge, that is, learners may have to read the new context in order to get some idea of the meaning of the word to fill in the blank of that new context without using any grammatical or syntactic knowledge. Whatever means learners use to decide where the

unknown word fits the new context, it can be seen that they have to use more mental effort than Exercise Type A (not requiring learners to use the words in the new context). From the mental effort aspect, it seems that exercises that require learners to use the unknown word in the new context provided (Exercise Type B) might be superior in promoting vocabulary gain to exercises that do not require learners to use the unknown word in the new context (Exercise Type A).

Using a target word in the new context is also mentioned in Nation (2001) on the issue of factors that may lead to vocabulary retention; in Laufer and Hulstijn (2001) on the issue of task involvement that may lead to vocabulary learning; in Stahl (1985) on the issue of three level of word mastery; and in Paribakht and Wesche (1996) on their typology of reading-based vocabulary exercises. Chapter 2 gives more details about this. Nation (2001) suggested that using a word in the new context differently from the previous meeting of that word is a major part of the process that promotes vocabulary retention. Laufer and Hulstijn (2001) also mentioned 'evaluation', which is a process of deciding on word choice and this also involves context. That is, if the word choice decision depends on context, then the level of 'evaluation' is moderate; if learners have to create context by themselves, then 'evaluation' is high. Stahl (1985) mentioned about producing a word in the new context in level 3 of his word mastery framework. Moreover, Paribakht and Wesche (1996) mentioned about 'Production' exercise type, which are exercises that require learners to produce a target word in the new context and which are assumed to be the exercises that best enhance vocabulary learning. To sum up, it seems that new context plays quite an important role in promoting vocabulary learning.

However, it seems that there is no clear definition for 'producing a word in the new context.' That is to say, those studies do not state clearly whether the new context means context provided by the task or context created by learners themselves. For example, Paribakht and Wesche (1996)'s 'Production' exercises include both exercises that provide

new context and exercises that require learners to create new context themselves. In this present study, on the contrary, exercises that require learners to use a word in the new context provided by the task (i.e. Exercise Type B) are clearly classified in a different category from exercises that require learners to use a word in the new context created by learners themselves (i.e. Exercise Type C) However, as mentioned above, this study will not investigate Exercise Type C because it is time-consuming and is considered too difficult for the participants.

From the assumption that new context plays quite an important role in vocabulary learning, this study aims to investigate whether the exercises that require learners to use the unknown word in the new context provided by the task (i.e. Exercise Type B) are better than those that do not require learners to do so (Exercise Type A) in promoting vocabulary learning. The result of this study may be of interest to publishers, educators, or teachers in designing materials or language programs. This study will answer the question whether it is worthwhile to create the Type B exercises because they seem to be more complicated to create than the Type A exercises.

1.4 Purpose of the Study

The purpose of the study is to compare some common reading-based vocabulary exercises that require learners to use the unknown word in the new context with those that do not require learners to do so in order to see which type is the most effective to promote vocabulary gain.

1.5 Research Question

According to the purpose mentioned above, this study was designed to address the following research question:

Which type of reading-based vocabulary exercises is the most effective to promote vocabulary gain: the one that requires learners to only infer the meaning of the unknown

word; or the one that requires learners to both infer the meaning and use the unknown word in the new context?

1.6 Scope and Limitations of the Study

The participants of this study are the first year students of two universities in Bangkok. Generally, first year university students in Thailand are considered intermediate learners of English by the Ministry of Education. So the participants of this study can only be representatives of students of intermediate level of English proficiency but do not represent learners of all proficiency levels, nor do they represent other learners who are not university students or learners in other languages.

The term ‘vocabulary gain’ or ‘vocabulary learning’ in this study are used interchangeably and mean only receptive aspects. That is to say, the productive aspect of vocabulary gain or vocabulary learning is not investigated in this study.

CHAPTER 2

REVIEW OF LITERATURE

This chapter presents some of the theoretical background of this study. The literature review begins with learning vocabulary through reading. In this section, how learners gain vocabulary through reading is explained. Then the second section describes the pros and cons of reading only. The third section gives details about how reading plus (reading text accompanied with other activities) is superior to reading only. The fourth section explains about the classification of reading-based vocabulary exercises, the problems of those classifications, and the study of the effectiveness of such exercises.

2.1 Learning Vocabulary Through Reading

2.1.1 The Importance of Reading

Nagy and Anderson (1984) state that ‘even the most ruthlessly systematic direct vocabulary instruction could neither account for a significant proportion of all the words children actually learn, nor cover more than a modest proportion of the words they will encounter in school reading materials’ (quoted in Nation and Coady, 1988). This suggests that learners have a greater opportunity to learn more vocabulary through reading compared to direct vocabulary teaching. Schmitt (2000) says that reading is the most elementary of vocabulary programs. Reading provides more opportunity for intermediate and advanced learners, who know more than 3000 words, to expose to all the remaining words.

Reading also provides readers with broader vocabulary because written language tends to use a wider range of vocabulary that may not be found in spoken language

(Schmitt, 2000). Schmitt cited the study of Schonell, Meddleton, and Shaw (1956) that the majority of spoken English language comes from only about 2,000 words. Moreover, both written and spoken language can be presented through reading text. Learners can have great opportunity to learn written language from any expository texts and they can also learn spoken language from cartoon books, novels, or other kinds of narrative texts.

Reading is a good means for vocabulary learning because vocabulary is presented in context. Context can be seen as morphological, syntactic, and discourse information in a given text (Nation and Coady, 1988). Research shows that learning vocabulary in context is better than learning vocabulary that is presented alone (Judd 1978, cited in Nation, 2001).

2.1.2 The Incremental Nature of Learning Vocabulary Through Reading

Learning vocabulary through reading is incremental. That is, a word cannot be learned completely at the first encounter but will be gradually learned through multiple exposures in different contexts (Nagy & Herman, 1987; Stoller & Grabe, 1993; Schmitt, 2000). For example, if learners exposed to a new word from reading, they might remember only the first few letters of the word or know only one meaning of that word on the first exposure. Then they might learn other meanings from second or third exposures (Schmitt, 2000). Paribakht & Wesche (1996) state that learning vocabulary through reading involves establishing relationships between the word forms, their meanings, and their communicative functions. It is also about organizing concepts to networks and the elaboration and automatization of a new word (Stoller & Grabe, 1993 in Paribakht & Wesche, 1996). This process is thus incremental.

2.2 Reading Only

2.2.1 What is ‘reading only’?

‘Reading only’ in this study refers to any kind of reading without any accompanying word-focused activities such as looking up the words in a dictionary, glossing, direct instruction of the words, vocabulary-focused tasks, etc.

2.2.2 ‘Reading Only’ Enhances Vocabulary Growth.

A number of articles claim that ‘reading only’ promotes vocabulary growth. For example, Krashen (1989) states that vocabulary and spelling are learned by reading. He explains that comprehensible input promotes learning and supports reading for pleasure, that is, “an hour of pleasure reading is far preferable to thirty minutes of drill” (Krashen, 1989 cited in *Annotated Bibliography* of Blau, 2001).

Day, Omura & Hiramatsu (1991) conducted a study with high school and university students in Japan using a short story with 17 target words that were unknown to the participants. The story was modified in order that the target words appear several times with enough context for the participants to infer the meaning. The treatment group read the story and did the unexpected vocabulary test while the control group took only the vocabulary test. The results show the participants who read the story learned significantly better than those who did not.

There have been attempts to develop better reading programs in order to promote language and vocabulary learning in accordance with the assumption that vocabulary is learned gradually through multiple exposure in various contexts (Nagy & Herman, 1987; Stoller & Grabe, 1993; Schmitt, 2000). Intensive reading is reading in detail to completely understand every part of the text and is usually the kind of reading that is used in general ESL or EFL English courses. This kind of reading usually comes in the form of short

reading texts that help learners learn grammar, vocabulary, or other aspects of language from the text.

Extensive reading is reading the text that is longer and is reading for pleasure because learners read the text that they are interested in and with the focus on the meaning of the text, not on every detail of the text (Nation, 2001). Extensive reading supports the assumption of incremental vocabulary learning mentioned above because learners have opportunity to meet the words in several contexts through this kind of reading, so several extensive reading programs have been developed in order to enhance vocabulary and language learning.

Another kind of reading that supports the assumption mentioned above is narrow reading, that is, reading various books of the same author or of the same topic that is of interest to learners (Krashen, 2004). This kind of reading also promotes vocabulary learning because the text provides better chance to meet new words several times from reading the same topic.

Moreover, some reading texts are modified so that the target words are met several times or some texts are modified to have rich context clues in order that learner will have enough clues to infer the meanings of the new words following the assumption that learners learn vocabulary when they can successfully infer the meaning of the word from context (Wesche & Paribakht, 2000).

2.2.3 Some Problems on ‘Reading Only’

Several articles state some problems of learning vocabulary from ‘reading only.’ Firstly, several unknown words may be ignored by learners (Fraser, 1999; Paribakht & Wesche, 1999; Laufer, 2003). Laufer (2003) suggests that the reason that learners do not pay attention to some words may be because they already understand the whole text and thus do not need to know the individual words. Another reason may be that learners think

that they know a new word because they confuse it with the word they already know (Laufer, 2003). For example, when learners encounter the word 'adopt', they may confuse it with 'adapt' and, therefore, do not think that it is a new word and thus ignore that word.

The second problem is wrong guessing from context. This may occur because of the following:

1. Learners have lower L2 proficiency (Bensoussan & Laufer, 1984; Nation & Coady, 1988; Li, 1988 in Wesche & Paribakht, 2000). That is, learners who have better skills in reading and guessing the word from context can perform better in inferring the meaning of a new word. Those who do not know strategies of guessing from context tend to be less successful in inferring the meaning of a new word and hence do not learn that new word.

2. Learners have not enough sight vocabulary. (Nation & Coady, 1988; Schmidt, 2000; Pulido, 2004). That is to say, the percentage of the vocabulary of a text (sight vocabulary) learners know affects their ability to guess a new word from context (Schmidt, 2000). Therefore, if learners have insufficient sight vocabulary, they may not be able to succeed in inferring the meaning of unknown words and thus do not have vocabulary gain from the reading text.

3. The text does not provide enough clues. (Nation & Coady, 1988; Schmidt, 2000; Laufer, 2003) Laufer (2003) gives some examples to explain this point. For instance, in the sentence 'I saw an X last night.', it is impossible to know who or what X is. Some contexts may even lead to wrong guess (Laufer, 2003). For example, in the sentence 'People were drinking, singing, laughing, brawling, most learners infer the meaning of 'brawling' as 'having a good time.' Thus, when the learners could not infer the meaning of a new word successfully, they do not learn that new word.

The third problem of 'reading only' is that success in inferring the unknown words does not always mean that learners learn vocabulary. That is, if a word is easy to infer, learners may use not much mental effort to guess and thus may not lead to retention (Schmidt, 2000; Laufer, 2003). Mondria and Wit de Boer (1991) did an experiment on correct guessing and retention. They compared the words that could be guessed more easily to the words that were more difficult to guess and found that the more easily words to guess promote less retention. This means that success in guessing the word from context does not always lead to vocabulary learning.

The fourth problem lies in the fact that learners have low rate of vocabulary retention through 'reading only' (Laufer, 2003). Learning from context is usually a gradual process. That is, the first encounter may lead to partial understanding of the new word and then other encounter in different context may lead to more understanding of that word. Research shows that the ideal encounter is around 10 (Laufer, 2003). Nation and Wang (1999) did an experiment on how much learners have to read in order to gain a certain number of unknown words and found that learners might gain 108 words out of 200,000 words. These 108 words occurred 10 or more time in the graded reader used in the study. This means that they have to read 9 books to gain these 108 words. However, in an authentic text, learners may have to read much more than this in order to gain the same amount of 108 words because an authentic text does not systematically provide chances for learners to have 10 exposures to each new word like in graded readers. Moreover, it does not mean that learners can gain all 108 words if they do not successfully guess the word from context. Additionally, Nation and Wang (1999) state that learners may not remember the new words if they do not meet the words soon. Therefore, the time between the first encounter and the next encounter of new words can also affect vocabulary learning. Consequently, learning vocabulary from 'reading only' may be a hard job for learners, time-consuming, and not practical in a language program.

2.3 Reading Plus

2.3.1 What is 'reading plus'?

'Reading plus' in this study refers to any kind of reading accompanying with word-focused activities such as looking up the words in a dictionary, glossing, direct instruction of the words, vocabulary-focused tasks, etc.

2.3.2 Reading Plus is Superior to Reading Only

Nation (2001) states that there is some evidence that reading with attention-drawing activities such as presenting words to learners before reading (Jenkins, Stein and Wysocki, 1984 quoted in Nation 2001) and giving definitions of the words occurring in context (Elley, 1989 quoted in Nation 2001) increases vocabulary learning. Swanborn and De Gloppe (1999 quoted in Nation 2001) found that vocabulary pretest affected vocabulary gain. Laufer and Hill (2000 quoted in Nation 2001) suggest that highlighting words in computerized text may stimulate learners to look up the words in the dictionary and thus increase vocabulary learning. Stoller and Grabe (1993) suggests that a good way to enhance vocabulary learning from reading might be reading with vocabulary-enhancing activities. Cho and Krashen (1994 cited in Laufer 2003) conducted an experiment on vocabulary acquisition through reading with 4 participants and found that a participant who read the book alone without using dictionary gained 7 words while the second participant initially used a dictionary but didn't use it later on gained 8 words. The third and the fourth participants used dictionaries and wrote the unknown words in a notebook with example sentences and gained 17 and 34 words. Paribakht and Wesche (1997) compared Reading Plus condition (reading accompanying with 8 vocabulary-enhancing exercises) with Reading Only condition (Reading 3 passages of the related topic) and found that Reading Plus condition promoted more vocabulary gain than that in Reading Only condition. Laufer (2003) concludes in her article *Vocabulary Acquisition in a Second Language : Do Learners*

Really Acquire Most Vocabulary by Reading? Some Empirical Evidence that reading alone does not seem to enhance best vocabulary learning and that word focused activities seems to play crucial role in vocabulary acquisition.

From the studies mentioned above, Reading Plus seems to be superior to Reading Only in the way that it promotes better vocabulary acquisition and hence more attention should be paid to Reading Plus condition so as to help better vocabulary learning.

2.4 Reading-Based Vocabulary Tasks

2.4.1 Why Reading-Based Vocabulary Tasks ?

Until now, there have been relatively few studies on the effectiveness of reading-based vocabulary exercises compared to other kinds of vocabulary-enhancing activities. However, these text-based vocabulary exercises deserve more attention because they are normally found in typical ESL or EFL text books, and thus, ready for use in any ELT context. Some common reading-based vocabulary exercises are, for example, matching words with their meanings or synonyms, inferring meaning of the words from contexts, inferring meaning of the words from contexts and then use those words in a new context or to employ those words to make sentences or answer questions, finding an odd word out in the set, and etc. The tasks mentioned above are quite common in L2 learning and teaching programs and close attention should be paid to how effective they are in promoting vocabulary learning.

2.4.2 Theoretical Background Used to Classify Reading-Based Vocabulary Tasks

2.4.2.1 Factors that affect recall and retention

Studies have suggested some psychological conditions that may lead to vocabulary retention. Nation (2001) reviewed some studies and suggested that there are 3 important processes that may lead to vocabulary retention. These processes are noticing, retrieval and creative (generative) use. These 3 steps are not viewed as separated steps but as a progression. They are explained as follows:

Psychological conditions that may lead to vocabulary retention by Nation (2001)

1. Noticing

Noticing is giving attention to the unknown word, which is the first step that promotes learning. It means that learners see the word as a useful item for them. Factors that affect noticing may be the salience of the word, previous contact of the word, and the learners' awareness that the word is useful for their knowledge of the language. In addition, noticing occurs when learners look up a word in the dictionary; when they guess the meaning of a word from context; when they study a word intentionally; or when someone explains a word to them.

Important conditions that enhance noticing are motivation and interest. Factors that may stimulate interest may be, for example, the choice of content and the importance of the word to the story; while strangeness or lack of humor may be examples of the factors that cause the learners not to pay attention to the words.

From the point of view that noticing is the first step that promotes learning, reading-based vocabulary exercises accompanying the reading text can be activities that

promote noticing because the target words will be more salient for learners who do the exercises. That is to say, learners will pay more attention to the target words because of these vocabulary-focused tasks.

2. Retrieval

Retrieval is the second major process that may lead to vocabulary retention (Baddeley, 1990: 156 cited in Nation, 2001). Learners may initially notice a word and understand its meaning through a text during the task, or through the explanation of the teacher, or through dictionary use. Then they may memorize the word better if they retrieve that word during the task.

Retrieval can be receptive and productive. Receptive retrieval occurs when the learners perceive the word and then have to retrieve its meaning while reading or listening, while productive retrieval occurs when the learners want to communicate that word through writing or listening and have to retrieve the form of the word. However, retrieval will not occur if the form and the meaning of the word are presented to the learners at the same time.

The suggestion that memorization of the word may be better if learners have chances to retrieve that word during the task and that more retrieval chances may enhance the more vocabulary learning might support the assumption of the present study that Exercise Type B (inferring the meaning of a word and then using it in the new context provided) may promote more vocabulary learning than Exercise Type A (inferring the meaning of the word from context without dealing with the new context). This is because Exercise Type B may provide learners with more chances to retrieve the word during the task in order to fill that word in the new context provided.

Moreover, the factor of time may play a role. That is, if the second meeting of a word is too long from the first meeting, this second meeting is like the first encounter.

However, if the memory of the first meeting of the word still remains, then the second encounter can strengthen the memorization of the word. Studies show that vocabulary retention can last for many weeks. Elley (1989, cited in Nation, 2001) found that learners could remember words after 3 months while Brett, Rothlein and Hurley (1996, cited in Nation, 2001) found that learners' memory of words lasts after 6 weeks.

3. Creative or generative use

Generation is the third major process that may lead to vocabulary retention. This process occurs when the words learners have met before are later met again or later used but in different way of the previous meeting. Generative use ranges from figurative use of word meaning, inflection of a word through collocation and grammatical context, to a word's reference and meaning. However, the nature of generative use and the classification of the degree of their differences are still unclear.

Generative processing can be both receptive and productive. Receptive generation means the later meeting of the words in a different way from the first meeting while reading or listening. Productive generation means using the words in new contexts in a different way from the first meeting while speaking or writing.

The aspect of generative use, which means encountering or using the previously met words in a different way, may support the assumption that Exercise Type B may lead to more vocabulary learning in that this exercise type enhances different use of the previously met words from the reading text because learners need to use those words in the different context provided by the task.

Another way of describing factors that may lead to vocabulary retention is proposed by Laufer and Hulstijn (2001). They suggested that a factor that may promote vocabulary retention through incidental vocabulary learning is task involvement. That is, if a task provides chances for the more involvement to the target words, then it will promote

more vocabulary learning. This task involvement involves three factors: need, search, and evaluation. Laufer and Hulstijn (2001) explained these factors as follows:

Factors of task involvement that may lead to vocabulary retention by Laufer and Hulstijn (2001)

1. Need

If the target words involved in completing the task, then need will not exist while need will be moderate if the target words are necessary to complete the task and need is high when learners feel that they need those words.

From this point of view, it may be concluded that reading-based vocabulary exercises promote 'need' because learners need to use the words to complete the task.

2. Search

If the target words and their meanings are provided in the task, then search will not exist. Search is moderate when learners have to find the meanings of the target words and is high when they have to find the target words to convey the meanings.

From this point of view, Exercise Type A in the present study may promote moderate 'search' because learners have to find the meaning of the target words while Exercise Type B may promote high 'search' because learners have to find the forms of the target words that correspond to the new context provided.

3. Evaluation

Evaluation is the process of deciding whether the selection of the word is appropriate. If the word selection involves the help of context provided, then evaluation is moderate. Evaluation is high when the learners have to create context by themselves.

This point of view suggests that context plays a crucial role in enhancing learning and that both Exercise Types (A and B) used in the present study promote learning from context because learners have to infer the meaning of the target words from the reading text. Apart from inferring the meaning from context, Exercise Type B requires learners to also use the words in the new context provided, which may lead to more vocabulary learning compared to Exercise Type A.

2.4.2.2 The mental effort hypothesis

Text-based vocabulary exercises in this study are classified based on the mental effort hypothesis or depth of processing hypothesis. This hypothesis was proposed originally by Craik and Lockhart (1972), who suggested that deeper level of information analysis produced stronger memory traces. Other findings (Hyde and Jenkins, 1973) are also similar to that of Craik and Lockhart (1972). Then this framework was studied and applied in vocabulary learning and findings confirm that vocabulary tasks that require greater mental effort will promote greater vocabulary retention (Nation, 1982; Hulstijn, 1992).

However, levels of mental effort or depth of processing are not defined clearly and are difficult to assess concretely. Craik (1973) suggested that retention was best at the semantic level of processing of the target items. He mentioned that the deepest level of processing is semantic processing while the phonemic processing is shallower and graphemic structural processing is the shallowest. However, this suggestion was challenged in the issue that there was no concrete evidence to conclude that one level is deeper than another (Laufer and Hulstijn, 2001). That is to say, it may be possible that a non-semantic processing tasks such as a task that focus on the pronunciation or spelling may promote more vocabulary retention. Laufer and Hulstijn (2001) also suggested that research on task

effectiveness would require the criteria that could be concretely measured, manipulated, or observed.

The classification of the vocabulary exercises in the present study is based on mental effort hypothesis in that Exercise Type B requires more mental activities from learners than Exercise Type A. That is, Exercise Type A requires learners to only infer the meaning of the target words without dealing with the new context while Exercise Type B requires learners to infer the meaning of the target words and also use the target words in the new context provided. It seems clear to say that Exercise Type B requires more mental effort than Exercise Type A but it seems not clear what concrete mental processes learners use to deal with each type of exercises. For this reason, it seems easier for the researcher to classify the 19 exercises based on mental effort hypothesis because the hypothesis can suggest roughly that learners have to do more in an exercise than in another but the learners' mental processes in detail when they react with each exercise is still a question for further study.

2.4.2.3 Classification of reading-based vocabulary tasks based on mental effort hypothesis.

Until now, there have been few studies attempting to classify reading-based vocabulary tasks. The framework of Stahl (1985) on the levels of word mastery can be a possible framework for classifying text-based vocabulary exercises. Stahl (1985) studied vocabulary instructional tasks and identified the levels of word mastery into 3 levels: association processing, comprehension processing, and generation processing. This framework seems to be involved in the mental effort hypothesis, which claims that the acquired information that requires more mental effort will promote more recall and retention (Craik and Lockhart, 1972; Hyde and Jenkins, 1973; Nation, 1982; Hulstijn, 1992). Level 1 to Level 3 of word mastery seems to require different mental effort ranking

from the lowest to the deepest respectively. Below is Stahl (1985)'s 3 levels of word mastery.

Stahl(1985)'s 3 levels of word mastery

1. Association Processing

This level involves introducing synonyms to a new word. This level seems to require from the learners the lowest level of mental effort.

2. Comprehension Processing

This level involves the understanding of the word that is more than rote memorization such as finding the antonym (which may have the same pattern as exercise no 7 'finding the odd word out of a set' in Chapter 1), filling in the blank with appropriate word (cloze exercise), and categorizing the word. This level seems to require more mental effort than Level 1.

3. Generation Processing

This level seems to require the deepest level of understanding of the new word because learners have to produce the word in a new context. This means that learners need to have very precise knowledge of the word, e.g. grammatical, syntactic, or semantic knowledge in order to produce it in the new context. This kind of exercise may have the same pattern as the following exercises in Chapter 1 : Exercise no 17 'making sentences using the target words'; Exercise no 15 'writing a story using the target words'; or Exercise no 16 'answering the questions using the target words'

Another study is of Paribakht and Wesche (1996), who follow Gass (1988) on five levels in learning from input and classify text-based vocabulary tasks into five types based on Gass (1988)'s framework. Their framework also deals with the level of mental effort used in each exercise. The assumption is that the exercises that require more mental

effort will promote more vocabulary learning. Paribakht and Wesche (1996) did an extensive survey on text-based vocabulary tasks in ESL textbooks for adults and then classified them as follows:

Typology of Text-based vocabulary exercises

(Paribakht and Wesche, 1996)

1. Selective Attention

‘Selective Attention’ corresponds to Gass’s most basic level ‘apperceived input’ or noticing. According to Gass, noticing is the first stage of vocabulary acquisition. The type of tasks (selective attention) are designed to draw attention of learners to the target words and, thus, seems to require the least mental effort. Examples are as follows:

- having students read the target words before reading and then notice where the target words appear in the text or underline the target words in the text any time they see those words.
- boldfacing, italicizing, circling, or making other visual signs on the target words in the reading text.

One of the 19 exercises mentioned in Chapter 1 that may correspond to this level is exercise no 18 ‘circling the target words in the puzzle’ (the words are from the list).

2. Recognition

The second level of Gass’s is ‘comprehended input’ or input comprehension and the ‘recognition’ type corresponds to this level. This type of tasks requires learners to recognize the target words and at least one of their meanings, hence, requiring only partial

knowledge of learners. This type of tasks seems to require more mental effort than the first type (Selective Attention) and it seems to correspond to Level 1 (Association Processing) of word mastery of Stahl (1985). Examples include:

- matching the target word with a definition or synonym (which may have the same pattern as exercise no 1 ‘matching the target word with synonyms or definitions’ in Chapter 1)
- recognizing the meaning of the target word from multiple choices (which may have the same pattern as exercise no 8 ‘inferring the meaning of the word from context: multiple choices’ in Chapter 1)
- choosing the picture after seeing or hearing the target word (which may have the same pattern as exercise no 2 ‘matching the target words with the pictures’ in Chapter 1)
- choosing the appropriate word to label a picture (which seems to have the same pattern as exercise no 2 ‘matching the target words with the pictures’ in Chapter 1)
- seeing or hearing the target word in L2 and giving its synonym or definition in L1. (which seems to have the same pattern as exercise no 10 ‘inferring the meaning of the target word from context: no choice’ in Chapter 1)

3. Manipulation

The third level of Gass’s is ‘intake’. ‘Manipulation’ tasks correspond to this level in that it is claimed to require deeper mental processing than the previous categories. It involves morphology and grammatical knowledge of the words and seems to correspond to Level 2 (Comprehension Processing) of word mastery of Stahl (1985). Examples are as follows:

- giving other forms of words (i.e., changing the part of speech of the target word, such as from noun to adjective, or from verb to noun) (which seems to have the same pattern as exercise no 19 ‘filling the correct form of the target words in the chart (e.g. fill the noun forms of the verbs provided) ’ in Chapter 1.
- using roots and affixes to form words.

4. Interpretation

The fourth level of Paribakht and Wesche is called ‘interpretation’ corresponding to Gass’s ‘integration’. This level is claimed to involve more precise semantic and syntactic analysis, including the relationship of target words with other words in contexts (e.g. collocations, synonyms, and antonyms). Thus, this type of exercises seems to require more mental effort than the previous categories and may correspond to Level 2 (Comprehension Processing) of word mastery of Stahl (1985). It seems that Level 2 of Stahl (1985) corresponds to both Recognition and Interpretation types of Paribakht and Wesche (1996). Examples are as follows:

- choosing the odd word out of a set of collocationally related words
- understanding the meanings and grammatical functions of the target word in the context (i.e. in the reading text) and recognizing words that could be substituted in the text
- classifying words according to their functions (e.g., linking words classified by type such as cause and effect, contrast, or addition)
- multiple choice cloze exercises (which seems to have the same pattern as exercise no 13 ‘cloze exercise : multiple choice’ in Chapter 1)

- inferring the meaning of target words from context. (which seems to have the same pattern as exercise no 10 'inferring the meaning of the target word from context: no choice' in Chapter 1)

5. Production

The production level corresponds to the 'output' level in Gass's (1988) framework. This type of tasks requires learners to recall and produce the target words, hence requiring a deeper level of word processing. This kind of exercises is claimed to require the deepest level of mental effort and may correspond to Level 3 (Generation Processing) of word mastery of Stahl (1985). Examples are as follows:

- open cloze exercises (which seems to have the same pattern as exercise no.14 'open cloze exercises' in Chapter 1)
- labelling pictures
- answering a question by using the target word(which seems to have the same pattern as exercise no.16 'answering questions using the target words' in Chapter 1)
- seeing or hearing the meaning of the word in L1 or the L2 synonym of the word and providing the target word
- finding the mistake of the idiom use (presenting in context) and correcting it.

2.4.3 The Study of the Effectiveness of Text-Based Vocabulary Tasks

Wesche and Paribakht (2000) conducted their study about text-based vocabulary tasks by analyzing how learners respond to different kinds of tasks. In the study, the participants did 8 tasks classified as one of the five-level typology mentioned above and they investigated how learners responded to the tasks. These 8 tasks were in order from the

level that was supposed to required the least mental effort (i.e. Level 1: Selective Attention) to the level that may require the most mental effort (Level 5: Production). The participants did all 8 tasks in the same order and these 8 tasks helped them to learn different aspects of the same target words.(e.g. semantic and grammatical aspects) Therefore, when finishing all 8 tasks, the participants learned more about the target words in various aspects. This study (Wesche and Paribakht, 2000) focus on the multiple exercises (i.e. learners do more than one exercise on the same words) because multiple exercises provide multiple exposures to the same words and promote vocabulary learning on different aspects of those words. However, this study does not indicate which individual exercise is the most effective to promote vocabulary learning.

Cho (2002) tried to compare the effectiveness of text-based vocabulary tasks following five levels of Paribakht and Wesche's (1996) classification by selecting 3 exercises from the Recognition, Interpretation, and Production exercise types respectively (See the 3 exercises in the appendix). Exercise Type A in Cho (2002) was one of Recognition tasks; Exercise Type B was one of Interpretation tasks; and Exercise Type C was one of Production tasks in Paribakht and Wesche's (1996) framework. Results show that Exercise Type C was significantly superior to Exercise Type A but there was no significant difference of Exercise Type B from the other two. Cho (2002) himself admitted that he might have inappropriately selected Exercise Type B, which was one of Interpretation tasks of Paribakht and Wesche's (1996) framework, and suggested that further study should be careful in selecting more appropriate exercise for Interpretation type.

2.4.4 Problems of the Classification of Text-Based Vocabulary Exercises

From the classification of text-based vocabulary exercises of Stahl (1985) and of

Paribakht and Wesche (1996) mentioned in 2.4.2, it can be seen that there is a problem of different criteria used to categorize each exercise into each category. Although the idea of 3 levels of word mastery of Stahl (1985) may correspond to certain types of tasks classified by Paribakht and Wesche (1996), that is, Level 1 (Association Processing) seems to correspond to Recognition type; Level 2 (Comprehension Processing) seems to correspond to Manipulation and Interpretation types; and Level 3 (Generation Processing) seems to correspond to Production type, some kinds of tasks are classified differently in the two frameworks. For example, in Paribakht and Wesche (1996)'s framework, cloze exercises are specified as multiple-choice cloze exercises and open cloze exercises and are classified into different categories. That is, multiple-choice cloze exercises are classified as Interpretation tasks while open cloze exercises are categorized as Production tasks. Meanwhile, in Stahl(1985)'s framework, cloze exercises are categorized in Level 2 (Comprehension Processing), which seems to correspond to only Interpretation tasks, not Production tasks, in Paribakht and Wesche (1996)'s framework. Stahl (1985) does not specify whether the cloze exercises mentioned are multiple-choice cloze exercises or open cloze exercises. This illustrates the problem about which criteria each person uses on classifying the exercises into each category.

Other problems on the classification of text-based vocabulary exercises can be found in the typology of text-based vocabulary exercises of Paribakht and Wesche (1996). That is, the problems may lie on either or both issues:

1. The 5 types of exercises may present not very distinct levels of mental processing from one another.

The reason for this can be seen in Cho's (2002) study on the effectiveness of each exercise type. Cho (2002) used Paribakht and Wesche (1996)'s framework to compare the

effectiveness of the 3 text-based vocabulary exercise types classified according to Paribakht and Wesche (1996). He found that Interpretation exercises did not statistically make much difference from the other 2 exercises (The 3 exercises represent Recognition, Interpretation and Production types)(see the 3 exercises in the appendix). The problem of this insignificant difference may be because the typology of exercises of Paribakht and Wesche (1996) may present not very distinct level of mental effort from one another.

2. The categorization of each exercise into the 5 types may be not very appropriate.

This can also be seen in the study of Cho (2002), where the 2 exercises selected from the different exercise types (i.e. Recognition and Interpretation) seems to require very similar mental effort. The Recognition exercise used in Cho (2002)'s study is the same format as Task 3 in the introspective study of Wesche and Paribakht (2000) and the Interpretation exercise is in the same format as Task 5. Task 3 (Recognition type) is matching the target words with the definitions or synonyms given and is believed to require less mental effort than Task 5 (Interpretation type), which is finding the underlined words in the text that correspond to the definitions provided. (see Task 3 and Task 5 below) It is believed that mental effort used in the 2 exercise types is nearly the same when analyzing them from the reaction of the learners to each task in the introspective study of Wesche and Paribakht (2000)

Task 3 and Task 5 in the introspective study of Wesche and Paribakht (2000) are as follows:

Task 3

Match the study words in the left column with the appropriate definitions in the right column. There are more definitions than words.

decay	a natural substance used for fuel
layer	to bring to someone's attention
sink	one thickness above or below another
trigger	a mining process
point out	to set free, to allow to go
coal	to put a series of objects in a row
release	disintegration
	to set off, to initiate
	to fall to a lower level

Task 5

Read the text again and find the underlined words corresponding to the following definitions. There are more definitions than words.

Example

1. *lake* *large area of fresh water surrounded by land*
2. a blackish, natural substance used for fuel
3. a wasting away, disintegration
4. one thickness above or below another

5. a periods of one hundred years
6. to bring to someone's attention
7. to set free, to allow to go
8. to fall to a lower level (often in water)
9. top layer of the earth, which plants can grow in
10. to set off, to initiate

The process of the learners responding to the two tasks from the introspective study of Wesche and Paribakht (2000) are as follows:

Task 3

1. Some learners did the easy words first without looking back to the text
2. Some learners looked at the text for more difficult words
3. Some learners substituted some definitions in the text to see if they made sense
4. Some learners used dictionary
5. Some learners used word analysis strategies (e.g. prefix-suffix)

Task 5

1. Some learners did the easy words first without looking back to the text
2. Some learners read the text selectively only the sentence that contains the target words
3. Some learners substituted some definitions in the text to see if they made sense
4. Some learners used dictionaries
5. Some learners used word analysis strategies (e.g. prefix-suffix)

From the way learners responded to the task mentioned above, it can be seen that they reacted almost the same to the 2 tasks and this means that the 2 tasks should not require much different mental effort and, therefore, should promote very similar level of vocabulary

learning. This seems to address problem number 2 involving the inappropriateness of categorizing some exercises into each category.

CHAPTER 3

RESEARCH METHODOLOGY

This chapter describes how the researcher classified the 19 exercises found in the survey of 20 textbooks, the test of an instrument, Pilot Study 1, and the research methodology used in this study. The research methodology includes the participants, research design, the instruments, and the data analysis.

3.1 Some Common Vocabulary Exercises Used in This Study

The initial purpose of this study is to compare some typical text-based vocabulary exercises used in recent ESL/EFL textbooks in order to see which kinds of these exercises promote best vocabulary learning. However, having studied the classification of text-based vocabulary exercises of Stahl (1985) and of Paribakht and Wesche (1996), and having seen that there are some problems in classifying those exercises, the researcher decided not to employ the two frameworks of Stahl (1985) or of Paribakht and Wesche (1996) but to employ the mental effort hypothesis, which claims that acquiring information that requires more mental effort tends to promote better recall and retention (Hulstijn, 1992).

To find out some common reading-based vocabulary exercises, the researcher extensively examined 20 recent ESL/EFL textbooks and found 19 typical exercises (as mentioned in 1.2) The researcher decided to group them from what the tasks require by analyzing the 19 exercises and predict how students would respond to each exercise based on the reaction of the students to some kinds of exercises in the introspective study of Wesche and Paribakht (2000).

The examples of how the researcher analyzed the mental activities that each exercise would require are mentioned below. Such mental activities are predicted under the condition that learners do not know the target words before so they have to do something to guess the meaning such as inferring the meaning from context, or using grammatical knowledge such as word parts to analyze the word, or using other kinds of guessing. These mental activities are also analyzed under the condition that learners cannot use dictionaries.

Examples of analyzing the mental activities required by each exercise

Exercise I: Matching the target words in the left column with synonyms or definitions in the right column.

The possible responses to the task: (adjusted from the responses of students to task 3 in the introspective study of Wesche and Paribakht (2000) mentioned above)

1. infer the meaning of the target word → then choose the answer
2. guess by substituting the target word with the definitions or synonyms given to see if they make sense.
3. guess by the process of elimination (the remaining definition or synonym should be the answer of the question that is left unanswered)
4. just guess (without doing any activities mentioned above)

Exercise II: cloze exercise (choose a bold-typed word from the text to fill in each blank)

The possible responses to the task:

- 1.1 infer the meaning of the word → then read the new context to get some idea about the word to be filled in the blank → then decide where the word fit the new context or not.

- 1.2 read the new context first to get some idea about the word to be filled in the blank → then infer the meaning of the word → then decide where it fits the new context
2. guess by trying out the target word in each blank to see if they make sense.
3. guess by the process of elimination (the remaining target word should be the answer of the question that left unanswered)
4. just guess (without doing any activities mentioned above)

From the examples mentioned above, the researcher has tried to classify each exercise under the condition that learners do their best to infer the meaning from context, which is possible response number 1 in each example. The researcher excluded possible response number 2-4 because they seem to require less mental effort to guess in an easier way compared to possible response number 1 mentioned above. Then exercises that seem to require similar responses from the learners were grouped together.

The 19 typical exercises can be grouped into 2 main categories: (1) exercises that do not focus on the meaning of the words; and (2) those that focus on the meaning of the words. This study will focus on only exercises that focus on the meaning of the words (Exercise Type 2) because exercises that do not focus on the meaning of the words seems to have very low frequency in the survey of 20 textbooks. That is, there are only two kinds of this exercise type (no focus on the meaning of the word) out of the 19 exercise patterns. The 2 exercises are as follows:

Exercises that do not focus on the meaning of the word

- Circling the target words in the puzzle (the words is from the list)
- Filling the correct form of the target words in the chart (e.g. fill the noun forms of the verbs provided)

The 17 exercises that focus on the meaning of the word are as follows:

Exercises that focus on the meaning of the word

- matching the target words with synonyms or definitions
- matching the target words with pictures
- matching collocations
- finding the bold-typed words in the text to match the definitions given
- categorizing
- labeling pictures (using the bold-typed word from the text)
- finding the odd word out of a set
- inferring meaning of the target words from context: multiple choices
- inferring meaning of the target words from context: choose the definitions or synonyms from the list
- inferring meaning of the target words from context: no choices
- cloze exercises : choose the target words from the list
- cloze exercises : choose the bold-typed words from the text
- cloze exercises : multiple choices
- open cloze exercises : choose the target words from the text (without highlighting the target word)
- writing a story using the target words
- answering the questions using the target words

- making sentences using the target words

Then the 17 exercises (Exercise Type 2, which focus on the meaning of the word) can be divided into 3 groups according to different mental activities the exercises require students to do. In other words, they were grouped according to the possible responses learners are supposed to give to each exercise as mentioned above.

These exercises were classified into 3 categories:

1. Exercise Type A: infer the meaning of the word → give a kind of answer
2. Exercise Type B: infer the meaning of the word → use the word in the new context provided.
3. Exercise Type C: infer the meaning of the word → use the word in the new context created by the learners themselves.

Exercise Type A

Mental activities : infer the meaning of the word → give a kind of answer

These exercises are:

- A.1** matching the target words with the synonyms or definitions
- A.2** matching the target words with pictures
- A.3** matching collocations
- A.4** finding the bold-typed words in the text to match the definitions given
- A.5** categorizing
- A.6** labeling pictures (using the bold-typed word from the text)
- A.7** finding the odd word out of a set
- A.8** inferring meaning of the target words from context: multiple choices

A.9 inferring meaning of the target words from context: choose the definitions or synonyms from the list

A.10. inferring meaning of the target words from context and then give the meaning in L1: no choices

This exercise type requires learners to give the meaning of the target word by inferring the meaning from context and then give some kind of answer such as choosing the answer from multiple choices, from a list, or from pictures that describes the meaning of the target words. One exercise in this exercise type requires learners to choose a category the word should belong to after they have inferred the meaning of the word (i.e. Exercise A5: categorizing). Although Exercise A10 (inferring meaning of the target words from context and then give the meaning in L1: no choices) provides no choices for learners to choose, it still requires learners to only infer the meaning of the word and then give the answer in L1 without thinking of the relationship of the word with the new context provided (Exercise Type B) or without thinking of the relationship of the word with the new context created by there own (Exercise Type C)

This exercise type seems to require less mental effort than Exercise Type B because it requires learners to only give some kinds of answers of the meaning of the target word but does not require them to use the word in the new context, which means that learners are supposed to have more precise knowledge of semantic, syntactic, and grammatical knowledge of the word to be able to use the word in a new context.)

However, different kinds of answer may yield different results in vocabulary learning. For example, choosing the answer from the list may promote more vocabulary learning than choosing the answer from multiple choices or pictures or vice versa. Further studies might focus on the comparison of the effectiveness of these exercises that provide different kinds of answers.

The criterion of selecting 2 exercises from Exercise Type A to be used in this study is their frequency that was found the most in the survey of 20 textbooks. Exercise A8 (inferring the meaning of the word from context: multiple choice) is very common occurring in 45% of the textbooks and is the most common in the group of Exercise Type A while the second most common in this group is Exercise A7 (finding the odd word out of a set), which occurs in 40%. As a result, the researcher selected Exercise A8 and A7 to be used in this study.

Exercise Type B

Mental activities: infer the meaning of the word → then read the new context to get some idea about the word to be filled in the blank → then decide where the word fits the new context provided

or

Mental activities: read the new context first to get some idea about the word to be filled in the blank → then infer the meaning of the target word from the reading text → then decide where it fit the new context provided

These exercises are:

- B.1** cloze exercises: choose the target words from the list
- B.2** cloze exercises: choose the bold-typed words from the text
- B.3** cloze exercises: multiple choice
- B.4** open cloze exercise: choose the target words from the text (without highlighting the target words)

Learners doing Exercise Type B need to infer the meaning of the unknown words and then decide whether the word fits the new context by reading the new context and

trying to get some idea of the word that should be filled in the blank of that new context. This kind of exercise (requiring learners to use the word in the new context provided) may also require grammatical or syntactic knowledge if that exercises require students to be able to see the difference of the unknown word such as the part of speech, the tense, or the collocation, etc, before deciding to fill the word in the blank of the new context. The other exercises of this kind may need only semantic knowledge, that is, learners may have to read the new context in order to get some idea of the meaning of the word to be filled in the blank of that new context without using any grammatical or syntactic knowledge. Whatever means learners use to decide where the unknown word fits the new context, it can be seen that they have to use more mental effort than Exercise Type A (not requiring learners to use the words in the new context).

Another way of doing Exercise Type B is that learners may start from reading the new context first in order to get some idea about the word that should be filled in the blank of this new context. Then they need to infer the meaning of the target word and then decide which word fit the new context. This exercise type is thus supposed to require more mental effort than Exercise Type A because it requires from learners more mental process. Exercise B1 (cloze exercise: choose the target words from the list) is found the most frequent (50%) in the survey of 20 ESL/EFL textbooks and Exercise B4 (open cloze exercise: choose the target words from the text (without highlighting the target words) is found the second most frequent (20%). Therefore, the researcher chose Exercise B1 and B4 from Exercise Type B to be used in the study.

This kind of exercises involving the new context is categorized in both Interpretation and Production types in Paribakht and Wesche (1996)'s framework. That is, multiple choice cloze exercises (Exercise B3) are classified as Interpretation tasks while open cloze exercises (Exercise B4) are categorized as Production exercises.

Exercise Type C

Mental activities : infer the meaning of the word → use the word in the new context created by the learners themselves.

These exercises are:

- C.1** writing a story using the target words
- C.2** answering the questions using the target words
- C.3** making sentences using the target words

Learners doing exercise type C need to infer the meaning of the unknown word and then use the word in the new context created by their own without any help of the novel context provided. They also need very precise knowledge of the word to be able to use them in a new context created by their own, which means that they need to employ grammatical, semantic, and syntactic knowledge of the word. Therefore, to use the new word in the new context created by their own seems to require the most mental effort of all exercise types. This is maybe because learners have to spend a lot of time or may have to work many times with the unknown word in order to have deeper understanding of how to use it before they can complete the task.

This kind of exercise is referred to as Production exercise in both Stahl (1985)'s and Paribakht and Wesche (1996)'s frameworks. However, Paribakht and Wesche (1996) also categorized open cloze exercises; labelling pictures; seeing or hearing the meaning of the word in L1 or the L2 synonym of the word and providing the target word; and finding the mistake of the idiom use (presenting in context) and correcting it, as Production exercises. In this study, open cloze exercises are classified as Exercise Type B (using the target word in the new context provided), which are different from the so called 'Production tasks' in

Paribakht and Wesche (1996)'s framework. Thus, the term 'Production tasks' is not used in this study to avoid confusion.

However, from the try-out of the instrument on Exercise C1 (writing a story using the target words), which is mentioned in detail in 3.2.4, the result shows that it is impossible for the participants to finish the exercise within the time set by the researcher. This kind of exercise is very time-consuming and was deemed too difficult for the participants, who are the first year students of a university in Bangkok. It seems to be very difficult for them because they failed to create a story, or even a correct sentence containing the target word, due to the lack of grammatical, semantic, and syntactic knowledge. As a result, the researcher decided not to use Exercise Type C in this study due to the constraint mentioned above.

To sum up, the 4 exercises used in this study are from Exercise Type A and B only. Two exercises are from Exercise Type A and two are from Exercise Type B. The criteria of the selection is based on the frequency found in the 20 textbooks.

The 4 exercises chosen are as follows:

- Exercise A.8 (inferring meaning of the target words from context: multiple choices)
- Exercise A7 (finding the odd word out of a set)
- Exercise B.1 (cloze exercises: choose the target words from the list)
- Exercise B.4 (open cloze exercise: choose the target words from the text (without highlighting the target words))

Text-based Vocabulary Exercise Classification in This Study

Exercises that do not focus on the meaning of the words.

- Circling the target words in the puzzle (the words are from the list)
- Filling the correct form of the target words in the chart (e.g. fill the noun forms of the verbs provided)

Exercises that focus on the meaning of the words.

Exercise Type A

Mental Activities :

infer the meaning → give a kind of answer

- A.1** matching the target words with the synonyms or definition.
- A.2** matching the target words with pictures
- A.3** matching collocations
- A.4** finding the bold-typed words in the text to match the definitions given
- A.5** categorizing
- A.6** labeling pictures (using the bold-typed word from the text)
- A.7** finding the odd word out of a set
- A.8** inferring meaning of the target words from context : multiple choices
- A.9** inferring meaning of the target words from context : choose the definitions or synonyms from the list
- A.10.** inferring meaning of the target words from context and then give the meaning in L1 : no choices

Exercise Type B**Mental Activities :**

infer the meaning / elicit the meaning by grammatical knowledge → then read the new context to get some idea about the word to be filled in the blank → then decide where the word fits the new context provided

or

Mental Activities :

read the new context first to get some idea about the word to be filled in the blank → then infer the meaning of the target word from the reading text / elicit the meaning by grammatical knowledge→ then decide where it fit the new context provided

B.1 cloze exercises : choose the target words from the list

B.2 cloze exercises : choose the bold-typed words from the text

B.3 cloze exercises : multiple choices

B.4 open cloze exercise : choose the target words from the text (without highlighting the target words)

Exercise Type C**Mental Activities :**

infer the meaning / elicit the meaning by grammatical knowledge→ use the word in the new context created by the learners themselves.

C.1 writing a story using the target words

C.2 answering the questions using the target words

C.3 making sentences using the target words

3.2 The Test of the Instruments**3.2.1 Objective**

The test of the instruments was aimed to:

1. set up appropriate time for participants to read the reading text ,to do the pretest, each exercise ,and the posttest.

2. see whether there was any problem with the instruments such as a clear direction of each exercise or any unanticipated problems that could occur.

3.2.2 Participants

The participants of the test of the instruments were 24 university students of a university in Bangkok. They were randomly selected from the English II course that the researcher taught. They were first year students of different majors such as French, Thai, archaeology, and Art History. There were no English majors.

3.2.3 Procedure

The 24 students were divided into 3 groups randomly. They were given the pretest to see how much time they used. Then they were given the reading text, the exercise (i.e. each group got one different exercise), the posttest, and the semi-structured interview. The 3 exercises used in the try-out of the instrument were randomly selected from the 3 exercise types, which are A1 (matching the target words with the synonyms or definitions; B1 (cloze exercise : choose the target word from the list); and C1 (writing a story using the target words) (see these 3 exercises in Appendix 7)

Participants in each group were divided into 2 subgroups. That is, Group 1 were those who do the activities according to the time set by the researcher. For example, the researcher estimated that the time used in the pretest should be around 5 minutes, so Group 1 would do the pretest within the 5 minutes to see whether they could finish it in time. Group 2 were those who did the activities without time limit. Therefore, the researcher could see the real time they used without time constraints. Then the researcher recorded the time used in each activity. After that, the researcher asked the participants their opinions about the appropriate time they thought each activity should require and recorded it. The

researcher observed the problems that could occur during each activity and also asked the participants about the problems they found after finishing each activity.

3.2.4 Results

Timing of each activity

After the test of the instruments, the researcher could find out the appropriate time used in each activity as follows:

1. The pretest = 3 minutes
2. The reading text = 5 minutes
3. The exercises = 20 minutes
4. The posttest = 5 minutes
5. The interview = about 5 minutes per an interviewee

Change in the instruments

1. Change on the types of exercises used in the main study

One problem found in the test of the instruments was that Exercise C1 was too difficult to complete by the participants. Exercise C1 was writing a story using the 10 target words. The students failed to finish the exercise in time of 20 minutes. Most of them spent about half an hour or more to finish it. Some of them could not finish it at all. The participants could not do this exercise because they did not have enough grammatical, syntactic, and semantic knowledge to do it. They could not use the target words properly in the new context and it seemed difficult to them to even convey the meaning of what they want to write in the story. For this reason, the researcher decided not to use this exercise in

the main study (see 3 examples of the answers of the participants who did Exercise C1 in the appendix).

There is also a change in 3 exercises to be used in the main study. This is because before the test of the instruments, the researcher randomly chose the 3 exercises from exercise type A (guessing the meaning of the word), B (guessing the meaning of the word and using the word in the new context provided), and C (guessing the meaning of the word and producing the word in their own new context), but after the test of the instruments, the researcher selected 4 exercises from only exercise type A and B (Type C was cut out because of its difficulties mentioned above) Therefore, the researcher decided to choose the 4 exercises by their frequency found in the 20 textbooks. As a result, Exercise A8 (45% found in the 20 textbooks) and A7 (40%) were chosen because they were found the most frequent of Exercise Type A. Exercise B1 (50%) and B4 (20%) were found the most frequent in Exercise Type B, so they were chosen to be used in this study (See more about the frequency of each exercise in Chapter 1).

2. Change in detail in Exercise B1 and B4

Exercise B1 and B4 are changed to be sentence cloze exercises instead of story cloze exercises because the participants in the test of the instruments interview said that it is too difficult for them. (Exercise B1 and B4 have the same detail. The only difference is that Exercise B1 provides answer choices while B4 offers no answer choices at all.) (See Exercise B1 and B4 after the test of the instruments in the appendix) The two exercises were adjusted by 3 native speakers.

3.3 Pilot Study

3.3.1 Objective

This pilot study was aimed to be the try out to see whether there would be any unexpected problems before the main study.

3.3.2 Participants

The participants of this pilot study were 50 first year medical students of a university in Nakhon Ratchasima Province (selected for convenience).

3.3.3 Procedure

1. The participants did the 3-minute pretest.
2. The participants read the reading text for 5 minutes.
3. The participants were divided into 4 groups and each groups did each of the 4 exercises for 20 minutes.
4. The researcher gave the brief answer orally for each exercise and the meaning of the 10 target words
5. The participants did the first posttest 2 days later
6. The participants did the second posttest 30 days after the pretest
7. The researcher interviews some of the participants on how they did each exercise and on their opinion toward each exercise.

The participants were given the pretest, the exercise, and two-day-later posttest 1. The result was that the first posttest scores were very questionable. That is, most of the participants got very high scores on the first posttest (on average 8 words out of 10). The researcher suspected that they had studied the target words after doing the exercises (after class study) before they did the first posttest. Therefore, the researcher decided to conduct the interview immediately to find out the reason for these questionable high scores.

After the random interviews (10 out of 50 students), it was found out that most of the interviewees (8 out of 10) studied the target words (some consulted their friends and some consulted dictionaries) and tried to memorize the words after doing the exercises. So, it was natural that most of them scored very high in the 2-day later first posttest.

3.3.4 Results

Change in the procedure of the main study

The results showed that most of the participants studied and tried to memorize the target words after class before the first posttest, which means that the scores they got were not the result of learning the target words from the exercises but from their trying to memorize words after class. Therefore, the researcher tried to eliminate this problem by changing the procedure of the main study. That is, Posttest 1 were changed from two-day later to be immediate posttest (about 1 hour later after doing the exercises) so that the participants do not have chances to memorize the word after class. The new procedure is as follows:

1. 3- minute pretest
2. 5-minute reading text
3. 20-minute exercises

(Step 1-3 will be given at the beginning of the 2-hour class and then participants study the regular lesson with their regular instructor)

4. brief answer key given orally
5. 5-minute posttest I (given at the end of the class)
6. 7-day-later posttest II (5 minutes)
7. one-month-later posttest III (5 minutes)
8. semi-structured interview (about 5 minutes per person)

Change in the posttests

To find out whether the participants studied the words they have encountered in the pretest after class or not, the researcher decided to add 10 distracter words to the posttest. These 10 distracter words were selected from the distracter words in the pretest. These words can partly tell whether they study more on the new words they have encountered in the pretest or not (e.g. looking up in a dictionary.) If the participants didn't know some of the 10 distracter words when they did the pretest but could tell the meaning of those distracter words in the posttest, it means that they had studied the new words after class because the 10 distracter words were not included in the 4 exercises. And it is possible to conclude that some of the 10 target words they gain may not be the result of learning from the exercises but can be the result of learning those words after class.

3.4 Research Method for Study 1 and 2 (main study)

3.4.1 Participants

The participants in Study 1 were 122 first year students of a university in Bangkok attending the mandatory basic English course of the university. The reason why the researcher chose first year university students to be the participants in this study was because their English proficiency could be seen from the ONET (Ordinary National

Education Test) scores of English, which is the national test that all students who graduate high school in Thailand have to take. Also, the first year university students just graduated high school and, therefore, should not be very different in their English proficiency from the ONET scores they had taken while second, third, or fourth year students, who may have developed their English skills through the university's English courses may have much different English proficiency from their ONET scores.

Three classes were randomly chosen. They were engineering, social science, and medical/ dentist/ nurse students. Then they were divided into four groups to do the four exercises (One group did one exercise). Each group was composed of the students of equal proportion of all faculties mentioned above, of equal proportion of males and females, and also of equal proportion of their English proficiency. That is, the students of higher, middle, and lower scores of English from ONET were mixed together in equal proportion.

The participants in Study 2 were also 122 first year students from another university in Bangkok. They were arts students from different majors such as French, Thai, archaeology, and art history. There were no English majors. The students are from English I course, which is a mandatory basic English course for all first year students of arts in this university. The reasons why English majors are not chosen to be the participants in this study are (1) English major students are considered to have better English proficiency than other major students and they take different basic English course, which means that they do not have equal background of English knowledge to other students; and (2) It is more likely that the target words and the exercises used in this study are familiar to them. The participants were also divided into four group with the same criteria as the participants mentioned in Study 1.

3.4.2 Research Method

This study is designed to be a quasi-experimental study in order to compare 4 typical text-based vocabulary exercises to see which type is the most efficient to promote vocabulary learning.

3.4.3 Procedure

The experiment was carried out during normal class time of English I course. The participants in each group were divided randomly into 4 groups. Each group was assigned to do the 3-minute unannounced pretest followed by a 5-minute reading text. After that, they did one type of vocabulary exercise for 20 minutes.

Before reading the text, the participants were told that they were going to do a certain kind of exercise. The exercise was given after they finished reading the text in order to make sure that all participants have read the text before doing the exercise. Dictionaries were not allowed but glossary of difficult words in the text (not including the target words) was provided. After they finished doing the exercise, the correct answers and the translation of the target words in Thai were given briefly. The unannounced post test was given to the participants at the end of the class, which was about an hour later. Then the unannounced second posttest (a week later) and third posttest (a month later) were given to them. After Posttest 3, the interview was conducted to see the participants' opinions about how they gained the target words and their preference on each exercise.

3.4.4 Instruments

3.4.4.1 Target words

The 10 target words were chosen by the researcher from the book *Active Vocabulary: General and Academic Words* by Amy E. Olsen, published by Pearson

Education, 2005. This book is designed to accompany a reading text at a second-tier reading level. The 10 target words taken from chapter 2 of the book were examined by 3 instructors who teach in the level of the participants (i.e. those who teach English to the first year students of this university). The target words were considered to be difficult for the learners of this level and , therefore, the participants are supposed not to know these 10 target words and have a chance to learn during doing each type of the given text-based vocabulary exercises (See the target words in Appendix 3).

3.4.4.2 Pretest

The pretest in this study is a know-or-don't know test mixed with translation test. That is, the participants have to put a tick in front of the words they know and do nothing with the unknown words. To check whether they really know the words, participants have to give a translation of that words they claim they know. The translation can be either in Thai or in English.

The pretest consists of 50 words including the 10 target words.

It was constructed by taking the 10 target words and the other 40 words from the same book (i.e. *Active Vocabulary: General and Academic Words* by Amy E. Olsen.) The researcher took the 10 target words and the exercises to be used in the experiment from chapter 2 of the book. Therefore, the 40 words other than the target words were taken from the other chapters of the book deemed to be in the same level of difficulty. The 40 words were randomly mixed together.

3.4.4.3 Posttest

The posttest of this study was designed to be a translation test of the 10 target words mixed with other 10 distracter words taken from the other 40 words of the pretest (see the posttest in appendix 5).

3.4.4.4 Reading text

The reading text provides a glossary for the words that were considered difficult for the participants in this proficiency level. The words were deemed difficult by English I instructors. The glossary was meant to eliminate the difficulty of the context because dictionaries were not allowed in the experiment and it can ensure that participants have equal chance to infer the meaning from context. (See the reading text in Appendix 6)

3.4.4.5 Four text-based vocabulary exercises

The 4 text-based vocabulary exercises used in this study were chosen and adapted from chapter two of the book *Active Vocabulary: General and Academic Words* by Amy E. Olsen, published by Pearson Education, 2005.

3.4.4.6 Answer Keys

After the participants finished the exercises, the researcher orally gave the answer of each exercise briefly in order to reduce the chance of learning the target words at this stage.

3.4.4.7 Interview

The semi-structured interview was used in this study to investigate the opinions of the participants about how the text-based vocabulary exercises used in this study promote vocabulary learning. The scope of the interview covered the following:

1. Why do you think you could remember the target words?
2. Did you consult a dictionary or friends or try to memorize the words after class? Why?
3. How did you like the exercise you did?

The interview was in Thai and lasted about 5 minutes per person. The participants were selected using the stratified sampling method. That is, nine students were chosen from each exercise, meaning that 36 students were selected. Of the nine students from each exercise, three students were of the high English proficiency, three of the middle, and the other three of the lower proficiency.

3.4.5 Data Collection and Analysis

3.4.5.1 Vocabulary gain scores

The vocabulary gain scores were calculated by subtracting the pretest scores from the posttest scores.

3.4.5.2 Pretest and posttest scores

The pretest and the posttest scores were calculated by giving 1 point for each target word in case that the participants gave the translations to the words correctly. 0.5 points were given to the words that the participants showed some of their understanding about the meaning of the words. Zero point was given to the words that participants gave obviously wrong meaning or did not answer at all. For example, for the target word *dour*, which means in Thai ‘มืดบึ้ง/เศร้าหมอง’ (sullen or gloomy), the participants who gave exactly right or very close answers such as ‘เศร้า’ (sad) and ‘บึ้งตึง’(unsmiling or frowning) got 1 point. Those who gave partially right answers such as ‘รำคาญใจ’ (upset) and ‘ลำบากใจ’ (worried or reluctant) got 0.5 point because they showed some understanding of that word although the meanings were not exactly right. Those who gave the wrong answers such as ‘มากมาย’ (plentiful) or did not give any answer at all got 0 point. This means that participants who gave the correct meaning of all 10 target words got the score of 10. Those who gave obviously wrong meaning of all target words got the score of 0.

These scoring criteria had some degree of subjectivity because it was difficult to translate the target words into exactly Thai meanings or vice versa and it was also difficult to say that some of those Thai translations got zero or 1 point. Therefore, 0.5 point was given to this kind of answers, which showed at least related meanings for the target words as mentioned above.

However, to reduce this subjectivity, four scorers (the researcher and three English instructors who were Thai) scored the pretest and the three posttests in order to give more precise scores for each translation. That is, the answers that were scored differently or the problematic answers were discussed among the scorers before giving the final scores.

3.4.5.3 The difference between the 2 vocabulary exercise types and between each exercise under the same type in promoting vocabulary gain.

In order to examine whether the 2 exercise types are significantly different in promoting vocabulary gain, one-way ANOVA was employed. One-way ANOVA is generally used to compare more than 3 methods in a study. It can tell us that at least one couple of the 4 exercises are different. Then, in order to check which couple of the 4 exercises are different, the Post-Hoc LSD was used. The Post-Hoc LSD was one of statistic programs that could precisely tell the differences between every couple of exercises, that is:

Pair 1. between Exercise A8 and B1

Pair 2. between Exercise A8 and B4

Pair 3. between Exercise A7 and B1

Pair 4. between Exercise A7 and B4

Pair 5. between Exercise A8 and A7

Pair 6. between Exercise B1 and B4

Therefore, the comparison by Post-Hoc LSD can tell us whether the 2 exercise types are different or not by seeing the result between Exercise Type A and B couples (i.e. Pair 1-4).

Also, to find out whether the 2 exercises under the same exercise type are different, the result of the comparison of Pair 5 can tell the difference between the two exercise from Exercise Type A (i.e. between Exercise A8 and A7) and the result of Pair 6 can tell the difference of the 2 exercises under Exercise Type B (i.e. between Exercise B1 and B4).

3.4.5.4 The analysis of the data from the interview

The interview was collected by tape recording and was analyzed in order to find out the participants' opinions about how each exercise promoted vocabulary learning and about their preference of each exercise.

CHAPTER 4

RESULTS

This chapter presents the reliability results for the four exercises, the statistical results, and the semi-structured interview results of Study 1 and the main study (Study 2).

4.1 Study 1

4.1.1 Objective

This study was at first intended to be the main study (Study 2), but some doubtful results from exercise B4 (filling in the blank of the new sentence by choosing any words from the reading text) suggest that another study should be conducted and this study should be treated as Study 1. This doubt lies in the result of exercise B4. That is, the hypothesis of this study is that the most difficult exercise should require most mental effort from learners and hence should promote the best gain. B4 may be the most difficult exercise in this study because the participants could do the lowest on this exercise scores. Therefore, this exercise was supposed to enhance the best gain. However, the result shows that B4 promotes the least gain in Gain 1 and then the third gain in Gain 2 and 3.

This unexpected result made the researcher think that it might be because exercise B4 has a different characteristic from the other three exercises. That is, in B4, the participants could answer both the target words and other possible answers they could find from the reading text this is different from in the other three exercises, which require students to focus on only the ten target words. The problem on exercise B4 was that when

the researcher gave the answer key of this exercise, the researcher told the participants only the exactly right answers (i.e., the target words) but not other possible answers. This may lead to the misunderstanding of the participants in case they answered a possible answer but thought that it was wrong because it was not the same as the word in the answer key. About 22.22% of the interviewees who did exercise B4 said that when they saw that their answers were not the same as those in the answer key, they thought that their answers were wrong and, therefore, did not try to remember that word.

This study was therefore changed to be Study 1 while the new study (Study 2) was conducted with a different group of participants. The two differences between the two studies are as follows:

1. It was conducted with another group of students (i.e., the first year students of another university in Bangkok).

2. The researcher gave a new answer key for exercise B4.

That is, it included the exactly right answers (the target words) and other possible answers. For example, question number three is ‘3. *Peter is very..... ; he always has a cheerful face and fun to be around,*’ and the old version of the answer key of B4 for this question was *amiable* but the new version were *amiable, friendly, or warm*.

However, the main study (Study 2) shows similar results to Study 1 despite the change on the answer key of B4. Therefore, the researcher decided to put Study 1 in this chapter in order to compare the similar results of the two studies.

4.1.2 Participants

Participants of Study 1 were 122 first year students of a university in Bangkok attending the university basic English course, which is a mandatory course for students from every faculty. Three classes were randomly chosen to be the participants of this study. They were engineering, social science, and medical/ dentist/ nurse students.

4.1.3 Procedure

The procedure of this pilot study is as follows:

1. 3- minute pretest

2. 5-minute reading text

3. 20-minute exercises

(Step 1-3 will be given at the beginning of the 2-hour class and then participants study the regular lesson with their regular instructor)

4. brief answer key given orally

5. 5-minute posttest I (given at the end of the class)

6. 7-day-later posttest II (5 minutes)

7. one-month-later posttest III (5 minutes)

8. semi-structured interview (about 5 minutes per person)

The result of Posttest 3 is the result of only 80 participants because the 42 engineering students were cut out due to suspicion of cheating.

4.1.4 Results

4.1.4.1 Reliability Results of the Four Exercises

The four exercises' reliabilities were calculated using Cronbach's Alpha. The Cronbach's Alpha values of the four exercises were as follows:

Exercise A7 = 0.78

Exercise A8 = 0.75

Exercise B1 = 0.79

Exercise B4 = 0.77

In Cronbach's Alpha calculation, reliability values should be at least 0.75, meaning that these four exercise are reliable. That is, if the participants take the test again, about 61%

probability of participants will get the same score for exercise A7 ; about 56% probability of participants will get the same score for exercise A8 ; about 62% probability of participants will get the same score for exercise B1; and about 59% probability of participants will get the same score for exercise B4.

4.1.4.2 Statistical Results

Table 4.1: Participants' Mean Scores of Vocabulary Gains (Study 1)

Exercise		Gain1	Gain2	Gain3 (excluding engineering students)
B4	Mean	4.033	1.850	1.66
	N	30	30	19
	Std. Deviation	2.2892	1.4453	1.313
B1	Mean	4.683	2.783	2.68
	N	30	30	22
	Std. Deviation	1.9761	1.6902	1.855
A7	Mean	4.641	2.109	1.75
	N	32	32	20
	Std. Deviation	2.1222	1.8392	1.895
A8	Mean	5.017	1.667	1.55
	N	30	30	19
	Std. Deviation	2.6829	1.3604	1.268
Total	Mean	4.594	2.102	1.94
	N	122	122	80
	Std. Deviation	2.2794	1.6350	1.660

Table 4.2: The Difference of Vocabulary Gain Scores in Gain 1 (Study 1)

Gain 1		
Exercise	Gain Score Difference	Significant Level
B1-B4	.6500	.272
B1-A7	.0427	.941
A8-B1	.3333	.572
A7-B4	.6073	.297
A8-A7	.3760	.518
A8-B4	.9833	.098

* The mean difference is significant at the .05 level

Table 4.3 : The Difference of Vocabulary Gain Scores in Gain 2 (Study 1)

Gain 2		
Exercise	Gain Score Difference	Significant Level
B1-B4	.9333	.026*
B1-A7	.6740	.100
B1-A8	1.1167	.008*
A7-B4	.2594	.525
A7-A8	.4427	.278
B4-A8	.1833	.658

* The mean difference is significant at the .05 level

Table 4.4 : The Difference of Vocabulary Gain Scores in Gain 3 (Study 1)

Gain 3		
Exercise	Gain Score Difference	Significant Level
B1-B4	1.024	.048*
B1-A7	.932	.067
B1-A8	1.129	.029*
A7-B4	.092	.860
A7-A8	.197	.706
B4-A8	.105	.842

* The mean difference is significant at the .05 level

Please note that, from Table 4.1, the result of Gain 3 is the result of only 80 participants excluding 42 engineering students. The reason of this exclusion is that the participants may somehow copied the answers from other students because the researcher could see that they talked to each other a lot in this classroom compared to other participants in the other classrooms, who were quiet at the time of posttest 3.

From Table 4.1-4.4, it can be seen in gain 1 (immediate gain) that, although not statistically different among the exercises, exercise A8 yields the most gains (5.0 words) and then B1 (4.7 words), A7 (4.6 words) and B4 (4.0 words) respectively.

Interestingly, results in gain 2 (a-week-later gain) and gain 3 (a-month-later gain) seems to correspond to the hypothesis. That is, the new context exercise, which require students to use more mental effort (B1) yields the most gains (2.8 words in gain2 and 2.7 words in gain3) and the one without new context, which requires less mental effort (A8) yields the least gains. (1.7 words in gain2 and 1.6 words in gain3) From Table 4.3 and 4.4, it can be seen that B1 significantly enhances more vocabulary gains than A8 at 1.1167 words in Gain 2 and 1.129 words in Gain 3 ($p = .008$ in Gain 2 and $p = .029$ in Gain 3). This means the exercises that require more mental effort tends to promote longer retention although there is a tendency that they promote less gains in the immediate gain (gain1).

Nevertheless, the results are different on exercise B4 (filling in the blank by finding the answer from the reading text). If the results absolutely correspond with the hypothesis mentioned above, B4 (a new context exercise) is supposed to promote more gain than A7 and A8 (no new context exercises) but the results show that, though not significantly different, B4 promotes more gains than A8 but not A7 in both gain2 and gain3. And even worse, B4 promoted the least gain in gain 1 (immediate gain).

Another unclear result about B4 is that B1 significantly promotes more gain than B4 at 0.9333 words in Gain 2 and 1.024 words in Gain 3 ($p = .026$ in Gain 2 and $p = .048$ in Gain 3). This is doubtful because both B1 and B4 are the new context exercises and have exactly the same content. The only difference is that B1 provides the ten target words for learners to choose to fill in the blank while B4 does not, i.e., learners have to choose any words from the reading text to fill in the blank. This point is discussed in detail in 5.5.

As mentioned in 4.1.1, the problem on B4 is that the researcher gave only the exactly right answers as the answer key of this exercise and did not give any possible

answers. This may somehow interrupt the memorization process of the participants compared to the other 3 exercises. Although it is not clear why it promotes less gain than A7, B4 still promotes more gains than A8 in both gain2 and gain3. These results means that exercise B4, which is the type that require learners to use the unknown word in the new context, is still somehow superior to A8, which is the type that requires learners to only guess the meaning of the unknown word.

Therefore, another study should be conducted in order to answer all these questions.

4.1.4.3 Results of Semi-Structured Interview

Actually, the expected number of the interviewees was 36 out of 122 participants, but one participant did not show up at the interview session so the real number of the interviewees was 35.

The questions in the interview were as follows:

1. Why do you think you could remember the target words?
2. Did you consult dictionary or friends or try to memorize the words after class? Why?
3. How did you like the exercise you did?
4. (For those who did Exercise B4) Did the way the researcher telling the answer of Exercise B4 affect your remembering of the target words? (The researcher gave only the right answers but not the synonym or possible answers.)

Interview question 1 (Why do you think you could remember the target words?) was designed to check whether the exercises play roles in promoting the retention of the target words or not. The followings are the factors that 35 interviewees said to help promote their retention of the target words.

Table 4.5: Summary of Findings from Interview Question 1(Study 1): Why do you think you could remember the target words?

Factors	percentage	Detail
Recognizable word form	65.71%	The word <i>exemplify</i> , <i>fruitful</i> , <i>serenity</i> , and <i>dependable</i>
Short word form	45.71%	The word <i>dour</i>
Exercise	40%	<p>1. Some context from the reading text or the exercise help them to remember some words ,e.g., <i>dour</i> <i>face</i> in both B1 and B4 (64.28%)</p> <p>2. Synonyms as the multiple choices in exercise A8 help them to remember some words, e.g., the word <i>gloomy</i> as a choice in question 2 promotes the retention of the word <i>dour</i>. (14.28%)</p> <p>3. The mistakes they did in some questions help them to pay close attention to the answer key and then remember that word. For example, an interviewee answered the wrong answer for the question 2 of exercise A7 and that helped her to remember the word <i>submissive</i>. (14.28%)</p> <p>4. Antonyms in exercise A7 (odd word out) help to remember some words ,i.e., the word <i>happy</i> is an odd word in question 1,which is an antonym of the word <i>dour</i>, so the interviewee remember the word <i>dour</i> with the help of the word <i>happy</i>. (7.14%)</p>

Factors	percentage	Detail
Unexpected meaning	40%	The word fruitful should be translated as something that involves fruit but it was translated as <i>successful</i> from this context.
Some words were familiar to them but they could not remember their meanings before the pretest.	40%	The word <i>serenity</i> , <i>fruitful</i> , <i>submissive</i> , <i>dour</i> , <i>mercenary</i> , and <i>discreet</i>
It was the first word of the answer key and the 3 posttests.	31.42%	The word <i>serenity</i>
(For posttest 1 only) They could remember some words in a short period of time after the researcher told them the answer key.	25.71%	
Interesting meaning	8.57%	The word <i>dour</i> and <i>mercenary</i>
Some words were seen in another text after posttest 1	8.57%	The word <i>dour</i> and <i>serenity</i>
(For posttest 1 only) Interviewees jotted down the words after the researcher told them the answer key.	8.57%	
Some words looked difficult.	2.85%	The word <i>mercenary</i> and <i>amiable</i>

From Table 4.5, 65.71% of the interviewees (23 out of 35) said that they could remember the target words due to recognizable word form, that is, the words were easy to remember because they could recognize some part of the words such as *example* from the word *exemplify* or *fruit* from the word *fruitful*. 45.71% of the interviewed students (16 out of 35) said that the word *dour* was easy to remember because of its short form.

There were 40% of the interviewees (14 out of 35) who claimed that they remember some target words because of the exercise they did. That is, 25.71% (9 out of 14) said that context from the reading and the exercise helped them to remember some words such as the word *dour* from *dour face* in both exercise B1 and B4. Some interviewees (14.28% or 2 out of 14) stated that they could remember some words because of the synonyms which were provided in exercise A8 (multiple-choice exercise) as multiple choices for participants to choose. For example, some could remember the word *dour* because the answer choice '*gloomy*' helped them to remember it. Some interviewed

students (14.28% or 2 out of 14) reported that the mistakes they did in some questions help them to pay close attention to the answer key and then remembered that word. For instance, an interviewee gave the wrong answer for Question 2 of exercise A7 and that helped her to remember the word *submissive*. 7.14% (2 out of 14) of the interviewees said that the antonyms in exercise A7 (odd word out) promoted their retention of some words. For example, the word *happy* was the odd word of Question 1 and also an antonym of the target word *dour*, so this word (*happy*) helped the interviewees to remember the word *dour*.

Also, some interviewees (40% or 14 out of 35) claimed that they could remember the word *fruitful* from its unexpected meaning. That is, they expected that *fruitful* should be translated as something that involved fruit or “ผลไม้” in Thai, but the meaning in context means *successful*, which was surprising to them and this helped them to remember this word.

There were 40% of the interviewees (14 out of 35) who said that some words such as *serenity* or *fruitful* were familiar to them before doing the pretest so after the exercise and the answer key process, these words were remembered firmly because they could recognize their meaning from the process mentioned above.

There was also interesting information from 31.42% of the interviewees (11 out of 35) who claimed that they could remember the word *serenity* because it was the first word of the answer key and the three posttests.

About 8.57% (3 out of 35) said that the word *dour* and *mercenary* could be remembered due to their interesting meanings while another 8.57% (3 out of 35) reported that the word *dour* and *serenity* could be remembered because they were seen in another text after posttest 1. About 2.85% (1 out of 35) stated that they could remember the word *mercenary* and *amiable* because these words looked difficult and, therefore, made them pay much attention to the words and could remember them.

Apart from the factors mentioned above, 25.71% (9 out of 35) reported that they could remember some words in posttest 1 because it is quite short time after they knew the answer key that they did posttest 1 so they could still remember some words. Also, 8.57% (3 out of 35) of the interviewees said that they could remember some words in posttest 1 because they jotted them down at the time the researcher orally gave the answer key.

Table 4.6: Summary of Findings from Interview Question 2 (Study 1): Did you consult a dictionary or friends or try to memorize the words after class? Why?

Factors	Percentage	Reasons
Consult friends (after class)	45.71%	They were curious of some words they could not answer or were uncertain with their answers in the posttests.
Do not consult dictionary or friends and do not memorize the words after class	42.85%	<ol style="list-style-type: none"> 1. They thought that the words did not involve their grades. (40%) 2. They did not think that there would be later posttests. (40%) 3. They could not remember even the words or how the words spell so they could not consult anything. (20%)
Consult dictionary	5.71%	The words were difficult for them such as mercenary and affinity
Try to memorize the words after class	5.71%	<ol style="list-style-type: none"> 1. They tried to memorize any new words because they like English. (50%) 2. They tried to memorize the words because they thought the words were useful for them. (50%)

Interview question 2 (Did you consult dictionary or friends or try to memorize the words after class? Why?) was intended to check whether the answers in the posttests were the answers of their retention from the exercises or from what they studied after class, i.e., consulting friends or dictionary or try to memorize the words.

From Table 4.6, 5.71% of the interviewees (2 out of 35) said that they consulted dictionary because some words were difficult for them such as *mercenary* and *affinity* while 45.71% (16 out of 35) consulted friends after class because they were unsure whether their answers in the posttests were wrong or they were curious of the words they could not answer.

There were 5.71% (2 out of 35) of the interviewees who claimed that they tried to memorize the word after class because some of them like English and, therefore, tried to remember any new words and some thought that they should memorize the words because the words would be useful for them.

For those who did not consult dictionary or friends or did not try to memorize the words (42.85% or 15 out of 35), 40% (6 out of 15) of them thought that they did not need to do that because the words in this study did not involve their grades. Some of them (40% or 6 out of 15) said that they did not pay much attention to the words because they did not expect that there would be later posttests after they did posttest 1. Some (20% or 3 out of 15) could not remember even the words or how the words spelled so they could not consult anything.

Table 4.7: Summary of Findings from Interview Question 3 (Study 1): How did you like the exercise you did?

Exercise	Like		Dislike		Other Answers	
	Percent	Reasons	Percent	Reasons	Percent	Reasons
B4	11.11%	It was challenging.	88.88%	It was too difficult.	-	-
B1	11.11%	It was challenging.	77.77%	It was difficult compared to multiple-choice or odd-word-out exercises.	11.11%	It was o.k. They were familiar to this kind of exercises.
A7	100%	It was easy.	0%	-	-	-
A8	87.5%	It was easy.	0%	-	12.5%	It was o.k. They were familiar to these exercises.

Interview question 3 (How did you like the exercise you did?) was intended to check the participants' opinion about the 4 exercises. From Table 4.7, there were 11.11% of the interviewees (1 out of 9) who liked Exercise B4 while 88.88% (8 out of 9) did not like the exercise because it was too difficult for them.

For Exercise B1, those who liked the exercise (11.11% or 1 out of 9) said that they liked it because it was challenging while those who did not like it (77.77% or 7 out of 9) reported that they felt the exercise was difficult compared to multiple-choice or odd-word-out exercises. Apart from 'like' or 'dislike' answers, some of the interviewees said that they did not feel like or dislike Exercise B1 (11.11% or 1 out of 9). Exercise B1 was o.k. for them because they felt familiar to this kind of exercise.

For Exercise A7, 100% of the interviewees (9 students) answered that they liked this exercise because it was easy for them while 87.5% (7 out of 8) said that they like Exercise A8 because it was also easy. There were also 12.5% (1 out of 8) who claimed that they just felt O.K. with Exercise A8 because they were familiar to this kind of multiple-choice exercise.

Table 4.8: Summary of Findings from Interview Question 4 (Study 1): Did the way the researcher telling the answer of Exercise B4 effect your remembering of the target words?

	percentage	reasons
The way the researcher gave the answer of Exercise B4 <u>did not affect</u> the remembering of the target words.	77.77%	1. Exercise B4 was so difficult for them that they did not pay much attention when they did the exercise and when they listened to the answer of Exercise B4. (44.44%) 2. They remembered only the target words at the time the researcher gave the answer of exercise B4. (33.33%)
The way the researcher gave the answer of Exercise B4 <u>affected</u> the remembering of the target words.	22.22%	When their answers were not the same as those in the answer key although they were synonyms or possible answers, the interviewees thought that their answers were wrong and then did not try to remember those words.

Interview question 4 for those who did exercise B4 (Did the way the researcher telling the answer of Exercise B4 affect your remembering of the target words?) was designed to check the participants' opinion about the way the researcher gave the answer key of this exercise. That is, if it has some effect on the retention of the words, there should be some change on the way of giving the answer key of Exercise B4 in order that more accurate results will be obtained for this exercise.

From Table 4.8, 77.77% of the interviewees (7 out of 9) said that the way the researcher gave the answer of Exercise B4 did not effect the remembering of the target words. 57.14% (4 out of 7) of them reported the reason that Exercise B4 was so difficult for them that they did not pay much attention when they did the exercise and when they listened to the answer key of this exercise while 42.85% of them (3 out of 7) said that they could remember the target words only at the time the researcher gave the answer of this exercise.

There were 22.22% of the interviewees (2 out of 9) who said that the way the researcher gave the answer key of Exercise B4 affected the retention of the target words. This was because when their answers were not the same as those in the answer key even if they were synonyms or possible answers, the interviewees thought that their answers were wrong and then did not try to remember those words.

4.2 The Main Study (Study 2)

4.2.1 Participants' Mean Scores of Vocabulary Gains of the 4 Exercises

The gain scores of participants were calculated by the scores of the followings:

Gain 1 (immediate gain) = posttest 1 - pretest

Gain 2 (a-week-later gain) = posttest 2 - pretest

Gain 3 (a-month-later gain) = posttest 3 - pretest

Each target word was given 1 point for the right answer, 0.5 for the partly right answer, and 0 for the wrong answer, meaning that the participants who could give the right answers for all 10 target words got 10 points while those who could not answer at all got 0 points. Table 4.6 showed the mean scores of the 3 gains of the 4 exercises.

Table 4.9: Participants' Mean Scores of Vocabulary Gain (Main Study)

Exercise		Gain 1	Gain 2	Gain 3
B1	Mean	6.268	4.304	3.389
	N	28	28	18
	Std.deviation	2.7504	2.8131	2.8520
B4	Mean	5.129	3.600	2.354
	N	35	35	24
	Std.deviation	3.1538	2.6201	2.2769
A7	Mean	5.788	3.606	2.667
	N	33	33	24
	Std.deviation	2.2777	1.9111	1.6659
A8	Mean	5.519	3.038	1.813
	N	26	26	16
	Std.deviation	2.4798	1.7659	1.1815
Total	Mean	5.652	3.643	2.567
	N	122	122	82
	Std.deviation	2.7021	2.3421	2.1224

Table 4.10 : The Difference of Vocabulary Gain Scores in Gain 1 (Main Study)

Gain 1		
Exercise	Gain Score Difference	Significant Level
B1-B4	1.1393	.099
B1-A7	.4800	.491
B1-A8	.7486	.311
A7-B4	.6593	.317
A7-A8	.2686	.705
A8-B4	.3907	.578

**The mean difference is significant at the .05 level*

Table 4.11 : The Difference of Vocabulary Gain Scores in Gain 2 (Main Study)

Gain 2		
Exercise	Gain Score Difference	Significant Level
B1-B4	.7036	.237
B1-A7	.6975	.247
B1-A8	1.2651	.049*
A7-B4	.0061	.991
A7-A8	.5676	.355
B4-A8	.5615	.354

* *The mean difference is significant at the .05 level*

Table 4.12 : The Difference of Vocabulary Gain Scores in Gain 3 (Main Study)

Gain 3		
Exercise	Gain Score Difference	Significant Level
B1-B4	1.0347	.117
B1-A7	.7222	.272
B1-A8	1.5764	.032*
A7-B4	.3125	.607
A7-A8	.8542	.210
B4-A8	.5417	.425

* *The mean difference is significant at the .05 level*

From Table 4.9-4.12, although the mean of gain scores in Gain 1 is not statistically different among the four exercises. Gain 2 and 3 shows some statistical difference between B1 and A8 (1.2651 words in Gain 2 and 1.5764 in Gain 3) ($p = .049$ in Gain 2 and $p = .032$ in Gain 3). Results also show that the gain scores of the four exercises ranks in an interesting manner. That is, in gain 1, the ranks of the mean of the gain scores ranking from the most gain to the least were as follows:

1. exercise B1 (6.2 words)
2. exercise A7 (5.7 words)
3. exercise A8 (5.5 words)
4. exercise B4 (5.1 words)

In gain 2, the ranks were a little different from gain 1 as follows:

1. exercise B1 (4.3 words)
2. exercise A7 (3.606 words)
3. exercise B4 (3.600 words)
4. exercise A8 (3.0 words)

In gain 3, the ranks were the same as those in gain 2 listed below:

1. exercise B1 (3.3 words)
2. exercise A7 (2.6 words)
3. exercise B4 (2.3 words)
4. exercise A8 (1.8 words)

The ranks of the four exercises in gain 2 and gain 3 is exactly the same as those in Study 1 ; that is, exercise B1 yields the most gain while A8 the least. However, the four exercises in gain 1 of the two studies ranks differently. That is, in Study 1 the order of the exercise ranking from the most gain to the least is A8,B1,A7 and B4 while in the main study (Study 2) the order is B1,A7,A8, and B4.

Results also show that the problematic B4 yields the same rank of gains in both studies even if they were treated differently in the way of orally giving the participants the answer key. As mentioned before, the answer key of Exercise B4 in Study 1 contained only the ten target words while the one in the main study (Study 2) covered the ten target words, the synonym answers, and the possible answers of each question and this raised the question whether or not the different treatments yield different results. Now, it is clear that the differences in the way the researcher gave the answer key had no effect on the gain of the students who did Exercise B4. That is, Exercise B4 ranks similarly in both studies. In gain 1, B4 ranks as the last exercise that promote vocabulary gain while in gain 2 and 3, B4 ranks third in both studies.

The comparison of the 3 gains of both studies can be seen in Table 4.13

Table 4.13: Comparisons of the Participants' Mean Scores of Vocabulary Gains in Study 1 and the main study (Study 2)

Rank	Gain 1		Gain 2		Gain 3	
	Study 1	Study 2	Study 1	Study 2	Study 1	Study 2
1	A8 = 5.01	B1 = 6.26	B1 = 2.78	B1 = 4.30	B1 = 2.68	B1 = 3.38
2	B1 = 4.68	A7 = 5.78	A7 = 2.10	A7 = 3.606	A7 = 1.75	A7 = 2.66
3	A7 = 4.64	A8 = 5.51	B4 = 1.85	B4 = 3.600	B4 = 1.66	B4 = 2.35
4	B4 = 4.03	B4 = 5.12	A8 = 1.66	A8 = 3.03	A8 = 1.55	A8 = 1.81
Mean	4.59	5.65	2.10	3.64	1.94	2.56

4.2.2 Exercise Effect and Test Effect

In order to check whether the participants' retention of the new words comes from exercises (exercise effect) or comes from seeing the words many times in the given test (i.e., pretest-exercise-posttest 1- posttest 2-posttest 3), which is known as test effect, the researcher added ten distracter words in posttest 1, 2, and 3, but not in the exercises.

In other words, the participants would see this ten distracter words in the pretest and the 3 posttests but not in the exercises and their meanings were not given to the participants as those of the ten target words.

It means that the researcher did not do any activity involving these ten distractor words. Therefore, if the participants could remember some of this distractors in the three posttests, it may be concluded as follows:

1. The participants studied some distracter words after class or
2. The participants could remember some distracter words because they saw the words a lot of times in the test.

Results show that 15 out of 122 participants had some gains on these distractor words. Four of these participants who gained some distractor words in the posttests said in

the interview that they copied from their friends when doing the test while 11 (out of the 15 participants) reported that some distractor words they gained were very familiar to them but they could not think of their meanings (i.e., the word *mode*, *protocol*, and *anarchy*) so they consulted friends or dictionary before doing the next posttest.

This result means that the participants who had some gains on the distractor words might not have gained from seeing the words often but gained these words because of familiarity to the words. Thus, it may be concluded that there was no test effect on this study and, therefore, the exercises played important roles in this study.

4.2.3 Results from Semi-Structured Interview

The interview results in the main study (Study 2) are not much different from those in Study 1, only question 4 was changed to asked the process of the participants when doing the exercises.

The expected number of the interviewees was 36 out of 122 participants but only 30 students showed up in the interview session maybe because it was the final exam week for them at the time of the interview.

The questions in the interview were as follows:

1. Why do you think you could remember the target words?
2. Did you consult dictionary or friends or try to memorize the words after class?

Why?

3. How did you like the exercise you did?

The followings are the factors that 30 interviewees said to help promote their retention of the target words.

Table 4.14: Summary of findings from interview question 1: Why do you think you could remember the target words?

Factors	percentage	Detail
Recognizable word form	60%	The word <i>exemplify</i> , <i>fruitful</i> , <i>serenity</i> , <i>amiable</i> , <i>submissive</i> , <i>dour</i> , <i>discreet</i> , and <i>dependable</i>
(For posttest 1 only) They could remember some words in a short period of time from the answer key.	43.33%	
(For posttest 1 only) They could remember some words because they jotted them down after the researcher orally gave the answer key.	36.66%	
Exercise	26.66%	Synonyms as the multiple choices in exercise A8 help them to remember some words, i.e., <i>fruitful</i> from the choice <i>successful</i> and <i>amiable</i> from the choice <i>friendly</i> .
Some words were interesting.	23.33%	The word <i>fruitful</i> , <i>submissive</i> , <i>dour</i> , and <i>mercenary</i>
Some words were familiar to them but they could not remember their meanings before the pretest.	20%	The word <i>serenity</i> , <i>fruitful</i> , <i>dependable</i> , <i>submissive</i> , <i>dour</i> , <i>exemplify</i> , <i>mercenary</i> , and <i>discreet</i>
Unexpected meaning	20%	The word <i>fruitful</i> should be translated as something that involves fruit but it was translated as <i>successful</i> from this context.
The word could be linked to other word they already knew.	13.33%	The word <i>affinity</i> similar to <i>infinity</i> ; <i>dour</i> in French means <i>pain</i> and <i>serenity</i> similar to <i>silent</i>
Short word form	10%	The word <i>dour</i>
It was the first word of the answer key and the 3 posttests	6.66%	The word <i>serenity</i>
The context of the reading text helped them to remember some words.	3.33%	The word <i>fruitful</i> from the reading text “Tell your friend he needs to pay you back immediately. If the direct method isn’t <i>fruitful</i> , you will know that he is only interested in the friendship your wallet can provide.”
They could not tell the reasons why they could remember some words.	3.33%	

From Table 4.14, 60% of the interviewees (18 out of 30) said that they could remember some words because the word forms were easy to recognize, for example, the word *exemplify* could be recognized by the words *example* or the word *amiable* could be recognized by the word *ami*, a French word, which means *friend*. (Some of these students used to study or are studying French.)

Many of them (43.33% or 13 out of 30) reported that they could remember some words in posttest 1 just because it was their short retention. That is, posttest 1 was conducted about an hour later after giving the answer key orally, so it was not surprising that they still remembered some words. Additionally, some interviewees (36.66% or 11 out of 30) said that they may remember some words partly because they jotted them down after the researcher told them the answer key.

About 26.66% of the interviewees (8 out of 30) stated that they could remember some words because of the exercises. That is, in exercise A8 (multiple choice exercise) synonyms as the multiple choices help them to remember some words ,i.e, *fruitful* from the choice *successful* and *amiable* from the choice *friendly*.

About 23.33% of the interviewed students (7 out of 30) said that they remembered some words because the words were interesting for them (i.e. *fruitful*, *submissive*, *dour*, and *mercenary*) while 20% (6 out of 30) reported that some words which were familiar to them before the pretest and the exercise helped them to pay more attention to those words and ,therefore, could remember those words (e.g. *serenity*, *fruitful*, and *dependable*)

Some interviewees (20% or 6 out of 30) said that they could remember some words because the word had an unexpected meaning, that is, the word *fruitful* should be translated as something that involves fruit but it was translated as *successful* from the context.

About 13.33% of the interviewees (4 out of 30) thought that they could remember some target words because the words could be linked to other words they already knew.

For instance, the word *affinity* was similar to *infinity* or the word *serenity* was similar to *silent*. Meanwhile, some interviewees (10% or 3 out of 30) said that they could remember the word *dour* because of its short form and some (6.66% or 2 out of 30) claimed that they could remember the word *serenity* because it was the first word of the answer key and the 3 posttests.

Furthermore, 3.33% of the interviewed students (1 out of 30) said that they remembered some words from the reading text. That is, the word *fruitful* from the reading text “Tell your friend he needs to pay you back immediately. If the direct method isn’t *fruitful*, you will know that he is only interested in the friendship your wallet can provide.” Additionally, 3.33% (1 out of 30) reported that they could not tell the reasons why they remembered some words.

Table 4.15: Summary of Findings from Interview Question 2: Did you consult a dictionary or friends or try to memorize the words after class? Why?

Factors	Percentage	Reasons
Do not consult a dictionary or friends and do not memorize the words after class	90%	1. They thought that the words did not involve their grades. (33.33%) 2. They did not think that there would be later posttests. (7.4%) 3. They could not remember even the words or how the words spell so they could not consult anything. (14.81%) 4. They do not like to memorize new vocabulary. (11.11%) 5. They do not like English. (14.81%) 6. They thought that the words were not used in everyday life. (7.4%) 7. The words were not interesting for them. (11.11%)
Consult a dictionary	6.66%	The words were difficult for them such as <i>mercenary</i> and <i>affinity</i>
Consult friends (after class)	6.66%	They were curious of some words they could not answer or were uncertain with their answers in the posttests.
Try to memorize the words after class	0%	

From table 4.15, 90% of the interviewees (27 out of 30) said that they do not consult dictionary or friends and do not try to memorize the words after class because

1. They thought that the words did not involve their grades. (9 out of 27 or 33.33%)
2. They did not think that there would be later posttests. (2 out of 27 or 7.4%)
3. They could not remember even the words or how the words spell so they could not consult anything. (4 out of 27 or 14.81%)
4. They do not like to memorize new vocabulary. (3 out of 27 or 11.11%)
5. They do not like English. (4 out of 27 or 14.81%)
6. They thought that the words were not used in everyday life. (2 out of 27 or 7.4%)
7. The words were not interesting for them. (3 out of 27 or 11.11%)

About 6.66% of the interviewed students (2 out of 30) reported that they consult dictionaries because some words were difficult for them such as *mercenary* and *affinity* while about 6.66% (2 out of 30) mentioned that they consulted friends after class because they were curious of some words they could not answer or were uncertain with their answers in the posttests. There were no interviewed students who try to memorize the words after class.

Table 4.16 : Summary of Findings from Interview Question 3 : How did you like the exercise you did?

Exercise	Like		Dislike		Other Answers	
	Percent	Reasons	Percent	Reasons	Percent	Reasons
B4	28.57%	It was challenging.	71.42%	It was too difficult.	-	-
B1	14.28%	The context made the exercise easy.	71.42%	It was difficult compared to multiple-choice or odd-word- out exercises.	14.28%	It was o.k. They were familiar to this kind of exercises.
A7	75%	It was easy.	25%	It was difficult because they did not know the meaning of the words in each question in the exercise.	-	-
A8	100%	It was easy.	0%	-	-	-

From Table 4.16, there were 28.57% of the interviewees (2 out of 7) who liked Exercise B4 because it was challenging while 71.42% (5 out of 7) did not like the exercise because it was too difficult for them.

For exercise B1, those who liked the exercise (14.28% or 1 out of 7) said that they liked it because it was challenging while those who did not like it (71.42% or 5 out of 7) reported that they felt the exercise was difficult compared to multiple-choice-definition or odd-word-out exercises. Other 14.28% of the interviewees (1 out of 7) said that exercise B1 was o.k. for them because they felt familiar to this kind of exercise.

For exercise A7, 75% of the interviewees (6 out of 8) answered that they liked this exercise because it was easy for them while 25% (2 out of 8) dislike this exercise because due to their difficulty of the meaning of the words in each question in the exercise that they did not know.

For exercise A8, 100% of the interviewees (8 students) said that they liked this exercise because it was easy.

CHAPTER 5

DISCUSSION

This chapter repeats some figures from chapter 4 and discusses them according to the research question and then states the conclusion of the results and pedagogical implications.

5.1 The Research Question

“Which type of reading-based vocabulary exercises is the most effective to promote vocabulary gain: the one that requires learners to only infer the meaning of the unknown word; or the one that requires learners to both infer the meaning and use the unknown word in the new context?”

This question comes from the assumption that tasks which require students to use more mental effort will promote more vocabulary gain. This means that the exercises that require learners to deal with new context provided should stimulate learners to use more mental processes because they have to do more than just inferring the meaning of the words but they also have to make them fit the new context. Thus, if the assumption is true, the exercises that provide new context should enhance more vocabulary gain.

In this study, Exercise Type A (no new context), which are A7 (odd word out) and A8 (multiple choice definition), and Exercise Type B (new context), which are B1 (filling in the blank in the new sentence with the target word) and B4 (filling in the blank in the new sentence by choosing any word from the reading text), were compared to see whether Exercise Type B promote more gain or not. Table 5.1 shows the mean gain scores of Study

1 and Study 2. Pilot Study 1 and 2 results were not displayed here because Pilot Study 1 was a test of instrument used in this study and Study 1 was done with only 50 participants, the number which was not statistically reliable. (At least 120 students or 30 students per exercise are needed to show accurate results statistically)

This study focuses a lot on Study 1 and the main study (Study 2) because Study 1 has little differences from the main study and, therefore, was as interesting as the main study. Study 1 was at first intended to be the main study, but the doubtful result about why new context exercise B4 is inferior to no context exercise A7 in promoting vocabulary gains prompted the researcher to think about possible answers of this unclear result and then decided to do the new study. The researcher guessed it was because the difference of B4 from the other three exercises in the way the researcher told the answer key to the participants. That is, B4 could be answered not only the target words but also the synonyms or other possible answers, but the researcher only told them the ten target words as the answer key. The researcher assumed that it might bring about some different results if the new study were conducted by telling the participants the new answer key of exercise B4, which covered the target words and all possible answers for a question. Therefore, a new study (Study 2) was conducted with the only two differences from Study 1, i.e., the answer key of B4 and the new group of participants.

5.2 Discussion of the Statistical Significance/Insignificance of the Gain Scores Among the 4 Exercises.

Table 5.1: The Difference of Vocabulary Gain Scores in Study 1

Study 1								
Gain 1			Gain 2			Gain 3		
Exercise	Gain Score	Significant	Exercise	Gain Score	Significant	Exercise	Gain Score	Significant
	Difference	Level		Difference	Level		Difference	Level
B1-B4	.6500	.272	B1-B4	.9333	.026*	B1-B4	1.024	.048*
B1-A7	.0427	.941	B1-A7	.6740	.100	B1-A7	.932	.067
A8-B1	.3333	.572	B1-A8	1.1167	.008*	B1-A8	1.129	.029*
A7-B4	.6073	.297	A7-B4	.2594	.525	A7-B4	.092	.860
A8-A7	.3760	.518	A7-A8	.4427	.278	A7-A8	.197	.706
A8-B4	.9833	.098	B4-A8	.1833	.658	B4-A8	.105	.842

* *The mean difference is significant at the .05 level*

Table 5.2: The Difference of Vocabulary Gain Scores in the main study (Study 2)

Study 2 (Main Study)								
Gain 1			Gain 2			Gain 3		
Exercise	Gain Score	Significant	Exercise	Gain Score	Significant	Exercise	Gain Score	Significant
	Difference	Level		Difference	Level		Difference	Level
B1-B4	1.1393	.099	B1-B4	.7036	.237	B1-B4	1.0347	.117
B1-A7	.4800	.491	B1-A7	.6975	.247	B1-A7	.7222	.272
B1-A8	.7486	.311	B1-A8	1.2651	.049*	B1-A8	1.5764	.032*
A7-B4	.6593	.317	A7-B4	.0061	.991	A7-B4	.3125	.607
A7-A8	.2686	.705	A7-A8	.5676	.355	A7-A8	.8542	.210
A8-B4	.3907	.578	B4-A8	.5615	.354	B4-A8	.5417	.425

* *The mean difference is significant at the .05 level*

From Table 5.1 and 5.2, Gain 1 means the mean gain scores of the target words obtained about an hour later after the participants did the exercises and sometimes called

immediate gain in this study. Gain 2 is the mean gain scores obtained a week later while Gain 3 a month later.

5.2.1 The Insignificant Difference of the Gain Scores Among the 4 Exercises

Results show, from Table 5.1 and 5.2, that mostly there is no statistical difference of the gain scores among the 4 exercises in Gain 1, 2, and 3 in both Study 1 and Study 2. The exception is only on exercise B1 vs A8 in Gain 2 and 3 of both studies and exercise B1 vs B4 in Gain 2 and 3 of Study 1, which show significant difference of the gain scores of these exercises. These insignificant differences mean that the results in this study are very tentative and it is the weakness of this study. However, the order of the exercises that promote gains from the most to the least are the same in Gain 2 and 3 of both studies and it means that this study can, at least, report the tendency of the exercise that promotes the best gain but not the conclusive result.

5.2.2 The Significant Difference of the Gain Scores of Exercise B1 vs A8 in Both Studies.

Although mostly the gain scores are not statistically different among each exercise, it can be seen from Table 5.1 and 5.2 that exercise B1 promotes significantly more gain than A8 at 1.1167 words in Gain 2 and 1.129 words in Gain 3 ($p = .008$ in Gain 2 and $p = .029$ in Gain 3) in Study 1 and also in Study 2 at 1.2651 words in Gain 2 and 1.5764 words in Gain 3 ($p = .049$ in Gain 2 and $p = .032$ in Gain 3).

This significant difference shows that B1, which is one of the new context exercises, is clearly superior to A8, no new context exercise, in promoting vocabulary gain.

5.2.3 The Significant Difference of the Gain Scores of Exercise B1 vs B4 in Study 1

From Table 5.1, it can be seen that there is also a statistical difference of the gain scores of exercise B1 and B4 in Study 1 (not in Study 2). That is, B1 promotes significantly more gain than B4 at 0.9333 words in Gain 2 and 1.024 words in Gain 3 ($p = .026$ in Gain 2 and $p = .048$ in Gain 3). The reason why the difference between B1 and B4 is only in Study 1 but not in Study 2 may be that the participants in Study 2 are mostly language students and, therefore, should be more fluent in doing new context exercise like B4, which is supposed to be the most difficult exercise in this study, than the participants in Study 1, who are not language students (engineering, dentist/medical/nurse, and social science). These students in Study 1 might find B4 very difficult and hence put not much effort on this exercise. Thus, it may be easier for the participants of Study 2 to do exercise B4 and gain more scores than the participants in Study 1. Therefore, the scores of B4 in Study 2 is higher than in Study 1 and is not significantly different from those of B1 while the scores of B4 in Study 1 is lower and significantly less than those of B1.

Table 5.3: Comparisons of the Participants' Mean Scores of Vocabulary Gains in Study 1 and Study 2.

Rank	Gain 1		Gain 2		Gain 3	
	Study 1	Study 2	Study 1	Study 2	Study 1	Study 2
1	A8 = 5.01	B1 = 6.26	B1 = 2.78	B1 = 4.30	B1 = 2.68	B1 = 3.38
2	B1 = 4.68	A7 = 5.78	A7 = 2.10	A7 = 3.606	A7 = 1.75	A7 = 2.66
3	A7 = 4.64	A8 = 5.51	B4 = 1.85	B4 = 3.600	B4 = 1.66	B4 = 2.35
4	B4 = 4.03	B4 = 5.12	A8 = 1.66	A8 = 3.03	A8 = 1.55	A8 = 1.81
Mean	4.59	5.65	2.10	3.64	1.94	2.56

5.3 Discussion of the Three Gains

5.3.1 Why are the mean gain scores of Study 2 superior to those of Study 1?

The answer for this question may be that the participants in Study 2 have more English proficiency than those in Study 1 because they are language students, who are supposed to be more keen in English usage and, therefore, more keen in doing the four exercises than students in other majors as in Study 1 (i.e., engineering, social science, medicine, dentistry, and nursing students).

5.3.2 Why is the rank of exercises in Gain 1 different from that in Gain 2 and Gain 3 ?

Results show, both in Study 1 and Study 2, that for Gain 1 (about an hour later after doing the exercises), there was no significant difference statistically between the gains from the 4 exercises and the rank of the gains were different in the two studies, so it was not conclusive which exercise promote the best gains in the immediate gain (Gain 1). A week later gain (Gain2) and a month later gain (Gain 3) seem to be similar to each other because the gain scores rank the same in both studies. That is, B1 promotes the most gain, then A7, B4, and A8 respectively (see Table 5.3). This is probably because the factors that promote immediate gain (Gain 1) may be different from those that promote a week later gain (Gain2) and a month later gain (Gain 3).

For example, some interviewed students (25.71% in Study 1 and 43.33% in Study 2) said that the factor that helps them recall the words in Gain 1 is the short duration of time (about an hour later) between the exercises and the immediate posttest (Gain 1). However, this period of about one hour can not be considered short-term memory because it was defined as a memory that lasts from several seconds to a minute without rehearsal. After a

minute and maybe lasts for a week, a month or a lifetime is long-term memory, which can store much larger quantities of information for a longer time than the short-term memory. Short-term memory encodes information acoustically (i.e., through hearing or sound) while long-term memory encodes it semantically (i.e., through meaning). Therefore, if talking about the period of time the memory lasts, this period of one hour retention may be considered a long-term memory rather than the short one, so the short period of time (about an hour later retention) may not be, or only partly be, the reason for the differences in rank of the exercises in Gain 1 of the two studies and the differences in the rank of the exercises between Gain 1 versus Gain 2 and 3.

In Gain 1, the rank of exercises that promote gains are different between Study 1 and Study 2. That is, in Study 1, exercise that promotes best gain is A8 and then B1, A7, and B4 respectively while in Study 2, the rank is B1, A7, A8 and B4 respectively. (See Table 5.4)

Table 5.4 : Gain 1 mean scores of each exercise

Rank	Gain 1	
	Study 1	Study 2 (Main Study)
1	A8 = 5.01	B1 = 6.26
2	B1 = 4.68	A7 = 5.78
3	A7 = 4.64	A8 = 5.51
4	B4 = 4.03	B4 = 5.12
Mean	4.59	5.65

In both studies, without A8, the rank of exercises that promote gains are similar in that B1 enhances the best gain and then A7 and B4 respectively. The fact that A8 promotes the best gain in Study 1 while promotes the third gain in Study 2 may be explained by the effort they put to the exercise and the easiness of the exercise that encourage students to do that exercise.

This assumption comes from the researcher's observation during the two studies that the stronger students such as those who major in language study (participants in Study 2) tend to do new context exercises (B1 and B4) in a more familiar manner or with more ease than those whose majors suggest that their English proficiency or preference in English study are lower such as engineering students (participants in Study 1). Therefore, when seeing that A8 generated the most gain for the participants in Study 1, who were engineering, social science, and medical/dentist/nurse students (the same section), the researcher tried to prove the assumption by seeing the Gain 1 mean scores of each faculty. Results show that A8 promotes the best gain in Gain 1 for engineering and social science students while A8 ranks the third in enhancing gain for medical/dentist/nurse students. Moreover, for the medical/dentist/nurse students only, the rank of exercises that promote the best gain are the same as that of Study 2 (language study students). (see Table 5.3 for the mean gain scores of the participants by faculties). In short, the rank of exercises that promote gains among the stronger students in English study, i.e., medical/dentist/nurse and language students are the same, with A8 ranked third while those who seem to have lower proficiency or preference in English (i.e., engineering and social science students) can gain best in exercise A8.

This means that the students who have lower English proficiency or preference may like or be familiar with A8 the most because it seems to be the easiest exercise of the four and, therefore, gained the most in this exercise in Gain 1. (The exercise scores ranking from the highest to the lowest are A8, A7, B1, and B4 respectively, meaning that A8 may be the easiest while B4 the most difficult). This familiarity or preference may encourage them to put more effort during doing the tasks while the most difficult exercise (B4) may discourage the participants not to put much effort to do it because it is too difficult. As we can see, B4 promotes the least gains for all faculties except social science. This might be assumed that

B4 is too difficult so the participants put the least effort or they just could not do the exercise and so gained the least in Gain 1.

Table 5.5: Comparisons by faculties of the Mean Scores of Vocabulary Gain 1 in Study 1 and Study 2

Rank	Engineering Students (Study 1) (42 students)	Social Science Students (Study 1) (32 students)	Medical/dentist/nurse Students (Study 1) (48 students)	Language students (Study 2) (122 students)
1	A8 =5.50	A8 =5.71	B1 = 4.76	B1 = 6.26
2	A7 =5.25	B4 =4.87	A7 = 4.70	A7 = 5.78
3	B1 =4.43	B1 =4.77	A8 = 4.16	A8 = 5.51
4	B4 =3.45	A7 =3.62	B4 = 4.00	B4 = 5.12
mean	4.69	4.719	4.42	5.65

5.3.3 Why do the gain scores decrease over time ?

In psychology, forgetting or retention loss refers to loss of information that was already encoded and stored in a person's long term memory. It is a natural or gradual process in which the old memories cannot be recalled from memory storage (e.g. Ebbinghaus, 1885; Baddeley, 1999; Schacter, 2001; Wixted, 2004) This may explained why vocabulary gains in Gain 1 (about-an-hour-later gain) of this study is the highest, and then decrease over time in Gain 2 (a week later) and Gain 3 (a month later).

5.4 Discussion of Exercise B1, A7, and A8

From Table 5.3, 5.4, and 5.5, results show that exercise B1 (filling in the blank in the new sentence with the target word provided) is always superior to exercise A7 (finding an odd word out) and then A8 (multiple choice definition) respectively. (This rank is on the condition that B4 (filling in the blank in the new sentence by choosing any word from the reading text) is not included because of some differences from the other three exercises, which will be discussed later in 5.4)

5.4.1 B1 is mainly superior to A7 and A8 probably because of its new context characteristic.

It suggests that B1 is mainly superior to A7 and A8 because of its new context characteristic while A7 and A8 provide no context. New context exercises should be superior to no context exercises because they require more mental effort in that they are more difficult and provide more elaborate information for the target words.

1. New context exercises are more difficult.

New context exercise B1 is supposed to be more difficult than no new context exercises A7 and A8 because it is more difficult to do. That is, B1 should be more difficult than A7 in the way students respond with the exercises. This is because apart from inferring the meanings of the ten target words, students have to choose which words fit the new context provided and this means that they need to have more precise knowledge than doing A7. In A7, one question contains four words, i.e., a target word, two synonyms and an odd word that is not belong to the set. This exercise provides more chances for the students to guess. That is, the students may answer the questions correctly without much knowledge on the target words. For example, in B1 the question “They are..... because they do everything only for money.” requires students to find out the target words that has the meaning involving money. The answer for this question is *mercenary* and students who can answer it correctly should have some knowledge on this word. Meanwhile, in A7, to answer question 8 {“*mercenary handsome selfish greedy*”}, it is easy to find out that *handsome* is the odd word even though students do not know the word *mercenary* at all. This is because if the students know that the words *selfish* and *greedy* have about the same meanings and then *handsome* has different meaning, they may answer this question easily without knowing the word *mercenary*.

2. New context exercises provide more elaborate information for the target words.

Craik (1973) mentioned that retention was best when the items were processed at the semantic level and, within the same semantic level, Craik and Tulving (1975) found that:

1. A more complex or elaborate context sentence promoted higher retention.
2. A more congruent or relevant context enhanced better retention.

Similarly, Paribakht and Wesche mentioned in their typology of text-based vocabulary exercise(1996) that the Interpretation exercise type, which includes the new context exercises (“B” type exercises), require learners to use more precise semantic and syntactic analysis including the relationship of the target words with other words in contexts such as collocations, synonyms, and antonyms, as opposed to Recognition exercise type such as multiple choice exercises or matching the target word with its meaning exercises (“A” type exercises).

From the information mentioned above, exercise B1 can be superior to A7 and A8 in all aspects. That is, the new context can provide more elaborate information for the target word as a full sentence and may include synonyms, antonyms and collocations, which should provide more information, and thus promote deeper processing of that word, than just a synonym in exercise A8 or two synonyms and an odd word in exercise A7.

5.4.2 A7 is mainly better than A8 probably because it requires more mental effort.

Results show that A7 is always superior to A8 in Gain 2 and 3 in both studies. This suggests that A8 may require less mental effort from students than A7. That is, after they infer the meaning of a target word in the reading text, they just find out which choice has the close meaning to what they have inferred. This means that they have to find out only one synonym and may not pay much attention to the two remaining choices. In A7, students may have to make more analysis of the other three words in the set. That is to say, they have

to think which ones are synonyms and which one is an odd word. For instance, an A8 question says

“Choose the definition of the word *dour*”

- a. gloomy
- b. dizzy
- c. glorious

To answer this question, if students partly know the word *dour* when they guess from the context and when they find out that *gloomy* is the most likely word to answer, and the word *dizzy* and *glorious* are quite far for being the answers, then they will ignore these two words easily because they just find a synonym already and can answer the question immediately. Compared to in A7, students may see a synonym or two synonyms but cannot answer the question immediately until they find the odd word. The following is an example of A7 question “*gloomy happy dour joyless*”. If students partly know the word *dour* from their guessing from the reading text, then they will have to find out at least one word that has close meaning to *dour* and then one word that has different meaning (the odd word). However, if they only guess that *gloomy* and *joyless* have the same meanings and then *happy* should be the answer without knowing what the word *dour* means, they still have to pay more attention to these group of words in order to categorize them compared to A8, which provides no connection among the choices. In other words, students who do exercise A7 may need more mental effort than those who do A8 and this may be the reason why A7 enhances more gains than A8 in Gain 1 and 2 of both studies.

5.5 Discussion of exercise B4

Exercise B4 (filling in the blank with any word from the reading text) is discussed separately from B1, A7, and A8 because it has different features from the three exercises in that B4 does not have the characteristic that focus on only the ten target words. That is, B4

is the only exercise that does not provide the exact ten target words for students to choose. It is more difficult to find any word from the reading text when compared to B1 (filling in the blank with the ten target words provided), which provides the ten target words for students to choose, meaning that students will focus on only these ten target words, try to infer the meaning of them and then choose them to fill in the appropriate blanks. In B4, students do not know which words to fill in so they have to find the words from the reading text, which need a lot of effort to find one. And this does not mean that students find the target words, sometimes they find the synonyms of the target words or other irrelevant words. This feature may distract students from focusing on only the ten target words compared to B1, A7, and A8 (in which each question requires students to focus on the ten target words only). And this may be a reason why B4 ranks the third in Gain 2 and 3 of both studies while B1, which has exactly the same content as B4, ranks the first in both gains. The only difference between B1 and B4 is that B1 provides the ten target words for students to choose while B4 does not.

Another reason that may make B4 rank the last in Gain 1 and the third in Gain 2 and 3 of both studies might lie on the effort students put on this exercise. This is because B4 is roughly considered to be the most difficult exercise from the way students have to cope with the exercise mentioned above; from the exercise scores (which ranks from the least to the most as follows: B4, B1, A7, and A8 respectively) ; and from the interview results, which shows that 88.88% of the interviewees in Study 1 and 71.42 % in Study 2 said that they did not like B4 because it was difficult.

The difficulty of this exercise may discourage students not to do the exercise properly. That is, they may not want to do this exercise or do it without much effort because it is too difficult for them. From the researcher's observation, some participants who did exercise B4 seem to finish it too quickly before the given time (20 minutes per exercise.)

However, B4 is still superior to A8 in Gain 2 and 3 of both studies. This might be assumed that although students may put not much effort on B4 or it does not provide students to focus on only the ten target words, the characteristic that provides new context of B4 makes it superior to some exercises that does not provide new context like A8. And even though B4 (new context) is inferior to A7 (no new context), it is not much inferior because it promotes not statistically significant less gain than A7. That is, it promotes less gain at 0.2594 words in Gain 2 ($p = .525$) and 0.09 in Gain 3 ($p = .860$) of Study 1, while 0.0061 words less in Gain 2 ($p = .991$) and 0.3333 words less in Gain 3 ($p = .607$) of Study 2.

5.6 Conclusion

1. More elaborated exercises enhance more gains and retention

The results mentioned above give some evidence that exercises that are more elaborated or, in other words, require learners to use more mental process will enhance more vocabulary gains and retention. This study has supported a lot of studies (e.g., Craik and Lockhart, 1972; Hyde and Jenkins, 1973; Nation 1982; O' Brien & Myers, 1985; and Hulstijn, 1992) that prove the superiority of the tasks that require more amount of mental effort to the tasks that require less mental effort in promoting learning and retention.

It suggests that exercise B1, a new context exercise, promotes better gain than A7(odd-word-out exercise) and A8 (multiple-choice exercise) respectively because of its characteristic that gives more elaborated information to the target words as a full sentence and it requires more mental effort from learners to decide which words fit the new context. In this process, learners need more precise semantic and syntactic knowledge including the relationship of the target words to other words in the new context such as collocations, synonyms, and antonyms. Exercise A7 promotes the second best gains in the later posttests (not immediate) because of its feature that requires learners to put more effort than A8.

That is, they need to analyze which are the two synonyms of the target words and then find an odd word out while in A8, they only need to find a synonym to answer the question, meaning that they use less mental effort than A7.

The research question of this study: “Which type of reading-based vocabulary exercises is the most effective to promote vocabulary gain: the one that requires learners to only infer the meaning of the unknown word; or the one that requires learners to both infer the meaning and use the unknown word in the new context?” is intended to find out that new context exercises are superior to no context exercises. The results give some evidence that new context characteristic may be superior because it needs more mental effort. That is, it can be seen that B1 (new context) exercise is superior to A7 and A8 (no new context). However, this is not the case with new context exercise B4 (finding any word from the reading text to fill in the new sentence), which is inferior to A7 (no new context). B4 has the same content as B1 but is different in that it does not focus on the ten target words because students can choose any words from the reading text which may or may not be the target words.

This might be concluded that the differences in elaboration play crucial roles in the gains and retention and the characteristic of new context is one kind of elaboration that promotes the highest gains and retention in this study. It could not be concluded that new context is the best exercises to promote gains and retention because when the elaboration between the new context exercises B1 and B4 is different, that is, B1 focuses on the target words and B4 does not focus on the target words, the result is that the two exercises yield different gains and retention and it shows that B4 is inferior to a no context exercise A7.

To summarize, elaboration should be the major consideration to find out which exercises promote the best gain and retention rather than to look at the features of new context or no context. In this study, new context tends to promote best gains and retention but with the difference in elaboration the new context exercise B4 proves to be too difficult

for most participants and, therefore, inferior to no new context exercise A7. This example of the difference in elaboration of exercise B4 yield different results and suggests that exercises that are too difficult may not always promote good gains and retention. The examples of other new context exercises (exercise type B) in this study that may be easier than B4 and, thus, may be more effective to promote vocabulary gain are B2 or exercise no.12 in Chapter 1 (filling in the blank in the new sentence choosing the highlight target words from the text), and B3 or exercise no.13 in Chapter 1 (filling in the blank in the new sentence choosing the word from multiple choices) (see 1.2 and 3.1 for more information about B2 and B3)

2. Difficulty does not always enhance more gains and retention

As mentioned above, the new context exercise B4 was at first expected to be the best exercise to promote vocabulary gains and retention in this study because it is the most difficult of the four exercises. However, results have shown that it is inferior to B1 and A7. This may be because it is too difficult to do so the amount of mental effort put on this exercise may be less than B1 and A7 if some participants could not or does not want to do it. This result is congruent to the study of Waring & Takaki (2003) on the gain and retention of vocabulary from reading a graded reader in that the participants who found the graded reader difficult and could not enjoy it so much gained less than those who found it easy. Therefore, it should be aware that difficult exercises tend to promote more gains and retention but too difficult exercises may discourage rather than promote learning.

5.7 Pedagogical Implications

1. This study suggests teachers or publishers that if there is not much chance to provide a lot of reading-based vocabulary exercises for a reading text, exercises that provide new context may be the best choice in order to promote more vocabulary retention to

learners. However, if the exercise with new context is not easy to prepare, exercise A7 may be a better choice to promote vocabulary gain than exercise A8.

2. Exercise B4, which has new context provided but does not focus on the target words, is not a very good choice for teachers or publishers because it is not different to prepare when compared to B1 but yields significantly different gains probably due to the less focus on the target words; and the difficulty of this exercise may discourage learners, instead of encourage, to do this exercise properly.

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APPENDICES

APPENDIX 1

Reading-Based Vocabulary Exercises in 20 Recent ESL/EFL

Textbooks

Textbooks	Level	Publish Year	Text-based Vocabulary Exercises
<p>1. <i>Academic Challenges in Reading</i> (by Helen Taylor Abdulaziz and Alfred D. Stover) New Jersey : Prentice Hall</p>	beginning	1989	<p>Ex. 1 Matching the words with the synonyms or definitions</p> <p>Ex. 2 Inferring meaning of the words from context : no choices</p> <p>Ex. 3 Filling the correct form of the words in the chart. (e.g. fill the noun form of the verb provided)</p> <p>Ex. 4 Inferring meaning of the words from context. : multiple choices</p> <p>Ex. 5 Open cloze exercise : choose the target word from the text (without highlighting the target word)</p>
<p>2. <i>English Now</i> (by Paul Aston and Elizabeth Edmondson) Oxford : Oxford University Press</p>	upper intermediate	1989	<p>Ex. 1 Inferring meaning of the words from context.: multiple choices</p> <p>Ex. 2 Open cloze exercise : choose the target word from the text (without highlighting the target word)</p>
<p>3. <i>A Way With Words Book 3 : Vocabulary Development Activities for Learners of English</i> (by Stuart Redman) Cambridge : Cambridge University Press</p>	upper-intermediate	1990	<p>Ex. 1 Cloze exercise : Choose the bold-typed words from the text</p> <p>Ex. 2 Matching the collocation (e.g. match the verb in the left column with the noun in the right column)</p> <p>Ex. 3 Categorizing (Put the words in the right categories)</p> <p>Ex. 4 Cloze exercise : Choose the target words from the list</p> <p>Ex. 5 Finding the odd word out of a set</p>

Textbooks	Level	Publish Year	Text-based Vocabulary Exercises
4. <i>Blueprint 2</i> (by Brian Abbs and Ingrid Freebairn) Hongkong : Longman	Elementary to pre-intermediate	1991	Ex.1 Finding the bold-typed words in the text to match the definitions given Ex. 2 Finding the odd word out of a set Ex. 3 Filling the correct form of the words in the chart. (e.g. fill the noun form of the verb provided)
5. <i>Reading 3</i> (by Simon Greenall and Diana Pye) Cambridge : Cambridge University Press	upper-intermediate	1992	Ex. 1 Inferring meaning of the words from context : choose the definitions or synonyms from the list Ex. 2 Inferring meaning of the words from context : no choices
6. <i>Timely Topics</i> (by Patrick Aquilina), Boston : Heinle & Heinle Publishers	advanced	1993	Ex.1. Matching the words with the synonyms or definitions Ex.2. Cloze exercise : choose the target words from the list Ex.3. Inferring meaning of the words from context : multiple choices Ex.4. Filling the correct form of the words in the chart. (e.g. fill the noun form of the verb provided)
7. <i>Crossover : A Course for Developing Reading and Writing Skills</i> (by Antonia Chandrasegaran and Hugh Rhodes McLean) Singapore : McGraw-Hill	advanced	1994	Ex. 1 Cloze exercise : Choose the target words from the list
8. <i>Getting the Message : A Reading Course For Schools I</i> (by Dermot Murphy & Janelle Cooper) Cambridge : Cambridge University Press	elementary	1995	Ex. 1 Filling the correct form of the words in the chart. (e.g. fill the noun form of the verb provided) Ex. 2 Matching the words with the picture Ex. 3 Categorizing (Put the words in the right categories)
9. <i>Weaving It Together Book 4</i> (by Milada Broukal) Boston : Heinle & Heinle Publishers	high intermediate	1996	Ex. 1 Inferring meaning of the words from context : multiple choices Ex. 2 Categorizing (Put the words in the right categories)

Textbooks	Level	Publish Year	Text-based Vocabulary Exercises
10. <i>Journeys Reading 2</i> (by Roni Lebauer) Hong Kong : Longman Asia ELT	lower intermediate	1997	Ex. 1 Circling the words in the puzzle (the words are in the list given) Ex. 2 Categorizing(Put the words in the right categories) Ex. 3 Finding the odd word out of a set Ex. 4 Matching the words with the synonyms or definitions
11. <i>Academic Encounters : Reading , Study Skills, and Writing</i> (by Bernard Seal) Cambridge : Cambridge University Press	intermediate to high intermediate	1997	Ex. 1 Inferring meaning of the words from context : no choices Ex. 2 Matching the collocation Ex. 3 Categorizing (Put the words in the right categories)
12. <i>The Play's The Thing : A Whole Language Approach to Learning English</i> (by Valerie Whiteson and Nava Horovitz) Cambridge : Cambridge University Press	beginning	1998	Ex. 1 Cloze exercise : choose the target words form the list
13. <i>Snapshot Elementary : workbook with grammar builder</i> (by Chris Barker , Braian Abbs and Ingrid Freebairn with Olivia Johnson) Essex : Pearson Education	elementary	1998	Ex 1 Labelling pictures Ex. 2 Matching the collocation Ex. 3 Open cloze exercise : choose the target word from the text (without highlighting the target word)
14. <i>Insights for Today : A High Beginning Reading Skills Text</i> (by Lorraine C. Smith and Nancy Nici Mare) Boston : Heinle & Heinle Publishers	high beginning	1999	Ex. 1 Circling the words in the puzzle (the words are in the list given) Ex. 2 Inferring meaning of the words from context : multiple choice
15. <i>New Streetwise</i> (by Rob Nolasco) Oxford : Oxford University Press	intermediate	1999	Ex. 1 Finding the odd word out of a set Ex. 2 Matching the words with the synonyms or definitions Ex. 3 Inferring meaning of the words from context : multiple choices Ex. 4 Cloze exercise : Choose the target words from the list

Textbooks	Level	Publish Year	Text-based Vocabulary Exercises
<p>16. <i>Proficiency Reading</i> (by Mary Stephens) Essex : Pearson Education</p>	advanced	2000	<p>Ex. 1 Open cloze exercise : choose the target word from the text (without highlighting the target word)</p> <p>Ex. 2 Categorizing (Put the words in the right categories)</p> <p>Ex. 3 Cloze exercise : Multiple choices</p> <p>Ex. 4 Matching the collocation</p> <p>Ex. 5 Cloze exercise : Choose the target words from the list</p> <p>Ex. 6 Inferring meaning of the words from context : multiple choices</p> <p>Ex. 7 Matching the words with the synonyms or definitions</p> <p>Ex. 8 Finding the odd word out of a set</p>
<p>17. <i>Reading Matters 1 : An interactive Approach to Reading</i> (by Mary Lee Wholey) Boston : Houghton Mifflin Company</p>	low-intermediate	2000	<p>Ex. 1 Cloze exercise : Choose the target words from the list</p> <p>Ex. 2 Finding the odd word out of a set</p>
<p>18. <i>Interaction Access : Reading and Writing</i> (by Pamela Hartmann and James Mentel) New York : McGraw-Hill</p>	beginning-high beginning	2002	<p>Ex. 1 Categorizing (Put the words in the right categories)</p> <p>Ex. 2 Cloze exercise : Choose the target words from the list</p> <p>Ex. 3 Inferring meaning of the words from context : no choices</p> <p>Ex. 4 Inferring meaning of the words from context : multiple choices</p> <p>Ex. 5 Finding the odd word out of a set</p> <p>Ex. 6 Matching the words with the synonyms or definitions</p> <p>Ex. 7 Cloze exercise : Multiple choices</p> <p>Ex. 8 Labelling pictures (The words are given in the list)</p>

Textbooks	Level	Publish Year	Text-based Vocabulary Exercises
<p>19. <i>New International Business English</i> (by Leo Jones and Richard Alexander) Cambridge : Cambridge University Press</p>	<p>upper intermediate</p>	<p>2003</p>	<p>Ex. 1 Cloze exercise : Choose the target words from the list</p>
<p>20. <i>Active Vocabulary : General and Academic Words</i> (by Amy E. Olsen) Essex : Pearson Education</p>	<p>intermediate</p>	<p>2005</p>	<p>Ex. 1 Inferring meaning of the words from context : multiple choices</p> <p>Ex. 2 Matching the words with the synonyms or definitions</p> <p>Ex. 3 Cloze exercise : Choose the target words from the list</p> <p>Ex. 4 Answering the questions using the target words</p> <p>Ex. 5 Finding the odd word out of a set</p> <p>Ex. 6 Writing a story using the target words</p>

APPENDIX 2

Example of the 19 Exercise Patterns Found in Recent 20

ESL/EFL Textbooks

Exercise no 1. matching the target words with synonyms or definitions

Example

Text: This is Jared Ono, reporting live from the city courthouse, where John and Alicia Farrell are scheduled to be **indicted** this morning on multiple charges, including drug trafficking, **extortion**, and money laundering, police at Metropolitan International Airport took the wealthy and **prominent** Maplewood couple, owners of Farrell Pharmaceuticals, into **custody** yesterday as they were about to board a flight to Brazil. Judge Horace Best ordered them held without bail because of the danger that they would again attempt to flee the country.

Direction: Match the words in the left column to the synonyms or definition in the right column. There are more synonyms than words.

- | | |
|-----------------|---------------|
| 1.....indicted | a. blackmail |
| 2.....extortion | b. well-known |
| 3.....prominent | c. prison |
| 4.....custody | d. charged |
| | e. crime |
| | f. arrest |

Exercise no 8. inferring meaning of the target words from context : multiple choices

Example

Text: (The same text of exercise number 1)

Direction: Guess the meaning of the following words from context.

1. indicted (line 2)
 - a. charged
 - b. convicted
 - c. freed
2. extortion (line 3)
 - a. lying
 - b. blackmail
 - c. kidnapping

Exercise no 9. inferring meaning of the target words from context : choosing the definitions or synonyms from the list

Example

Text: (The same text of exercise number 1)

Direction: Guess the meaning of the following words from context. Choose the answer from the list.

blackmail	well-known	charged	arrest
-----------	------------	---------	--------

1. indicted (line 2)
2. extortion (line 3)
3. prominent (line 4)
4. custody (line 5)

Exercise no 10. inferring meaning of the target words from context : no choice

Example

Text: (The same text of exercise number 1)

Direction: Guess the meaning of the following words from context.

- 1. indicted (line 2) means.....
- 2. extortion (line 3) means.....
- 3. prominent (line 4) means.....
- 4. custody (line 5) means.....

Exercise no 11. cloze exercise : choosing the target words from the list

Example

Text: (The same text of exercise number 1)

indicted	extortion	prominent	custody
----------	-----------	-----------	---------

- 1. Erik’s father is a (n).....member of the community; he serves on the city council and heads two charity organizations.
- 2. The thieves were taken intoafter a five-mile chase through city streets.

Exercise no 12. cloze exercise: choosing the target words from the bold-typed word in the text

Example

Text: (The same text of exercise number 1)

1. Erik's father is a(n).....member of the community ; he serves on the city council and heads two charity organizations.
2. The thieves were taken intoafter a five-mile chase through city streets.

Exercise no 13. cloze exercise: multiple choice

Example

Text: (The same text of exercise number 1)

Direction: Choose the correct answer to fill in the blank.

1. Erik's father is a (n).....member of the community; he serves on the city council and heads two charity organizations.
 - a. lying
 - b. prominent
 - c. allegation
 - d. corroborate
2. The thieves were taken intoafter a five-mile chase through city streets.
 - e. paraphernalia
 - f. extortion
 - g. custody
 - h. crime

Exercise no 14. open cloze exercises : choosing the target words from the reading text without highlighting the target words

Example

Text: (The same text of exercise number 1 but the target words are not presented in the form of bold-typed words)

This is Jared Ono, reporting live from the city courthouse, where John and Alicia Farrell are scheduled to be indicted this morning on multiple charges, including drug trafficking, extortion, and money laundering, police at Metropolitan International Airport took the wealthy and prominent Maplewood couple, owners of Farrell Pharmaceuticals, into custody yesterday as they were about to board a flight to Brazil. Judge Horace Best ordered them held without bail because of the danger that they would again attempt to flee the country.

Direction: Fill in the blanks with the bold-typed words from the text.

1. Erik's father is a (n).....member of the community; he serves on the city council and heads two charity organizations.
2. The thieves were taken intoafter a five-mile chase through city streets.

Exercise no 7. finding the odd word out of a set

Example

Text: (The same text of exercise number 1)

Direction: Circle a word that does not belong to the set.

1. arrest indict charge release
2. notable unknown leading prominent

Exercise no 18. circling the target words in the puzzle (the words is from the list)

Example

Text: (The same text of exercise number 1)

Direction: Find the following words in the puzzle and circle them.

indicted	extortion	prominent	custody
----------	-----------	-----------	---------

W	A	R	D	R	O	C	K	E
A	Z	X	V	B	A	R	A	X
P	R	O	M	I	N	E	N	T
L	I	N	A	U	S	L	U	O
I	N	D	I	C	T	E	D	R
L	A	E	U	F	G	H	O	T
O	T	H	J	P	W	E	R	I
C	U	S	T	O	D	Y	O	O
Y	A	T	Y	I	U	M	T	N

Exercise no 4. finding the bold-typed words in the text to match the definitions given
(by writing the target word after the definition)

Example

Text: (The same text of exercise number 1)

Direction: Write a word from the bold-typed words in the text that corresponds to the definition given.

1. a crime of getting money or something of value by force or threats; blackmail

2. arrest; confinement

Exercise no 2. matching the target words with pictures

Example

Text: Dear Roni,

Maybe I'm strange but I love the desert! Last week, our group spent 4 days camping in the desert. At times, it felt like the moon!!

I always thought deserts were all the same! They're not. Some parts are really **mountainous**; others are very **flat**. Sometimes the wind creates tall **sand dunes**.

And then it feels like magic when we find an **oasis**- a few palm trees, a little water. It's great!

See you in September,

Kim

Direction: Match the following words with each picture.

mountainous	flat	sand dunes	oasis
-------------	------	------------	-------

1.

.....

3.

.....

2.

.....

4.

.....

Exercise no 6. labeling pictures (using the bold-typed word from the text)

Example

Text: Dear Roni,

(The same text of exercise number 2)

Direction: Write the words under the pictures. Use the bold-typed words from the passage.

1.

.....

3.

.....

2.

.....

4.

.....

Exercise no 3. matching collocations

Example

Text: Survey : What's your favorite restaurant and why?

Gina Mangino (Housewife): “ With three kids, I’m not interested in a **fancy** restaurant with low light and **romantic** music. I look for a place that has **delicious** food at a reasonable price. I look for a place that’s **comfortable** for children and serves the food quickly because my kids can’t sit still for a long time. That’s why I like Sam’s Chinese restaurant. There’s so much on the menu. The kids and I can always find something **healthy** and something we like.

Direction: Match the adjectives in the left column with the appropriate nouns in the right column.

- | | |
|--------------------|----------|
| 1.comfortable | a. dish |
| 2.romantic | b. room |
| 3.healthy | c. movie |

Exercise no 5. categorizing

Example

Text: Survey : What’s your favorite restaurant and why?

(The same text of exercise number)

Direction: Put the following words in appropriate categories.

fancy	romantic	delicious	comfortable	healthy
-------	----------	-----------	-------------	---------

Words describing food	Words describing atmosphere
.....
.....

Exercise no 19. filling the correct forms of the target words in the chart

Example

Text: Survey: What’s your favorite restaurant and why?

(The same text of exercise number 2 above)

Direction: Fill the chart with the correct forms of the words.

adjective	noun
1. comfortable
2. healthy

Exercise no 15. writing a story using the target words

Example

Text: An Online Course

All Online University courses require access to a computer that is equipped with a **browser** such as Netscape Navigator or Microsoft Internet Explorer and the capability to **download** materials from designated sites. IT 100 is not a course fro the novice. The student must already have some familiarity **navigating** the World Wide Web, using e-mail, and locating information with **search engines**. You should also be familiar with word processing **software**, since you will be required to submit homework assignments and quizzes in the form of **attachments** to your e-mail program.

Direction: Write a story using the following words.

browser	search engines	attachments
---------	----------------	-------------

(story)

.....

.....

.....

Exercise no 16. answering the questions using the target words**Example**

Text: An Online Course

(The same text as exercise 15)

Direction: Answer the questions using the bold-typed words in the text.

1. What does Matthew need to do to get music from the web to his computer?
...(answer).....
2. What do you need to use to find information on the Web for a term paper?
.....

Exercise no 17. making sentences using the target words**Example**

Text: An Online Course

(The same text as exercise 15)

Direction: Make sentences from the following words.

1. navigate(sentence).....
2. browser
3. attachments

APPENDIX 3

Text-based Vocabulary Exercises in Cho's (2002) study

Exercise Type A (Recognition type)

Match the words in the left column with the appropriate definitions in the right column.

(Text.....)

.....Text.....)

1. haze
2. potent
3. wallop
4. smelter
5. vault
6. aloft
7. runoff
8. bleak
9. outdistance
10. furnace

Exercise Type B (Interpretation type)

Read the following definitions and fill in blanks with one of appropriate bold-faced words in the Text.

(Text.....
Text.....)

1. smoke, dust in the air that is difficult to see through
2. having a powerful effect on your body or mind
3. a hard hit, especially with your hand
4. an establishment for melting ores in order to separate the metallic constituents
5. to move quickly from a lower level to a higher one
6. high up in the air
7. rain that flows off the land into rivers, oceans , etc.
8. not hopeful or encouraging ; depressing
9. to run faster than others especially in a race
10. an enclosed space for heating metal or glass to a very high temperature

Exercise Type C (Production type)

Read the following sentences and fill in blanks with appropriate bold-faced words in the Text.

(Text.....
Text.....)

1. A thick.....of smoke hung in the air prevented drivers from seeing ahead.
2. The drug is very....., but causes unpleasant side effects.
3. With one brutal....., Jimmy knocked down him.
4. Those rocks had to be sent a near.....in order to separate metal they contain.
5. On Sunday Michigan.....(e)d from No.4 to the nations top team.
6. Four of nine balloons were still.....in the sky without going down.
7. The plain is well watered by thefrom the Alps.
8. Many foreigners predicted afuture of Korea when it suffered from the foreign exchange crisis in 1998.
9. Tom easily.....(e)d the other competitors in a marathon race.
10. It's like a in here, very hot—can we open a window?

APPENDIX 4

The 10 Target Words

1. serenity
2. dour
3. submissive
4. exemplify
5. amiable
6. affinity
7. dependable
8. mercenary
9. discreet
10. fruitful

APPENDIX 5

Pretest

Directions: Put a tick in front of each word you know. Translate the known words into Thai. Do nothing with the unknown ones. (ใส่เครื่องหมายถูกหน้าคำที่นักศึกษาทราบความหมาย พร้อมทั้งเขียนคำแปลเป็นภาษาไทย สำหรับคำที่ไม่ทราบความหมายให้ว่างไว้)

- | | |
|--------------------|------------|
| 1.....concise | means..... |
| 2.....perplexed | means..... |
| 3.....serenity | means..... |
| 4.....supposition | means..... |
| 5.....modify | means..... |
| 6.....fawn | means..... |
| 7.....surpass | means..... |
| 8.....inquisitive | means..... |
| 9.....dour | means..... |
| 10.....decipher | means..... |
| 11.....durable | means..... |
| 12.....digress | means..... |
| 13.....apathy | means..... |
| 14.....submissive | means..... |
| 15.....introvert | means..... |
| 16.....glitch | means..... |
| 17.....exemplify | means..... |
| 18.....protocol | means..... |
| 19.....clandestine | means..... |
| 20.....virtual | means..... |
| 21.....frenzied | means..... |
| 22.....intrigue | means..... |
| 23.....amiable | means..... |

24.....omnipresent	means.....
25.....affinity	means.....
26.....resourceful	means.....
27.....ovation	means.....
28.....definitive	means.....
29.....seamless	means.....
30.....dependable	means.....
31.....synopsis	means.....
32.....mercenary	means.....
33.....introspection	means.....
34.....mode	means.....
35.....gregarious	means.....
36.....misgiving	means.....
37.....avert	means.....
38.....ordinary	means.....
39.....exclaim	means.....
40.....discreet	means.....
41.....obdurate	means.....
42.....transmit	means.....
43.....magnify	means.....
44.....infinite	means.....
45.....circumvent	means.....
46.....fruitful	means.....
47.....celebrity	means.....
48.....embellish	means.....
49.....covert	means.....
50.....anarchy	means.....

APPENDIX 6

Posttest

Directions: Translate the following words into Thai.

(แปลคำศัพท์เหล่านี้เป็นภาษาไทย)

1. serenity means.....
2. protocol means.....
3. dour means.....
4. apathy means.....
5. submissive means.....
6. exemplify means.....
7. decipher means.....
8. amiable means.....
9. anarchy means.....
10. affinity means.....
11. dependable means.....
12. mode means.....
13. mercenary means.....
14. gregarious means.....
15. discreet means.....
16. fruitful means.....
17. concise means.....
18. digress means.....
19. frenzied means.....
20. introspection means.....

APPENDIX 7

The Reading Text

Dealing with people

Answers from April

Dear April,

I just started college and my **serenity** is being destroyed by my roommate. I am usually a clam person, but my roommate's **dour** nature is upsetting me. Every time I come home she has something depressing to say and then I too feel gloomy. What can I do to cheer us both up?

Truly,

Desperate for help

Dear Desperate,

You cannot be **submissive** in this situation. Don't surrender to her unhappiness ! You must **exemplify** the type of person you want your roommate to be. Show her how to be cheerful by being cheerful yourself. When she makes a depressing comment, respond with a positive view. Most people prefer to be around **amiable** people, and your roommate needs to see that. Take her out on the town and let her see how people respond to a warm greeting and friendly face. If this plan doesn't work, start looking for a new roommate.

Dear April,

One of my new friends has recently disappointed me. I thought we had a real **affinity**. We have had great times going to movies and hiking on the weekends. However, in the last month he hasn't been very **dependable** where money is concerned. He has borrowed money from me five times and never paid me back. I don't want to appear **mercenary**, but I am beginning to think he is just being my friend for financial reasons. The first loan was for five dollars, but last week he borrowed seventy dollars. Yesterday I hinted about my being short on cash hoping he would pay me back; instead, he suggested I get a second job. What should I do about this friendship ?

Sincerely,

Looking for change

Dear Looking,

Quit being so **discreet** ! Tell your friend he needs to pay you back immediately. If the direct method isn't **fruitful**, you will know that he is only interested in the friendship your wallet can provide. You may have to write off the loans as a learning experience. Good friends share similar interests, but they also respect each other by paying back money. It is time to find out if your friend has a bad memory or if he sees you as his personal ATM. Good luck !

Glossary

calm (adj.)	relaxed and not angry or upset (สงบ / ไม่โกรธง่าย)
upset (v.)	unhappy and worried because something unpleasant has happened (อารมณ์เสีย)
depressing (adj.)	making you feel sad (น่าหดหู่)

gloomy (adj.)	feeling sad because you do not have a lot of hope, or making you feel sad (ห่อเหี่ยวใจ / เศร้าหมอง)
surrender (v.)	to give up something that is important or necessary , often because you feel forced to (ยอมแพ้ / ยอมจำนน)
cheerful (adj.)	happy and feeling good (ร่าเริง / ปีติยินดี)
respond (adj.)	to react to something that has been said or done (ตอบสนอง / ขานรับ)
greeting (n.)	something that you say or do when you meet someone (การทักทาย)
disappoint (v.)	to make someone unhappy because something s/he hoped for does not happen or is not as good as s/he expected (ทำให้ผิดหวัง)
concerned (adj.)	involved in something or affected by it (เกี่ยวข้อง / ซึ่งเป็นที่สนใจ)
loan (n.)	an amount of money that you borrow (เงินกู้ / เงินที่ยืมมา)
hint (v.)	something that you say or do that helps someone guess what you really want (บอกใบ้ / พุดเป็นนัย)
be short on cash (phrase)	without cash (ไม่มีเงิน)
immediately (adv.)	at once and with no delay (ทันทีทันใด)
wallet (n.)	a small flat folding case for putting paper money in (กระเป๋าเงิน)
write off (phrase)	to lose an amount of money e.g. because someone has not paid a debt (เสียเงิน / ตัดให้เป็นหนี้สูญ)
respect (v.)	to admire someone ; not being rude to someone (นับถือ / เคารพ)

APPENDIX 8

Three Text-Based Vocabulary Exercises Used in the Try-Out of the Instrument

Exercise A1

Directions: Match the words in the left column with the synonyms in the right column. Fill in the blank with only one answer.

- | | |
|-------------------|-----------------|
| 1.serenity | a. agreeable |
| 2.dour | b. careful |
| 3.submissive | c. peacefulness |
| 4.exemplify | d. successful |
| 5.amiable | e. tasty |
| 6.affinity | f. gloomy |
| 7.dependable | g. passive |
| 8.mercenary | h. responsible |
| 9.discreet | i. careless |
| 10.fruitful | j. greedy |
| | k. shyness |
| | l. liking |
| | m. represent |

Exercise B1 (old version)

Direction: Finish the story using the bold-faced words in the text. Use each word once.

I was a good baby-sitter. I had a(n) (1).....with children ; I liked kids and they liked me. I was also a(n) (2).....person. Parents could trust me to take care of their children. After a year of baby-sitting, I came to (3)..... the kind of baby-sitter any parent would want. Then I met the triplets.

My (4)..... was destroyed the minute their parents walked out the door. Matt jumped on the couch and started shouting, “ I want chocolate-now,now,now !” I put him on the floor and told him he couldn’t have chocolate before dinner. He kicked me. I was used to friendly and (5).....children. Matt’s rude behavior shocked me. He ran off screaming, and I went looking for better luck with the other two kids. June was sitting on the kitchen floor with a(n) (6).....face. I bent down and said, “ What’s wrong, honey ?” She pulled my hair, told me to mind my own business, and stomped off with the frown still glued on her face. I then saw Danny smiling at me. I knew that smile didn’t mean he would be (7).....and do as I asked. It was obviously a malicious smile; he was just waiting to disobey me. I was defeated by five-year-olds. Or was I ?

I looked in the freezer, refrigerator, and cupboards. I pulled out ice cream, cake, cookies, and chocolate bars and set them on the table. Matt and June appeared in seconds. All three kids began eating-and kept on eating. I made a (n) (8)call home to check with my mom about my plan. She agreed that it was extreme, but

sometimes extreme measures are needed. I returned to the kitchen and saw three kids holding their stomachs and moaning. My plan had been (9)..... . The kids ate so

much that they didn't argue with me one bit when I suggested they go to bed. I took them upstairs, tucked them in, and told them, "Sweet dreams." They groaned.

When their parents returned, I saw the surprised looks on their faces after I announced that the kids were in bed. I am not usually a (n) (10).....person, but I asked twice my usual fee, and they gladly paid. They asked me back for the next week, but I had decided to end my baby-sitting career on this last triumph.

Exercise C1

Directions : Write a story using the words provided.

serenity	dour	submissive	exemplify	amiable
affinity	dependable	mercenary	discreet	fruitful

.....

.....

.....

.....

.....

.....

Excerpt from

Olsen, A.E. (2005). *Active Vocabulary : General and Academic Words*. Essex: Pearson Education.

APPENDIX 9

Four Text-Based Vocabulary Exercises Used in Pilot Study, Study 1, and Study 2 (main study)

Exercise A7

Directions: Circle a word that is not belong to the set.

(ให้นักศึกษาวงกลมคำที่ต่างจากพวก นักศึกษาสามารถกลับไปดูเนื้อเรื่องที่อ่านได้)

- | | | | |
|---------------|--------------|------------|-------------|
| 1. gloomy | happy | dour | joyless |
| 2. submissive | passive | obedient | aggressive |
| 3. fondness | affinity | liking | dislike |
| 4. represent | model | usual | exemplify |
| 5. confusion | peacefulness | calmness | serenity |
| 6. fruitful | successful | productive | normal |
| 7. cautious | discreet | foolish | careful |
| 8. mercenary | handsome | selfish | greedy |
| 9. careless | faithful | dependable | responsible |
| 10.pleasant | amiable | weak | friendly |

Exercise A8

Directions: Choose the definition that best fits each vocabulary word.

(เลือกความหมายจากตัวเลือกที่ตรงกับคำศัพท์ที่กำหนดให้ นักศึกษาสามารถกลับไปดูเนื้อเรื่องที่ได้)

1. serenity (line 2)
 - a. upset
 - b. shyness
 - c. peacefulness

2. dour (line 3)
 - a. gloomy
 - b. dizzy
 - c. glorious

3. submissive (line 9)
 - a. aggressive
 - b. passive
 - c. massive

4. exemplify (line 10)
 - a. to make louder
 - b. to represent
 - c. to be free from

5. amiable (line 12)
 - a. responsible
 - b. friendly
 - c. offensive

6. affinity (line 17)
 - a. hatred
 - b. detachment
 - c. liking

7. dependable (line 19)
 - a. reasonable
 - b. irresponsible
 - c. responsible

8. mercenary (line 21)
 - a. generous
 - b. forgiving
 - c. greedy

9. discreet (line 28)
 - a. careful
 - b. careless
 - c. carefree

10. fruitful (line 29)
- unsuccessful
 - successful
 - tasty

Exercise B1

Directions : Fill in the blank with the words from the list .

(เติมคำลงในช่องว่างให้เหมาะสม โดยเลือกคำที่กำหนดให้ในตาราง ใช้คำเหล่านี้ได้ 1 ครั้งเท่านั้น นักศึกษาสามารถกลับไปดูเนื้อเรื่องที่อ่านได้)

submissive	fruitful	amiable	dependable	affinity
serenity	discreet	dour	exemplify	mercenary

- I have a/an.....with children. That is, I like kids and they like me. We have a good friendship because we love to play and stay together.
- She loves to be in a calm and peaceful place. She doesn't like to stay with other people because when they make loud noises, it destroys her.....
- Peter is very ; he always has a cheerful face and fun to be around.
- I don't like her.....face. It makes me feel gloomy and depressed.
- If parents want their children to be good, they should.....good ***behaviors** themselves so the children will have good models for them to copy.
- Jim is a/an.....person. He always thinks carefully before doing or saying anything. He never says bad things or something that ***hurts** us.
- Yesterday was a very.....day for me because I was successful in ***persuading** a lot of customers to buy more ***products** from our company.
- Jane is a/an.....person ; you can trust her in many things. For example, she is very responsible; always pays back the money she has borrowed; and is never late for an ***appointment**.
- They are.....because they do everything only for money.
- A/An..... child does not fight for what he wants and usually surrender to a difficult ***situation**.

glossary

***behaviors** = พฤติกรรม / ลักษณะนิสัย

***hurts** = ทำร้าย / ทำร้ายจิตใจ

***persuading** = โน้มน้าว / เชิญชวน

***products** = ผลิตภัณฑ์

***appointment** = การนัดหมาย

***situation** = สถานการณ์

Exercise B4

Directions : Finding the appropriate word from the text to fill in the blank .

(เติมคำลงในช่องว่างให้เหมาะสม โดยเลือกคำจากเนื้อเรื่องทีอ่าน นักศึกษาสามารถกลับไปดูเนื้อเรื่องทีอ่านได้)

****You cannot use the word ‘good’ , ‘bad’ , ‘great’ or ‘ real ’ as an answer****

****ห้ามตอบคำว่า good, bad , great หรือ real ในแต่ละข้อ ****

1. I have a/an.....with children. That is, I like kids and they like me. We have a good friendship because we love to play and stay together.
2. She loves to be in a calm and peaceful place. She doesn't like to stay with other people because when they make loud noises, it destroys her.....
3. Peter is very ; he always has a cheerful face and fun to be around.
4. I don't like her.....face. It makes me feel gloomy and depressed.
5. If parents want their children to be good, they should.....good ***behaviors** themselves so the children will have good models for them to copy.
6. Jim is a/an.....person. He always thinks carefully before doing or saying anything. He never says bad things or something that ***hurts** us.
7. Yesterday was a very.....day for me because I was successful in ***persuading** a lot of customers to buy more ***products** from our company.
8. Jane is a/an.....person ; you can trust her in many things. For example, she is very responsible; always pays back the money she has borrowed; and is never late for an ***appointment**.
9. They are.....because they do everything only for money.
10. A/An..... child does not fight for what he wants and usually surrender to a difficult ***situation**.

glossary

***behaviors** = พฤติกรรม / ลักษณะนิสัย

***hurts** = ทำร้าย / ทำร้ายจิตใจ

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***products** = ผลิตภัณฑ์

***appointment** = การนัดหมาย

***situation** = สถานการณ์

APPENDIX 10

Three Examples of Answer to Exercise C1

Answer to Exercise C1 of Participant 1

My **serenity** with my parent is very good. But one day my parent want to change my some habit and I must **exemplify** my lify style . Exemple I get up late.

My parent don't understand the habit hard to change. It so **discreet**. At first I think I can do for my parent and we have a real **affinity**. But finally I can't try to **amiable** my parent. I tell they I can't change my habit and I feel bad they can **submissive** with it.

Answer to Exercise C1 of Participant 2

In my life, I want someone who can be my friend, my family and my lover. I think everybody have a type of person who will be our type. For my type , a **serenity** is good personality but it's very **dependable** on the person who choose. I hope that person is also **amiable**. I can't be **submissive** in a impoli person and I think everybody can't be too. How **discreet**! (If I will be with him). I dislike something is **dour**.

Answer to Exercise C1 of Participant 3

In my life, I really want to meet an **amiable** people. But, the world isn't **fruitful**. I can't **exemplify** the type of person I meet. So, it mean, " I have to meet all the type of peoples." Example, My friends in school. Normally, I have a lot to friends. But ,this groub I am feeling very **submissive** because all the queer. I thing is my **serenity** I am the only person to hold and staple the situation. The situation generally is about money " Ones is borrow, Ones is being **discreet**". All the time, the learner do that politely on the first. The last role is very **dour**. They don't give money back. I don't want to appear **mercenary**, but I am beginning to think they are just being my friend for money reason. They are very **dependable** where money is concerned. So, all the people haven't a real **affinity**. The only thing I can do is be myself and to knew what I am being and , take care yourself to grow up in every life social.

CURRICULUM VITAE

Ms. Wanlapa Wongsirichan was born in Prachin Buri on January 15, 1975. She graduated her B.A. (English) from Chulalongkorn University, academic year 1994. She worked as a foreign department officer in the Federation of Thai Industries for a year. From 1995 until now, she is a part-time lecturer at Silpakorn University and also a tutor for a test preparation center in Bangkok. In 2004, she studied in School of English, Institute of Social Technology, Suranaree University of Technology for a Master's degree in English language studies. Now she is still working as a part-time lecturer and tutor mentioned above.