



**VOCABULARY LEARNING THROUGH PICTURE-AND-
CHORAL READING: AN INVESTIGATION OF
IMPLICIT VS EXPLICIT LEARNING APPROACHES**

BY

MR. THANAPAT CHINPRAHAST

**A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF
THE REQUIREMENTS FOR THE DEGREE OF
MASTER OF ARTS IN
ENGLISH LANGUAGE TEACHING
LANGUAGE INSTITUTE
THAMMASAT UNIVERSITY
ACADEMIC YEAR 2021**

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ENTITLED

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was approved as partial fulfillment of the requirements for
the degree of Master of Arts in English Language Teaching

on October 26, 2021

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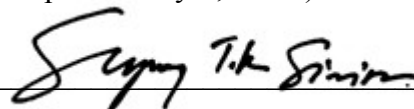
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Thesis Title	VOCABULARY LEARNING THROUGH PICTURE-AND- CHORAL READING: AN INVESTIGATION OF IMPLICIT VS EXPLICIT LEARNING APPROACHES
Author	Mr. Thanapat Chinprahast
Degree	Master of Arts
Major Field/Faculty/University	English Language Teaching Language Institute Thammasat University
Thesis Advisor	Monthon Kanokpermpoon, Ph.D.
Academic Year	2021

ABSTRACT

This study investigated the effectiveness of two vocabulary learning approaches: implicit and explicit vocabulary learning and choral reading with pictures. The participants of this study were 91 Thai female secondary school students studying English as a foreign language (EFL) in a girl's school in Ayutthaya, Thailand. They were divided into two experimental groups: implicit and explicit. Each group was given different treatments for learning 20 targeted English words: Group 1 (implicit) continuously read aloud a text with pictures; the other group, Group 2 (explicit), read the same text, but the reading was stopped in order to point out the use and meaning of the 20 target words in the explicit group using pictures as a guide for their learning. The results showed that both groups significantly improved their performance, but the explicit group outperformed the implicit group on all the posttests. Based on these findings, it can be concluded that, in terms of vocabulary learning, the explicit approach is more effective in supporting the participants' word learning ability.

Keywords: Implicit learning, explicit learning, picture-and-reading, choral reading

ACKNOWLEDGEMENTS

First in foremost, I am profoundly grateful to my advisor, Dr. Monthon Kanokpermpoon. His patient support and insightful feedback pushed me to sharpen my thinking and helped me bring my work to fruition. Without his help, completing my thesis would have been impossible.

Second, I would like to thank my family, mom, dad, and my girlfriend, who were always eager to encourage and support me in every way possible. Their support give me confidence and pushed me forward to keep improving my work.

Third, this thesis could not have been completed without the support of my close friends, Rex, Albert, El, Pond, Mai, Wat and Jane, who engaged me in stimulating and supportive discussion as well as provided happy distractions to rest my mind outside of my work.

Finally, I would like to thank Thammasat University and the Language institute for providing me an opportunity to pursue a master's degree. I had a lot of precious experiences at this place.

Mr. Thanapat Chinprahast

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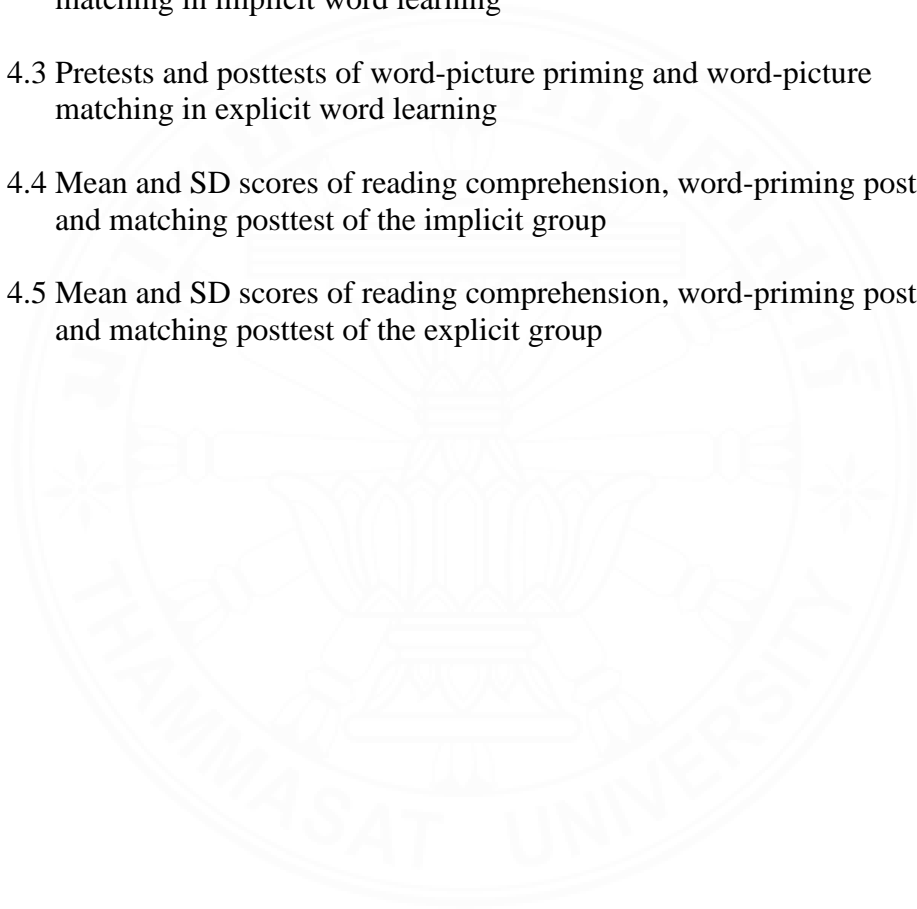
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CHAPTER 1

INTRODUCTION

1.1 Rationale

At the present time, many people are dedicating their time and effort to studying English. English is put into syllabuses and has become very important in the educational systems of many countries. However, in Thailand, most learners struggle with studying English even though it is a compulsory subject from the primary school onwards. The National Institute of Educational Testing Service (2020) uses O-NET scores (Ordinary National Educational Test) to measure the knowledge and thinking ability of students in grade 6, 9 and 12. According to the Basic Education Core, Thai students' English proficiency seems to be very low. The average scores were 34.42 for grade 6, 33.25 for grade 9 and 29.20 for grade 12. These low scores can imply that teaching and learning English in Thailand seems to be problematic. Thai students generally have difficulties in learning English (Somsai & Intaraprasert, 2011). Despite a long time of studying, the students still struggle with their learning and generally see unknown words as the most significant problem, which affects their learning (Saengpakdeejit, 2014). It can be shown that acquiring vocabulary is one of the most challenging tasks which learners face in learning languages (Nyikos & Fan, 2007).

To increase students' vocabulary, many teachers try to use several tools and approaches to give students the best input possible. One of the most common tools used by many teachers is choral reading. Since most classes consist of many students who possess different levels of proficiency, generally, learners who possess low proficiency tend not to perform well in reading, further hindering their abilities to read fluently (Bessette, 2020). Choral reading was found to help learners improve their ability to decode a text and significantly enhance students' reading fluency (Paige, 2011). According to Bessette (2020), learners who firstly did not perform well in reading fluency mentioned that they were having more fun with reading activities because the more they read, the more they learned new words and understood the story. It can be assumed that learners who possess a rich vocabulary tend to be able to think deeper, express themselves better and read more. In the Thai context where a classroom usually

consists of more than 40 students with different levels of proficiency, the jury is still out on whether the use of choral reading supports students' vocabulary expansion.

Given a context where words are surrounded by a reading passage, such as choral reading, students may learn words in different ways. First, they can come up with their own strategies in guessing word meanings from reading. This leads to an incidental word learning where students engage with reading and consequently learn new words (Dornyei, 2009; Lekawael & Ferdinandus, 2021). However, students with a low proficiency level of English may not feel comfortable learning new words while reading without the help of teachers. This leads to the second approach where instruction plays a role in word learning through reading. In this way, students are guided with target word learning strategies where a teacher makes clear what words are necessary to learn to understand the reading passage. With a conscious awareness of learning new words, students can increase their vocabulary through instruction and reading (Alamri & Roger, 2018; Kaivanpanah et al. 2021). Whether or not students learn words incidentally or through instruction, they might face a challenge in understanding a reading passage. In reading with unknown words, students may use as many strategies as they can to understand the text at an expense of forgetting some words during reading. Some may rely on learning words through instruction where they have to stop reading for word learning, thus learning more words without understanding the whole message of the text. This raises the question of whether reading-only can really help students' word learning and vocabulary expansion.

Since reading-only may pose some challenges in word learning as mentioned above, some teachers can use pictures to supplement reading and word learning. According to some scholars (such as Yanasugondha, 2016; Octaberlina & Anggarini, 2020; Moy, 2021), the presence of pictures during reading helps students visualize word meaning, thus supporting reading comprehension. This means that vocabulary can be incidentally learned together with picture-and-reading. Students can benefit from both looking at visual stimuli and processing reading and vocabulary at the same time. However, as argued by Nation (2011), the acquisition of vocabulary is a very useful factor for successful second language learning. This notion leads to a question in terms

of word retention where students can actually learn and retain new words after picture-and-reading under the choral reading instruction.

This research aims to measure whether picture-and-reading in choral reading leads to vocabulary learning. It also investigated whether students' incidental word learning or vocabulary instruction in this situation affected word learning and vocabulary retention.

1.2 Research Context

Thai students are required to study English since kindergarten. However, according to the O-net scores, their proficiency in English does not seem to be commensurate with the time spent studying it, especially students in provincial areas. There is no exception in Ayutthaya Province in Thailand, where English education still lags far behind metropolitan areas. Even though students are taught with some effective reading activities such as choral reading, one of the factors that nullifies the effectiveness of any reading activity is the lack of vocabulary. This project was conducted in the second semester of the academic year 2020 to investigate how Grade 8 students in this school learned new words through reading. It examined how incidental vocabulary learning, i.e., implicit learning, and learning vocabulary through instruction, i.e., explicit learning, played a role in reading comprehension. The study also included how picture-and-reading played a role in supporting both reading comprehension and vocabulary learning for these students. The research study, therefore, has two aims as follows:

1.2.1 To examine how implicit and explicit vocabulary learning helps secondary school students learn and retain words from choral reading with pictures.

1.2.2 To explore whether picture-and-reading helps with implicit or explicit vocabulary learning and word retention.

1.2.3 To investigate the effect of choral reading and word learning.

1.3 Research questions

To achieve the aims of the present study, this research aimed to answer the following questions.

- 1.3.1 In what way do implicit and explicit vocabulary learning approaches help secondary school students learn words?
- 1.3.2 Is there a relationship between pictures and the vocabulary learning approach?
- 1.3.3 In what way does choral reading support or hinder word learning?

1.4 Research hypotheses

- 1.4.1 The explicit group is expected to learn more vocabulary than the implicit group.
- 1.4.2 There is a relationship between pictures in reading and vocabulary learning.
- 1.4.3 Choral reading supports explicit learning.

1.5 Definition of terms

Vocabulary refers to 20 words selected from a word list produced by the National Institute of Educational Testing Service (Public Organization, 2012, p. 72).

Implicit group refers to participants studying the 20 words from a reading passage by reading continuously without stopping and with guidance from the teacher.

Explicit group refers to participants studying words from a reading passage with instruction guided by the teacher in terms of the meaning and usage of the 20 targeted words.

Choral reading refers to a part of the treatment in this study in that the participants read a passage from Animal Forecaster aloud together continuously in the

implicit group, while the reading was stopped to point out the targeted words in the explicit group.

Reading comprehension refers to an ability to understand the Animal Forecaster reading passage measured by the total score of a test the participants did after finishing reading, but being able to look back or read the passage again.

Word priming refers to a test using pictures as a priming knowledge to stimulate word memorization.

Matching refers to a pretest and posttest consisting of 20 words and their related pictures in meaning. The participants were asked to make lines to match them.

1.6 Significance of the study

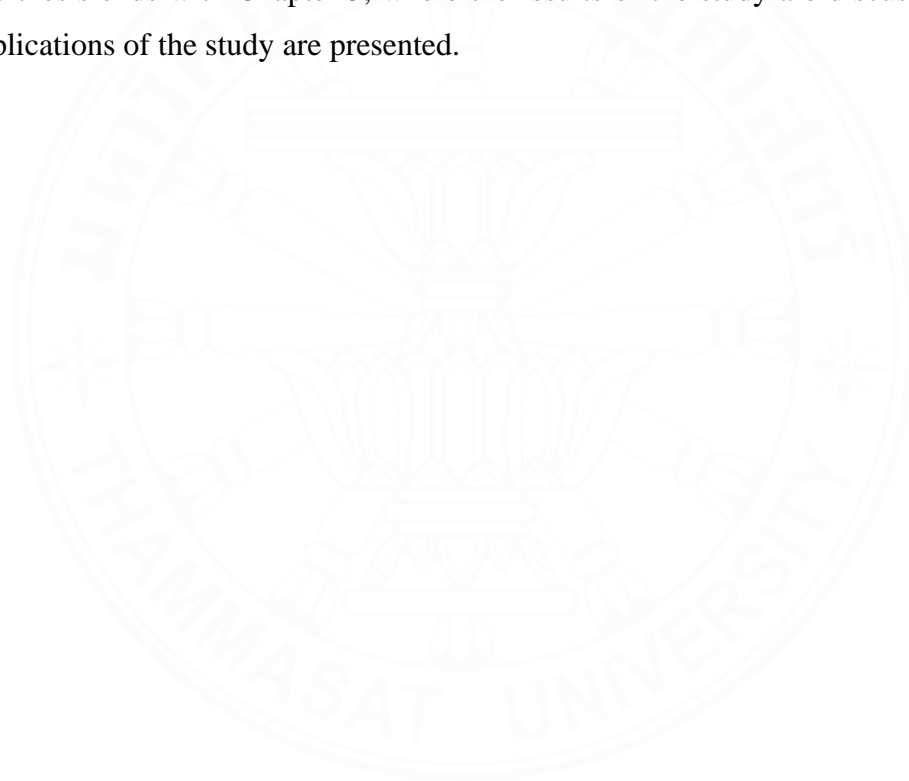
The information retrieved from the findings of this study can be applied to improve English language teaching in terms of vocabulary teaching and learning. It can provide information for EFL teachers on effective methods for teaching and understanding how words are learned by students in an EFL context. For example, teachers may become more aware of the importance of the approach used to teach vocabulary in their classrooms and the selection of an approach which is best suited for their students. In addition, readers of the present study will understand the role of picture-and-reading in enhancing students' vocabulary learning through choral reading. The findings of the present study can be used as a guideline for designing reading instruction suitable for word learning.

1.7 Limitations of the study

This study focused on the ability of female students in Ayutthaya to learn 20 targeted words from two different reading activities: reading continuously and reading with vocabulary instruction. So, the role of students' interaction was not considered. Also, the tests in the present study were pen and paper, so the role of technology in vocabulary learning was not included.

1.8 Organization of the study

In Chapter 1, the rationale, research context, and research questions are presented. The second chapter demonstrates the related literature of the two vocabulary learning approaches, i.e., implicit and explicit vocabulary learning approaches, choral reading, and the related studies on using pictures to support word learning. Chapter 3 discusses the research methodology, i.e., participants, instruments, procedure, treatments, data collection and data analysis. In Chapter 4, the statistical results based on the scores of all the tests are presented in order to answer the two research questions. The thesis ends with Chapter 5, where the results of the study are discussed, and the implications of the study are presented.



CHAPTER 2

REVIEW OF LITERATURE

In this section, the definitions of the two vocabulary learning approaches will be presented. In addition, theories and previous studies regarding the use of pictures and choral reading to support vocabulary retention will also be discussed.

2.1 Vocabulary learning approaches

Vocabulary learning is mainly classified into two approaches: implicit and explicit vocabulary learning

2.1.1 Implicit vocabulary learning approach

Implicit vocabulary learning proceeds when a new word is learned and memorized without the awareness of learners such as during reading and casual conversation. Ellis (1994) defines implicit learning as an acquisition of knowledge which happens naturally, simply and without consciousness. The main feature is the lack of intentionality. Nation (2001) suggests that vocabulary learned incidentally refers to words which have been learned in a special context when learners focus on the overall meaning of the whole text and make an assumption regarding the meaning of a word they encounter. Another definition by Mardarsara (2015) is that incidental vocabulary is learning that occurs when the mind or brain focuses elsewhere or learning without conscious attention or awareness such as understanding reading texts or using language for communicative purposes. The effectiveness of this approach is supported by many experts and researchers. According to Nation (2001), learning words implicitly by guessing the meaning of words using the context in which they are written or spoken is more important than any other source regarding vocabulary learning (p. 232). Hunt and Beglar (2002) support this point by stating that learners can learn many words incidentally through extensive reading. Motivating learners to read and listen extensively can facilitate the learning of many new words. Nation (2015, p. 136) confirms that extensive reading is one of the most effective tools to learn vocabulary because learners can create their own learning habits when encountering new

vocabulary items. Han and Ellis (1998) also propose that the implicit approach can be equal or better than explicit learning because of the deep processing that occurs when learners try to solve a lexical problem. They may remember the words since they have internalized them longer than in explicit learning where learners engage in the activity of learning promptly with explicit instruction and clear guidance. This idea is supported by Paivio (1990, 2014). He asserts that explicit learners may not be able to retain words for a longer period of time than the implicit learners because of the limited processing effort associated with it.

2.1.2 Explicit vocabulary learning approach

In contrast to implicit learning, the explicit vocabulary learning happens when words are learned deliberately through learning activities. Schmitt (1997) defined explicit vocabulary learning as a learning condition which occurs when learners intentionally and deliberately attempt to memorize words by looking them up, rehearsing or using mnemonic techniques. It can be defined as an ordinary approach to learning. Words are clarified and pointed out by a teacher. Following teachers' annotation, the learners listen, try to understand, and memorize words' meaning, pronunciation and spelling (Dornyei, 2009). Longhurst (2013) maintains that the explicit approach gives learners a conscientious and deliberate focus when learning new words. He also states that the implicit learning approach or learning words as a by-product through activities is a good way to learn new words. However, it is impossible to expect learners to learn all the words in such activities because how well implicit learners can learn new words relies heavily on their individual proficiency. Although many researchers confirm that the explicit approach is more reliable than the implicit approach due to the intentional concept of learning, some researchers claim that implicit learning is a better approach because it requires more effort to elicit the meaning of words. Such an attempt helps learners retain words longer. Many researchers have concluded that the first two or three thousand words should be learned explicitly to build up a strong base of proficiency. After such a stage, many low-frequency words can be learned implicitly through reading or listening (McCarthy 1998; Nation 2001). In other words, explicit learning is very necessary in the initial stages because without knowing many words, learners will face difficulty in guessing the meaning of new

words from context. According to Nation (2001), 2000 to 3000 words are considered as the minimum number of words to enable implicit learning in reading authentic texts or listening to authentic conversations.

At this point in the discussion, it can be concluded that the explicit learning plays a role in the initial stage of vocabulary learning, which helps develop learners' vocabulary skills. After this stage, students may learn new words incidentally. In this study, it was believed that explicit vocabulary learning helped secondary school learners learn words better than the implicit learning approach, leading to the formulation of hypothesis 1.

2.2 Reading and vocabulary acquisition

It is widely agreed by many experts and researchers that vocabulary knowledge and reading comprehension are strongly correlated (Nation, 2001, 2015; Laufer & Ravenhorst-Kalovski, 2010). Laufer and Ravenhorst-Kalovski (2010) examined the relationship between receptive vocabulary knowledge and reading comprehension. They found that the two aspects had a relatively high correlation. Nation (2001) suggested that vocabulary is one of the best measurements of reading skill and the ability to understand a text in detail. Also, Chou (2011) advocated that insufficient vocabulary would obstruct the effectiveness of text comprehension, which leads to difficulties in readers' comprehensibility. According to Masrai (2020), sufficient lexical knowledge is logically necessary for the improvement of reading ability. Learners cannot read if they do not know words. On the contrary, reading comprehension strongly supports learners' ability to memorize words effectively, and it clearly allows learners to see the use of words in the text, thereby creating comprehension in word meaning. Alsaif and Masrai (2019) recommended that learners learn and recall many words from reading and supported that learning words in a rich context is better than learning them in isolation. According to Renandya and Chong (2019), high-level reading skill greatly supports learners' vocabulary retention. This is echoed in Laufer and Ravenhorst-Kalovski (2010), who stated that vocabulary learning is a by-product of a reading activity. Similarly, Chou (2011) indicated that, apart from the first few thousand common words, learners mostly learn vocabulary through

reading while guessing the meaning of unknown words. Therefore, reading is an effective tool which significantly supports vocabulary acquisition. In this study, choral reading was the reading activity used as a tool to support both approaches of vocabulary learning.

2.2.1 Choral reading

Choral reading is a type of reading when a group of students reads a passage together with or without the teacher in the lead. The teacher considers how many times students should read depending on their proficiency. In an article “What is Choral Reading” (2015), using choral reading was put forth a way to increase students’ fluency, confidence, and motivation in reading. Kodama and Shirahata (2021) state that choral reading refers to an aloud reading together between a teacher and students. The teacher plays the role of a leader to have the students repeat the passage after him/her. The teacher can stop to ask questions, comment on some parts of the passage, point out the meaning of the unknown words, or even encourage the whole class to make sure that everyone is reading. It is an effective activity because it gives all students in a class an opportunity to practice reading and develop their fluency at the same time. It is also considered as an effective approach to use with readers who are struggling with reading (Paige, 2011). When choral reading is used in a classroom, students with low proficiency can increase their vocabulary repertoire.

Landreth (2018) points out the steps of how to run this activity. First, the teacher gives each student a copy of the reading passage. Then, the text is divided into parts and each of them is labeled (A, B and C). The teacher and students discuss the passage and make notes to ensure that the students understand the meaning and focus on how to read some difficult parts or on an interesting feature in the text particularly. After that, the teacher leads the class in reading. The students echo whatever the teacher reads until the end of the passage. At the beginning of this activity, some students who do not possess good reading fluency are likely to read the passage reluctantly. However, when they manage to get into a groove, they typically enjoy it (Stover et al., 2015).

This activity is widely used with learners at an elementary level to enhance their reading fluency. However, at the secondary level, developing learners’ reading fluency

might be overlooked because some teachers assume that their students already possess a good reading ability (Paige, 2011; Stover et al., 2015). Therefore, in Thailand, not many studies have investigated the effectiveness of this approach in regard to enhancing secondary school learners' reading ability and word retention. This study aimed to find out how well it supports both vocabulary learning approaches in word retention. However, to enhance reading comprehensibility, a reading passage alone is not enough. Pictures can be a significant factor that enhances students' comprehension and word learning.

2.2.2 Using pictures to support vocabulary learning

The ultimate goal of teaching vocabulary is to transfer vocabulary studied in the class, which is short-term memory, to long-term memory (Marzban & Kamalian, 2013). Memorization plays a big role as a process behind learning and retaining new words. Therefore, it is a significant factor that is worth studying. To explain the process of human memory, a model of working memory was proposed by Baddeley and Hitch (1974). According to the model, memory is divided into three parts: phonological loop, visuospatial sketchpad and central executive. It is assumed that the central executive component is the center of a memory, supported by the two temporary storage systems. The phonological loop is associated with memory retained by hearing and sounds. The visuospatial sketchpad is responsible for information retained by seeing pictures or touching authentic objects.

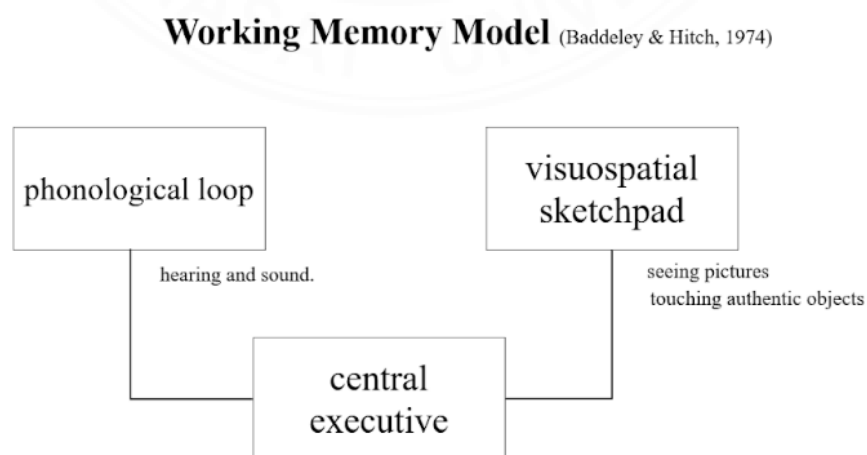


Figure 1 Working memory model (Baddeley & Hitch, 1974).

In the past, it was believed that the two sensory modes of verbal and nonverbal can create confusion in learners since the brain needs to retain the two kinds of data at the same time. However, an opposing theory, Dual Coding Theory (DCT), has also been proposed, which was first introduced by Allan Urho Paivio, a Canadian psychologist from the University of Western Ontario. DCT is a general cognition theory that accounts for both verbal and non-verbal cognition (Paivio, 1990). Verbal cognition is learning a language through concrete forms such as written language and speech, whereas the non-verbal cognition is associated with both concrete and abstract forms such as visual objects, smell memories and environmental sound (Sadoski & Paivio, 2013, p. 30). Dual Coding Theory contradicts the cognition theories which claim that during a learning session, learners require only one type of cognition in their learning process. An additional type was considered unnecessary. However, Paivio strongly contends that learning can be supported by both verbal and non-verbal types, and he claims that two types are better than one to enhance learners' memorization. Based on DCT, pictures and words can assist and stimulate learners' word learning.

Wright et al. (2006) state that teaching vocabulary is not only remembering forms of words but also attaching meaning to it (p. 94). Students need to remember words and the meaning together. Many teachers use pictures as an enhancement to reinforce students' comprehension of the meanings of words they study. As can be seen in book stores around the world, many books and computer language learning programs for L2 learners contain colorful pictures and illustrations. It is generally believed that pictures can stimulate L2 learners' attention, and they also lead to effective new word learning (Moon & Im, 2010). Mayer (2014) advocates that pictorial information is useful for learning new words because it can automatically give learners explanations to allow them to understand unfamiliar concepts or meaning easier when words alone are not enough. In addition, it has been proved that pictures are an important factor to enhance memorization.

2.3 Vocabulary acquisition

Vocabulary acquisition is learning and understanding new words in order to use them accurately both in communicating and writing (Moon & Im, 2010). It is the

foundation of learning language. Acquiring lexical knowledge is essential for language learners. The more words learners know, the more they can understand the targeted language (Nation, 2001). Without knowing words or not having an appropriate strategy to learn new words, most students can be frustrated in learning any language due to the fear of making mistakes and boredom when they come across unfamiliar words, which hinders their understanding. To solve the problem, many teachers try to provide learners with the most suitable input according to learners' age and their proficiency. Krashen (1985) advocates that any input is good for learners as long as it is suitable for their level. Many teachers try to provide learners with opportunities to learn and see words through reading and using pictures to support word retention and meaning comprehension. As mentioned above, many experts, researchers and vocabulary specialists have confirmed that both aspects, i.e., choral reading and using pictures, greatly support vocabulary acquisition. However, there is another interesting theory which is worth highlighting to explain how reading and using pictures support vocabulary acquisition. Such a theory is called lexical priming.

2.3.1 Lexical priming

Lexical priming is a linguistic theory developed by Michael Hoey. The theory suggests that each time learners encounter a word or phrase by hearing or reading, the information will be stored and primed for use in a similar context in the future, and this priming encourages learners to use the word or phrase in their own speech and writing. Cherry (2020) contends that, in terms of psychology, priming is an effective technique that helps learners learn and understand new knowledge as they make use of their experience or background knowledge, which supports memorizing and understanding. For example, when the word of yellow is introduced, learners will automatically link it to the word banana. Such a process helps learners to acquire and understand the meaning of new words more quickly and easily. This is because yellow and banana are closely linked due to the relationship between the object and its color in learners' memory. When the second word is presented, learners can learn it faster. Kaene et al. (2014) defines priming as a stimulus that influences learners' comprehensibility and memorization after being stimulated by their background knowledge. Priming happens when an association or representation in memory is

activated right after the new aspect is introduced. Priming is applied to support vocabulary acquisition by using pictures as the prior knowledge to stimulate learning new words, which are new knowledge. Moy (2021) found that when pictures and words are presented together, learners acquire words better than when presenting words with its L1 translation. A similar result was found in another study conducted by Kahlaoui et al. (2007). Their study demonstrated that the two channels of learning, i.e., verbal and non-verbal, can communicate and support each other to enhance memorization. In this study, priming was used to support the effectiveness of using pictures to enhance learners' vocabulary acquisition because pictures are a modality for memorizing and understanding words' meaning. Various studies on using pictures to support vocabulary acquisition have been conducted, but none of them have explored the effectiveness of integrating pictures with implicit and explicit vocabulary learning approaches.

2.4 Related studies

In this section, the related studies on implicit and explicit vocabulary learning approaches, choral reading and using pictures to support vocabulary learning are reviewed.

2.4.1 Implicit vocabulary learning approach

Several researchers have investigated the effectiveness of using the implicit approach to facilitate students' word retention. One of the most used activities is extensive reading. Extensive reading is an activity used to teach a second language. It happens when learners read easy and enjoyable books to build up their reading speed and fluency. In other words, students learn a second language by actually and willingly reading a text rather than examining it by studying the language aspects such as vocabulary, grammar and phrases. It is believed by some experts and researchers that extensive reading positively supports vocabulary acquisition. Nation (2015) concluded that extensive reading gives learners the opportunity to see unfamiliar words and practice at inferring their meaning using the overall meaning. Renandya and Chong (2019) confirmed this, finding that learners encounter many words repeatedly in context during extensive reading; in other words, they automatically learn to infer the meanings

of words, and their willingness to read facilitates incidental vocabulary learning. Most studies have found positive effects on vocabulary acquisition from extensive reading.

Chun et al. (2012) conducted research on 26 adult Korean students to investigate the relationship between extensive reading and paired-associate learning on vocabulary retention for short and long periods. The data were collected with a pretest, an immediate posttest and a delayed posttest design. It was found that the two approaches did not show a statistical difference for short-term retention in the immediate posttest. However, extensive reading was more effective than paired-associate learning in long-term vocabulary retention.

Research by Alzubi (2014) was conducted to investigate the effectiveness of the extensive reading program on students' vocabulary and grammar learning. Forty-one students from Jordanian universities who studied English were chosen to be participants of the study, which lasted for three semesters. A pretest for the general reading comprehension was given to the participants prior to the experiment and a reading comprehension posttest was administered at the end of the study. The researcher used a t-test to measure the differences between the pretest and posttest in terms of grammar and vocabulary. The results showed that the extensive reading program helped the students develop their vocabulary because of the repetitions of words they encountered from the text they read. Learners learned a lot of words incidentally through extensive reading.

Alsaif and Masrai (2019) investigated the relationship and effectiveness of extensive reading on incidental vocabulary acquisition in a second language among Saudi learners of English as a foreign language. The treatment of this study was eight-week extensive reading as an informal activity outside the classroom. Vocabulary knowledge was measured before and after the treatment using pretests and posttests. The results demonstrated that extensive reading largely contributed to the participants' vocabulary learning. However, this activity was not the only way: students can also learn words incidentally through other activities.

Apart from extensive reading, implicit vocabulary learning can happen as a by-product in various language learning activities. Agustin-Llach (2015) carried out a study on implicit vocabulary learning in a foreign language, Spanish. The participants were 52 Italian college students who studied Spanish as a foreign language. There were three treatments used to find the most effective approach for implicit vocabulary learning and teaching intensively: output vs. input, multiple exposures vs. target word usage, meaning comparison and selection vs. message production. The data were collected through frequent intervention tasks in a foreign language class, which were a reading task, a gap-filling task, and a writing task. The results showed significant development in all groups. However, statistical differences of the three treatments were not found. It was concluded that words can be learned through the implicit approach effectively by any technique and activity that contributes to vocabulary acquisition.

As can be seen in the related studies above, most participants were adults or learners who have an intermediate proficiency. It can be assumed that when learning words implicitly or making an assumption regarding the meaning of words encountered in a reading text without a dictionary, learners need to have a large storehouse of words to understand the surrounding contexts of the target word and knowledge of some rules of grammar to guess the meaning of the word effectively. In other words, the learner's proficiency plays a significant role in implicit learning. Moreover, the time the learners spend on reading outside the class is one of the most significant factors. Learners who are active readers can learn many words incidentally through extensive reading, but learners who read less cannot.

2.4.2 Explicit vocabulary learning approach

In an explicit approach, learners learn words deliberately through intentional actions of learning words such as looking up words from dictionaries, taking notes, and learning words from teachers' annotations. This concept of learning words intentionally implies that an explicit vocabulary learning approach can be applied with various kinds of learners.

The explicit approach is supported by reading activities. However, words are learned from a deliberate action. When learners encounter unknown words, they may look them up from dictionaries and take notes. The teacher may point out some particular words before, during or after the reading. Several research studies have been conducted to investigate the effectiveness of a combination between reading and explicit vocabulary learning approach as follows.

Mirzaii (2012) conducted research to compare the effectiveness between implicit and explicit vocabulary learning, and to investigate which approach enhances long-term recall better. The participants were 62 Iranian intermediate EFL learners. They were divided into two groups. Both groups were assigned to do a proficiency test, namely a preliminary English test (PET). For the implicit group, the treatments were a 20-minute in-class extensive reading and teaching of new words by using an activity for the explicit group. After the treatment, a posttest with three subtests on meaning, prepositions and collocations was administered. The results showed that the explicit group outperformed in terms of meaning and preposition, while the implicit group did slightly better in the collocation part.

Research by Marzban and Kamalian (2013) was carried out to make a comparison between these two approaches using dictionaries as the treatment. It was determined that checking words in the dictionary leads to better vocabulary retention, leading to the conclusion that explicit vocabulary learning is an effective approach.

Conklin et al. (2020) examined how well learners can perform after engaging with pre-reading vocabulary instruction. 92 participants were randomly assigned to participate in the treatment. The researchers introduced the target words prior to the reading activity of novel reading items and eight-time repeated readings. The knowledge of target vocabulary was assessed using three immediate posttests: were form recognition, meaning recall, and meaning recognition. The researchers analyzed the experimental data using the R software. It was found that vocabulary pre-reading instruction (plus reading the text) positively supported learning.

Sonbul and Schmitt (2010) did research to evaluate if direct vocabulary teaching after reading is worth the effort. The study compared two approaches of vocabulary learning through reading: vocabulary learning under a reading only condition (implicit learning) and learning words that was aided by direct teaching of word meanings (explicit learning) after a reading activity. Three levels of vocabulary knowledge (form recall, meaning recall, and meaning recognition) were measured using three tests: gap filling, L1 translation, and multiple choice. It was found that reading with an explicit approach was more effective than incidental learning with reading for all three levels.

A similar result was shown in another study. The participants of Barcroft's (2009) study were Spanish-speaking adult learners who studied English as a second language and possessed various levels of proficiency. They participated in treatments to compare the effectiveness of reading for meaning only (implicit) and reading for meaning and trying to learn the translated words (explicit). A posttest was administered to measure English-to-Spanish and Spanish-to-English recall of target words. The results showed that students who learned the target words intentionally during reading and were informed of the test after the treatment could remember and learned word forms better compared to students who only read for meaning (Barcroft, 2009, p. 97).

Hyso and Tabaku (2011) conducted a study to explore learners' aptitude in using direct vocabulary teaching. The purpose of the study was to clarify the benefits the students gained from vocabulary learning, the importance of direct vocabulary teaching to their curriculum and the vocabulary learning strategies used by the students. Qualitative data was collected from 80 first-year students studying as English majors in the University of Vlora and University of Tirana, Albania. The results demonstrated that most of the participants agreed that direct vocabulary teaching was important and should be added to the university curriculum.

It can be concluded that the explicit approach can be used in class regardless of students' proficiency. Learners can learn and understand words instantly with guidance from teachers or by looking them up from dictionaries.

2.4.3 Choral reading related studies

In Thailand, where more than 40 students are assigned to study in one classroom, it is difficult to use activities that focus on individual development. Therefore, choral reading is one of the most suitable activities to apply with Thai classrooms because it allows students, regardless of their proficiency, to improve their reading ability and comprehension.

Paige (2011) conducted research with 112 adolescents as participants using daily repeated narrative choral reading as the input to investigate the effectiveness of the choral reading approach. The results suggested that the approach enhanced students' phonological decoding and oral reading fluency. Choral reading can be used without any requirement of age or level of proficiency. It suits all types of class.

Kodan and Akyol (2015) conducted a study to determine the effects of choral reading strategies on reading fluency and reading comprehension skills of poor readers. The participants consisted of six students who had difficulties in reading. The duration of the study was 90 hours. In a pretest of reading fluency, reading comprehension levels, and reading mistakes of the students were demonstrated. In the test, their average fluency reading level was lower than 89% and reading comprehension level was lower at 70%. The percentages showed that the students were at the anxiety level in both reading fluency and comprehension. After that, the participants participated in the treatment of choral reading to contribute to the development of their reading fluency and reading comprehension through both informative and narrative texts. The data collected during the research were analyzed using the Wilcoxon Signed-Rank Test. When examining and comparing the results the of pretest and posttest, the researchers found that the participants developed significantly in terms of word recognition, the number of incorrect words, the number of words per minute, and reading comprehension of both informative and narrative texts. However, there was not a significant difference between the number of words per minute in the narrative text. It was concluded that choral, repeated, and assisted reading strategies have positive effects on reading fluency and reading comprehension for poor readers.

Zorrela (2017) investigated the relationship between choral reading and reading comprehension of students in grade 7. The subjects of the research were 31 students

and a teacher. The data were collected from a reading comprehension test, interviews, observation, and document study. The data were analyzed using a t-test for the quantitative data and Miles and Huberman's technique for qualitative data. The final qualitative and quantitative results showed that the choral reading strategy increased the students' reading comprehension.

As can be seen in many studies, choral reading is helpful and has a positive influence on learners' development of reading ability. It has been shown in many studies that participants greatly improved their reading after engaging in this activity. However, none of them obviously demonstrated and clarified how it influences learners' vocabulary development. The current study examines the effectiveness of choral reading when it comes to supporting both vocabulary learning approaches. However, words alone might not be enough to fulfil learners' comprehensibility in word meaning and retention. Therefore, pictures were also implemented and tested in this study.

2.4.4 Using pictures to support word learning

Pictures are widely regarded as one of the most significant factors that supports vocabulary acquisition. It has been proved by many researchers that pictures enhance vocabulary learning and retention.

Yoshii and Flaitz (2002) conducted a study to assess how well learners can retain words when engaging in an incidental activity such as comprehension of reading or listening passages. The participants in the study were one hundred fifty-one college students with the average age of 24. All of them were beginner and intermediate ESL students at the University of Florida. The participants were divided into three groups: a text-only group, a picture-only group and a text-and-picture group. The measurement was conducted using an immediate posttest and a two-week delayed posttest. The results showed that the combination group performed better than the other two in both immediate and delayed posttests. However, the retention rate among the three groups did not differ significantly.

Carpenter and Olson (2011) investigated the effectiveness of pictures to support learning new vocabulary using words paired with pictures, and words paired with English translation. The results revealed that the words with pictures group outperformed and had more confidence. Using pictures is supported by another theory called lexical priming, suggesting that when words are encountered by hearing or reading, they will be stored to use in a similar context in the future in their own speech and writing Cherry (2020). Kaene et al. (2014) explained that priming is applied to support vocabulary acquisition by using pictures as the prior knowledge to stimulate learning new words, which are new knowledge. Their study demonstrated that the two channels of learning, i.e., verbal and non-verbal, can communicate and support each other to aid memorization.

This idea was supported in the study of Baralaei and Najmabadi (2015). They investigated EFL learners' use of images on vocabulary learning. The sample of this study was 120 EFL learners from Khorramshahr Islamic Azad University. The researchers selected participants based on a proficiency test. After the test, 62 participants were chosen and divided equally in two groups of 31 for the control group and the experimental group. The experimental group was taught by using instruction with images. On the contrary, the control group was taught by the traditional lessons. After eight sessions of teaching, a posttest was administered. The results showed that the experimental group could perform better in the posttest and that the images had a positive impact on vocabulary learning. As we can see through many theories and some research, pictures positively affect students' word retention.

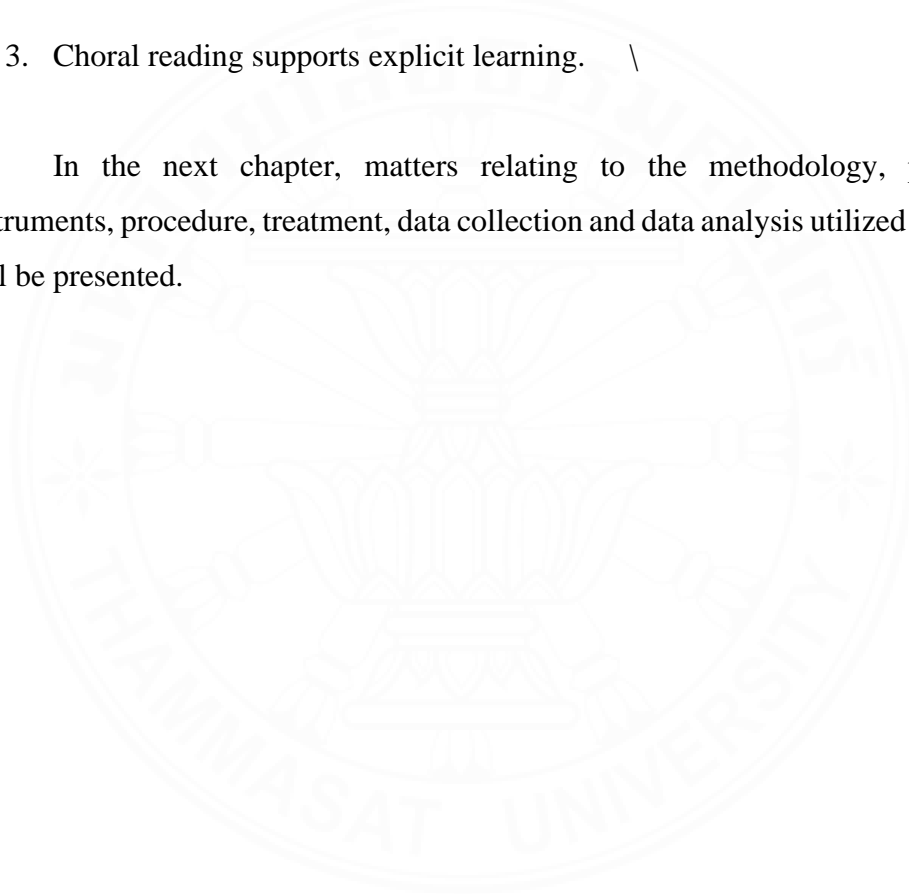
Moy (2021) conducted a study with four different training methods: productive vs. receptive vs. productive + picture, restudy. Their development was assessed using a posttest. The results suggested that adding pictorial stimuli to productive training may be better than productive training alone.

While various studies on using pictures to support vocabulary acquisition have been conducted, none of them have examined the effectiveness of integrating pictures with implicit and vocabulary learning approaches. This study was conducted to identify the most effective approach in vocabulary learning by employing implicit and explicit learning approaches, integrated with pictures and a choral reading activity, to compare the effectiveness through students' posttest scores.

This study was conducted to identify the most effective approach in vocabulary learning between the implicit and explicit learning approaches in supporting vocabulary learning and retention. It also aimed to examine whether pictures and a choral reading activity led to effective vocabulary retention and reading comprehension. It is hypothesized based on the literature that

1. The explicit group is expected to learn more vocabulary than the implicit group.
2. There is a relationship between pictures in reading and vocabulary learning.
3. Choral reading supports explicit learning. \

In the next chapter, matters relating to the methodology, participants, instruments, procedure, treatment, data collection and data analysis utilized in this study will be presented.



CHAPTER 3

RESEARCH METHODOLOGY

This chapter provides a detailed description of the methodology regarding the design of the study to answer the research questions.

- 1) In what way do implicit and explicit vocabulary learning approaches help secondary school students learn and retain words?
- 2) Is there a relationship between pictures and word learning?
- 3) In what way does choral reading support or hinder word learning?

The first section is about the participants. Next is the research instrument indicating materials and instruments applied in this study. Third, the procedure which describes the treatments in this study is elaborated. Finally, the data analysis is demonstrated in terms of the use of statistical procedures in this study.

3.1 Participants

This study aimed to investigate the effectiveness of two vocabulary learning approaches and to explore the relationship between pictures and vocabulary learning in choral reading. The sampling technique used in this study was the convenience sampling. In the present study, from the total population of approximately 453 Grade 8 students of twelve classes in a girl school in Ayutthaya, two classes of 91 students were selected to participate in the study. These student participants were selected because the present researcher was given access to these classes by a teacher in the school at the time of data collection. In the two chosen classes, the first class contained 45 students and was designated Group 1 (Implicit Group). The other comprised 46 students and was designated Group 2 (Explicit Group). Both groups of participants were early intermediate EFL learners with the range of their age between 13 to 14 years old. After the present study, the participants were given extra language support after class to keep up with the other classes of Grade 8.

3.2 Instruments

There were four research tools administered in this study: tests, a vocabulary list, a reading passage, and semi-structured interviews. The participants were assigned to do two tests, i.e., word priming and matching, in order to test their lexical knowledge. 20 words were on the word list generated by the National Institute of Educational Testing Service (Public Organization, 2012, p. 72), and they were derived from a reading passage supplemented with pictures.

3.2.1 Vocabulary tests

The tests utilized in the present study included (1) word priming and (2) matching. They were used to measure the participants' word learning and retention before and after the treatments, i.e., implicit and explicit learning approaches.

Before engaging in the prepared treatments, the participants in the two groups were assigned to do a pretest consisting of a 10 word-priming test and a 20 word-and-picture matching exercise (See Appendix A). In the word priming test, the participants matched pictures (priming) presented on the slide with words presented on the following slide. This was employed to measure the students' word memorization based on the primed picture background knowledge, according to Cherry (2020). Then, in the 20-word-and-picture matching exercise, both groups of participants made lines to match words and their related pictures. This was to test how well the participants learned and retained words using pictures as facilitators.

After participating in the treatments, posttests were administered to identify how well the participants recognized the words they had studied, and to evaluate the efficiency of two vocabulary approaches. This test also consisted of the 10 word-priming test and the 20 word-and-their-related-picture matching exercise, the same as pretests.

3.2.2 Vocabulary list

Vocabulary lists are lists of words derived from a text used in a specific field. Nation and Waring (1997) states that to start teaching students vocabulary, a teacher

should consider the selection of word lists as the first top priority because it gives teachers a direction to focus on the target words that should be taught to their students. The word list used in this study was produced by the National Institute of Educational Testing Service (Public Organization, 2012, p. 72). The list consists of 3,193 words taken from 15 books used to teach secondary students (See Appendix C). Only 20 words were selected from the list. These were used to measure students' retention of content words.

The twenty target words were as follows:

- | | |
|----------------|-------------------|
| 1. predict | 11. increase |
| 2. weather | 12. bite |
| 3. countryside | 13. investigation |
| 4. notice | 14. public |
| 5. natural | 15. treatment |
| 6. event | 16. aggressive |
| 7. scientist | 17. lake |
| 8. truth | 18. together |
| 9. earthquake | 19. large |
| 10. researcher | 20. group |

3.2.3 Reading passage

A reading passage was employed to teach participants vocabulary implicitly and explicitly. The reading passage consisted of 239 words and a 146-word unique word count. It was excerpted from a book named "Reading Challenge 1" (Malarcher & Janzen, 2010) (See Appendix D). The title of the passage was "Animal Forecaster". The readability scores were assessed using Flesch Reading reference Ease and Flesch-Kincaid Grade Level (Kincaid et al., 2016). The results showed that the passage score was 5.8 in terms of the Flesch-Kincaid Grade Level, considered grade A in readability.

In addition, the reading passage contained the 20 target words used in the present study. Nine pictures related to the topic were also included in the reading passage to explore how the student participants use pictures in learning the target words and its effect on reading comprehension.

In the present study, the reading passage and pictures were used as the learning context for both treatments of the implicit word learning and explicit word instruction. The student participants participated in the choral reading where two different treatments were administered. In the implicit group (Group 1), the researcher had the participants read aloud the passage continuously, whereas in the explicit group (Group 2), the researcher asked the participants to read aloud parts of the reading passage and pointed out the target words for these participants using pictures in the reading passage.

Since the present study aimed to measure the effect of implicit and explicit treatments on the student participants' word learning and retention, reading comprehension was not considered a major aim of the present study. However, it was essential to understand the role of choral reading and pictures in supporting word learning, so 10 multiple-choice reading comprehension check questions were used (See Appendix B). The purpose of reading comprehension test was to investigate if there was a relationship between choral reading and pictures. This was further explored using the semi-structured interviews.

3.2.4 Semi-structured interviews

As discussed in the previous section, semi-structured interviews were conducted to explore the role of choral reading and pictures in helping or hindering the students' word learning. Two participants were randomly selected from both groups, i.e., implicit and explicit groups, to participate in the semi-structured interviews for approximately 30 minutes after the immediate posttest. Ten questions (See Appendix E), which contained two parts of general and specific questions, were asked to determine how the participants felt during the treatments, how choral reading helped or hindered their word learning, and the role of pictures in supporting their reading comprehension and word learning. The qualitative data derived from the interviews were used to explain how the

participants from the two groups processed or possibly learned new words using the two factors (choral reading and pictures).

3.3 Procedure

This research employed a quasi-experimental method using two different treatments of word learning, i.e., implicit and explicit word learning. The context of research was choral reading with pictures. The following procedure was administered in the present study.

First, the pretests were administered by the teacher researcher one day prior to the treatments. The participants did the word priming for 15 minutes, and then, after a short break of 5 minutes, they came back for the 15-minute matching test. The language used for instruction was in the participants' native Thai language, and they were asked to do their best for the tests.

On the next day, the treatments of both vocabulary approaches were given in 50 minutes of a regular class. Both groups were taught and run by the researcher using the Thai language. In the implicit group (Group 1), the reading passage together with the supplemented pictures was given to the participants, and, in the whole class, the participants were asked to read the passage aloud continuously without any vocabulary instruction. They were then asked to study the reading passage individually. In the explicit group (Group 2), the participants were given the same reading passage with pictures. They were then asked to read the passage aloud, similar to Group 1. However, after a paragraph was read, the teacher researcher stopped the participants to point out the target words and to teach them how to use context clues and pictures to understand the words. After that, the participants were asked to continuously read the rest of the passage. This process was repeated at every paragraph interval.

After the treatments, the participants were assigned to do the ten comprehension check questions and were allowed to look back or reading the text again. The reason for allowing the participants to look back to the passage was that they would perceive that they were learning reading and using pictures to understand reading, but would not be aware that their vocabulary learning and retention were being measured. After a

short break of 5 minutes, both groups of participants participated in the immediate posttest word priming and matching.

When the posttests were done, two participants were randomly selected to participate in the semi-structured interviews. The researchers asked the selected participants the ten questions using the Thai language to enquire about their perceptions of the treatments, choral reading and how pictures support their word learning.

3.4 Treatments

As discussed in the previous section, two experimental groups were treated differently using a reading passage with pictures. Specifically, both groups read the passage aloud chorally together following the lead of the teacher, who was also the researcher. The reading happened four times. In the implicit group (Group 1), the participants were led to read the passage continuously. However, the reading was stopped in order to point out the use and meaning of the 20 target words in the explicit group (Group 2) using pictures as a guide for their learning. It was hoped that, from the pretests to the posttests, the different word learning approaches using both choral reading and pictures would yield different results.

To explore in more detail how the two different treatments were processed, qualitative data from both groups' semi-structured interviews was gathered to further explain how reading continuously (Group 1) and reading with vocabulary instruction (Group 2) were engaged in choral reading and pictures. This would not only reveal the effect of the different treatments on vocabulary learning and retention but also illustrate the role played by choral reading and pictures in improving reading comprehension and vocabulary learning.

3.5 Data collection and analysis

The scores of the pretest and posttest were used to make a comparison between the two different treatments. In the pretests, the total score of word priming was 10 points, and that of the matching was 20 points. In total, the score of pretests was 30 points. In the posttests, the same scores were collected since they were the same as the

pretests. The two sets of scores from the pretests and posttests of Groups 1 and 2 were then compared to answer research question 1. Independent-samples t-tests were used to measure the statistical mean differences between the pretests of Group 1 and Group 2, and between the posttests of the two groups. The results from these tests would help determine whether implicit or explicit was a better approach for vocabulary learning. In addition, this study used the significance level of $p > 0.01$ because the number of questions in the tests used to collect the data was small (Woodrow, 2014, p. 74).

However, in the delayed posttest, only word priming was used as it was hoped that the participants would use only background knowledge from choral reading and pictures gained from the previous learning. An independent-samples t-test was used to compare the mean scores of both groups' delayed posttests to further explain vocabulary retention, answering research question 1.

To further explore the relationship between pictures and word learning, paired t-tests were administered within each group. Since word priming and matching used pictures for the tests of word memorization and word learning, respectively, the scores of both the pretests and posttests were expected to reveal the relationship between pictures and word learning. However, it could be argued that the participants in Group 1 who only read aloud the passage might not have interacted with the pictures, calling into questioning whether they really helped these participants learn words and/or comprehend reading. Hence, the interview results obtained after the treatment could be used to clarify this to answer research question 2. To analyze the interview data, thematic content analysis regarding the choral reading and the use of pictures was applied in the present study.

To collect and analyze data for research question 3 regarding the relationship between choral reading and vocabulary learning, the scores of reading comprehension (total 10 points) administered after the treatments, were used to statistically compare with the immediate posttests. In the analysis, only the bivariate correlation coefficient was used to compare the two variables. This is because it was not known whether the different vocabulary learning treatments or the choral reading would directly affect vocabulary learning. This notion was further explained using the interview data, thereby

providing a clear picture of the relationship between choral reading and vocabulary learning.

This third chapter describes the research methodology and justifies the use of the research instruments. The chapter also presents the data collection method and the overview of data analysis. In the next chapter, the results of the study will be presented.



CHAPTER 4

RESULTS AND DISCUSSION

In this chapter, the results of this study will be presented to answer the research questions and prove the research hypotheses. The results retrieved from the test scores of the two experimental groups are discussed to make the comparison using an independent t-test and paired t-tests. In addition, the results from the semi-structured interviews will be discussed in order to elaborate on the participants' perception of the treatments.

4.1 Description

The participants in this study were 91 female students in a girl' school in Ayutthaya. They were divided into two groups: an implicit group consisting of 45 students and the explicit group consisting of 46 students. The average age was 13. They study English for ten years on average or since the first year of kindergarten.

In this study, prior to the treatments, the participants were assigned to do two pretests. The first test was a 10-question word priming. The participants saw a picture presented on a slide and matched it with a word on the following slide. The second one was a 20-word-and-picture matching exercise. The participants made lines to match the words and pictures.

After the treatments, the participants were assigned to do three posttests, i.e., 10 reading comprehension checked questions, 10 gap filling exercises, and word priming and matching exercises. In order to test the effect of the vocabulary learning approach on participants' reading comprehensibility, 10 reading comprehension check questions were administered right after the treatments. In addition, two tests of word priming and matching exercise, which consisted of the same materials as in the pretest were administered.

The purpose of the tests was to assess and compare the effectiveness of using both vocabulary learning approaches, plus the effectiveness of using pictures and choral reading integrated with the two vocabulary learning approaches.

4.2 Implicit vs explicit vocabulary learning

In this section, to answer research question 1 regarding in what way implicit and explicit vocabulary learning approaches help secondary school students learn words, the scores from all the tests were compared using independent t-tests. The results are demonstrated in Table 4.1 below.

Table 4.1 Mean and SD scores of word priming and matching tests between implicit and explicit groups

Group	Word-priming pretest		Word-priming posttest		Matching pretest		Matching posttest	
	Implicit group (46)	Explicit group (45)	Implicit group (46)	Explicit group (45)	Implicit group (46)	Explicit group (45)	Implicit group (46)	Explicit group (45)
Mean	5.50	4.18	7.02	8.80	12.61	10.96	15.26	16.71
SD	11.798	11.787	11.238	0.991	33.827	33.398	22.645	11.424

As shown in Table 1, the word priming tests were administered as the pretest and posttest. First, the participants saw pictures shown on the slides. Then, they matched them with words shown in the next slides. The results of both implicit and explicit are as follows.

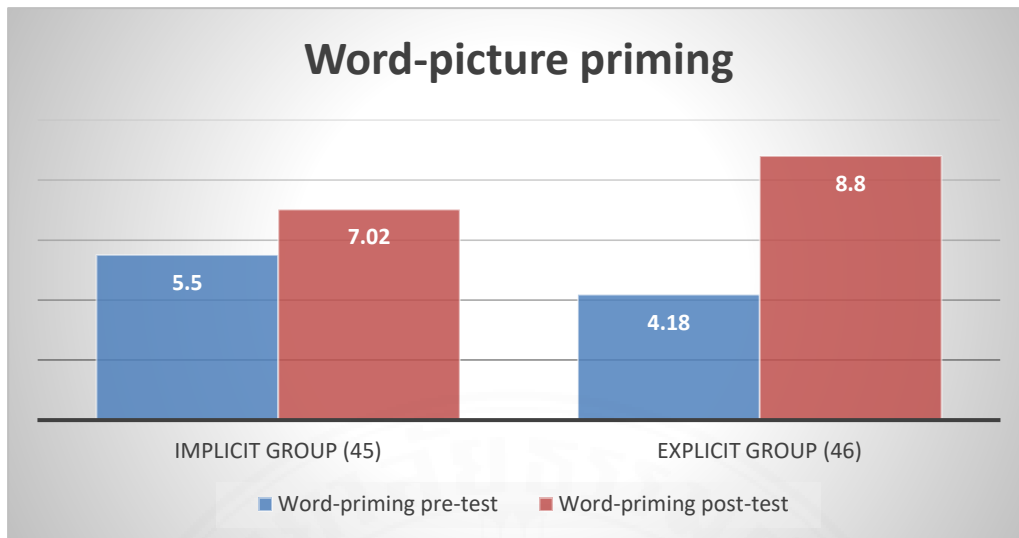


Figure 2 Word-picture priming results of implicit and explicit learning

Figure 4.1 shows the mean scores of the word-picture priming pretest for the implicit ($M = 5.50$, $S = 1.798$) and explicit ($M = 4.18$, $S = 1.787$) groups; the implicit group did better than the explicit group (conditions; $t(89) = 3.52$, $p < 0.001$, $d = 1.79$). However, in the word-picture priming posttest, the participants in the explicit group ($M = 8.80$, $S = 0.991$) performed better than the implicit group ($M = 7.02$, $S = 1.238$; conditions, $t(89) = -7.55$, $p < 0.01$, $d = 1.12$). The results suggested that in terms of supporting the participants' word learning ability, the explicit approach is more effective than the implicit approach. In other words, the results of word priming and matching revealed that explicit learning helped the participants learn and retain vocabulary better than implicit learning. Hypothesis 1 (H1) concerning the better result of explicit learning was accepted.

Following the word-picture priming tests, word-picture matching tests, consisting of twenty items of words and pictures, were administered. Participants were required to match the words and pictures. The tests were assigned as the pretest and posttest. The results of these tests are as follows.

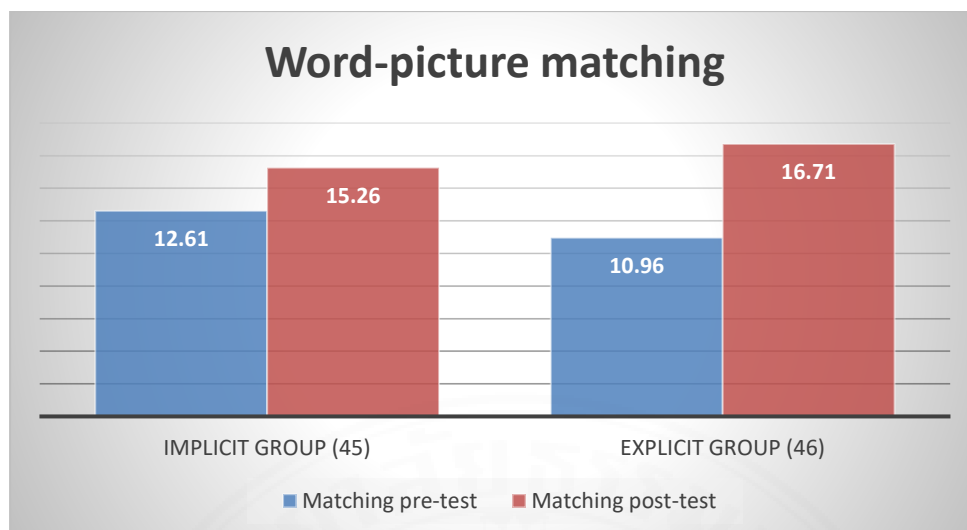


Figure 3 Word-picture matching results of implicit and explicit learning

According to Figure 4.2, the explicit group ($M = 16.71$, $SD = 1.424$) had better scores than the implicit group in the posttest ($M = 15.26$, $SD = 2.645$; conditions, $t(89) = -3.25$, $p < 0.05$, $d = 2.13$). The results of the matching exercise revealed that the explicit learning group learned and retained vocabulary better than the implicit group, similar to word priming. As a result, the hypothesis 1 was accepted.

In conclusion, according to the better score in all posttests, the explicit approach is better than the implicit approach in terms of supporting participants' word learning. Teaching words through pictures by telling the direct L1 meaning and pointing out the word meaning explicitly during the reading activity seemed to shorten and simplify the learning process. Therefore, the participants could learn many words through the explicit approach.

4.3 Pictures and word learning

In this section, the paired t-tests were used to examine the role of pictures in both implicit and explicit word learning. In addition, the results of the interview data were used to answer research question 2 regarding if there is any relationship between pictures and word learning.

4.3.1 Pictures and implicit word learning

Word priming was administered as a pretest and a posttest. The participants saw and matched the words presented on the screen with pictures. In order to measure the effect of pictures on implicit word learning approach, comparisons of the pretests and posttests were made and are presented in this section.

Table 4.2 Pretests and posttests of word-picture priming and word-picture matching in implicit word learning

	Word-priming pretest	Word-priming posttest	Matching pretest	Matching posttest
Group	Implicit group (46)	Implicit group (46)	Implicit group (46)	Implicit group (46)
Mean	5.50	7.02	12.61	15.26
SD	11.798	11.238	3.827	2.645

For the first pair between the word priming tests, the mean and SD of pretest were $M=5.50$, $SD=1.798$ and those of the posttest were $M=7.02$, $SD=1.238$. The results of paired t-test indicated that there was a statistically significant difference between the pretest and the posttest, which means that the participants performed significantly better in word-picture priming. In other words, the pictures played a role in priming the participants to perform better in word learning.

As Table 4.2 demonstrates, for the second comparison between matching pretest and posttest, the mean and SD of the pretest were $M=12.61$, $SD=3.827$ and those of the posttest were $M=15.26$, $SD=2.645$. The results of paired t-test indicated that there was a statistically significant difference between the pretest and the posttest, which means that the participants performed significantly better in word-picture matching. Additionally, since the participants in the implicit group needed to study words through pictures implicitly, it can be concluded that teaching words implicitly through pictures is an effective way to help the participants learn words.

4.3.2 Pictures and explicit word learning

Table 4.3 Pretest and posttests of word-picture priming and word-picture matching in explicit word learning

	Word-priming pretest	Word-priming posttest	Matching pretest	Matching posttest
Group	Explicit group (45)	Explicit group (45)	Explicit group (45)	Explicit group (45)
Mean	4.18	8.80	10.96	16.71
SD	1.787	0.991	3.398	1.424

As can be seen in Table 4.3, for the first pair between the pretest and the posttest of word priming, the mean and SD of pretest were $M=4.18$, $SD=1.787$ and those of the posttest were $M=8.80$, $SD=0.991$. The results of the paired t-test indicated that there was a statistically significant difference between the pretest and the posttest, which means that the participants performed significantly better in word-picture priming.

For the second pair of comparison between matching pretest and the posttest, the mean and SD of pretest were $M=10.96$, $SD=3.398$ and those of the posttest were $M=16.71$, $SD=1.424$. The results of the paired t-test indicated that there was a statistically significant difference between the pretest and the posttest, which means that the participants performed significantly better in word-picture matching.

In conclusion, several positive effects were found in both groups, leading to the conclusion that pictures used in both implicit and explicit learning approaches supported the participants' vocabulary learning. Therefore, pictures had an effect on word learning in that they enhanced the participants' word memorization. In answer to the second research question 2, there seems to be a relationship between pictures and vocabulary learning. Pictures have positive effects on learners' word memorization in both learning approaches. Therefore, hypothesis 2 was accepted.

4.4 The relation between choral reading and word learning

In this section, to analyze data for research question 3 regarding the relationship between choral reading and vocabulary learning, the scores of reading comprehension administered after the treatments were statistically compared with the posttests using only the bivariate correlation coefficient (See Appendix G). The interview data was used to further explain these findings.

4.4.1 Implicit learning and choral reading

In the implicit group, the participants were assigned to read the passage continuously four times without stopping nor with any assistance from the teacher. After finishing the reading, the 10 comprehension check questions were administered. The participants were allowed to look back or read the passage while doing the test.

Table 4.4 Mean and SD scores of reading comprehension, word-priming posttest and matching posttest of the implicit group

n = 46	Comprehension score	Word-priming posttest	Matching posttest
Mean	5.46	7.02	15.26
SD	1.378	1.238	2.645

The relationship between word priming posttest and comprehension score was investigated using a Pearson product-moment correlation coefficient. It was found that there was a correlation between two variables: $r = 0.502$ $N = 46$ $p < 0.01$ $R^2 = 0.25\%$. This means that there was some kind of relationship between word-priming and choral reading. This will further be investigated through the interview results.

However, no statistically significant relationship was found between the matching posttest and comprehension score: $r = 0.180$ $N = 46$ $p < 0.01$ $R^2 = 0.32\%$. This means that choral reading and word-picture matching in the implicit learning was not related. This will be explained through the interview results.

4.4.2 Explicit learning and choral reading

For the explicit group, the participants were assigned to engage in different reading activities. During the activity, the reading was stopped by the teacher to point out the 20 target words in the first and second time of reading and the reading was done continuously two times. After finishing reading, the 10 comprehension check questions were administered. The participants were allowed to look back or read the passage while doing the test.

Table 4.5 Mean and SD scores of reading comprehension, word-priming posttest and matching posttest of the explicit group

n = 45	Comprehension score	Word-priming posttest	Matching posttest
Mean	7.69	8.80	16.71
SD	1.221	0.991	1.424

Based on the Pearson product-moment correlation coefficient, there was no statistically significant relationship between the word priming posttest and comprehension score: $r = 0.098$ $N = 45$ $p < 0.01$ $R^2 = 0.01\%$. A similar finding was also found between word priming posttest and comprehension score: $r = 0.104$ $N = 45$ $p < 0.01$ $R^2 = 0.01\%$. This means that choral reading and word-picture priming and matching posttests were not related (research question 3).

It can be concluded from the findings that word-picture priming had some degree of relationship with the implicit learning using choral reading. However, the relationship between implicit and explicit word learning and choral reading will further be explored in the interview data.

4.5 Interview data

After finishing the posttests, two students from each group were randomly selected to be interviewed about their perceptions of vocabulary learning. The information from the semi-structured interviews is divided into four parts: students' perceptions of the two different treatments, students' vocabulary strategies, pictures to support word learning, and choral reading.

4.5.1 Students' perceptions of two different treatments

In the implicit group, the participants received the implicit treatment, which was reading continuously without any help from the teacher, while in the explicit group, the reading was stopped in order to point out the twenty target words.

For the implicit group, it was found that the participants thought that frequent reading, i.e., reading many times, resulted in a positive feeling as shown in the quotes below.

ก็สนุกดีคะมีบางอย่างที่ไม่เข้าใจบ้างแต่พอได้อ่านหลายๆ รอบสุดท้ายก็ผ่านไปได้
แบบว่าการที่คุณครูให้อ่านหลายๆรอบมันทำให้เข้าใจในเนื้อหาโดยรวม (Im1)

[Translation] It was fun even though there were some details I couldn't understand. After reading repeatedly, I think I could understand most of the details.

ก็รู้สึกสนุกดีคะแต่อาจจะมึนงงๆบ้างตอนอ่านรอบแรกๆแล้วเข้าใจไม่ได้ทั้งหมดแต่พออ่านรอบ
สองรอบสามได้ฟังเสียงเพื่อนแล้วก็ครูทำให้เข้าใจมากขึ้นพอเข้าใจก็ทำให้มีกำลังใจมากขึ้นใน
การอ่านแล้วก็เข้าใจมากขึ้นเรื่อยๆ (Im2)

[Translation] It was fun, but I could not understand the overall message in the first reading. In the second and third reading, hearing friends and the teacher reading along together made me understand better and encouraged me to read and understand the message progressively.

According to the results of the interviews, it can be concluded that participants felt good about the implicit choral reading. They could understand the passage better in the second or third reading.

In the explicit group, the results showed that the participants' perceptions were positive. However, they similarly expressed that an interruption during reading stopped the flow of reading. This is expressed as follows:

ก็ดีค่ะแต่แบบบางครั้งคุณครูหยุดบอกคำศัพท์บ่อยๆเลยดื้อๆคำศัพท์บ่อยๆทำให้ตอนอ่านมันขาดตอน แต่สุดท้ายก็เข้าใจโดยรวม (Ex1)

[Translation] It was good, but I think the teacher stopped the reading too many times, interrupting the flow of the reading continuously. However, in the end, I could understand the overall meaning of the text.

Given the interruptions during reading, one participant suggested that the target words should be taught before reading. This is reported below.

หนูว่าก็สนุกดีค่ะเรื่องที่อ่านมันน่าสนใจดีแต่หนูว่าครูหยุดบอกรายละเอียดบ่อยไปค่ะคือเข้าใจว่าถ้าคุณครูไม่บอกพวกหนูก็คงงงไม่เข้าใจแต่บางอย่างหนูว่าครูสอนก่อนเริ่มอ่านก็ได้ค่ะ อย่างเช่นคำศัพท์ ครูบอกมาเลยว่าอันนี้นี่นี่คืออะไรแปลว่าอะไร เวลาอ่านมันจะสั้นกว่าค่ะ (Ex2)

[Translation] I think it was fun. The topic was interesting. However, I think the teacher stopped too often. I understand that you want everyone to be able to catch up, but I think you can teach us vocabulary prior to the reading. It would be easier to read the passage.

According to the findings, it can be concluded that participants felt better about reading continuously. They did not want the reading to be interrupted too often, and the teacher should point out the target words prior to the reading.

4.5.2 Students' vocabulary strategies

In order to see if there are any factors behind their word learning, the participants were asked about what they did when encountering unknown words. Similar answers were given by every participant in that they used guessing word meanings from the context.

หนูก็ดูจากบริบทเอาค่ะว่าคำนี้ควรจะหมายความว่ายังไงดูจากคำในประโยคที่เขาให้มาแล้ว
คะ (Im2)

[Translation] I looked at the context and guessed the meaning of the word by using [other] words in the given sentence.

ก็หนูก็ไม่มีทางเลือกนอกจากเดาเอาจากคำที่ข้อสอบให้มาแบบอะไรที่มันน่าหายไปหนูก็ จะ
เติมลงไป (Ex2)

[Translation] I did not have any choice but to guess (the word) from the given words in the test. I filled in the blank with what was missing and what should be added in the sentence.

In addition to word meaning in context, it was proposed that pictures were used to guess word meanings.

ก็เดาจากคำรอบๆมันค่ะ มันจะมีบางคำที่เราารู้ แล้วก็ดูรูปถ้าในบางข้อมันมีรูปมาให้ (Im1)

[Translation] I guessed words from the surrounding words I knew. If there are pictures in some questions, I used them as clues.

ก็จะดูจากคำรอบๆ หรือดูตามบริบท ถ้ามีรูปมาก็จะเดาจากรูป (Ex1)

[Translation] I looked at the surrounding words or contexts. If there were pictures, I guessed from them.

According to the results, it can be concluded that guessing words from their contexts is the strategy most used by the participants to tackle unknown words in both groups. Moreover, they also used pictures to enhance word learning. The strategy of guessing word meaning might have positively affected their test scores.

4.5.3 Participants' strategies when encountering unknown words

In order to see if there was any factor behind their word learning, the participants were asked about what they did when encountering unknown words. Similar answers were given by every participant in that they used guessing word meanings from context.

หนูก็ดูจากบริบทเอาค่ะว่าคำนี้ควรจะหมายความว่ายังไงดูจากคำในประโยคที่เขาให้มาแล้ว
คะ (Im2)

[Translation] I looked at the context and guessed the meaning of the word by using [other] words in the given sentence.

ก็หนูก็ไม่มีทางเลือกนอกจากเดาเอาจากคำที่ข้อสอบให้มาแบบอะไรที่มันน่าหายไปหนูก็ จะ
เติมลงไป (Ex2)

[Translation] I did not have any choice but to guess (the word) from the given words in the test. I filled in the blank with what was missing and what should be added in the sentence.

In addition to word meaning in context, it was proposed that pictures can be used to guess word meaning.

ก็เดาจากคำรอบๆ มันค่ะ มันจะมีบางคำที่เรารู้ แล้วก็ดูรูปถ้าในบางข้อมันมีรูปมาให้ (Im1)

[Translation] I guessed words from the surrounding words I knew. If there were pictures in some questions, I used them as clues.

ก็จะดูจากคำรอบๆ หรือดูตามบริบท ถ้ามีรูปมาก็จะเดาจากรูป (Ex1)

[Translation] I look at the surrounding words or contexts. If there were pictures, I guessed from them.

4.5.4 Using pictures to support vocabulary learning

It was mentioned by some participants that pictures can be used to tackle unknown words. For the next question, the participants were asked to express if and how pictures enhanced word learning. All participants agreed that pictures assisted word learning.

สำคัญคะมันช่วยในการจำได้ดีขึ้น เวลาไม่เข้าใจก็ดูรูปมันก็ช่วยเสริมให้เข้าใจมากขึ้น (Im1)
[Translation] [Pictures] are important for better remembering. When I don't understand, looked at them and they enhanced my comprehension.

ช่วยค่ะ สำคัญมากเพราะเวลาจำหนูจะจำจากรูปภาพเป็นส่วนใหญ่นะ (Im2)
[Translation] [Pictures] help [me] a lot. They are very important because mostly I will remember things in pictures.

มันทำให้จำได้มากขึ้นเพราะว่าหนูว่าหนูจากรูปภาพได้ดีกว่าคำโดดๆ (Ex1)
[Translation] [Pictures] help [me] remember better. This is because remembering pictures is easier than remembering individual words.

ช่วยได้เยอะยิ่งเวลาเรียนศัพท์ครั้งละหลายๆคำมันทำให้หนูจำได้ง่าย ขึ้นลดอาการมึนได้ (Ex2)

[Translation] [Pictures] help [me] a lot, especially when there are many words to study. [Pictures] can help [me] remember words easily and they help decrease my confusion.

Overall, participants had a positive perception of pictures. They thought that pictures are important and support word learning in terms of enhancing their memorization. (Research question 2). They felt it was easier to remember words together with pictures compared to words only.

4.5.5 Participants' perceptions of choral reading

The participants in both groups were assigned to do choral reading four times. After the treatments, one of the questions they were asked was how they felt about the reading activity. Positive answers were given by every participant.

ก็ดีคะมันทำให้เรียนคำศัพท์ได้โดยอัตโนมัติเลยคะอย่างมีคำหนึ่งที่ตอนแรกเราไม่รู้ว่าจะไรแต่พออ่านรอบต่อๆ ไปมันก็เข้าใจมากขึ้นเรื่อยเรื่อยรู้ว่าอ่านว่าอะไรเห็นภาพชัดมากขึ้นเรื่อยเรื่อย (Im1)

[Translation] I think [choral reading] is good. It made me learn words automatically. For example, there was a word I could not understand, but after reading many times, I understood the passage more clearly.

ก็โอเคคะ ตอนแรกก็ไม่ค่อยเข้าใจ ไม่รู้ว่าคำนี้มันอ่านว่าอะไรแต่พอได้ยินเพื่อนที่อ่านข้างๆ หรือได้ยินจากที่ครูอ่านนำรอบต่อไปเราก็สามารถอ่านแล้วก็เข้าใจความหมาย โดยรวมได้มากขึ้น (Im2)

[Translation] I think [choral reading] is okay. At first, I could not understand the message and I didn't know how to read some words. After hearing from friends next to me or from the teacher leading the reading, I could read and understand the overall message faster.

หนูว่าสนุกดี แต่ว่าเวลาอ่านรอบแรกมันจะแบบไม่ค่อยได้แต่พออ่านรอบสองแล้วมันก็จะดีขึ้นฟังจากเพื่อนแล้วก็คุณครูเอา (Ex1)

[Translation] I think [choral reading] was fun, but in the first round, I had difficulty catching up with the messages. Things became clearer in the second and third round because I could listen to the teacher and the friends reading along.

ดีคะยิ่งพออ่านรอบสามรอบสี่ก็จะสนุกขึ้นเพื่อนๆ อ่านกันเร็วขึ้น (Ex2)

[Translation] I think it was good. It was more fun in the third and fourth round as everybody read faster.

To sum up, overall, participants had a positive feeling about reading and understood things more clearly after rereading the passage. However, it was mentioned by the participants in the explicit group that they did not like the interruptions during reading. In addition, they thought that words with pictures enhanced their word learning. Moreover, the participants used the strategy of guessing words from contexts. All in all, they believed they could learn words better from such a strategy. Pictures also helped enhance memorization in the choral reading activity.

4.6 Summary

In conclusion, the findings showed that both approaches of implicit and explicit vocabulary learning supported learners' word learning. The participants could perform better after the treatment. However, in terms of the comparison, the explicit approach was more supportive of participants' word learning than the implicit approach. In answer to research question 1, the explicit vocabulary learning approach helped the participants learn and retain words more than the implicit vocabulary learning approach. Therefore, the hypothesis 1 was accepted.

Besides, both the treatment tests and interview data demonstrated that pictures enhanced participants' word learning in terms of supporting memorization. In answer to research question 2, there was a relationship between pictures and word learning in terms of supporting the participants' memorization. The hypothesis 2 was accepted.

In terms of cognitive processes, the flow of reading with pictures might have helped the learners in the implicit group retain words better through the choral reading because the participants needed to read words continuously following the lead of the teacher. This was supported by the correlation between the word-priming and choral reading. It can be argued that, when reading continuously, the participants in the implicit group might have used the pictures to enhance their reading and word learning.

On the other hand, in the explicit group, reading was stopped by the teacher in order to point out the target words as reported in the interview data. It can be assumed that the interruptions might have been distracting for the students, taking their attention away from the flow of the reading activity to vocabulary learning. This result could be

applied to answer research question 3, showing that the choral reading only supported word learning in the implicit group but not in the explicit group; thus, hypothesis 3 was rejected.

In the next chapter, the major findings and implications of the present study will be discussed.



CHAPTER 5

CONCLUSION AND RECOMMENDATIONS

5.1 Summary of the study

This research's aim was to assess the effectiveness of vocabulary learning approaches through choral reading and pictures. This research sought to answer the following questions.

RQ1: In what way do implicit and explicit vocabulary learning approaches help secondary school students learn words?

RQ2: Is there a relationship between pictures and vocabulary learning approach?

RQ3: In what way does choral reading support or hinder word learning?

Participants in both the implicit and explicit groups were engaged in choral reading with pictures and the same reading materials. However, the ways words were taught were different. In the first group, the teacher took the lead in reading and stopped to point out the meaning and use of the target words. On the contrary, in the implicit group, the teacher only took the lead in reading. After the treatments, participants' vocabulary was tested using reading comprehension and a posttest.

The results revealed that both implicit and explicit approaches supported participants' vocabulary learning. However, the degrees of the vocabulary development were different. The participants taught using the explicit vocabulary learning approach (Group 2) performed better than participants taught with the implicit vocabulary learning approach (Group 1). This means that the explicit approach better enhanced the participants' word learning. This result is similar to research of Mirzaii (2012), Barcroft, (2009), and Alamri & Rogers (2018), which showed that word learning ability can be enhanced by teaching words explicitly before or during a reading activity. It was similarly shown in the research that explicit vocabulary learning is more effective when compared with implicit vocabulary learning for the participants in regard to learning the target words. However, this pattern of word learning development is in contrast with

some research investigating the effectiveness of explicit vocabulary learning and teaching, such as Sonbul and Schmitt (2009) and Hennebry et al. (2017). In addition, all participants in this study had a positive attitude towards both vocabulary learning approaches. However, participants in the explicit group had a negative attitude towards the interruptions during reading to study the target words. They instead proposed that the target words should be taught as a pre-reading activity. Regarding choral reading and pictures, the participants in both groups perceived that pictures and choral reading greatly supported them in word learning.

5.2 Discussion

In this section, the main findings regarding the effectiveness of explicit vocabulary learning and how choral reading and pictures played a role in supporting vocabulary learning will be discussed.

5.2.1 Implicit and explicit vocabulary learning

Based on the findings, the participants significantly improved after engaging with the two different treatments. This means that both learning approaches, i.e. implicit and explicit learning, supported the participants' word learning.

In terms of comparison, however, the explicit group showed a higher degree of development according to the better scores in all posttests, implying that the explicit approach is better than the implicit approach in terms of supporting the participants' word learning.

Teaching words directly through pictures during the reading activity might shorten and simplify the learning process. Therefore, the participants could learn many words through the explicit approach. Meanwhile, the participants in the implicit group needed to learn words through guessing the meaning from context, which took more time and depended on individual background knowledge. When learners do not have sufficient vocabulary knowledge, they might face with the difficulty in trying to infer word meanings, leading to misinterpreting and frustration.

A similar result was found in Mirzaii (2012), Alamri and Rogers (2018) and Safaie (2020) in that word learning ability can be enhanced by explicit learning

activities such as pointing out words before, during or after a reading and looking up words in dictionaries. In addition, the present study also confirmed the findings of previous studies in that explicit vocabulary learning was more effective than implicit vocabulary learning in terms of word learning.

The result in this study contradicted those of Khamesipour (2015) in that the implicit group could score better after treatments involving reading activity. However, the fact that the participants in the previous study were university students could explain why the implicit approach resulted in a better score. It can be concluded that the explicit approach might be a better approach for students at the secondary school level. This notion needs to be explored further.

5.2.2 Pictures and word learning

The findings obtained from this study showed that pictures had a positive effect in terms of supporting both ways of word learning, i.e., implicit and explicit learning. The participants from both groups performed significantly better after being taught by using pictures and assessed with the tests, consisting of words and pictures. Moreover, according to the qualitative results, the participants agreed that pictures helped them learn vocabulary by improving memorization. It was mentioned that pictures helped them memorize words more easily. This answers research question 2 in that there is a relationship between pictures and vocabulary learning. Therefore, hypothesis 2 was accepted.

The results obtained from this study support the Dual Coding Theory and word priming, which similarly maintain that these two types of information, i.e., visual and verbal modes, can be learned together at the same time. This means that the dual learning process is more effective than learning words through only one mode (Paivio, 2014). In addition, the findings of the current study provide strong support for the findings in the studies of Cherry (2020) and Sofyan, (2021), which led to the similar conclusion in that using pictures is effective at helping learners acquire more vocabulary.

5.2.3 The relationship between choral reading and word learning

It can be concluded from the findings that word-picture priming had some relationship with the implicit learning using choral reading. Therefore, reading continuously might be enhanced by the pictures, allowing learners to understand the passage more clearly because the memorization of words and pictures facilitates the implicit learning process and enhances reading comprehensibility. However, such a relationship was confirmed based on the scores of the explicit group. An interruption during reading to point out word meanings might be helpful for word learning based on the improved scores between pretest and posttest. However, word learning was not supported by choral reading because learners needed to pay attention to the vocabulary instruction, not to the reading. Therefore, using pictures might be an effective way to enhance word learning, but teaching the words during the reading activity did not have any effect on choral reading. The interruption negatively affected reading comprehension.

5.3 Pedagogical implications

In terms of classroom practice, the result of the present study suggest that engaging learners with vocabulary learning tasks can help students learn words explicitly, especially those in secondary school. Teachers can make use of vocabulary learning tasks to help support students' learning. In practice, tasks such as word-matching could be used to facilitate students' vocabulary learning.

In word-and-pictures matching exercises, students need to match words and their related pictures. This gives students chances to practice word recognition with the pictures which is considered a supportive factor. Moreover, engaging with pictures can lessen students' boredom and encourage them to study instead of learning things through words only.

For designed learning, teachers might need to consider the time it takes to help secondary students process words. The present study revealed that students' consistent engagement with vocabulary tasks in a language class through a reading activity supported word learning. Despite the many tasks in limited time, the test results of this study still demonstrated a significant improvement. However, vocabulary tasks can be

given to the students at different periods of teaching to help them retain words longer. Doing so might yield an even more positive effect on their performance. Finally, the teaching of target words should happen before or after the reading activity. Even though the participants in the explicit group showed significant improvement in learning and memorizing the target words, it was mentioned by the interviewees that teaching words during the reading activity could interrupt the flow of reading. The results of the correlation showed no relationship between word learning and choral reading. Therefore, word teaching and choral reading should happen separately since the two aspects do not support each other.

5.4 Recommendations

This study was conducted in order to assess the integration between both vocabulary learning approaches and choral reading with pictures using a pretest, posttest and semi-structured interviews. However, there are other aspects that should be taken into consideration in order to clarify the understanding of the effectiveness of the two vocabulary learning approaches and choral reading with pictures. For future studies, some features related to choral reading, such as the development of reading fluency, the speed of reading, decreasing the anxiety level during reading or the number of errors made in pronouncing words, should be investigated to identify how they relate to vocabulary learning since it seems to be one of the most frequent activities used to teach students in a big group. The differences between teaching words before, during and the reading activity should also be investigated to identify which is the best for learners at different levels. Moreover, this study did not investigate specific types of words, for instance, nouns, verbs, adjectives, abstract nouns or concrete nouns. Finally, there might be some developmental differences in each individual group of learners such as learners' proficiency and age that merit investigation in order to determine the best method to teach specific groups of learners. Further investigation should be conducted to clarify these issues.

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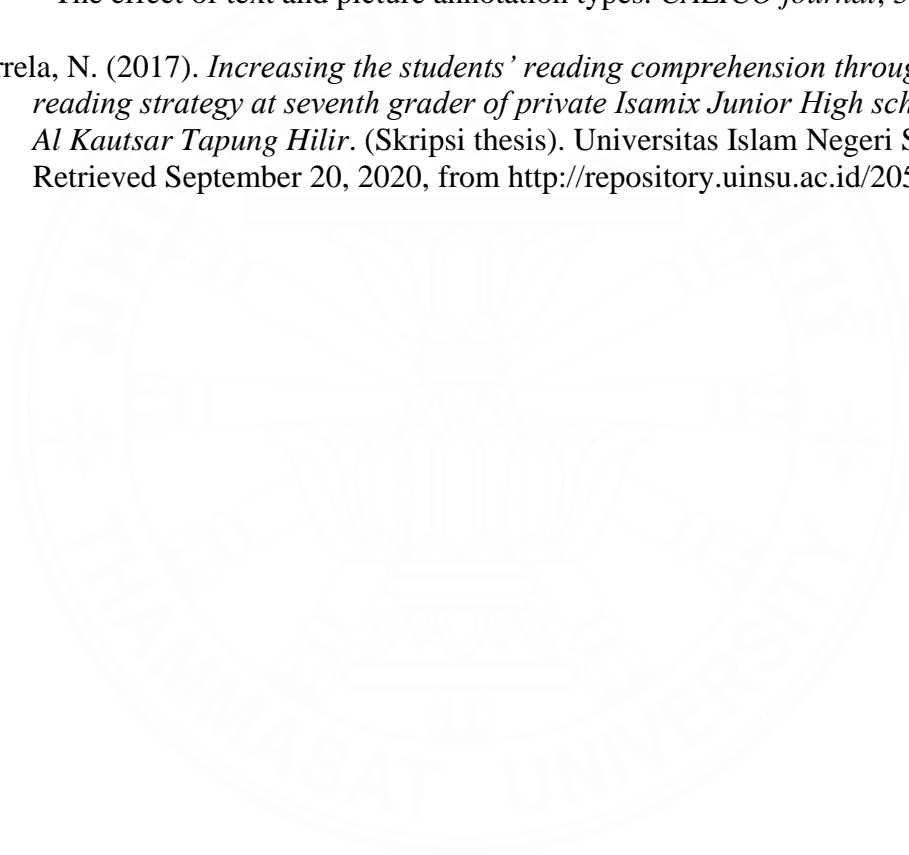
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APPENDICES

APPENDIX A

Pre-test: Match the words with correct pictures.

large		together	
notice		public	
group		increase	
weather		event	
countryside		bite	
investigate		predict	
researcher		truth	
earthquake		suggest	
agressive		scientist	
natural		lake	

APPENDIX B

Post-test: Comprehension check questions

1. What is the main idea of this reading?
 - a. What animals do during earthquakes
 - b. The many earthquakes of Japan
 - c. Effect of natural events on animals' actions
 - d. Folklore and other stories about animals

2. How do dogs begin to behave just before an earthquake?
 - a. They lie down in grass.
 - b. They stay together in large groups.
 - c. They leave their homes.
 - d. They hurt people.

3. According to the passage, what other animals behave strangely before an earthquake?
 - a. Pigs
 - b. Birds
 - c. Cows
 - d. All of the above

4. What did Kiyoshi Shimamura look at during his investigation?
 - a. Animal clinics treating dogs
 - b. The number of patients with bites
 - c. The number of earthquakes a year
 - d. Places dogs go during earthquakes

5. Why do you think Japanese researchers are so interested in studying earthquakes?
 - a. Japanese people like dogs.
 - b. Japan has lots of researchers.
 - c. Japan has lots of earthquakes.
 - d. Many animals in Japan behave strangely.

6. What is a belief when swans fly into the wind?
 - a. Sand storm is coming.
 - b. Heavy snow is coming.
 - c. Earthquake is coming.
 - d. Hurricane is coming.

7. What is a belief when a group of cows start lying down?
 - a. Heavy rain is coming.
 - b. Heavy snow is coming.
 - c. Strong wind is coming.
 - d. It will be sunny.

8. What does public health centers do?
 - a. They are schools for doctor.
 - b. They take care of animals.
 - c. They help people after tsunami.
 - d. They help people after earthquake.

9. What happen with fish when earthquake is coming?
 - a. They swim seperately.
 - b. They swim together in the middle of the water.
 - c. They eat less food.

10. What happen with birds when earthquake is coming?
 - a. They stay at their nest.
 - b. They will not lay eggs.
 - c. They fly away and leave their eggs.
 - d. They will try to fly together.

APPENDIX C

List of books

1. My World 3 (Student Book)
2. My World
- 3 (Workbook) 3. Postcards 3
4. Postcards 3 (Workbook)
5. Expressions 3
6. Expressions exercise 3
7. Super Goal 3 (Student Book)
8. Super Goal 3 (Workbook)
9. Can Do 3
10. Go for it! 3 (Student Book)
11. Go for it! 3 (Workbook)
12. Highlights of Reading & Writing 3
13. Future Time English (Student Book)
14. Target Reading 3
15. Listen and Hear

APPENDIX D

Reading passage

Animal Forecasters

Do you think animals can predict the weather or other natural events?

Farmers living in the countryside think so. For hundreds of years, they have observed animals and noticed many things about the way animals act.



For example, some farmers believe that if they see swans flying into the wind, a hurricane is coming. Or, when cows lie down, a rainstorm is coming. There are many traditional stories connecting animals and natural events. Some scientists are taking another look at animals to see if there is any truth behind these stories and beliefs. They have found some surprising things.



Kiyoshi Shimamura is a Japanese earthquake researcher. He noticed an increase in dog bites a short time before earthquakes hit. Then, he did an investigation of twelve public health centers in Kobe, Japan. These health centers treated people after a big earthquake. Shimamura noticed that the month before the big earthquake, treatment for animal bites had increased. In fact, aggressive behavior in dogs, such as biting and barking loudly, jumped 60 percent!



Other animals change their behavior before an earthquake as well. For example, fish in ponds or lakes begin swimming together in large groups only in the middle of the water and not near the edges. Also, birds may fly away from their nests for many days, leaving their eggs unprotected. These behaviors suggest that animals may be able to predict natural events, such as earthquakes, better than people.

APPENDIX E

Interview Questions

Part I: General questions

1. What is your nickname?
2. When did you start studying English?
3. Do you like English?
4. Why do like/dislike English?

Part II: Specific questions

1. How is vocabulary important to studying English?
2. What do you usually do when encountering unknown words?
3. What do you think about vocabulary teaching in today's class?
4. Do you think pictures facilitate word learning?
5. What do you think about the choral reading activity?
6. Do you have any suggestions for today's class?

APPENDIX F

Lesson Plan

Time	Activity	Procedure	Aim	Media/ Materials
15 minutes	Pretest	The teacher distributed the test sheets. The students matched words and related pictures.	to evaluate students' lexical background knowledge and to cut some students who might have already known all the words selected to use in this study.	pretest sheets contain 20 questions of matching words and pictures exercise
20 minutes	Choral reading activity	After the pretest, the reading passage worksheet were given to students. Then the teacher leaded students to read the passage two times. For the first group, i.e., the explicit group that study words directly through guidance from the teacher, in the first and second time, the teacher stops and introduces some words to students. However, such a stop did not happen in the second group, i.e., the group that studies words implicitly. After the lead from the teacher, students continued reading two times.	to engage students in choral reading activity in order to make them learn words in context regardless of multiple proficiency issue	reading passage worksheets
15 minutes	Posttest	After the reading activity, the test sheets were distributed. The students did the tests which consisted of the same words and pictures matching exercises as in pretest and also 10 reading comprehension check questions by being able to look back or read the text again.	to evaluate and compare how students could perform after engaging with the two different treatments of word learning.	2 posttest - matching exercises as in the pretest - 10 reading comprehension check questions

APPENDIX G

Correlation tables

Correlations

		Post test	Reading com
Implicit word priming posttest	Pearson Correlation	1	.502**
	Sig. (2-tailed)		.000
	N	46	46
Reading comprehension score	Pearson Correlation	.502*	1
	Sig. (2-tailed)	.000	
	N	46	46

Correlations

		Post test	Reading com
Implicit matching posttest	Pearson Correlation	1	.180
	Sig. (2-tailed)		.231
	N	46	46
comprehension score	Pearson Correlation	.180	1
	Sig. (2-tailed)	.231	
	N	46	46

** . Correlation is significant at the 0.01 level (2tailed).

Correlations

		Post test	Reading com
Explicit word priming posttest	Pearson Correlation	1	.098
	Sig. (2-tailed)		.523
	N	45	45
Reading comprehension score	Pearson Correlation	.098	1
	Sig. (2-tailed)	.523	
	N	45	45

Correlations

		Post test	Reading com
Explicit matching posttest	Pearson Correlation	1	.104
	Sig. (2-tailed)		.497
	N	45	45
comprehension score	Pearson Correlation	.104	1
	Sig. (2-tailed)	.497	
	N	45	45

** . Correlation is significant at the 0.01 level (2tailed).

APPENDIX H
Scores from both groups

Group A (Implicit)	Word priming		Matching		Reading	Group B (Explicit)	Word priming		Matching		Reading
	Pre test	Post test	Pre test	Post test			Pre test	Post test	Pre test	Post test	
1	8	9	18	20	7	1	4	10	8	14	8
2	5	7	7	12	6	2	3	9	8	18	7
3	5	6	9	14	6	3	2	7	10	16	7
4	5	7	14	18	6	4	4	8	12	16	8
5	6	7	14	16	5	5	3	8	9	18	7
6	4	7	6	12	5	6	4	8	11	16	9
7	5	7	9	14	6	7	3	10	6	18	6
8	6	8	6	10	4	8	6	8	15	16	8
9	6	9	16	18	6	9	3	9	11	16	5
10	4	6	10	14	6	10	10	10	20	20	10
11	3	4	8	16	5	11	3	8	8	16	9
12	5	6	12	14	5	12	3	9	11	16	8
13	9	9	18	20	4	13	2	9	8	18	9
14	6	7	12	16	4	14	2	9	8	16	8
15	10	10	20	20	10	15	3	9	8	18	9
16	5	6	14	16	4	16	4	10	7	16	9
17	4	7	12	14	6	17	5	8	13	16	9
18	5	8	12	16	6	18	6	9	16	16	9
19	6	7	16	18	5	19	7	8	16	18	8
20	5	6	14	16	4	20	5	8	12	14	10
21	4	6	14	18	5	21	6	10	15	18	9
22	9	10	18	18	7	22	5	9	13	18	8
23	7	7	18	20	4	23	6	10	15	16	9
24	3	6	8	12	4	24	6	9	12	14	8
25	5	8	12	12	5	25	4	10	14	18	9
26	8	9	18	18	8	26	2	9	8	16	7
27	7	7	14	18	4	27	1	9	6	16	5
28	4	6	8	12	3	28	4	10	6	16	7
29	5	7	14	16	6	29	3	10	14	16	8
30	6	6	12	14	3	30	4	10	14	18	8
31	4	5	14	16	5	31	5	7	11	18	7
32	6	7	16	16	5	32	3	8	10	16	8
33	4	6	6	14	3	33	5	10	11	16	6
34	6	7	16	18	5	34	4	9	9	20	7
35	5	7	16	16	5	35	5	8	12	16	7
36	6	7	16	14	5	36	3	7	9	18	8
37	8	8	18	12	7	37	6	9	14	16	7
38	6	8	14	16	6	38	5	7	9	16	7
39	2	6	6	10	7	39	3	9	14	16	6

APPENDIX H
(Continue)

Group A (Implicit)		Word priming		Matching			Group B (Explicit)		Word priming		Matching		
Seat no.	Pre test	Post test	Pre test	Posttest	Reading		Seat no.	Pre test	Post test	Pre test	Posttest	Reading	
40	4	7	10	14	6		40	4	8	18	20	8	
41	5	6	11	16	7		41	3	9	9	16	7	
42	1	5	10	12	5		42	4	10	5	16	7	
43	5	7	12	14	7		43	6	10	10	18	8	
44	6	7	8	12	6		44	8	7	10	16	7	
45	7	8	12	16	7		45	1	8	8	16	5	
46	8	7	12	14	6		40	4	8	18	20	8	



BIOGRAPHY

Name	Mr. Thanapat Chinprahast
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