

**A STUDY OF ACHIEVEMENT AND RETENTION IN ENGLISH
VOCABULARY LEARNING OF GRADE 6 STUDENTS
THROUGH THE LINCS STRATEGY**

A THESIS

BY

CHALIDA JANENOPPAKARN

**Presented in Partial Fulfillment of the Requirements for the
Master of Arts Degree in Teaching English as a Foreign Language
at Srinakharinwirot University**

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AN ABSTRACT

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This study was an experimental study with randomized control group pre-test post-test design. The purposes of this study were to explore Grade 6 students' English vocabulary achievement and retention through the use of the LINCS strategy, and to study the students' attitudes towards vocabulary learning. The samples were two classrooms of Grade 6 students studying in the second semester of the 2008 academic year at Thanornpitwittaya School, Bangkok. They were selected from a total of eight classrooms by simple random sampling, and divided into experimental and control groups by simple random sampling. Each group was made up of 38 students. The experimental group was taught using the LINCS strategy, whereas the control group was taught using the conventional approach. Before the experiment, both groups of the students were asked to do the pre-test using the English vocabulary achievement test. The instruction lasted 12 fifty-minute sessions for each group. After the treatment, the immediate post-test was administered to both groups to measure their achievement in English vocabulary learning. Two weeks after the immediate post-test, another post-test was administered to both the experimental and the control groups to measure their English vocabulary retention. In addition, both groups were asked to complete the questionnaire on students' attitudes towards vocabulary learning. All data obtained from this study were statistically analyzed by descriptive statistics (mean and standard deviation) and inferential statistics (Analysis of Covariance: ANCOVA).

The findings were as follows.

1. The achievement in English vocabulary learning of the students taught through the LINCS strategy was significantly higher than that of the students taught through the conventional approach at the 0.05 level.
2. The retention of English vocabulary learning of the students taught through the LINCS strategy was significantly higher than that of the students taught through the conventional approach at the 0.05 level.

3. Both groups of the students taught through the LINCS and the conventional approach felt that they gained high benefits from English vocabulary learning.

การศึกษาผลสัมฤทธิ์ในการเรียนรู้และความคงทนในการจำคำศัพท์ภาษาอังกฤษของนักเรียน

ชั้นประถมศึกษาปีที่ 6 จากการสอนโดยกลวิธีลินซ์ (LINCS STRATEGY)

บทคัดย่อ

ของ

ชลิดา เจนนพกาญจน์

เสนอต่อบัณฑิตวิทยาลัย มหาวิทยาลัยศรีนครินทรวิโรฒ เพื่อเป็นส่วนหนึ่งของการศึกษา
ตามหลักสูตรปริญญาศิลปศาสตรมหาบัณฑิต สาขาวิชาการสอนภาษาอังกฤษ
ในฐานะภาษาต่างประเทศ

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งานวิจัยนี้เป็นงานวิจัยเชิงทดลองที่ใช้แบบแผนการทดลองเป็นแบบกลุ่มทดลองและกลุ่มควบคุมโดยทดสอบก่อนและหลังการทดลอง (Randomized Control Group Pre-test Post-test Design) โดยมีจุดมุ่งหมายเพื่อศึกษาผลสัมฤทธิ์ในการเรียนรู้และความคงทนในการจำคำศัพท์ภาษาอังกฤษของนักเรียนชั้นประถมศึกษาปีที่ 6 จากการสอนโดยกลวิธีลินซ์ รวมทั้งศึกษาทัศนคติของนักเรียนต่อการเรียนรู้คำศัพท์ กลุ่มตัวอย่างที่ใช้ในการศึกษาค้างนี้ เป็นนักเรียนชั้นประถมศึกษาปีที่ 6 ภาคเรียนที่ 2 ปีการศึกษา 2551 โรงเรียนถนนอมพิศวิทยา กรุงเทพมหานคร จำนวน 2 ห้องเรียน ที่ได้มาจากการสุ่มตัวอย่างแบบง่าย (Simple Random Sampling) จากทั้งหมด 8 ห้องเรียน และจัดเป็นกลุ่มทดลองและกลุ่มควบคุมโดยใช้วิธีสุ่มตัวอย่างแบบง่าย ในแต่ละกลุ่มประกอบด้วยนักเรียน 38 คน กลุ่มทดลองได้รับการสอนคำศัพท์โดยกลวิธีลินซ์ และกลุ่มควบคุมได้รับการสอนแบบดั้งเดิม ก่อนการทดลอง นักเรียนทั้ง 2 กลุ่ม ถูกจัดให้ทำการทดสอบก่อนเรียนโดยใช้แบบทดสอบผลสัมฤทธิ์ในการเรียนรู้คำศัพท์ภาษาอังกฤษ ระยะเวลาที่ใช้ในการสอนคือ 12 คาบเรียน คาบเรียนละ 50 นาที ทันทีหลังจากเสร็จสิ้นการสอน นักเรียนทั้ง 2 กลุ่มถูกจัดให้ทำการทดสอบหลังเรียนเพื่อวัดผลสัมฤทธิ์ในการเรียนรู้คำศัพท์ภาษาอังกฤษ หลังจากนั้น 2 สัปดาห์ ทั้งกลุ่มทดลองและกลุ่มควบคุมถูกจัดให้ทำการทดสอบอีกครั้งเพื่อวัดความคงทนในการจำคำศัพท์ภาษาอังกฤษ นอกจากนี้ ทั้ง 2 กลุ่มได้กรอกแบบสอบถามทัศนคติของนักเรียนต่อการเรียนรู้คำศัพท์ภาษาอังกฤษ สถิติที่ใช้ในการวิเคราะห์ข้อมูล คือ สถิติเชิงพรรณนา (ได้แก่ ค่าเฉลี่ยและค่าเบี่ยงเบนมาตรฐาน) และสถิติเชิงอนุมาน (ได้แก่ การวิเคราะห์ความแปรปรวนร่วม)

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1. ผลสัมฤทธิ์ในการเรียนรู้คำศัพท์ภาษาอังกฤษของนักเรียนกลุ่มที่ได้รับการสอนโดยกลวิธีลินซ์สูงกว่ากลุ่มที่ได้รับการสอนแบบดั้งเดิม อย่างมีนัยสำคัญทางสถิติที่ระดับ 0.05
2. ความคงทนในการจำคำศัพท์ภาษาอังกฤษของนักเรียนกลุ่มที่ได้รับการสอนโดยกลวิธีลินซ์สูงกว่ากลุ่มที่ได้รับการสอนแบบดั้งเดิม อย่างมีนัยสำคัญทางสถิติที่ระดับ 0.05
3. นักเรียนกลุ่มที่ได้รับการสอนโดยกลวิธีลินซ์และวิธีสอนแบบดั้งเดิมมีความรู้สึกว่า ได้รับประโยชน์ในระดับสูงจากการเรียนรู้คำศัพท์ภาษาอังกฤษ

The Thesis Titled

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Grade 6 Students through the LINC Strategy”

by
Chalida Janenoppakarn

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CHAPTER 1

INTRODUCTION

Background of the Study

Our world has entered the era of information technology and globalization. People from all over the world can now communicate with each other quickly and efficiently. Language, undoubtedly, plays a vital role in communication. None more so than the English language, which due to its popularity and positioning as an international language, is universally used to convey meaning and share information.

Learning and teaching English in Thailand presently emphasize the communicative approach, including listening, speaking, reading and writing (Angwattanasakul, 1994). Many researchers agree that focusing on vocabulary can promote a better development of all these four skills. According to Ghadessy (1979) and Zimmerman (1997), vocabulary is an essential element of the four language skills, and as such, students should learn it first. Ghadessy (1979) adds that teaching vocabulary is more important than teaching structure because vocabulary is the foundation of language learning. If students possess a rich vocabulary, they can make use of words and develop their ability to put them into phrases, sentences, or even essays. This means that if students are able to extend and retain their knowledge of vocabulary, they can develop their skills in learning English, thus leading to an efficient study of English.

Nonetheless, the ways of teaching English vocabulary in Thailand seem to be problematic due to lack of teacher interest in this area. Some researchers such as Cheepruksa (1985) found that some students at the secondary school level could not read

or understand texts because they were mostly taught language structure not vocabulary. Neglecting teaching vocabulary may lead to many problems in English learning. This view is well supported by educators such as Senwanich (1998) who states that an obstacle to reading English for Thai students is that they are not able to understand the text they read. This is caused by the fact that they do not understand the vocabulary. Moreover, Kanithanon (1987) points out the importance of vocabulary in developing writing skills. She states that without fundamental concepts of vocabulary, including the meanings and spelling, Thai students will encounter a variety of problems when writing an English essay. Therefore it is clear that vocabulary plays a crucial role in writing in English.

According to the results from the National English Test of Grade 6 students from Thanormpitwittaya School in 2007, most students were at the “fair” and “need-to-improve” levels. The questions of why the students did so poorly were subsequently asked. The researcher has studied this problem by interviewing the English teachers of Grade 6 students, and has found that one of the causes is students’ lack of vocabulary knowledge. Although the school has tried to promote vocabulary learning by providing vocabulary books for each student to learn and memorize, the students’ vocabulary knowledge has not improved much. This may be as a result of the students being passively, rather than actively, engaged in learning. To promote an active learning environment (e.g. by teaching students how to learn and how to use what they have learned), teachers of English can use various methods of teaching such as mime, pictures or word cards, verbal explanations, word networks, linguistic context etc. (Charoenjai, 2007). Pilachai (2005) suggested that utilizing interesting materials or teaching methods would enhance students’ learning.

The LINC strategy, according to Ellis (2001a), is one of the most powerful ways to encourage students to learn vocabulary while having fun, and it helps them to

their vocabulary knowledge in their long-term memory. He states that LINCS cues students to focus on critical elements of the concept being taught through the use of visual imagery, associations with prior knowledge, the creation of keyword mnemonic device study cards, and to study the card to enhance comprehension and recall the concepts. To elaborate, the use of visual imagery, e.g. the mental pictures created while learning vocabulary will help students remember or connect the new meaning to their background knowledge via a visual image. The keyword mnemonic devices, e.g. keywords that sound similar to the word being taught, and rhyming words or peg words, will help students recall the meaning of the new term. Ellis (2001a) also summarizes that the LINCS strategy can develop students' abilities to employ learning strategies that can be independently used both in their current classes and in the future.

To make it clear how to use the LINCS strategy, Ellis (2001b) clarifies that the strategy requires students to create LINCS study cards and follow a series of steps (see Figure 5 in Chapter 2 for an example of a LINCS study card). Students will remember the steps with help from the mnemonic name of the strategy. The letters L, I, N, C, S will help students remember the steps of the strategy and rehearse them before putting the strategy into action. The LINCS strategy consists of five steps as follows:

1. L : list target vocabulary and its appropriate meaning.
2. I : identify a reminding word, according to students' schema.
3. N: note a LINCing story by linking it with reminding word
background knowledge.
4. C: create a LINCing picture that shows the essential feature of the new
term's definition.

5. S: self-test “forward” and “backward” by looking at the card to test if students have made a connection between the definition and the word being learned.

The LINC strategy was tested by some researchers in order to prove its effectiveness on vocabulary learning. Recently, four researchers carried out a study on the achievement and retention of student's vocabulary learning by using the LINC strategy. Wedel, Deshler, Schumaker, and Ellis (n.d., cited in Glaeser & Millikan, 2008) indicated that the research was conducted in a social studies class in which the LINC strategy was taught to the students with learning disabilities (LD) to enable them to learn the meaning of new vocabulary. The results showed that the students with LD performed the social studies vocabulary tests at a mean of 53 percent in the pre-test and at a mean of 77 percent after learning the strategy. In the control class, in which students did not learn this strategy, the mean percentage of correct answers on vocabulary tests decreased from 86 percent to 85 percent from pre- to post-test. This showed that the experimental class made substantial mean score gains across pre- and post- tests, whereas the control class made no gains. Another interesting research study conducted by Petkaew (2003) revealed that Matthayomsuksa 4 students taught through the use of LINC strategy had higher reading ability and vocabulary scores in the post-test than those in the pre-test. They also had higher long-term vocabulary retention scores two weeks after the post-test than those scores of the immediate post-test.

It is clear that the LINC strategy can help students to memorize new words and appropriately use them in the sentences. As a result, the use of the LINC cards would be a perfect fit for today's learning and teaching methods which are primarily focused on a student-centered approach. In addition, LINC encourages students to learn vocabulary by themselves, as well as to plan and review the vocabulary learned after class. This may

then result in improved vocabulary acquisition, consequently inducing a higher English proficiency.

From the above mentioned research, the researcher is interested in studying how the LINCS strategy can help Grade 6 students achieve maximum vocabulary acquisition and retention. The research results can be applied by teachers looking for ways to improve their methods of teaching. Furthermore, teachers can discover how to improve students' vocabulary learning, while teaching them the strategy step-by-step until they can effectively use the learning strategy by themselves. This will help students gain more confidence in using the English vocabulary, thus allowing them to learn English while having fun and enhancing a positive attitude in learning it.

Objectives of the Study

The main objectives of this study were to explore Grade 6 students' English vocabulary achievement and retention through the use of the LINCS strategy, and to study their attitudes towards vocabulary learning at the end of the course. To be more precise, the study attempted to answer the following questions:

1. Is the English vocabulary achievement score of the students taught through the LINCS strategy higher than that of the students taught through the conventional approach?
2. Do the students taught through the LINCS strategy retain more English vocabulary than those taught through the conventional approach?
3. How do the students taught through the LINCS strategy and those taught through the conventional approach feel about vocabulary learning at the end of the course?

Significance of the Study

The study was intended to have the following benefits:

1. The results of the study would be beneficial to teachers of English to find out whether the LINCS strategy could help students to gain more English vocabulary achievement than could the conventional approach.
2. The results could also show whether the English vocabulary retention of the students taught through the LINCS strategy is higher than that of the students taught through the conventional approach.
3. The results could be used as guidelines for teachers of English to improve their teaching methods in increasing the achievement and retention of students' English vocabulary.
4. The findings of the study would be useful for further research on vocabulary teaching strategies.

Scope of the Study

The scope of the study is the following:

1. Population and sample groups:

This study was conducted to examine the English vocabulary achievement and retention, and attitudes towards vocabulary learning of Grade 6 students at Thanornpitwittaya School, with a population of 320 students in total. The sample groups consisted of students from two classrooms which were randomly selected from eight available classrooms. Each group was made up of 38 students. The groups were also randomly classified into two groups – the control group and experimental group.

2. Duration of the study:

The duration of the study was twelve weeks and was conducted during the second semester of the academic year 2008. Each group of participants was part of the experiment one session per week. Each session lasted 50 minutes. This, excluding the pre- and post-test sessions, made twelve sessions in total.

3. Variables of the study:

3.1 Independent variables are found in two teaching approaches as follows:

3.1.1 Vocabulary teaching by using the LINC strategy

3.1.2 Vocabulary teaching by using the conventional approach

3.2: Dependent variables are as follows:

3.2.1 Achievement in English vocabulary learning

3.2.2 Retention of English vocabulary learning

3.2.3 Attitudes towards English vocabulary learning

Definition of Terms

1. LINC strategy refers to a task-based strategy which helps students understand and memorize new words by using the LINC study card. The card consists of a new term and its definition in part, a reminder word which helps the students remember the new term, a story using the new term, a situational picture and a self-test.

2. Conventional approach refers to the way of teaching vocabulary by using a teacher's manual for the book entitled *English Prathomsuksa 6*, comprising the warm-up or lead-in stage, and stages of teaching sound, meaning, and forms of vocabulary.

3. English vocabulary achievement refers to the ability to understand the meaning and spelling of vocabulary, as well as the appropriate use of its parts of speech in sentences, which can be measured by the vocabulary test constructed by the researcher.

4. English vocabulary retention refers to the ability to memorize the target vocabulary learned from the lessons, including meaning and spelling, as well as the appropriate use of its parts of speech in sentences. This ability is measured by the score of the vocabulary test administered to sample groups immediately after having learned vocabulary and in two weeks later.

Research Hypotheses

The hypotheses of the study could be defined as follows:

1. The achievement in English vocabulary learning of the students taught through the LINCS strategy is higher than that of the students taught through the conventional approach.
2. The retention of English vocabulary learning of the students taught through the LINCS strategy is higher than that of the students taught through the conventional approach.

CHAPTER 2

REVIEW OF THE RELATED LITERATURE

The purpose of this chapter is to provide some background information on vocabulary learning as well as to propose a strategy for enhancing understanding and retention of vocabulary. This chapter consists of five sections: 1) vocabulary teaching; 2) vocabulary learning; 3) memory and vocabulary retention; 4) the LINCS strategy and 5) related research.

1. Vocabulary Teaching

Before providing the concept of vocabulary teaching, it is necessary to explore the nature of vocabulary, such as its definitions, the importance of vocabulary and vocabulary categories. Subsequently, various aspects of vocabulary teaching and guidelines for selecting the appropriate vocabulary to be taught will be discussed.

1.1 Definitions of vocabulary

What does vocabulary mean? This question often arises when researchers have to define the term as part of a study. However, it is not an easy concept to define, either in theoretical terms or in non-abstract terminology. Various dictionaries and educational websites give a variety of definitions for vocabulary.

Oxford Advanced Learner's Dictionary (2000) defines vocabulary as “a list of words with their meanings, especially in a book for learning a foreign language” (p.1447).

Wikipedia (2008) indicates that vocabulary is “all the words that a person knows or uses”.

According to the Merriam-Webster’s Online Dictionary (2008), vocabulary means “a list or collection of word or words and phrases usually alphabetically arranged and explained or defined.”

For the purpose of this study, vocabulary is understood as a list of words or phrases which are explained or defined to make a person know or be able to use either in everyday life or for learning a foreign language.

1.2 Importance of vocabulary

Vocabulary is prerequisite knowledge for learning a language successfully. Knowing a wide range of vocabulary will help students improve their four basic skills - reading, listening, writing and speaking. Many educators and researchers, for example, Alexander (2008), Ghadessy (1979), Johnson and Johnson (2004), Nation (1990), and Zimmerman (1997) have pointed out the importance of vocabulary.

Ghadessy (1979) and Zimmerman (1997) agree that vocabulary is an essential element of language that students should learn as a first step. Ghadessy (1979) adds that teaching vocabulary is more important than teaching structure because vocabulary is the foundation of language learning. If students possess an adequate vocabulary, they instinctively come to make use of words and thus develop their ability to organize them into phrases, sentences or even essays. Otherwise, they would be unable to understand linguistic units larger than single words.

Nation (1990) has raised an interesting question of whether vocabulary should be taught at all. The answer proposed in his work proves that it should be taught because both learners and researchers see vocabulary as being a very important element in

language learning. Furthermore, learners feel that an inadequate vocabulary will result in many difficulties in both receptive and productive language use.

Johnson and Johnson (2004) also point out the importance of vocabulary. They argue that since words represent the very foundation of learning, improving students' vocabulary has become an educational priority. They give an example of its importance to improving students' reading comprehension by referring to the study of Biemiller (2001). According to Biemiller (2001), word knowledge in primary school can predict how well students will be able to understand texts they read in high school.

Vocabulary, according to Alexander (2008), is the currency of communication since it can improve all four areas of communication - listening, speaking, reading and writing. In addition, when children improve their vocabulary, their academic performance and general competence also improve.

In summary, there is evidence to support that vocabulary is a key element in language learning. Knowledge of vocabulary appears to be directly proportional to achievement in learning a foreign language. If offered both the opportunity to study new words and to receive effective instruction by the teacher, most students may acquire vocabulary at rates that will improve their comprehension, thus leading to further improvement in all four areas of language. As a result, paying attention to vocabulary is unavoidable and should be made a priority in language education. The following will discuss categories of vocabulary.

1.3 Categories of Vocabulary

According to Viel (2008) and Akkramas, Hiranburana, and Pibulchol (2000), vocabulary can be divided into two main groups: active and passive. Active vocabulary consists of terms whose meaning the writer or speaker understands well enough to use in

sentences. On the other hand, passive vocabulary consists of words that s/he can simply recognize or understand at a superficial level, but is unable to use effectively.

It is important to note that in some texts, the term *passive* vocabulary is used interchangeably with *receptive* vocabulary, while *active* sometimes substitutes *productive*. Examples can be seen in studies of Nation (2001), and of Lehr, Osborn, and Hiebert (2008). They have agreed that receptive vocabulary refers to words that we recognize when we hear or see them. Productive vocabulary refers to words that we use when we speak or write.

Akkramas, Hiranburana, and Pibulchol (2000) have also stated that passive vocabulary can be developed into active if students often review or use it. Vocabulary review can be done in two ways. Firstly, teachers provide the chance for students to use vocabulary they have learned previously. Secondly, teachers encourage their students to read more, not only in class, but also after class. Extensive reading, such as English magazines and newspapers, promotes the student's continuous familiarization with the new vocabulary.

It is clear that we can classify vocabulary into active (or productive) and passive (or receptive). Teachers of English can be supportive facilitators by assigning their students extensive reading materials for reviewing purposes and learning tasks, and targeting words for upcoming lessons. This will help students augment their understanding of the target vocabulary and learn how to organize words into sentences, eventually mastering the language as time passes.

In some cases, teachers new to the area of English teaching may be unsure as to how to teach vocabulary most effectively. The following will explore several ways of teaching vocabulary that need to be taken into account if teachers are to maximize their students' vocabulary acquisition.

1.4 Aspects of Teaching Vocabulary

What is the best way to teach vocabulary? The answers to this question vary. Educators such as Schmitt (2000) and Van Syoc (1963) have pointed out that nobody has yet to find a perfect method for teaching vocabulary efficiently. Van Syoc (1963) has proposed three steps to teach new target vocabulary in a foreign language: teaching the pronunciation of a word, teaching the meaning of a word, and teaching the structural use of a word.

1.4.1 Teaching the pronunciation of a word

The first step in teaching vocabulary is teaching how to pronounce a new word. Teachers may choose to use phonetic symbols, or to use their own voice as a model for students to follow or imitate. Van Syoc (1963) has indicated that the latter is more difficult and the results are much more effective if teachers use phonetic symbols. He has claimed that this is especially true for teachers who are non-native speakers of English. Using a voice recorder, however, can rectify this issue. Teachers may ask a native English speaker to record new words for them. Then they can use these recordings as a model when teaching pronunciation. Van Syoc (1963) has also suggested that if such recordings can be used in conjunction with phonetic symbols, the chances of success in developing students' pronunciation would be greatly enhanced.

Nevertheless, if teachers have no access to native English speakers, they may let their students consult dictionaries and help them practice the pronunciation of a target word. Teachers can pronounce vocabulary items first, and then have students repeat. Students should be encouraged to remember which syllables of a new word are pronounced with heavy, medium or weak stress. With regular practice, students' pronunciation is bound to improve (Van Syoc, 1963).

1.4.2 Teaching the meaning of a word

After students have learned the correct pronunciation of a word, teachers can next focus on meaning. There are several techniques used to communicate word meaning, such as using body-language (or performing actions), showing objects, pictures or diagrams, defining the term in the students' first language (translation), defining it in students' second language, and providing language context clues (Nation, 2001).

1.4.2.1 Performing actions

Teachers may want to teach the meanings of words by acting them out or by demonstrating by actions. Mime is useful for actions, such as “eating”, “drinking”, “jumping”, etc. It can involve connecting some verbs with objects, for example, “drinking coffee”, “eating a sandwich”, etc. (Haycraft, 1978).

Van Syoc (1963) points out that teachers should carefully check whether the students understand what the teachers have been trying to demonstrate. This idea is supported by a study from Nation (2001), who states that checking understanding is important. Since in all communication forms, meaning is likely to be misinterpreted, it may not convey the underlying concept clearly. As a solution, Nation (2001) proposes the use of verbal definitions combined with actions, pictures or objects. This would hopefully induce what Paivio called “dual coding” (Paivio & Desrochers, 1981). Dual coding occurs when the meaning is stored both linguistically and visually. This would help develop students' vocabulary.

1.4.2.2 Showing objects, pictures or diagrams

Educators such as Nation (2001) and Van Syoc (1963) have agreed that real objects, pictures, and the like are the most valid ways of communicating the meaning of words. An advantage of using objects, pictures or diagrams is that students

can visualize the meaning, which causes the information to be remembered (Nation, 2001).

According to Van Syoc (1963), many teachers of English in Thailand are quite adept at conveying the meaning of words by using real objects and toys. He stresses that bringing objects or toys to class can raise the students' interest and is recommended. Of course, it could be time consuming and it requires more funds than traditional methods.

Van Syoc (1963) has also suggested that many teachers prefer to use pictures to overcome the disadvantages of using objects in class. Some teachers may learn to draw figures and diagrams on the board. As Haycraft (1978) points out, teachers can find a wide assortment of magazines and illustrated advertisements. Pictures from these sources are widely available especially for everyday vocabulary such as kitchen appliances, clothes, cars, etc. These are valuable because teachers can present vocabulary in a visual context.

1.4.2.3 Defining in the first language (translation)

Another way of teaching meaning is to translate the word into the learners' native or first language. Translation, according to Nation (2001), has the advantages of being simple, quick and easily understood. However, its major disadvantage is that it may encourage students to over-rely on the definitions in the first language for explanations, hence reducing the time available for language use in the target. Kwiatkowska (2007) has also added that translation may cause negative effects such as slow learning due to insufficient time being spent attempting to discovering the meaning of vocabulary.

As far as we, as teachers of English, are concerned, using the native language in defining words allows teachers to save time in explaining a particular

meaning of the new word, and thus being overused by teachers (Kwiatkowska, 2007). Providing solutions to this problem, Van Syoc (1963) has given some advice to Thai students' studying English; once the meaning of an English word have been given in Thai, the word should be used many times without translating it. It should be used in English sentences until students can use the word easily and efficiently. This will help to prevent students from making an incorrect translation. Moreover, teachers should not ask students to write the Thai words, but they should give two or three sentences illustrating the use of new target words.

1.4.2.4 Defining in the language being taught

The fourth technique for teaching word meaning involves providing a definition made up of simple words already known by the students (Allen, 1983). Yet, defining English words in terms of other simpler English words is not easy. It requires considerable experience in teaching English to speakers of other languages. Allen (1983) recommends using a learner's dictionary which he considers an excellent source of help. Teachers may use the learner's dictionary to familiarize the students with the use of dictionaries while looking for the target words. Kwiatkowska (2007) also supports this method of mobilizing students to use dictionaries.

Allen (1983) indicates that considerable skill and experience is required from the teacher to apply this method. Teachers who regularly have contact with learners at various levels may discover which words are appropriate for students to learn.

1.4.2.5 Providing language context clues

According to Van Syoc (1963), some teachers expect students to grasp the meaning of the new words from the context in which they occur. While the context is obviously helpful, teachers should not over-rely on the context as they can never be sure how much the students comprehend. Haycraft (1978) has also agreed that

creating a context or situation from which students can deduce the meaning is one of the best ways to teach vocabulary meanings.

In a prior empirical investigation of vocabulary development, the use of computer games, which provided a context for an experiment into vocabulary acquisition, was conducted by Plamberg (1988). The experiment suggested that when teaching new vocabulary items, teachers should begin by teaching the new items within a context.

Another study by Honeyfield (1977) also stresses the importance of context in vocabulary teaching. He points out that it is important to provide learners with strategies for inferring the meaning of vocabulary from the context. Furthermore, if teachers demand students to memorize long lists of words, the reading process will become slow and tedious, thus contributing little to the actual learning of vocabulary. In his study, Honeyfield proposes various exercises, such as the word-in-context exercise, which demonstrates the increased probability of deriving the meaning of a word from its context.

According to Carter and McCarthy (1988), inferring vocabulary from the context is the most common way to discover the meaning of new words. To help in the task, teachers should prepare the students to look for clues, such as the topic, the other words in the context, plus grammatical structure and punctuation.

1.4.3 Teaching structural use of words

After teaching the meaning and the pronunciation of a word, teachers need to talk about the structure of words. In order to use a word, it is necessary to know what part of speech it is, and what grammatical patterns it can fit into (Nation, 2001).

According to Van Syoc (1963), words can be divided into two types: content words and function words. Content words are the words which have their basic

meanings and do not depend on the meaning of surrounding words or sentences, for example, words such as “house”, “school” and “radio”. Nevertheless, teachers should make sure that students can pronounce and spell them correctly, understand their meaning, and know the positions of words in sentences. Function words, on the other hand, are words which affect sentence structure and can change the meaning of sentences. Good examples of these words are articles and prepositions such as “these”, “the”, “after”, etc.

As Van Syoc (1963) points out, one of the best ways to teach the structural meaning of a word is to use it in drills. These drills include both vocabulary and grammar drills. They may be in the form of reading passages and writing activities. He has stressed that it is important for teachers to provide the students with chances to use these words again and again so as not to forget them. For function words, teachers should design drills allowing the students to use them in a new context, if possible. As with content words, the pronunciation and lexical meanings of function words should be taught before being presented in a structural pattern, in a grammar drill or in reading passages.

It is clear that there are a number of aspects of language that teachers must address when teaching vocabulary. These include teaching pronunciation, teaching meaning, and teaching the structural usage of words. A variety of ways of teaching vocabulary has been provided for teachers to make use of them.

Teachers should bear in mind that vocabulary is learned gradually. So it may take time for students to expand their understanding of the pronunciation, meaning and proper use of words. Nevertheless, teachers should select vocabulary that is appropriate for students’ proficiency level in order to facilitate both the teaching and learning processes.

1.5 Guidelines for selecting vocabulary to teach

Before starting to teach vocabulary, teachers must select appropriate vocabulary to present to the students, according to their study levels. Haycraft (1978) has pointed out that if too much vocabulary is introduced, students' progress will be impeded by the need to absorb too many words.

Willis (1981), Akkramas, Hiranburana and Pibulchol (2000) have provided some guidelines on choosing vocabulary as follows:

1.5.1 Teachers should determine the words that students already know (i.e. known words) and not know (i.e. unknown words). If the teacher is unsure whether or not students already know, the word is assumed to be new.

1.5.2 For new words, teachers should decide which words are or are not essential for the comprehension of main ideas of the passages in the material or for pre-reading exercises. This can help build students' interest in reading.

1.5.3 Words that are essential to comprehension should be divided into two groups: words that can be guessed and words that cannot be guessed from the context. Words that are not essential should also be divided into two groups: common words and unusual words. It is recommended for common words to be taught only if time permits it or if the students request it. As for unusual words, they should not be taught at all.

1.5.4 With regards to known words in item 1.5.1, teachers should consider whether these words are similar in meaning to those words students already know. For instance, students may know the meaning of the word "dirty" in the sense of "a dirty room". However, in the case of an idiom like "a dirty look", teachers need to explain its new transferred meaning.

Aside from the above guidelines, Nation (2001) has added that teachers or course designers should take into consideration word frequency levels, i.e. how often the

word occurs in normal use of the language, when selecting vocabulary to teach. Nation (2001) distinguishes four kinds of vocabulary in the text: high-frequency words, academic words, technical words and low frequency words.

Nation (2001) explains that the high-frequency words include function words, e.g., in, for, the, a, of etc., and many content words, e.g., government, forests etc. He indicates that almost 80% of the running words, or the number of word count, in texts are high frequency words. Usually, the 2000- word level has been set as the most suitable for high frequency words, which can be the best decision for learners who are going on to academic study.

Three further categories, according to Nation (2001), are academic words, technical words, and low-frequency words. Academic words include many words that are common in different kinds of academic texts, e.g. *policy, adjusted, sustained*, etc. These words cover about 9% of the running words in a text. The best list of these words is the *Academic Word List* containing 570 headwords in Coxhead's study (1998, cited in Nation. 2001). Next, technical words contain words that are related to the topic and subject area of the text, e.g. *indigenous, rimu* - a New Zealand tree, regeneration etc. Technical words like these make up about 5% of the words present in a text. Lastly, low-frequency words cover over 5% of the words in an academic text. This group includes such words as *zoned, perpetuity, and pastoral*, etc. They comprise technical words for other subject areas, words that were almost selected for the high-frequency list, and words that are rarely encountered in the usual use of the language.

Other words worth considering for teaching are the ones included in the word lists present in the *Learning Management Manual: Foreign Language* (Department of Curriculum and Instruction Development, 2002). For example, in the aforementioned manual, it is indicated that the word lists for students in Grades 4-6 contain about 1,050-

1,200 words, covering vocabulary relating to oneself, family, school, environment, food and drink etc.

When selecting vocabulary to teach, teachers need at first to consider vocabulary that is essential to comprehension, and cannot be guessed from the context. Subsequently, teachers may teach the common vocabulary that is not essential to comprehension if there is sufficient time. Moreover, teachers may take into account the level of students and the word lists suggested by the curriculum indicated above, as well as word frequency levels. This would hopefully be more fruitful for the development of the students' vocabulary.

In summary, to understand the concept of vocabulary teaching, teachers of English should know the nature of vocabulary, such as the definitions, the importance of vocabulary and vocabulary categories. Furthermore, they should comprehend the aspects of vocabulary teaching, as well as some guidelines for choosing appropriate vocabulary to teach. These aspects would help them have some background knowledge in teaching lexicon.

After providing some backgrounds on vocabulary teaching, the following section will bring up some particular issues in the area of vocabulary learning which teachers of English need to know.

2. Vocabulary Learning

The previous section has focused on vocabulary teaching, which is the teachers' side. This section will concentrate on the learners' side, by providing some interesting issues relating to vocabulary learning. It covers approaches to vocabulary learning, issues pertaining to remembering words and vocabulary learning strategies.

2.1 Approaches to vocabulary learning

According to the work of Nation (1990) and that of Rubin and Thompson (1994), there are two general approaches used by students to learn vocabulary: direct and indirect approaches.

Nation (1990) points out that in the direct approach students focus their attention on vocabulary items when taking part in particular exercises and activities. Examples of such exercises include vocabulary games, learning words from lists, and word-building exercises etc. Rubin and Thompson (1994) add that most students use this approach to learn frequently used words needed for survival skills in the language. This approach is time and effort consuming.

In the indirect approach, according to Nation (1990), learning occurs while students' attention is focused on some other language tasks such as trying to communicate or understand a spoken or written message. Since a lot of vocabulary is learned through reading and listening, students need to adopt strategies for dealing with unfamiliar words indirectly instead of memorizing them. Rubin and Thompson (1994) stress that in the process, students will most likely begin to learn many new vocabulary items.

It is clear that both methods of learning vocabulary are widely used nowadays. The direct approach, even though it consumes time and effort, it is usually applied to learn frequently used words, whereas the indirect one is mostly used for familiarizing students with unknown words.

However, when we consider vocabulary learning as a whole, it is the teachers' responsibility to find out what students need to understand in order to really "know" a word. The following will discuss the issues pertaining to understanding words, which may help teachers of English to find out how to best resolve this problem.

2.2 Issues pertaining to understanding a word

Educators, such as Nation (2001) and Schmitt (2000), have provided a number of skills whose successful completion would indicate a firm understanding of a word which include the following:

1. being able to pronounce it correctly
2. being able to write it with correct spelling
3. being able to recognize it when it is heard or seen
4. being able to recall its meaning when it is encountered
5. being able to use it correctly in sentences
6. being able to make various associations with other related words, including:
 - Antonym, e.g. boy/girl, beautiful/ugly
 - Hyponym, e.g. flower: rose, lotus
 - Synonym, e.g. flat = apartment
 - Other related words, e.g. when saying the word “head”, other related words are “hair”, “face”, “ear”, “eye”, “mouth”, etc.

“Knowing a word” does not mean that learners or students are required to satisfy all the six prerequisites above. Atipattaranan (1998, cited in Petkaew, 2003) has stated that teachers should consider the particular skills to be taught before teaching vocabulary to fit the level of students. She has summarized the relationship among vocabulary categories, learners’ level and proficiency level of knowing a word in Table 1. This could help teachers create their own guidelines for vocabulary teaching.

Table 1 Relationship among vocabulary categories, learners' level and proficiency level of knowing a word

Vocabulary Categories		Learners' Level			Proficiency Levels of Knowing a Word
Active	Passive	Beginner	Intermediate	Advanced	
	/	/			1,2
/		/			1,2,3
/			/		1,2,3,4,5
/				/	1,2,3,4,5,6

Note: The proficiency levels of knowing a word used in the table are:

- 1: Being able to pronounce it correctly
- 2: Being able to write it with correct spelling
- 3: Being able to recognize it when it is heard or seen
- 4: Being able to recall its meaning when it is encountered
- 5: Being able to use it correctly in sentences
- 6: Being able to make various associations with other related words

Source: Petkaew (2003). p. 19.

Another viewpoint can be observed in the work of Nation (2001) who proposes a processing model which emphasizes the relationship between the parts of knowing a word. In his study, knowing a word involves three things: form, meaning and use as shown in Table 2.

Table 2 What is involved in knowing a word

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

Note: In column 3, R= receptive knowledge , P= productive knowledge

Source: Nation. (2001). p. 27.

Table 2 gives an indication of the range of characteristics in terms of receptive and productive knowledge and use. In general, it seems that receptive learning and use is easier than productive learning and use (Nation, 2001). Ellis and Beaton (1993) explain

that productive learning is more difficult because additional learning of new spoken or written output patterns is required.

With regards to the three kinds of word knowledge in Table 2, Nation (2001) also points out that teachers can match the kinds of word knowledge with the most effective kinds of learning as indicated in Table 3.

Table 3 Kinds of vocabulary knowledge and the most effective kinds of learning

Kinds of knowledge		Kinds of learning	Activities
Form		Implicit learning involving noticing	Repeated meetings as in repeated reading
Meaning		Strong explicit learning	Depth of processing through the use of images, elaboration, deliberate inference
Use	Grammar collocation	Implicit learning	Repetition
	Constraint on use	Explicit learning	Explicit guideline and feedback

Source: Nation. (2001). p. 35.

Table 3 provides a broad overview of the different kinds of word knowledge, and the most effective kinds of learning as well as activities suitable for each kind. It can be seen from the table that the grammar and collocation learning methods involving pattern recognition and production are the goals of implicit learning (Nation, 2001).

Elsewhere in the table, Nation states that the constraints on vocabulary use related to meaning would benefit from explicit learning. Therefore, teachers and learners

should discuss when and where such particular words should be or not be used (Nation, 2001).

It is recommended that teachers pay attention to several indicators of knowing a word so they can correctly decide how to teach vocabulary and which word is suitable for the students' level. With this in mind, teachers can also match the kinds of word knowledge to the most effective kinds of learning. This will lead to effective vocabulary learning and teaching.

Having presented the skills required for knowing a word, the next subsection will look at vocabulary learning strategies that can be helpful to both learners and teachers of English.

2.3 Vocabulary learning strategies

According to Schmitt and McCarthy (1997) and Schmitt (2000), vocabulary learning strategies (VLS) have recently attracted the increasing attention of many scholars. Interest in VLS has moved away from a teacher-oriented perspective to a student-centered perspective. In the latter, it is of interest how the actions of learners might affect the acquisition of language. With this in mind, studies and examples of vocabulary learning strategies will be subsequently explored in detail.

2.3.1 Studies in vocabulary learning strategies

For more than two decades, according to Schmitt (1997), the research on vocabulary learning strategies has been centered on a small number of individual strategies. Very few studies have looked at the group as a whole. However, a few studies were also conducted attempting to organize the wide variety of vocabulary learning strategies. Two strategies were developed by Oxford (1990) and by Purpora (1994, cited in Schmitt, 1997).

The strategies proposed by Oxford (1990) are organized into social, memory, cognitive and meta-cognitive strategies. Social strategies involve interactions with other people to improve language learning. Memory strategies involve approaches which relate new material to existing knowledge. Approaches which exhibit the common function of “manipulation or transformation of the target language by learners” (p.43) fall into cognitive strategies. Lastly, meta-cognitive strategies involve an overview of the learning process and making decisions on planning, monitoring, and evaluating the best ways to study.

In the study of Purpora (1994, cited in Schmitt, 1997), storing and memory strategies are divided into six areas: (a) repeating; (b) using mechanical means; (c) associating; (d) linking with prior knowledge; (e) using imagery; and (f) summarizing.

Schmitt (1997) has analyzed the strategies in Purpora’s study and has concluded that strategies that are similar to (a) and (b) should be categorized as cognitive strategies because they are linked to mental manipulation. However, those similar to (c), (d), and (e) should be included in memory strategies since they are closer to traditional mnemonic techniques which make the information memorable.

2.3.2 Examples of vocabulary learning strategies

In Table 4, Schmitt (2000) illustrates some examples of vocabulary learning strategies that can provide teachers with the possibility for discovering the suitable strategies to be used with their students, with respect to the different objectives of vocabulary learning.

Table 4 Vocabulary learning strategies

Strategy group	Strategy
<i>Strategies for the discovery of a new word's meaning</i>	
DET	Analyse part of speech
DET	Analyse affixes and roots
DET	Check for L1 cognate
DET	Analyse any available pictures or gestures
DET	Use a dictionary (bilingual or monolingual)
SOC	Ask teacher for a synonym, paraphrase, or L1 transaction of new word
SOC	Ask classmates for meaning
<i>Strategies for consolidating a word once it has been encountered</i>	
SOC	Study and practice meaning in a group
SOC	Interact with native speakers
MEM	Connect word to a previous personal experience
MEM	Associate the word with its coordinates
MEM	Connect the word to its synonyms and antonyms
MEM	Use semantic maps
MEM	Image word form
MEM	Image word's meaning
MEM	Use Keyword Method
MEM	Group words together to study them
MEM	Study the spelling of a word
MEM	Say new word aloud when studying
MEM	Use physical action when learning a word
COG	Verbal repetition
COG	Written repetition
COG	Word lists
COG	Put English labels on physical objects
COG	Keep a vocabulary notebook
MET	Use English-language media (songs, movies, newscasts, etc.)
MET	Use spaced word practice (expanding rehearsal)
MET	Test oneself with word tests
MET	Skip or pass new word
MET	Continue to study word over time

Source: Schmitt. (2000). p.134.

Table 4 lists the vocabulary learning strategies which are categorized into two ways (Schmitt, 2000).

Firstly, the list is divided into two major classes as follows:

- (1) Strategies for the discovery of the meaning of a new word
- (2) Strategies for consolidating a word once it has been introduced.

These two classes reflect different processes that are necessary for finding out the meaning and usage of a new word, as well as for consolidating it in memory for future use.

Secondly, the strategies are further classified into five groupings:

- (1) Determination strategies (DET)
- (2) Social strategies (SOC)
- (3) Memory strategies (MEM)
- (4) Cognitive strategies (COG)
- (5) Meta-cognitive strategies (MET) (Schmitt, 2000).

Determination strategies (DET) contain strategies that are used by an individual learner when discovering the meaning of a new word without recourse to a person's expertise. These strategies can be implemented by guessing meaning from an L1 cognate, a word that has the same origin as another word or language, guessing from one's structural knowledge of a language, guessing from context, or using reference materials, e.g. dictionaries (Schmitt, 2000).

Social strategies (SOC) involve strategies that use interaction with other people to improve language learning. Some students can ask teachers or fellow students for information about a new word obtaining answers in the form of synonyms, translations, etc. Others may study and consolidate vocabulary knowledge with other

students or learners. However, in his research, Schmitt (2000) points out that most learners (particularly Japanese subjects) preferred to study individually.

Memory strategies (MEM) (traditionally known as mnemonics) are strategies that connect the word to be retained with some previously acquired knowledge, in the form of imagery, grouping or keywords. By using MEM, students can integrate a new word into many kinds of previously learned knowledge, i.e. known words, or images, i.e. images in the word's form or meaning. According to Oxford (1990), it is useful to use keywords to remember new words. For example, to learn the new French word "potage"(soup), English speakers may associate it with a pot and then picture a pot full of potage. It is also helpful to use grouping to aid remembering so that learners can organize words into groups naturally, without prompting. As Schmitt (2000) points out, recalling of words is improved if the words are organized in some way before memorization. He also states that memory strategies involve elaborative mental processing that helps facilitate long-term retention (Schmitt, 2000).

Cognitive strategies (COG) involve the common function of "manipulation or translation of the target language by the learner" (Oxford, 1990, p. 43). They are similar to memory strategies, but different in that they are not focused on specific mental processing. They are also found to be the most popular strategies with language learners (Oxford, 1990). These strategies take into account mechanical means and repetition to study vocabulary, including the keeping of vocabulary notebooks (Schmitt, 2000).

Meta-cognitive strategies (MET) include a conscious overview of the learning process, and making decisions about strategies such as planning, monitoring, and evaluating the best ways to study. This includes improving access to input, deciding the most efficient methods of study or review, as well as testing one-self (sometimes called

self-test) to gauge or measure improvement. Additionally, it includes deciding which words are worth studying or not, and persevering with the words learners choose to learn (Schmitt. 2000).

Using the full version of the strategy list presented above, Schmitt et al. (1997, cited in Neilsen, 2008) completed a survey of 600 Japanese respondents, asking which strategies were most commonly used and which were believed to be most useful. It was found that the preferred strategies were bilingual dictionaries, written and spoken repetition, and strategies that focused on form. These researchers pointed out that this survey supported other research indicating that preference in the use of a particular strategy could change over time. This was due to the fact that learners either mature or become more proficient in the target language.

Vocabulary learning strategies have tended to attract increasing attention from many educators. It seems that learners do use strategies and find them helpful. Such vocabulary learning strategies, either for the discovery of a new word's meaning or for remembering the word once it has been introduced, can be used to suit students' goals of learning the language. Each of these two situations utilize the different processes or strategies necessary for working out a new word's meaning and usage, and for consolidating it in memory for future use.

To conclude, vocabulary learning is one of the most interesting issues that teachers of English should consider the learners' perspective. This section provides various approaches to learn vocabulary. It also includes issues pertaining to remembering words, and vocabulary learning strategies that facilitate teachers to introduce to their students in order to increase the students' vocabulary knowledge.

Nevertheless, as some scholars (e.g., Schmitt, 2000) indicate, vocabulary is learned incrementally, signifying that vocabulary acquisition requires multiple

exposures to a word. Nagy (1997) also supports this idea since it has been proven that the chance of learning and retaining a word from one exposure, i.e. incidental learning, is only about 5%-14%. Thus, it is important for teachers to design effective programs, or look for novel ways to encourage students to recycle vocabulary, so that previously learned words are not forgotten. Before designing such programs, it may be useful for teachers to understand how memory works, and how it relates to vocabulary retention.

3. Memory and Vocabulary Retention

Vocabulary knowledge should be viewed as being in a state of continuous change, with both learning and forgetting occurring until the word is fixed in memory (Schmitt, 2000). Teachers of English might be interested in how memory works and how vocabulary can be retained for a long period of time. The definition of memory, the components of memory and the role of memory in vocabulary learning and retention are explained in the next section.

3.1 Definitions of memory

Many psychologists and educators, such as Intelgen (2008), Lefrancois (2000), Pintapaet (1999), have different definitions of memory.

Memory, according to Intelgen (2008), is “retention of information or knowledge over a period of time” (p. 1).

Lefrancois (2000) has defined memory as the “effects that experiences are assumed to have on the human mind. It refers to the storage of these effects”(p. 169).

In Pintapaet's (1999) study, memory is "the capability to store experiences retrieved from direct and indirect learning, and is then transferred in the form of recognition and remembering" (p. 123).

Combining their definitions into one, memory refers to the storage capability of previous knowledge or experiences that are retrieved from direct and indirect learning, which can be used when needed. In order to understand the relationship between memory and retention, we need to explore the components of memory and memory processes.

3.2 Components of memory

Educators such as Baddeley (1990), Lefrancois (2000), and Petkaew (2003) have studied the model of memory, which includes three components, and how each component processes information.

The most widely used model of information processing is the model emulating the human memory's operation. This model is based on the work of Atkinson and Shiffrin (1968, cited in Lefrancois, 2000) and is sometimes called the Modal Model of Memory (Baddeley, 1990).

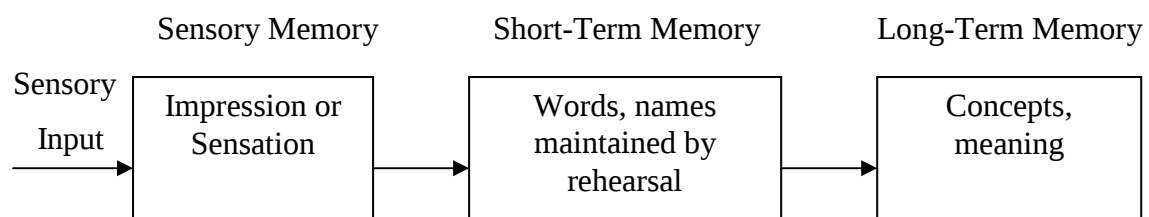


Figure 1 The Modal Model of Memory

Source : Lefrancois. (2000). p. 179.

Figure 1 illustrates the three components of memory. The top row shows three types of memory: sensory memory, short-term memory and long-term memory. The items in the boxes depict the contents of each memory process.

In the memory process as a whole, sensory information first enters sensory memory. From there, it passes into short-term memory, where it is available as a word or name as long as it is rehearsed. This short-term memory is sometimes called working memory. For the items in short-term memory, they must be repeated, or else the items will be lost from memory within 20 seconds. Some materials in short-term memory can then be encoded for long-term storage, where they might stay in the form of concepts and meaning. This third stage lasts for more than 20 seconds, but no limitation of time is stated. (Lefrancois, 2000).

Petkaew (2003) has added that in each stage of memory, levels of processing information can also occur, as shown in Figure 2.

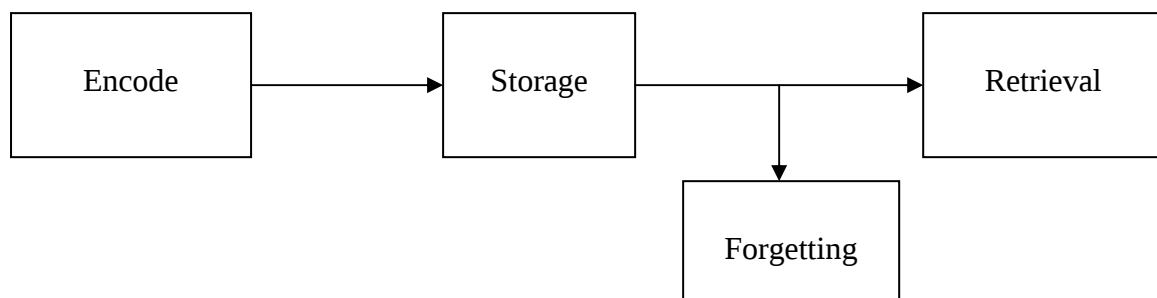


Figure 2 The levels of processing information

Source: Petkaew. (2003). p. 31.

According to Petkaew (2003), encoding is a process whereby we derive meaning from the environment in order to encode in another form (e.g., pictures). Storage involves retaining in memory the code resulting from the encoding stage. Retrieval is the ability to recall the code kept in memory to use when needed. Forgetting, however, is the

process in which the brain cannot recall information previously learned due to either a long passage of time or the presence of unclear or conflicting memory caused by the interruption between old and new information.

Lefrancois (2000) and Petkaew (2003) also add that encoding of information can occur at different stages. We can remember things more or less, depending on the level of processing reached. In other words, the quality of the memory reflects the level up to which information is processed. Information that is not processed, but leaves only a momentary sensory impression and lasts for a fraction of second, is in the level of sensory memory. Information that is present and rehearsed for less than 20 seconds is in the level of short-term memory. Information that is processed to a greater degree, for more than 20 seconds, is stored in long-term memory.

The three types of memory, sensory memory, short-term memory and long-term memory are paramount to our study of learning vocabulary since they make us understand how memory works. It may be interesting to note that memory has a key interface with language learning. If teachers wish to teach vocabulary for long-term retention, it might be useful for them to know the role of memory in vocabulary learning and retention.

3.3 Role of memory in vocabulary learning and retention

As stated in the previous subsection, vocabulary knowledge, according to Schmitt (2000), is in the state of flux. It can involve both learning and forgetting until the word is mastered and stored in memory. Hence, all teachers must be well aware that learners can easily forget the material studied. This subsection refers to some studies and principles related to the role of memory in vocabulary learning and retention. Specifically, the typical pattern of forgetting and the pattern of forgetting with expanded rehearsal will be discussed.

In one study, Schmitt (1998) found that advanced L2 university participants managed to improve their memory of the meaning of target words by about 2.5 times over the previous year. Still, some words were forgotten. It was found that most of the forgetting occurred with receptive words, whereas productive ones were much less prone to forgetting.

Another study was completed by Weltens, Van Els, and Schils (1989) on “lexical vocabulary attrition” - or the gradual weakening of vocabulary knowledge due to forgetting as a result of not using language for a long period of time. They found that most of the lexical or vocabulary attrition occurred within the first two years and finally leveled off.

Schmitt (2000) has supported the study of Weltens, Van Els, and Schils (1989), indicating that long-term attrition is consistent with the results of the research on short-term forgetting. To exemplify, when learning new information or words, most forgetting occurs soon after the end of learning session. After that, the rate of forgetting decreases, which can be shown in Figure 3.

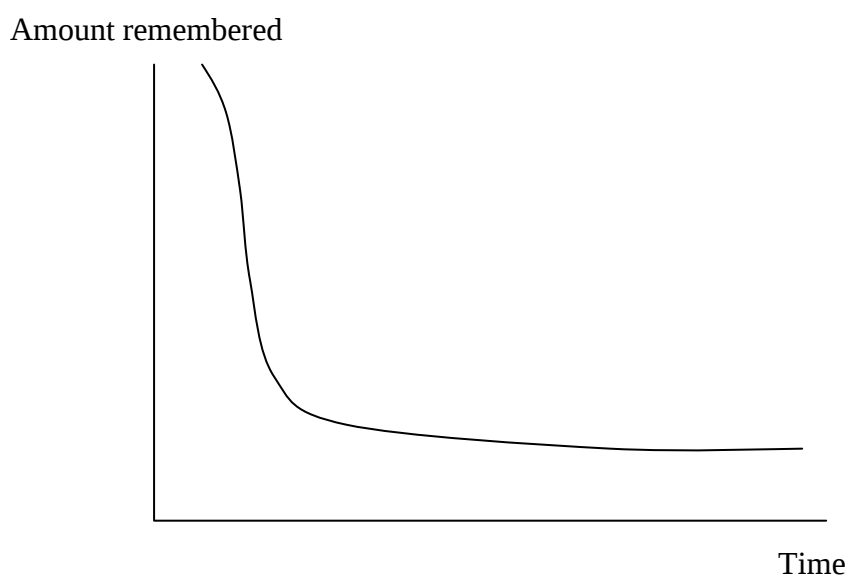


Figure 3 Typical pattern of forgetting

Source : Schmitt. (2000). p. 131.

Figure 3 illustrates the typical pattern of forgetting. Schmitt (2000) states that it is essential to have a review session soon after the learning session, but less essential as time goes by. By understanding the nature of forgetting, teachers can better organize or design a vocabulary recycling program which will be more efficient for vocabulary learning, thus leading to vocabulary retention of students (Schmitt. 2000).

The trend above could be counteracted by employing the principle of “expanding rehearsal”, which recommends that learners should review new material soon after the initial encounter (Baddeley, 1990, p. 156). Furthermore, the study of Russell (1979) proposes reviews 5-10 minutes after the end of the study period, followed by 24 hours later, 1 week later, 1 month later, and finally 6 months later. Schmitt (2000) also supports the expanding rehearsal principle illustrating its positive effects on forgetting in Figure 4.

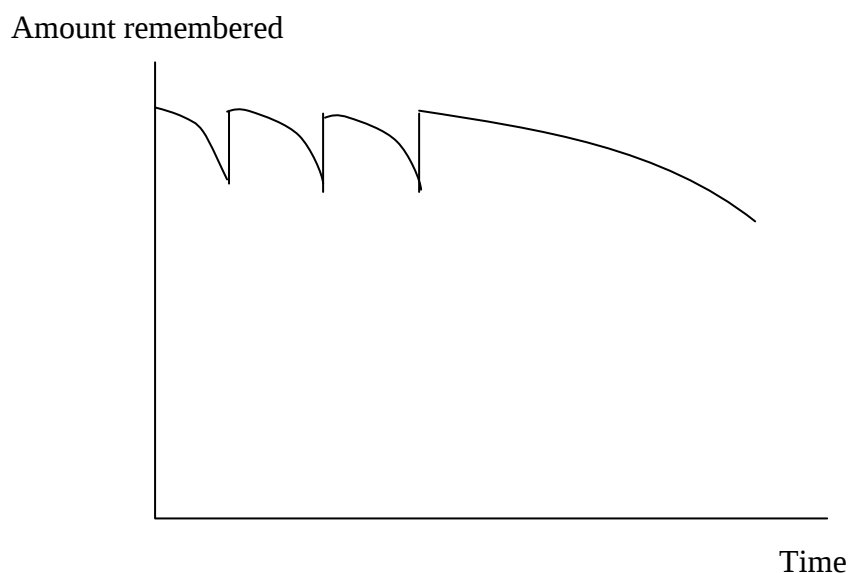


Figure 4 Pattern of forgetting with expanding rehearsal

Source : Schmitt. (2000). p. 131.

Schmitt (2000) stresses the relationship between memory and vocabulary learning and retention. He describes the two basic types of memory: long-term memory which can retain information for future use and short-term memory which is used to hold information for immediate use. Schmitt states that memory can be expanded by regular repetition or rehearsal so that the information previously learned is not forgotten. The objective of vocabulary learning, according to him, is to transfer the vocabulary items from the short-term memory to the more permanent long-term memory. To achieve this, he suggests that teachers should teach students to find some lexical information in their long-term memory to relate to the new lexical information. This can be done in a number of ways. For example, imaging techniques such as the keyword approach can be used. Another way is by grouping the new target word with known words that are similar in meaning, sound structure, word class or other grouping parameters (Schmitt, 2000).

It is clear that understanding issues about the nature of memory and how it works is recommended for educators. Therefore, it is essential for teachers to understand such issues as the definition of memory, components of memory and the role of memory in vocabulary learning and retention, which has been elaborated in this section. In particular, teachers can apply this knowledge to better design the vocabulary programs or courses that could accelerate their students' development in vocabulary learning.

Apart from studying the aforementioned issues, teachers may need to use some teaching strategies that promote the development of students' vocabulary learning. One of the most interesting strategies that can help students retain their vocabulary in long-term memory is the LINC strategy, which has been proposed by Edwin E. Ellis (2001a). The following will discuss this strategy in more detail.

4. LINC Strategy

As Ellis (2001 a) points out, the LINC strategy is one of the most powerful and interesting ways to promote students to learn vocabulary in a fun way, and to help them retain their vocabulary in long-term memory. It is helpful for teachers of English to know more about this interesting strategy. The following are the principal concepts and steps in the strategy, the instructions for applying LINC and the benefits of using LINC.

4.1 Principal concepts and steps in LINC strategy

According to Ellis (2001a), LINC cues students to focus on important elements such as the use of visual imagery, making associations to previous knowledge and the creation of keyword mnemonic device study cards, which are to be studied to enhance comprehension and recall the target language. To clarify, the use of visual imagery, e.g. the mental pictures created while learning vocabulary, will help students remember or connect the new meaning to their background knowledge through a visual image. The keyword mnemonic devices, e.g. keywords that sound similar to the word being taught, and rhyming words or peg words, will help students recall the meaning of the new term. LINC also serves to develop the students' abilities to employ learning strategies that can be independently used either immediately or in the future.

For employing the LINC strategy, Ellis (2001b) explains that students are required to create LINC study cards and follow a series of steps. Students will remember the steps with help from the mnemonic name of the strategy. The letters L, I, N, C, S will help students remember the steps of the strategy and rehearse them before applying the strategy. Furthermore, the study card will help the students remember the

target word. It can also be independently used by students to review the vocabulary already learned either in class or after class. This format promotes today's teaching and learning, which focuses on a student-centered approach.

To create the LINC S study cards, students need to draw a horizontal line across the middle of both sides of the card, and a vertical line on the lower back of the card to divide the lower portion into two halves (See the example in Figure 5).

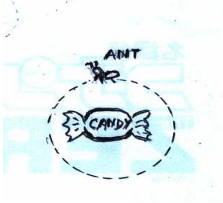
Front	
Around	
Round	
Back	
Surrounding or on every side.	
	An ant is moving around a candy in a round shape.

Figure 5 Example of a LINC S Study Card

Source: Adapted from Ellis. (2001b). p. 6.

According to Ellis (2001b), there are five steps in LINC S strategy as follows:

1. **L** stands for “List the Parts”: the students write the new word, e.g., “around” on the top half of the front of the card and write the parts of the definition they

need to remember, e.g., “surrounding or on every side” on the top half of the back of the card.

2. **I** stands for “Identify a Reminding Word”: the students either individually or with the help of their partners make up a reminding word on the bottom half of the front of the card. The reminding word should be related to the new word so as to help the students recall the word to be learned. In this example, the students would write the word “round”.

3. **N** stands for “Note a LINCing Story”: the students make up a very brief story based on the sentence from the front of the card by using the vocabulary word and writing it on the bottom right on the back of the card. A story might be “An ant is moving around a candy in a round shape.”

4. **C** stands for “Create a LINCing Picture”: the students draw a simple picture that matches the story created in Step 3. For example, the students would draw “an ant is moving around a candy.”

5. **S** stands for “Self-test”: the students test themselves “forward” and “backward” by looking at the card to test if they have made a connection between the definition and the word being learned. For example, the students look at the picture they have drawn. This would remind them of the story they had made up. The story would remind them of the sentence they made up which includes the target word. Then, when looking at the definition on the card, they would remember that the word was “around”. Then they would reverse the process by looking at the back of the card to self-test the target word and keyword (Ellis, 2001b).

4.2 Instructions for applying LINCS strategy

Apart from the concepts and steps of the strategy, Ellis (2002) has also provided the cue-do-review instruction that is helpful for teachers when applying the LINCS strategy. The cue-do-review instruction can be effectively applied in four basic ways, including “I do it”, “We do it”, “They do it”, and “You do it” instruction, as shown in Figure 6.

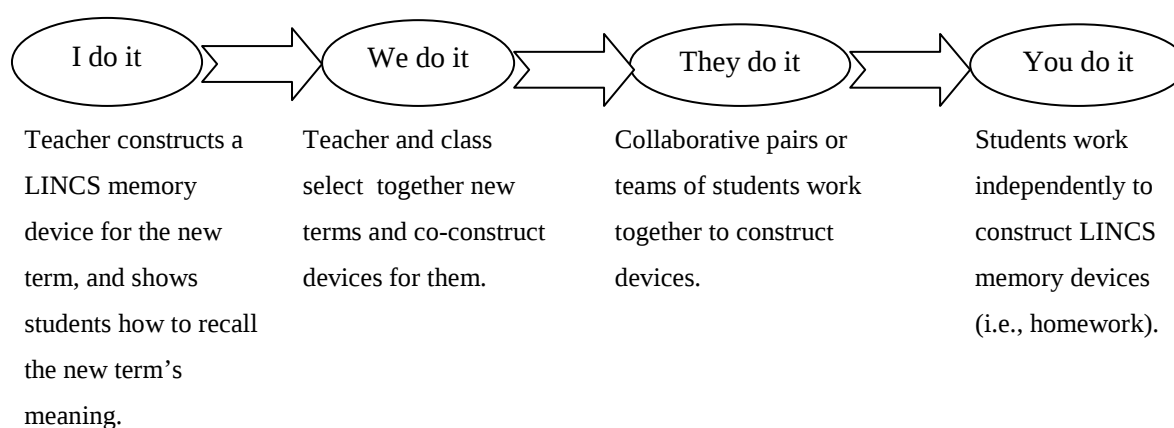


Figure 6 Cue-Do-Review Instruction

Source: Ellis. (2002). p.4.

In Figure 6, there are four types of instructions.

1. “I do it” instruction (i.e. teacher constructed instruction)

In the first stage, teachers provide students with a study card, and demonstrate how to use the card by referring to the five steps in 4.1. Teachers may skip this stage if they feel that the students are confident enough to construct them on their own. In the case of new difficult words, teachers can help students by demonstrating how to write in the study card.

2. “We do it” instruction (i.e. class constructed)

After having learned how to construct the study card using the LINC strategy, students help select new words from the material so as to construct the card. At this stage, students practice by themselves, under the teacher’s supervision. Students can consult the teacher when facing problems.

3. “They do it” instruction (i.e. group constructed)

When students become sufficiently familiar with the strategy, teachers play the role of consultants or facilitators. At this stage, students are divided into small groups or teams, and practice constructing the study cards. When finished, one member of each group will show the study cards to others to compare and obtain feedback on their correctness.

4. “You do it” instruction (or individual constructed)

This stage is designed to enable students to construct the study card without assistance from others. Teachers then check the correctness of the tasks students have done (Ellis. 2002).

4.3 Benefits of using LINC strategy

Some people may question the benefits of using the LINC strategy. According to Ellis (2000a), there are several reasons why using LINC can be beneficial in diverse-ability classrooms. These include:

1. Students perceive use of the LINC S strategy as a powerful memory enhancer.
2. Students enjoy the process of creating the memory cards and find it a fun way to learn.
3. Once teachers and students become familiar with how to apply the strategy to facilitate memory development, they can quickly use it to learn new words.
4. The act applying the LINC S strategy facilitates learning because the process will:
 - Teach students how to make decisions regarding which terms or words require more intensive study.
 - Focus students' attention on the semantic features of the definition.
 - Require students to think about the definition many times and in many ways (which can promote students' creative thinking).
 - Facilitate students' use of their own language to elaborate on the term or word's definition.
 - Help students link the new term to other pertinent information.
 - Develop both auditory connections and visual connections.
 - Provide a learning activity that allows interaction between students and teachers, as well as between students themselves.
 - Develop students' abilities to employ powerful learning strategies that can be independently used both in their current classes and in future classes.

It can also be observed in the above that teachers play the role of facilitators who encourage students to effectively use the strategy. As a result, students can perform the tasks by following the teacher until they are ready to do it by themselves. This can build their confidence and provide opportunities for having fun in using the language, thus leading them to have a good attitude towards learning the English language.

To sum up, the LINCS strategy is one of the most powerful tools that facilitate vocabulary learning. Once students learn to independently create the LINCS study cards and use them to study, they can acquire powerful learning strategies that can be used in all other classes to attain success. This section, therefore, provides the principal concepts, the five steps in the LINCS strategy, and instructions for applying the strategy for teachers of English to apply in their vocabulary teaching. The benefits of LINCS are also included to show how it works in diverse-ability classrooms.

Following this exposition on the LINCS strategy, it is useful to review related research in the area of vocabulary learning and teaching.

5. Related Research

Research on vocabulary learning has long been of interest among teachers of English and applied linguists. Various strategies aimed at vocabulary improvement have been attempted in this field. The following studies are categorized into research relating to vocabulary learning and retention and that research will be related to the use of the LINCS strategy in vocabulary learning.

5.1 Research related to vocabulary learning and retention

Much research has been carried out in the area of vocabulary learning and retention. The following includes five studies comprising of several vocabulary strategies.

Firstly, a study on the development of students' vocabulary recognition through humorous stories was done by Pilachai (2005). The participants comprised 20 first year Certificate Level students of Udonthani College of Agriculture and Technology. The results of this study showed that after learning through humorous stories, mean scores achieved by the students in the vocabulary test were higher than the criteria set by the researcher. Furthermore, they could use the vocabulary acquired from the humorous stories in practice and could recognize the words, as well as have positive attitudes towards learning vocabulary and English in general.

Secondly, the research conducted by Sripramong (2004) on the effect of vocabulary games on the retention ability while learning vocabulary also had positive results. His participants were 40 Prathomsuksa 5 students. The findings revealed that the students' retention when learning English while playing vocabulary games were at a high level. Moreover, they were satisfied with the vocabulary activities.

Thirdly, a study, carried out by Saribut (1998), consisted of a comparison between the effectiveness of the game approach and the conventional approach for learning achievement and retention of English vocabulary. The participants were 40 Prathomsuksa 6 students from Don Wai School, Amnat Chareon. It was found that learning achievement and retention of English vocabulary in the students taught through the game approach were higher than those taught through the conventional approach at the .05 significance level.

Fourthly, Pramoonmai (1996) conducted a comparative study of learning achievement and retention in English vocabulary and the creativity of students using synectic activities and the teacher's manual. Thirty- two Prathomsuksa 5 students from Banlakroi School, Nakhon Ratchasima were the sample groups of this study. According to Pramoonmai (1996), synectic activities included teaching activities that would help encourage the creativity of students using metaphorical forms or analogy. The findings showed that the learning achievement and creativity of the experimental group were significantly different from those of the control group at the .05 level. However, the retention of English vocabulary of the experimental group was not different from those of control group at the .05 significance level.

Lastly, Cohen and Aphek (1980, cited in Ellis, 1994) studied a vocabulary learning strategy of second language learners. They conducted their study by training learners of Hebrew how to recall new words by using paired associations, e.g. using word parts that have similar sound or meaning, and linking them to the target English words, etc. They found that better performance in recall tasks was attained when learners formed associations, as opposed to when associations were not formed.

5.2 Research related to the use of LINC strategy in vocabulary learning

The LINC strategy would seem to attract some researchers to prove its effectiveness on vocabulary learning. Recently, at least four studies have been carried out on the achievement and retention of student's vocabulary learning when using the LINC strategy.

Wedel, Deshler, Schumaker, and Ellis (n.d., cited in Glaeser & Millikan, 2008) indicated that research was conducted in a social studies class in which the LINC strategy was taught to the students with learning disabilities (LD) to enable them to learn

the meaning of new vocabulary. The results showed that the students with LD performed the social studies vocabulary tests at a mean of 53 percent in the pre-test and at a mean of 77 percent after learning the strategy. In the control class in which students did not learn this strategy, the mean percentage of correct answers of vocabulary tests decreased from 86 percent to 85 percent from pre- to post-test. This showed that the experimental class made substantial mean score gains across pre- and post- tests, whereas the control class made no gains.

Secondly, O' Brien (2005) conducted his study on an English class, comprising 15 students with learning disabilities (LD) in an urban setting. One of the teachers at the school used the LINC strategy in his teaching, paying particular attention to constructing the LINC study card in pairs. His students were assigned to practice with their partners to see if they could name the target word from the definition, story and pictures. After employing this strategy, the results showed that the average score of vocabulary test went from approximately 60 percent to 88 percent from pre- to post-test.

Another interesting research study carried out by Haines (2003) tested the effect of the modified LINC learning strategy on the achievement of 4th grade students with learning disabilities (LD). It was found that by making modifications to compensate for the students' low spelling and writing abilities by use of drawings and visualizations, the strategy was equally effective for students with reading levels lower than fourth grade. According to Haines (2003), using a pre-test, post-test single group design and pre-test to post-test percentage comparison for each student and as a group, the results of this study support the original hypothesis that 4th grade students with LD exhibit higher achievement proved by the pre-test to post-test score comparisons. Specifically, the students' scores on the vocabulary test raised an average of 75 percent from pre- to post-test.

Lastly, Petkaew (2003) conducted a study on the English vocabulary learning ability, retention, and reading abilities of 26 Matthayomsuksa 4 students, both before and after being taught through the use of the LINCS strategy. The results revealed that the students taught through the use of the LINCS strategy had higher reading and vocabulary ability scores in the post-test than those of the pre-test. They also had higher vocabulary retention scores in the two weeks' post-test than those of the immediate post-test.

To summarize, related research in this section showed the evidence that much research has been carried out in such areas of vocabulary learning and retention, as well as the use of the LINCS strategy in vocabulary learning. In the former section, various techniques such as humorous stories, vocabulary games, and vocabulary activities were employed in the studies. Most of these techniques were able to help increase student's achievement and retention in vocabulary learning. With respect to the latter section, the studies were conducted through the use of LINCS strategy. Most of the research exemplified above in the area of vocabulary learning using LINCS provides insight and acknowledges the effectiveness of vocabulary strategies in aiding students' development in vocabulary acquisition and retention.

CHAPTER 3

METHODOLOGY

This study aimed to examine the English vocabulary achievement and retention, as well as attitudes towards vocabulary learning, of Grade 6 students taught through the LINCS strategy versus those students taught through the conventional approach. The purpose of this chapter is to present the structure of the study as follows: 1) population and sample groups; 2) research instruments; 3) research design and procedures of the experiment; and 4) data analysis and statistics used.

1. Population and Sample Groups

The population of this study comprised 320 Grade 6 students studying in the second semester of the academic year 2008 at Thanormpitwittaya School, Wangthonglang District, Bangkok.

The sample groups drawn from the aforementioned population were 76 grade 6 students from two classrooms, selected from a total of eight classrooms. Each of these two classes consisted of 38 students. One class was the control group and the other was the experimental group. The sample groups accounted for 24 % of the total population. The simple random sampling method was used in the selection. To illustrate, all the eight classrooms were assigned a numerical label of 1-8. This was followed by the use of the SPSS Program to randomly select two classrooms out of a total of eight classrooms. Then the two classrooms were randomly selected by the SPSS Program to be the experimental and the control groups, respectively.

There were two main reasons for choosing students from Grade 6. Firstly, from the researcher's viewpoint, their English was at the beginner level but they desired to improve their English to a higher level. Since they were novice English vocabulary learners, they might not have experienced many vocabulary learning strategies. This ensured the researcher that they would not apply their own strategies to study vocabulary. Secondly, they were at a young age so their eagerness to learn could be best put to use by activities of a physical nature such as LINCS. Hopefully, this would provide them with the encouragement and know-how to think by themselves (Department of Curriculum and Instruction Development. 2000; 11). For these reasons, they were considered worthwhile participants for the LINCS strategy.

2. Research Instruments

The instruments used in this study were the English vocabulary achievement test, English vocabulary lesson plans using the LINCS strategy, English vocabulary lesson plans using the conventional approach, and the questionnaire on students' attitudes towards vocabulary learning as follows:

2.1 The English Vocabulary Achievement Test

This test was constructed by the researcher. It was used as the pre-test, the immediate post-test, and the delayed post-test. The pre-test and immediate post-test, were administered to measure students' knowledge of vocabulary before and after the experiment to see how different they were. The delayed post-test, however, was

administered to measure the vocabulary retention of students. The details of how the test was constructed and administered will follow.

2.1.1 Description of the test

There were three parts in the test-- Part 1: the vocabulary spelling test, Part 2: the vocabulary meaning test, and Part 3: the vocabulary use test.

2.1.2 Construction of the test

The procedures of constructing the test are as follows:

2.1.2.1 The following textbooks were used as guidelines for constructing the test:

- *Understanding and Developing Language Tests* (Weir, 1993),
- *Classroom Testing* (Heaton, 1990)
- *Teaching and Testing Vocabulary* (Akkramas, Hiranburana & Pibulchol, 2000)
- *Development and Standardization of English Language Tests* (Wongsothorn, 2000).

2.1.2.2 Keeping in line with the school's curriculum set in the second semester, vocabulary from Units 6-9 of the textbook entitled *English: Prathomsuksa 6* (Kamutmas, Limpasuwan & Boonsanong, 2004) was selected to construct the test in order to measure students' knowledge of vocabulary focusing on spelling, meaning, and grammatical use of words in sentences (i.e., parts of speech).

- The number of target vocabulary used in the test was 28 words which were taught in the experiment (see more details in vocabulary list in Appendix D). One of the criteria for selecting this target vocabulary was that it should be in the 2000 high-frequency word list. Furthermore, the target vocabulary was selected from the textbook limited to the aforementioned four units to keep in line with the school's

curriculum. Moreover the appropriate number of words taught in each session should not be greater than six, according to Cranmer (1998)'s work.

- The test was composed of 45 multiple choice items: 15 items on spelling, 15 items on meaning, and 15 items on grammatical use of words in sentences. Following are the descriptions of Units 6 to 9:

- Unit 6 : “All Around the World” contains vocabulary about continents, weather, and interesting places around the world.

- Unit 7 : “World Festivals” contains vocabulary about traditional festivals in the world.

- Unit 8 : “Save the Earth” contains vocabulary about pollution of the earth and solutions to the problem.

- Unit 9 : “Reading is Fun” contains vocabulary found in written media.

2.1.2.3 The test was evaluated by three language experts to check its content validity in addition to taking the learning objectives of each unit into consideration.

- The evaluation criteria consisted of three item-objective congruency indices used to evaluate the content validity of the tests. The indices were:

- 1: the test item was congruent with the learning objectives.

- 0: not sure whether the test item was congruent with the learning objectives.

- 1: the test item was not congruent with the learning objectives.

- The items with the item-objective congruence indices of greater than or equal to 0.50 were selected as they represented the quality of the test in terms of their content validity (Saiyos & Saiyos, 1995).

- The criteria for selecting the language experts were adapted from the linguist list of Eastern Michigan University (2008), which stated that the language experts should be knowledgeable and proficient in the English language. They should have high qualifications, e.g. at least master's degree in English or related areas. Furthermore, a minimum of five years experience in teaching English would boost their expertise.

2.1.3 Pilot testing

The purpose of the pilot testing was to determine the reliability of the test and to improve the quality of the test using an item analysis.

2.1.3.1 Test sample

Thirty-eight Grade 6 students from Thanormpitwittaya School, who were not part of the sample groups, took part in the pilot testing. The reason for selecting these students was that their English language backgrounds were similar to those of the sample groups.

2.1.3.2 Test administration

The test comprising 45 items was administered to 38 students at Thanormpitwittaya School. A test booklet and an answer sheet were given to each student. Then the researcher explained the test rules. The students were allowed to spend as much time as they wished to complete the test, since the researcher was chiefly interested in the test's reliability. This view was supported by Alderson, Clapham, and Wall (1995) that the more items of the test students could complete, the more reliability the test would have.

2.1.3.3 Score procedure

After the test, the students' answers were scored by the researcher, using answer keys prepared in advance. Each correct answer was given one mark.

2.1.3.4 Results and item analysis

The results of the test items were analyzed by using item difficulty and discrimination indices. The 33 % proportion for dividing the high group and low group was used to analyze the difference between them. The test items with item difficulty indices ranging between 0.20-0.80, and with item discrimination indices from 0.20 and up were selected for a total of 30. The selected tests items had their reliability measured using the KR-20 scale (Kuder Richardson-20) formula.

2.1.4 Final test

Once the pilot testing was completed, the 30 selected items were included in the final English vocabulary test to measure the students' achievement and retention in English vocabulary learning. This test was administered to both the experimental and control groups at three different times:

1. Pre-test (administered before the treatment)
2. Immediate post-test (administered one day after the treatment)
3. Delayed post-test (administered two weeks after the immediate post-test)

The pre-test and immediate post-test measured the students' achievement in English vocabulary learning, whereas the delayed post-test measured their retention of English vocabulary learning. The test paper used at three different times was the same English vocabulary test, but its multiple choice answers were rearranged in order to avoid choice memorization.

2.2 English Vocabulary Lesson Plans Using LINCS Strategy

The lesson plans were designed by the researcher to enable students to learn vocabulary through LINCS strategy. Details of the contents of the lesson plans are given below.

2.2.1 Before the lesson plans were prepared, the researcher studied the following:

2.2.1.1 The scope and learning objectives of the English syllabus for the beginner level (Grades 4-6) from the Department of Curriculum and Instruction Development, Ministry of Education (2002).

2.2.1.2 Theories and teaching methods used in conjunction with the LINCS strategy (Ellis, 2001a, 2001b)

2.2.1.3 Related research on the previous achievement and retention of students' vocabulary learning through the LINCS strategy.

2.2.1.4 Vocabulary from the reading texts of Units 6 to 9 of the textbook entitled *English: Prathomsuksa 6* (Kamutmas, Limpasuwan, & Boonsanong, 2004).

2.2.2 Six English vocabulary lesson plans using the LINCS strategy were prepared for Grade 6 students who were in the experimental group. Each lesson plan was used for two sessions. Each session lasted 50 minutes. Each lesson plan consisted of the following stages:

2.2.2.1 Teacher explaining and demonstrating the use of the LINCS strategy in vocabulary learning.

2.2.2.2 Teacher presenting the target vocabulary in the reading text of each unit in the textbook.

2.2.2.3 Teacher allowing students to practice the use of the LINCS strategy for vocabulary learning.

According to Ellis (2001b), there are five steps in the LINC strategy that students have to practice.

1) **L** (List the Parts): students write the new word and the part of the definition they need to remember on the study card in accordance with the contextual meaning in the reading.

2) **I** (Identify a Reminding Word): students either individually or with the help of their partners create a reminding word and write it on the study card. The reminding word should be related to the new word to help the students to recall the word to be learned.

3) **N** (Note a LINCing Story): students make up a very brief story by using the target word and write it on the study card.

4) **C** (Create a LINCing Picture): students draw a simple picture that matches the story created in Step 3.

5) **S** (Self-test): students test themselves “forward” and “backward” by looking at the card to test if they have made a connection between the definition and the word being learned (Ellis, 2001b).

2.2.2.4 Teacher allowing students sufficient time to do some exercises after learning new vocabulary in the textbook.

2.2.3 The aforementioned lesson plans were reviewed by three language experts to assure of the correctness of the language used and the appropriateness of language activities and vocabulary for Grade 6 students. After being reviewed by the language experts, the lesson plans were revised before using them for teaching the experimental group.

2.3 English Vocabulary Lesson Plans Using the Conventional Approach

The lesson plans were designed by the researcher to enable students to learn vocabulary through the conventional approach. The following are details how the lesson plans were constructed.

2.3.1 Before the lesson plans were constructed, the researcher studied the following:

2.3.1.1 The scope and learning objectives of the English syllabus for the beginner level (Grades 4-6) of the Department of Curriculum and Instruction Development, Ministry of Education (2002).

2.3.1.2 Theories, teaching methods, and related research in teaching vocabulary using the conventional approach.

2.3.1.3 Vocabulary from the reading texts of Units 6 to 9 of the textbook entitled *English: Prathomsuksa 6* (Kamutmas, Limpasuwan, & Boonsanong, 2004).

2.3.2 Six lesson plans of English vocabulary learning using the conventional approach were prepared for Grade 6 students who were in the control group. Each lesson plan was used for two sessions. Each session lasted 50 minutes. Each lesson plan consisted of the following stages:

2.3.2.1 Teacher using the conventional approach in teaching vocabulary based on the teacher's manual for the book entitled *English Prathomsuksa 6*, comprising the warm-up or lead-in stage, and stages of teaching sound, meaning, and forms of vocabulary.

2.3.2.2 Teacher getting students to do some exercises such as gap filling, matching, and sentence making after learning new vocabulary in the textbook.

2.3.3 The aforementioned lesson plans were reviewed by three language experts to assure of the correctness of language use and the appropriateness of language activities and vocabulary for Grade 6 students. After being reviewed by the language experts, the lesson plans were revised before using them for teaching the control group.

2.4 Questionnaire on Students' Attitudes towards Vocabulary Learning

A questionnaire capturing the students' attitudes towards vocabulary learning was constructed to acquire information on the students' viewpoints regarding how they felt after having learned the new vocabulary. Both the experimental group and the control group had to complete the questionnaire in order to determine whether there were any differences between the two sample groups. Below are the procedures that were followed in the questionnaire construction.

2.4.1 The questions assessing the students' attitudes towards vocabulary learning were constructed so as to evaluate students' opinions about the benefits of vocabulary learning after the experiment. The questionnaire consisted of two parts.

Part 1 measured the students' attitudes with respect to whether they:

2.4.1.1 had learned more about the target vocabulary.

2.4.1.2 had participated in vocabulary learning more than they did in the past.

2.4.1.3 had increased their understanding of how to use the new target vocabulary in sentences.

2.4.1.4 had had more fun with vocabulary learning.

2.4.1.5 were proud to have been able to further develop their vocabulary.

2.4.1.6 had become more eager to learn vocabulary.

Students' attitudes in Part 1 were based on Likert's rating scales, consisting of 5 levels.

5 : Highest

4: High

3: Moderate

2: Low

1: Lowest

Part 2 asked students' opinions in the form of open-ended questions, encouraging them to make comments about issues that they believed important after having learned the new target vocabulary. Additional comments (if any) as how to improve vocabulary learning would have been welcome.

2.4.2 The questionnaire was reviewed by three language experts, especially the teaching and evaluation parts, in order to be assured of the correctness and appropriateness of language used, as well as the content in evaluating students' attitudes.

2.4.3 The revised version of the questionnaire was completed by the sample groups after the experiment.

2.4.4 The researcher then read the questionnaire for the sample groups. If the students did not understand it, the researcher would explain it further in Thai.

3. Research Design and Procedures of the Experiment

3.1 Research Design

This study was an experimental research in the form of Randomized Control Group Pre-test Post-test Design as shown in the following table.

Table 5 Research Design

Groups	Pre-test	Treatment	Immediate Post-test	Delayed Post-test
RE	T ₁	X	T ₂	T ₃
RC	T ₁	~X	T ₂	T ₃

Note: The meanings of symbols used in the table are:

RE : The experimental group

RC: The control group

X : Treatment (vocabulary teaching by using the LINC strategy)

~X: Treatment (vocabulary teaching by using the conventional approach)

T₁: Pre-test (administered before the treatment)

T₂: Immediate post-test (test immediately after the treatment)

T₃: Delayed post-test (retention test administered two weeks following the immediate post-test)

3.2 Procedures of the experiment

3.2.1 The sample groups were students from two classrooms, selected from a total of eight classrooms. One class was the control group and the other was the experimental group. The simple random sampling method was used in the selection. To illustrate, all the eight classrooms were assigned a numerical label of 1-8. This was followed by the use of the SPSS Program to randomly select two classrooms out of a

total of eight classrooms. Then the two classrooms were randomly selected by the SPSS Program to be the experimental and the control groups.

3.2.2 The English vocabulary achievement test constructed by the researcher was administered before the experiment to both the control group and the experimental group. This test was administered again two times after the experiment. The immediate post-test shortly followed the experiment. Another post-test, or the English vocabulary retention test, was given two weeks after the immediate one.

3.2.3 Following the pre-test, the researcher started teaching vocabulary in accordance with the prepared lesson plans to the experimental group by using the LINCS strategy, and to the control group by using the conventional approach. Each group was taught using six lesson plans. Each lesson plan was used for two sessions. Each of which lasted 50 minutes.

3.2.4 After teaching 12 sessions, the researcher administered the post-test to both the experimental group and the control group by using the same test as the pre-test, with the multiple choice answers being rearranged.

3.2.5 Two weeks after the immediate post-test, the researcher administered the English vocabulary retention test to both the experimental group and the control group by using the same test as the pre-test with the multiple choice answers being rearranged.

3.2.6 After the experiment, students from both groups had to complete the questionnaire on their attitudes towards vocabulary learning.

3.2.7 All data obtained were computerized so that they might be subsequently studied to determine how they answered the research questions posed in Chapter 1. The data from the pre-test, immediate post-test and the delayed post-test

were presented to make comparisons and to determine how much or in what ways they were significantly different.

3.2.8 The data from the questionnaires were computerized to calculate the mean of students' attitudes towards vocabulary learning.

3.2.9 All the results from items No. 3.2.7 -3.2.8 were analyzed and discussed.

4. Data Analysis and Statistics Used in the Study

Data collected included: a) the pre-test scores of students from both the experimental group and the control group , b) the immediate post-test scores of students from both groups, gained by using the same test as that at the pre-test but with its multiple choice answers rearranged, c) the delayed post-test scores of students from both groups, gained by using the same test as that at the pre-test but with its multiple choice answers rearranged, d) the mean of students' attitudes towards vocabulary learning after the experiment of each group (the experimental group and the control group).

4.1 Data Analysis

The researcher made comparisons of the results by:

4.1.1 Using mean and an analysis of covariance (ANCOVA) to compare the experimental group's vocabulary scores from the pre-test and the immediate post-test with those of the control group.

4.1.2 Using mean and ANCOVA to compare the experimental group's vocabulary scores from the immediate post-test and the delayed post-test with those of the control group.

4.1.3 Using mean and standard deviation to analyze and discuss the results of students' attitude levels towards vocabulary learning after the experiment for each group (the experimental group and the control group). The following are the criteria in interpreting the mean of students' attitudes which were adapted from Srisaard (2002, p.103).

5.00-4.51 : Students feel that they have gained the highest possible benefit from vocabulary learning.

4.50-3.51 : Students feel that they have gained a high benefit from vocabulary learning.

3.50-2.51 : Students feel that they have gained a moderate benefit from vocabulary learning.

2.50-1.51 : Students feel that they have gained a low benefit from vocabulary learning.

1.50-1.00 : Students feel that they have gained the lowest possible benefit from vocabulary learning.

Moreover, the data obtained from students' answers to the open-ended questions were analyzed in a discussion style format.

4.2 Statistics Used in the Study

Two categories of statistics used in the study are as follows:

4.2.1 Statistics used for testing the hypotheses and analyzing the data obtained from the experiment

4.2.1.1 Descriptive statistics such as mean and standard deviation were used to analyze vocabulary test scores from the pre-test, immediate post-test and delayed post-test of the students from both the experimental and control groups. They

were also used to analyze the data obtained from the questionnaire on students' attitudes towards vocabulary learning from both groups.

4.2.1.2 One of the inferential statistics used to analyze data for testing the hypotheses was the analysis of covariance (ANCOVA). ANCOVA at the 0.05 level of significance was used to compare the following:

1) The achievement in English vocabulary learning of the students taught through the LINC strategy and those taught through the conventional approach

2) The retention of English vocabulary learning of the students taught through the LINC strategy and those taught through the conventional approach

4.2.2 Statistics used for determining the quality of research instruments

4.2.2.1 The item-objective congruence (IOC) index was used to analyze the congruence between test items and learning objectives of each unit.

4.2.2.2 The difficulty and discrimination indices were used to analyze the quality of the test items. This was based on the 33% proportion, which discriminated the high group and the low group.

4.2.2.3 The KR-20 (Kuder Richardson-20) formula was used to determine the reliability of the test.

CHAPTER 4

FINDINGS

This chapter consists of the research findings divided into two sections. The first section deals with the results of the data analysis on vocabulary test scores of the experimental group and the control group. The second section examines the data analysis of both groups of students' attitudes towards vocabulary learning after the course.

1. English Vocabulary Test Scores

As indicated in Chapter 1, the two main objectives of this study were to explore Grade 6 students' English vocabulary achievement and retention through the use of the LINCS strategy. The findings are presented as follows:

1.1 Grade 6 students' English vocabulary achievement

1.2 Grade 6 students' English vocabulary retention

1.1 Grade 6 students' English vocabulary achievement

To examine the effect of the use of the LINCS strategy on the students' English vocabulary achievement, the pre-test and immediate post-test scores from the vocabulary test of both the experimental group and the control group were compared by using descriptive and inferential statistics.

1.1.1 The pre-test and immediate post-test mean scores of the
experimental group and the control group

**Table 6 Pre-test and immediate post-test mean scores of the experimental group
and the control group**

Group	N	Pre-test		Immediate Post-test	
		$\bar{x}$	S.D.	$\bar{x}$	S.D.
Experimental	38	21.55	4.00	26.53	1.80
Control	38	15.18	4.75	19.92	5.74

As shown in Table 6, the mean score of the immediate post-test of the experimental group (26.53) was higher than that of the pre-test (21.55). Similarly, the mean score of the immediate post-test of the control group (19.92) was higher than that of the pre-test (15.18). The results indicated that both the experimental group and the control group improved their vocabulary knowledge as a result of the experiment.

In order to further analyze the significant difference between the immediate post-test scores of the experimental group and the control group, an analysis of covariance of these two groups was performed.

1.1.2 An analysis of covariance (ANCOVA) of the immediate post-test scores of the experimental group and the control group

Table 7 ANCOVA of immediate post-test scores of the experimental group and the control group

Source of Variation	df	SS	MS	F	p-value
Between groups	1	131.452	131.452	10.164*	0.002
Within groups	73	944.156	12.934		
Total	74	1075.608	-	-	-

Note: * $p < 0.05$

df = Degree of freedom

SS = Sum of squares

MS = Mean square

As it can be seen in Table 7, the ANCOVA result showed an F value of 10.164, and a p-value of 0.002, which was lower than the 0.05 level of significance. Adjusting for the covariate values--the pre-test scores of both groups, the results demonstrated that there was a significant difference between the immediate post-test scores of the experimental group and the control group at the 0.05 level. That means the achievement in English vocabulary learning of the students taught through the LINCS strategy is significantly higher than that of the students taught through the conventional approach.

1.2 Grade 6 students' English vocabulary retention

To explore whether the use of the LINCS strategy had an effect on the students' English vocabulary retention, the immediate post-test and delayed post-test

scores from the vocabulary test of both the experimental group and the control group were compared by using descriptive and inferential statistics.

1.2.1 The immediate post-test and delayed post-test mean scores of the experimental group and the control group

Table 8 Immediate post-test and delayed post-test mean scores of the experimental group and the control group

Group	N	Immediate Post-test		Delayed Post-test	
		$\bar{x}$	S.D.	$\bar{x}$	S.D.
Experimental	38	26.53	1.80	26.18	2.37
Control	38	19.92	5.74	18.74	6.14

As shown in Table 8, the mean score of the delayed post-test of the experimental group (26.18) was slightly lower than that of the immediate post-test (26.53). Similarly, the mean score of the delayed post-test of the control group (18.74) was lower than that of the immediate post-test (19.92). The differences between the two test scores of the experimental group and the control group were 0.35 and 1.18, respectively. The results indicated that the experimental group retained more vocabulary than the control group. Nonetheless, to explore whether there was a significant difference between the vocabulary retention of the experimental group and the control group, the ANCOVA was used to test this difference.

1.2.2 An analysis of covariance (ANCOVA) of the delayed post-test scores of the experimental and the control groups

Table 9 ANCOVA of delayed post-test scores of the experimental group and the control group

Source of Variation	df	SS	MS	F	p-value
Between groups	1	35.716	35.716	4.293*	0.042
Within groups	73	607.280	8.319		
Total	74	642.996	-	-	-

Note : * $p < 0.05$

As exhibited in Table 9, the ANCOVA result of the delayed post-test scores of the experimental group and the control group showed an F value of 4.293. The associated p-value was 0.042, which was lower than the 0.05 level. Adjusting for the covariate values -- the immediate post-test scores of both groups, the results showed that there was a significant difference between the delayed post-test scores of the experimental group and the control group at the 0.05 level. That means the retention of English vocabulary learning of the students taught through the LINC strategy is significantly higher than that of the students taught through the conventional approach.

In addition to performing data analysis on vocabulary test scores, it is useful to find out how the students of each group felt about vocabulary learning after the experiment.

2. Students' Attitudes towards Vocabulary Learning

As indicated in Chapter 1, this study also sought to disclose the students' viewpoints regarding how they felt after having learned the new vocabulary. All the data obtained from each group (the experimental group and the control group) are presented as follows.

Table 10 Students' attitudes towards vocabulary learning of the experimental group and the control group

Statements	Group	$\bar{x}$	S.D.	Interpretation (Level of Benefit)
1. I have learned more about the target vocabulary.	Experimental	4.32	0.62	High
	Control	4.26	0.76	High
2. I have participated in vocabulary learning more than I did in the past.	Experimental	4.08	0.71	High
	Control	4.05	0.77	High
3. I have increased my understanding of how to use the new target vocabulary in sentences.	Experimental	4.11	0.65	High
	Control	4.03	0.72	High
4. I have had more fun with vocabulary learning.	Experimental	4.51	0.56	Highest
	Control	4.39	0.72	High
5. I am proud to have been able to further develop my vocabulary.	Experimental	3.84	0.64	High
	Control	4.21	0.70	High
6. I have become more eager to learn vocabulary.	Experimental	3.79	0.81	High
	Control	4.13	0.81	High

Note: The criteria for interpreting the mean of students' attitudes were adapted from

Srisaard (2002, p.103):

4.51-5.00 : Students feel that they have gained the highest possible benefit from vocabulary learning.

3.51-4.50 : Students feel that they have gained a high benefit from vocabulary learning.

2.51-3.50 : Students feel that they have gained a moderate benefit from vocabulary learning.

1.51-2.50 : Students feel that they have gained a low benefit from vocabulary learning.

1.00-1.50 : Students feel that they have gained the lowest possible benefit from vocabulary learning.

According to Table 10, all students from the experimental group and the control group felt that they gained high benefits from vocabulary learning as a result of the experiment. When considering each item, it can be seen that the attitude scores of the experimental group for the first four items were higher than those of the control group, but for the last two items, those of the control group were higher. Nevertheless, the students from the experimental group felt that they gained the highest possible benefit from having more fun with vocabulary learning ($\bar{x} = 4.51$, S.D. = 0.56), whereas the control group felt they gained a high benefit ($\bar{x} = 4.39$, S.D. = 0.72).

Apart from the six statements in the questionnaire on students' attitudes from the experimental group and the control group in Table 10, both groups also gave their additional viewpoints on the issues that were important in helping them learn vocabulary.

With regard to the students' opinions from the experimental group, the top-three important learning techniques were vocabulary review, pictures in the study cards,

and reminding words that helped them to make a link to the target vocabulary. Other techniques they used were exercises or worksheets, participation in class, understanding in making sentences, and having fun when learning vocabulary.

Regarding the students' viewpoints from the control group, the top-three learning techniques were reading and reviewing vocabulary in their textbooks, doing exercises or worksheets, and finding the meanings of words in dictionaries. Other techniques were listening to English songs, watching English movies, and speaking English with foreigners. Moreover, some students in this group also recommended that there should be additional teaching materials to help students learn vocabulary more efficiently.

In summary, the results of this study showed that the achievement in English vocabulary learning of the students taught through the LINC strategy was significantly higher than that of the students taught through the conventional approach at the 0.05 level of significance. Moreover, the retention of English vocabulary learning of the students taught through the LINC strategy was significantly higher than that of the students taught through the conventional approach at the 0.05 level. After the experiment, both the students taught through the LINC strategy, and those taught through the conventional approach, felt that they gained high benefits from vocabulary learning.

CHAPTER 5

CONCLUSION AND DISCUSSION

This chapter focuses on the study's conclusion and discussion. The conclusion of the study includes objectives, research methodology, and conclusion of the research findings. A discussion of the findings follows. In addition, the study's limitations and implications, recommendations for teachers of English and further related studies are presented.

1. Conclusion

1.1 Objectives

The study was constructed to explore Grade 6 students' English vocabulary achievement through the use of the LINCS strategy, and to study their retention of English vocabulary through the use of the LINCS strategy. This study also sought to determine the students' opinions towards English vocabulary learning after the experiment.

1.2 Methodology

1.2.1 Population and Sample Groups

The population of the study comprised 320 Grade 6 students studying in the second semester of the academic year 2008 at Thanornpitwittaya School, Wangthonglang District, Bangkok.

The sample groups consisted of 76 Grade 6 students from two classrooms, drawn from the aforementioned population. Each of these two groups consisted of 38 students. The simple random sampling method was used to select these students. These two classrooms were also randomly classified into two groups – the control group and the experimental group.

1.2.2 Research Instruments

The research instruments used in this study were constructed by the researcher as follows:

1.2.1.1 The English vocabulary achievement test

The English vocabulary achievement test consisted of 30 multiple choice items. It was administered to both the experimental and the control groups in three steps: pre-test, immediate post-test and delayed post-test. The pre-test and immediate post-test measured the students' achievement in English vocabulary learning, whereas the delayed post-test measured their retention of English vocabulary learning. The test used in each step was the same English vocabulary test, but its multiple choices answers were rearranged.

1.2.1.2 English vocabulary lesson plans using the LINC strategy

The six lesson plans were designed to enable the students in the experimental group to learn vocabulary through the LINC strategy. Each lesson plan was used for two class sessions. Each session lasted 50 minutes.

1.2.1.3 English vocabulary lesson plans using the conventional approach

The six lesson plans were designed to enable the students in the control group to learn vocabulary through the conventional approach. These lesson plans were used for the same time period as those using the LINC strategy.

1.2.1.4 Questionnaire on students' attitudes towards vocabulary learning

The questionnaire capturing the students' attitudes towards vocabulary learning was constructed to acquire information on students' viewpoints on how they felt after having learned vocabulary at the end of the course. Both the experimental and control groups had to complete the questionnaire, which consisted of two parts. The first part gathered the level of the students' perceived benefits of vocabulary learning, while the second collected the students' opinions by the use of open-ended questions focusing on issues they believed important to learning vocabulary.

1.2.2 Procedures and Data Collection

This was an experimental research study in the form of Randomized Control Group Pre-test Post-test Design. Before the experiment, the pre-test was administered to both the experimental and control groups. Following the pre-test, the researcher started teaching vocabulary in accordance with the prepared lesson plans, to the experimental group by using the LINC strategy and to the control group by using the conventional approach. Each of these two groups was taught using six lesson plans. Each lesson plan was used for two 50-minute sessions for a total of twelve sessions. A day after the experiment, the immediate post-test was administered to both groups to

measure their achievement in English vocabulary learning. Two weeks after the immediate post-test, the delayed post-test was administered to both the experimental and the control groups to measure their English vocabulary retention. After the experiment, the students from both groups were asked to complete the questionnaire on students' attitudes towards vocabulary learning. All data obtained from the vocabulary test were computerized in order to be analyzed for the purpose of answering the research questions posed in Chapter 1. Regarding the data obtained from the questionnaire, the first part was computerized for the subsequent evaluation of the students' perceived benefits from vocabulary learning, and the open-ended questions in the second part were analyzed to consider issues that the students believed to be important when learning vocabulary.

1.2.3 Statistical Analysis

Statistical tools used in this study for testing the hypotheses and analyzing the data are as follows:

1.2.3.1 Descriptive Statistics

Descriptive statistics such as mean and standard deviation were used to analyze vocabulary test scores from the pre-test, immediate post-test and delayed post-test of the students from both the experimental and control groups. They were also used to analyze the data obtained from the questionnaire on students' attitudes towards vocabulary learning from both groups.

1.2.3.2 Inferential Statistics

One of the inferential statistics used to analyze data for testing the hypotheses was the analysis of covariance (ANCOVA). ANCOVA at the 0.05 level of significance was used to compare the following:

1) The achievement in English vocabulary learning of the students taught through the LINC strategy and those taught through the conventional approach

2) The retention of English vocabulary learning of the students taught through the LINC strategy and those taught through the conventional approach

1.3 Conclusion of the Findings

The research findings can be divided into two parts -- the results of testing the study's hypotheses and those regarding students' attitudes towards vocabulary learning.

1.3.1 The results of testing hypotheses

1.3.1.1 The first hypothesis : The achievement in English vocabulary learning of the students taught through the LINC strategy is higher than that of the students taught through the conventional approach.

A significant difference was found between the immediate post-test mean scores of the experimental and the control groups at the 0.05 level. The students taught through the LINC strategy had higher vocabulary achievement scores than those taught through the conventional approach. To clarify, the pre-test and immediate post-test mean scores of those taught through the LINC strategy were 21.55 and 26.53 respectively, compared to those taught through the conventional approach with scores of 15.18 and 19.92, respectively.

1.3.1.2 The second hypothesis: The retention of English vocabulary learning of the students taught through the LINC strategy is higher than that of the students taught through the conventional approach.

The findings showed a significant difference between the delayed post-test scores of the experimental and the control groups at the 0.05 level. That means the English vocabulary retention of the students taught through the LINCS strategy was significantly higher than that of the students taught through the conventional approach. Specifically, the immediate post-test and delayed post-test mean scores of those taught through the LINCS strategy were 26.53 and 26.18 respectively, compared to those taught through the conventional approach with the scores of 19.92 and 18.74 respectively.

1.3.2 The results of students' attitudes towards vocabulary learning

In addition to the aforementioned research hypotheses, the study also sought to analyze the attitudes of the students from both groups on how they felt about vocabulary learning after the experiment. The results showed that both the experimental and the control groups felt that they gained high benefits from vocabulary learning. Nevertheless, the students from the experimental group felt that they gained the highest possible benefit while having more fun with vocabulary learning ($\bar{x} = 4.51$, S.D. = 0.56), whereas the control group felt they gained a high benefit ($\bar{x} = 4.39$, S.D. = 0.72).

When considering each of the students' attitudes, the results showed that the attitude scores of the experimental group were higher than those of the control group in items such as the feeling of learning more about target vocabulary, participating more than in the past, increasing their understanding of how to use vocabulary in sentences, and having more fun with vocabulary learning. With respect to the last two items, such as the feeling of pride to further develop their vocabulary learning and eagerness to learn vocabulary, the attitude scores of the experimental group were less than those of the control group.

In summary, this research was conducted to examine whether the use of the LINCS strategy could enhance the students' achievement and retention of English vocabulary learning. It also explored the students' attitudes towards vocabulary learning after the experiment. The findings revealed that the achievement and retention of English vocabulary learning of the students taught through the LINCS strategy were significantly higher than those taught through the conventional approach. Moreover, the students from both groups felt that they gained high benefits from vocabulary learning.

2. Discussion of the Research Findings

As previously stated, the research findings showed that the use of the LINCS strategy was effective in enhancing the students' achievement and retention in English vocabulary learning. Moreover, the students' attitudes towards vocabulary learning from both the experimental and control groups were at a high level. This section presents the discussion about these findings as follows:

2.1 Students' achievement in English vocabulary learning

2.2 Students' retention of English vocabulary learning

2.3 Students' attitudes towards vocabulary learning

2.1 Students' Achievement in English Vocabulary Learning

One of the three major research questions addressed in this study was whether the English vocabulary achievement score of the students taught through the LINCS strategy would be higher than that of the students taught through the conventional approach. The results showed that the achievement scores of those taught through the LINCS strategy were significantly higher than those of the students taught

through the conventional approach. A variety of factors contributing to the effectiveness of the LINC strategy in enhancing the students' achievement in English vocabulary learning follow:

2.1.1 The LINC strategy can help students make associations between the meanings of target vocabulary and previous knowledge by using auditory and visual devices (Ellis, 2001a). To elaborate, with respect to the use of auditory devices, the step of "identifying a reminding word" can help the students form connections between the definition of the new target vocabulary and the definition of the similar-sounding word. Regarding the use of visual devices, in the step of "creating a LINCing picture", the students can use visual imagery to help them remember the essential features of the meaning of a new term by employing pictures or cartoons to help them connect the new meaning to previously acquired knowledge via visual images. Both the auditory and visual devices can be classified into the memory strategies presented in Schmitt (2000)'s work. According to Schmitt (2000), the memory strategy (traditionally known as mnemonics) can help connect the words to be retained with some previously acquired knowledge. This can help the students recall the words when needed.

2.1.2 In the LINC strategy, the students are required to create the LINC study cards, and follow the series of steps in the strategy. Each step promotes student learning and practicing of the target vocabulary. This strategy also requires the students to note the essential parts and related information in the study cards. This can help with the practice of the learning process and the ability to make a decision on planning, and organizing the best ways to study, which is one of the meta-cognitive strategies (Oxford, 1990). According to Oxford (1990), using meta-cognitive strategies and the manipulation of the target language by learners themselves (in cognitive strategies) can promote the learning process to be more effective. The LINC strategy is composed of

a variety of learning steps, showing similarities to Oxford's (1990) study as discussed above.

Apart from the overall result of the achievement score of the students taught through the LINC strategy which was significantly higher than that of the students taught through the conventional approach, it might be useful to discuss some individual results of the latter group that showed the greatest improvement in their vocabulary test scores from the pre- to immediate post-test (see details in Table 12 in Appendix C). It should be noted that some students from the control group such as student No.30 increased his or her score by 17 points from the pre-test (13 points) to the immediate post-test (30 points). This was probably because these students had a very good memory, therefore getting very high scores after having learned target vocabulary. Another possible reason was that some of these students might have copied the answers from the smart students sitting next to them. So, that is another possibility of how they could have gotten very high scores on the immediate post-test.

2.2 Students' Retention of English Vocabulary Learning

Another major research question addressed in this study was whether the students taught through the LINC strategy would retain more vocabulary than those taught through the conventional approach. The results showed that the retention of English vocabulary learning of the students taught through the LINC strategy was significantly higher than those taught through the conventional approach. The following factors help explain how the LINC strategy could have helped the students' vocabulary retention.

2.2.1 The LINC strategy comprises five steps collectively causing students to encounter the target vocabulary more than once. Firstly, the students had to write the

new word and its definition. Secondly, they were asked to think of a reminding word which should be related to the new word to help them recall the word to be learned. Thirdly, the students had to make up a brief story or sentence by using the target vocabulary, as well as a reminding word. Then, they had to draw a simple picture matching the story containing the target vocabulary. Lastly, the students could self-test themselves to check whether they had made a connection between the definition and the word being learned. Thus, it is clear that the target vocabulary occurs either directly or indirectly in each of these five steps. The repetition of words, lasting more than one minute, can help the students memorize them. This is supported by the work of Lefrancois (2000) and Petkaew (2003). They agree that information that is processed more frequently, for more than 20 seconds at a time, is stored in long-term memory.

2.2.2 The LINC strategy is an organized approach incorporating a series of teaching methods that help students get ready to learn, and use background knowledge as a means to learn new vocabulary. The new words can be enhanced in an auditory fashion by connecting the meaning of the new words to similar-sounding familiar words. Also, the terms can be enhanced visually by constructing pictures or cartoons depicting the important features of the new word. The above series of steps helps the students memorize the target vocabulary for a longer time due to the meaningful ways of learning and the connections with the students' background knowledge. In this way, the students can then transfer the vocabulary items from the short-term memory to the more permanent long-term memory (Schmitt, 2000).

2.3 Students' Attitudes towards Vocabulary Learning

Apart from the aforementioned two research questions, this study also aimed to find out more about the students' attitudes towards vocabulary learning. The

findings showed that both the students taught through the LINC strategy and those taught through the conventional approach felt that they gained high benefits from vocabulary learning. Nonetheless, mean scores for the first four items (No. 1 - 4) pertaining to the attitudes of those taught through the LINC strategy were higher than those of the students taught through the conventional approach. Mean scores for the remaining two items (No. 5 - 6) of the former group, however, were slightly less than those of the latter. The reasons are presented below.

2.3.1 The mean scores of students' attitudes in Items No. 1, 2, 3, and 4

The analysis of the attitudes towards vocabulary learning showed that mean scores of Item No. 1 stating, "I have learned more about the target vocabulary", No. 2 stating, "I have participated in vocabulary learning more than I did in the past", No. 3 stating, "I have increased my understanding of how to use new target vocabulary in sentences", and No. 4 stating, "I have had more fun with vocabulary learning" for the student taught through the LINC strategy (No. 1 = 4.32, No. 2 = 4.08, No. 3 = 4.11, and No. 4 = 4.50) were higher than those of the students taught through the conventional approach (No. 1 = 4.26, No. 2 = 4.05, No. 3 = 4.03, and No. 4 = 4.39). Both groups of students' attitudes for the first three items were at a high level. Nonetheless, with respect to Item No. 4, it was at the highest level for the former group but a high level for the latter. The reasons for these findings follow.

2.3.1.1 The attitude results of the LINC strategy recipients are supported by Ellis (2000a)'s study:

1) The LINC strategy facilitated the students' learning because it could help them link the new term to other relevant information such as previous knowledge. It could also develop both auditory connections and visual connections.

These could lead to an increase of the students' abilities to learn more about target vocabulary.

2) Applying this strategy could provide a learning activity (e.g., working in pairs or as a class to construct the study cards) that allowed interaction between students and teachers, as well as between students themselves. This made the students feel that they had participated more than in the past.

3) The "N" step (note a LINCing story) provided the students with opportunities to make a brief story using a target word and a reminding word. This could help them practice making sentences, thus leading to better understanding of how to use target vocabulary in sentences.

4) The students would enjoy the process of creating the study cards because it contained such steps as using the students' background knowledge, identifying a reminding word, creating pictures or cartoons, etc. Thus, learning vocabulary would be a lot more fun.

2.3.1.2 The results of those taught through the conventional approach, whose attitudes were rated at a high level, are explained below:

1) Pictures and songs used at the warm-up stage or lead-in stage functioned as enjoyable ways for the students to guess the target language.

2) During each session, the students were encouraged to complete many assignments and participate in providing answers to each exercise. Class participation made vocabulary learning more fun. Moreover, many interesting exercises such as word puzzles and sentence making from pictures helped the students learn the target words better, as well as increase their understanding of how to use the target words in sentences.

2.3.2 The mean scores of students' attitudes in Items No. 5 and 6

The analysis of the attitudes towards vocabulary learning showed that mean scores for Item No. 5 stating, "I am proud to have been able to develop my vocabulary" and for Item No. 6 stating, "I have become more eager to learn vocabulary" for the students taught through the LINCS strategy (No. 5 = 3.84, and No. 6 = 3.79) were lower than those of the students taught through the conventional approach (No. 5 = 4.21, and No. 6 = 4.13). Still, both groups' attitudes towards these two items were rated at a high level. For Item No. 5, the former group's poorer results could be attributed to the fact that students having been taught through the LINCS strategy might have had higher expectations than those taught through the conventional approach. Although they got higher mean scores on English vocabulary tests (both immediate post-test and delayed post-test), the former group felt no prouder than the latter group. On the other hand, the latter group might have had more positive thinking than the former group. Therefore, with a slight improvement in English vocabulary test scores, the latter group felt prouder than the former group. As for Item No. 6, the former group's poorer results could be attributed to the fact that the former group's teaching sessions were held before noon. From an interview with most students in this group, the researcher found that the students were worried about less food being available for sale at the end of class. Another possible reason was that the former group had been assigned to do much more work (e.g., constructing the LINCS study cards) than the latter. This might have caused their reduced eagerness to learn vocabulary.

In summary, the achievement and retention of English vocabulary learning of the students taught through the LINCS strategy were significantly higher than those of the students taught through the conventional approach at the 0.05 level.

Furthermore, the overall attitudes towards vocabulary learning of both groups were at the high level.

3. Implications

The use of LINC strategy can be applied in vocabulary learning and teaching as follows:

3.1 The LINC strategy can be used to teach vocabulary before teaching other English skills such as reading and writing. For example, before reading passages are to be assigned, the LINC strategy can be used to create a mechanism to help students recall definitions of target vocabulary, as well as understand how to use vocabulary in sentences. This leads to a better understanding of vocabulary in reading passages, therefore helping students to comprehend the stories. Also, after having practiced the target vocabulary in reading passages, the students would be assigned writing tasks in order to get more practice in making sentences using the vocabulary learned. This can lead to fluency when using vocabulary in sentences.

3.2 The LINC strategy should be applied as a technique in vocabulary learning and teaching from the primary level until the secondary level. As previously stated, this strategy is a powerful memory technique that helps students recall target vocabulary, by associating the new term with their background knowledge, as well as enhance their understanding of how to use it in sentences. The result is a well-networked and permanent part of memory which can serve as a foundation for future vocabulary learning. This means that if students are able to extend and retain their knowledge of vocabulary, they can develop their skills in learning English at higher levels, thus leading to an efficient study of English.

In conclusion, the LINCS strategy can be applied to use in teaching such language skills as reading and writing. Moreover, it should also be applied as a technique in vocabulary learning from the primary level until the secondary level.

4. Limitations of the Study

Limitations of this study should be noted as follows.

4.1 The frequency of teaching sessions was limited to only once a week because the researcher was not a teacher at the school. Therefore, there were few opportunities for the researcher to help the students to review target vocabulary. If more such opportunities would have been provided, the effectiveness in teaching vocabulary through the LINCS strategy could have been demonstrated even more strikingly.

4.2 Both groups of students in this study are of mixed ability. Nonetheless, it was far beyond the researcher's control to select a 100% mixed ability in each group to make both of them equal in their English ability. According to the true experiment in theory, it is recommended that the experimental and the control groups should be of equal ability. Therefore, to eliminate the effects of unequal previous knowledge of both groups, the analysis of covariance (ANCOVA) was used in this study.

5. Recommendations

Based on the findings of the study, the recommendations for teachers of English and those for further studies are made.

5.1 Recommendations for Teachers of English

5.1.1 Periods of teaching students by using the LINCS strategy should be longer. This is to provide additional time for students to practice constructing the study cards more.

5.1.2 Duration of each exercise in the worksheets could be flexible. It depends on students' prior knowledge. Students who have low learning achievement need more time to finish the exercises, especially the writing assignments.

5.1.3 Frequency of teaching vocabulary should occur more than once a week in order to promote the vocabulary learning of the students. According to Pimsleur (1967), it is more effective to study vocabulary items regularly over several short sessions than to study them for one session a week. Based on his work, repetition and review should take place almost immediately after studying a word for the first time because most forgetting occurs immediately after initial exposure to the word.

5.1.4 Teachers should take more time to monitor students, especially those who are at the primary level. This is to assure that they can effectively construct the study cards and do exercises until they get familiar with the LINC S strategy.

5.1.5 As vocabulary teaching through the LINC S strategy is time consuming, it is recommended that teachers should use it as a part of their various teaching methods, not the only method in vocabulary teaching. It could also be used in the tutorial classes, depending on each student's individual needs.

5.2 Recommendations for Further Studies

For further studies, it is vital to continue researching as follows.

5.2.1 The research should be expanded to study the results at other levels, e.g., students at the secondary level (both junior and senior high school levels) etc. It is interesting to find out whether the activities in each step of the LINC S strategy would be beneficial to these other groups.

5.2.2 In addition to studying the results at other grade levels, the research should be conducted to explore the effects that the LINC S strategy has on students with

learning disabilities (LD). It would be interesting to do this kind of research in order to prove the effectiveness of the LINC strategy, and determine whether it could be applied to broader Thai student populations. This is to provide more evidence to support the studies of Wedel, Desher, Shumaker and Ellis (n.d., cited in Glaeser & Millikan, 2008) who have carried out such research with foreign (non-Thai) populations.

5.2.3 The research should be done to compare the students' attitudes towards vocabulary learning before and after the experiment. This is to provide sufficient evidence of how much the LINC strategy could change students' attitudes towards vocabulary learning.

5.2.4 The research should be expanded to an in-depth study to measure the students' learning progress during the experiment. Apart from the pre-test, immediate post-test and delayed post-test, an in-between test should also be administered to the students in the middle of the course to see how well they perform at that particular time.

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APPENDICES

APPENDIX A

The List of Experts

The List of Experts Who Assessed the English Vocabulary Achievement Test, Lesson Plans and Questionnaire

Experts who assessed the English vocabulary achievement test and questionnaire on students' attitudes towards vocabulary learning

1. Dr. Aurapan Weerawong
Srinakharinwirot University
2. Dr. Wanlapa Thaijinda
Srinakharinwirot University
3. Assist. Prof. Tuanta Laosooksri
Srinakharinwirot University

Experts who assessed English vocabulary lesson plans

1. Dr. Aurapan Weerawong
Srinakharinwirot University
2. Dr. Anchalee Jansem
Srinakharinwirot University
3. Assist. Prof. Tuanta Laosooksri
Srinakharinwirot University

APPENDIX B

**The Results of Assessing and Evaluating
the Item Objective Congruence (IOC), Item Difficulty (p), and
Discrimination (r) of the English Vocabulary Achievement Test**

TABLE 11 The Results of Assessing and Evaluating the Item Objective Congruence (IOC), Item Difficulty (p), and Item Discrimination (r) of the English Vocabulary Achievement Test

Item No.	IOC	p	r
1	0.67	0.73	0.36
2	1	0.23	0.36
3	0.67	0.41	0.64
4	1	0.77	0.36
5	0.67	0.50	0.64
6	1	0.59	0.27
7	0.67	0.68	0.45
8	1	0.77	0.36
9	1	0.77	0.45
10	0.67	0.77	0.36
11	1	0.68	0.27
12	0.67	0.77	0.27
13	1	0.64	0.36
14	0.67	0.73	0.27
15	0.67	0.77	0.36
16	1	0.77	0.27
17	0.67	0.50	0.45
18	0.67	0.45	0.55
19	1	0.77	0.36
20	0.67	0.36	0.27
21	0.67	0.73	0.55
22	1	0.73	0.36
23	1	0.77	0.27
24	0.67	0.73	0.27
25	1	0.73	0.55
26	1	0.77	0.45
27	0.67	0.77	0.27
28	1	0.77	0.27
29	1	0.68	0.27
30	0.67	0.59	0.45

Reliability of the English vocabulary test is 0.77

APPENDIX C

Pre-test, Immediate Post-test, and Delay Post-test Scores of the Experimental Group and the Control Group

**TABLE 12 Pre-test, Immediate Post-test, and Delay Post-test Scores of
the Experimental Group and the Control Group**

No.	Pre-test		Immediate Post-test		Delay Post-test	
	Experiment	Control	Experiment	Control	Experiment	Control
1	24	14	30	13	29	21
2	16	22	27	28	25	28
3	21	15	23	23	22	21
4	13	6	24	9	23	8
5	26	10	28	10	27	9
6	22	14	24	18	19	12
7	25	15	28	24	27	20
8	19	14	26	20	25	17
9	22	29	27	25	28	26
10	16	16	22	16	23	15
11	26	15	28	22	27	21
12	22	15	25	17	25	10
13	27	23	29	22	28	24
14	15	15	25	24	24	22
15	22	8	26	15	25	6
16	16	18	27	25	28	25
17	26	15	25	21	27	13
18	26	19	24	25	23	27
19	19	16	27	27	28	22
20	17	15	25	17	24	20
21	23	12	26	18	27	16
22	20	14	27	13	28	20
23	27	25	28	28	29	28
24	20	10	27	18	27	11
25	23	18	26	23	25	21
26	27	12	25	16	22	12
27	26	10	28	22	30	24
28	25	20	29	27	27	27
29	20	15	27	20	28	22
30	20	13	25	30	26	27
31	21	15	27	26	27	24
32	21	15	26	12	27	14
33	18	15	27	12	27	17
34	23	9	29	14	27	15
35	29	10	29	15	29	14
36	15	12	28	12	27	13
37	20	23	27	27	26	24
38	21	15	27	23	29	16
Mean	21.55	15.18	26.53	19.92	26.18	18.74
S.D.	4.00	4.75	1.80	5.74	2.37	6.14

APPENDIX D

Vocabulary List

Vocabulary List

The list of 28 target words taught in this experiment is as follows.

- | | |
|----------------|----------------|
| 1. around | 15.smoke |
| 2. visit | 16.litter |
| 3. ancient | 17.damage |
| 4. festival | 18.chemical |
| 5. popular | 19.textbook |
| 6. message | 20.newspaper |
| 7. prison | 21.magazine |
| 8. poem | 22.comic |
| 9. exchange | 23.gas station |
| 10.pudding | 24.quantity |
| 11.stocking | 25.accident |
| 12.present | 26.province |
| 13.holiday | 27.explosion |
| 14.environment | 28.pollution |

APPENDIX E

English Vocabulary Lesson Plans

- EXP 1 (Lesson Plan 1 for the Experimental Group)
- CON 1 (Lesson Plan 1 for the Control Group)

AIM & DESCRIPTION OF STAGE	TIME		WHAT THE LEARNERS DO	NOTES (E.G. language focus/learner's problems anticipated/procedures you will use/blackboard display/ language recycling)
	plan	actual		
1. To enable students to correctly pronounce target vocabulary. 2. To enable students to correctly spell target vocabulary. 3. To enable students to give the meaning of target vocabulary. 4. To enable students to use target vocabulary (i.e., part of speech) in sentences. 5. To develop students' reading comprehension skill.	100 mins (2 sessions)			Level : P.6 (Grade 6) Students : 40 Text : English P.6 Skill : Vocabulary learning through reading Language Focus : Vocabulary : around, visit, ancient Function : - Learning vocabulary through reading skills(using the LINC S strategy): 1. Listing target vocabulary and its appropriate meaning in the reading passage. 2. Indicating a reminding word, according to students' schema. 3. Making note of LINCing story by linking this with a reminding word. 4. Drawing or creating a LINCing picture that shows the essential feature of the new term's definition. 5. Self-test. Vocabulary Revised: Some known words, e.g., round, sit etc. Materials Used : 1. Textbook (English P.6) 2. Pictures 3. Examples of LINC S study cards 4. Worksheets 5. Blackboard 6. Markers Evaluation: 1. Using questions related to study cards to evaluate: - Students' accuracy in using target vocabulary to construct LINC S study cards 2. Using exercises to evaluate: - Students' accuracy in spelling, and giving the meaning of target vocabulary - Students' fluency in practicing making sentences using target vocabulary - Students' development in reading comprehension

AIM & DESCRIPTION OF STAGE	TIME		WHAT THE LEARNERS DO	NOTES (E.G. language focus/learner's problems anticipated/procedures you will use/blackboard display/ language recycling)
	plan	actual		
Lead-in stage: - To get students to be ready to learn.	5 mins.	.	- Think about places in Thailand and answer the questions. - Look at the pictures, and answer the questions.	Lead-in stage 1. Ask students about places in Thailand they would like to go. 2. Flash the pictures of three places in Thailand one by one (e.g. Doi Suthep, the Bridge on the River Kwai, and Pukradung), and get students to guess where they are.
Pre-teach vocabulary: - To enable students to know the meaning, spelling and the use of target vocabulary. - To enable students to know how to construct LINCS study card using target vocabulary.	45 mins.		- Repeat after teacher. - Look at the pictures, and listen to teacher. - Answer the questions. - Look at the board.	Pre-teach vocabulary: 3. Tell students that they are going to read a passage on “Thailand Tour” on page 108, and pre-teach vocabulary (i.e. around, visit, ancient). - Pronounce the words three times and get students to repeat after teacher. - Show the picture and give a model sentence for each word. 1) The earth moves around the sun. 2) The children would like to visit Lin Hui and Chung Chuang in Chiang Mai. 3) Ayutthaya is an ancient city in Thailand. - Check the meaning from students. (Students may answer in Thai). - Write the meaning of each word on the board. 1) Around means “surrounding or on every side.” 2) Visit means “go to see.” 3) Ancient means “very old.”

Date...November ..., 2008. Class...P.6 (Grade 6) Text...English P. 6..Unit 6 : All around the world (P. 108-109)...Teacher..Chalida Janenoppakarn Page..3.(**EXP-1**)

AIM & DESCRIPTION OF STAGE	TIME		WHAT THE LEARNERS DO	NOTES (E.G. language focus/learner’s problems anticipated/procedures you will use/blackboard display/ language recycling)
	plan	actual		
Pre-teach vocabulary (continued):			- Listen to teacher.	4. Briefly review the elements of LINSC strategy and show the format of LINCS study card.
			- Listen to teacher.	A) <u>L: LIST THE PARTS</u> 5. Demonstrate how to record the first section of the word (e.g., “around”) on the LINCS study card, which includes listing the new term and the essential parts of the definition. FRONT Around BACK On every side, or surrounding
			- Listen to teacher.	B) <u>I: IDENTIFY A REMINDING WORD</u> 6. Demonstrate how to record the second section, the “reminding word”.
			- Listen to teacher.	7. Clarify to students that “reminding word” is a common word students have already known its meaning and that phonetically sounds like the new target word.

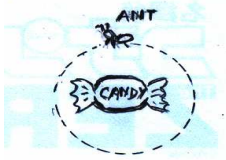
Date...November .., 2008..Class...P.6 (Grade 6) Text...English P. 6..Unit 6 : All around the world (P. 108-109).. Teacher...Chalida Janenoppakarn.. Page..4.....**(EXP-1)**

AIM & DESCRIPTION OF STAGE	TIME		WHAT THE LEARNERS DO	NOTES (E.G. language focus/learner's problems anticipated/procedures you will use/blackboard display/ language recycling)
	plan	actual		
Pre-teach vocabulary (continued):				FRONT Around round BACK On every side, or surrounding
			- Listen to teacher. - Listen to teacher	C) <u>N : NOTE A LINCING STORY</u> 8. Show how to record the third section, the LINC S story 9. Explain how the LINCing story will help students to link the meaning of the target word with their background knowledge.

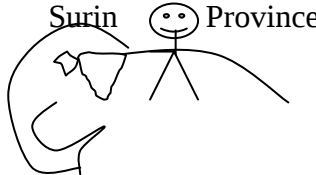
Date...November ..., 2008..Class...P.6 (Grade 6) Text...English P. 6..Unit 6 : All around the world (P. 108-109)..Teacher...Chalida Janenoppakarn..Page...5.....**(EXP-1)**

AIM & DESCRIPTION OF STAGE	TIME		WHAT THE LEARNERS DO	NOTES (E.G. language focus/learner's problems anticipated/procedures you will use/blackboard display/ language recycling)
	plan	actual		
Pre-teach vocabulary (continued):				FRONT Around round BACK On every side, or surrounding An ant is moving around a candy in a round shape.
			- Listen to teacher. - Listen to teacher	D) <u>C: CREATE THE LINCING PICTURE</u> 10. Demonstrate how to record the fourth section, the LINCing picture 11. Clarify that the LINCing picture will provide a visual memory linking for the new word, and the reminding word. This will help students to memorize the new target vocabulary.

Date...November ..., 2008. Class...P.6 (Grade 6) Text...English P. 6..Unit 6 : All around the world (P. 108-109) .Teacher...Chalida Janenoppakarn..Page...6.....**(EXP-1)**

AIM & DESCRIPTION OF STAGE	TIME		WHAT THE LEARNERS DO	NOTES (E.G. language focus/learner's problems anticipated/procedures you will use/blackboard display/ language recycling)
	plan	actual		
Pre-teach vocabulary (continued):				FRONT Around round BACK On every side, or surrounding  An ant is moving around a candy in a round shape.
			-Help teacher to construct the study card.	12. Construct another two LINCS study cards by asking students to help consider what they should record in each section. (See examples on the next page).

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AIM & DESCRIPTION OF STAGE	TIME		WHAT THE LEARNERS DO	NOTES (E.G. language focus/learner's problems anticipated/procedures you will use/blackboard display/ language recycling)	
	plan	actual			
Pre-teach vocabulary (continued):				FRONT	Visit
					sit
				BACK	Go to see
					 Surin Province I liked to sit on the elephant when I visited Surin province.
				FRONT	Ancient
					Asia
					Very old

AIM & DESCRIPTION OF STAGE	TIME		WHAT THE LEARNERS DO	NOTES (E.G. language focus/learner's problems anticipated/procedures you will use/blackboard display/ language recycling)
	plan	actual		
Pre-teach vocabulary (continued):			-Construct the study card.	13. Get students to copy each section of the demonstrated study cards on their own cards, and monitor students.
Pre-reading stage:			- Show the LINCS study cards and tell how to self-test target vocabulary.	E) <u>S : SELF-TEST</u> 14. Invite 1-2 volunteers to show their LINCS study cards, and get students to explain how they link the target vocabulary to the right meaning.
-To encourage students to guess what they are going to find before reading the passage.	5 mins		- Guess the places about the reading text.	Pre-reading stage: 15. In groups, get students to guess what places in Thailand they are going to find in the passage on "Thailand Tour"(Worksheet 1 A).
While-reading stage:				While-reading stage:
-To enable students to develop their reading comprehension skill.	20 mins		-Read after teacher.	16. Read the passage on "Thailand Tour" in Worksheet 1A aloud, and get students to repeat after teacher.
-To enable students to practice spelling and giving the definition of target vocabulary.			-Compare the results with guesses before reading.	17. Get students to find out the places in the reading passage, and to compare the results with their guesses before reading. The group with the most correct guesses will be the winner.
			-Do exercises.	18. Get students to work on Exercise 1 (Worksheet 1B) to check whether each statement is T or F. 19. Go over the answers in Exercise 1 with a class.

Date...November .., 2008..Class...P.6 (Grade 6) Text...English P. 6..Unit 6 : All around the world (P. 108-109) .Teacher...Chalida Janenoppakarn..Page...9....**(EXP-1)**

AIM & DESCRIPTION OF STAGE	TIME		WHAT THE LEARNERS DO	NOTES (E.G. language focus/learner’s problems anticipated/procedures you will use/blackboard display/ language recycling)																
	plan	actual																		
While-reading stage (continued):				Answer (Exercise 1): <table><tr><th>Statements</th><th>T/F</th></tr><tr><td>1. There are many interesting places in Thailand.</td><td>T</td></tr><tr><td>2. There are good places in every part of Thailand.</td><td>T</td></tr><tr><td>3. If you go to the north of Thailand, you can visit Pukradung.</td><td>F</td></tr><tr><td>4. Phuket is in the south of Thailand</td><td>T</td></tr><tr><td>5. Phra Buddhashinaraj is the most beautiful Buddha image in Thailand.</td><td>T</td></tr><tr><td>6. Pattaya was the capital of Thailand.</td><td>F</td></tr><tr><td>7. The Bridge on the River Kwai is in the south of Thailand</td><td>F</td></tr></table>	Statements	T/F	1. There are many interesting places in Thailand.	T	2. There are good places in every part of Thailand.	T	3. If you go to the north of Thailand, you can visit Pukradung.	F	4. Phuket is in the south of Thailand	T	5. Phra Buddhashinaraj is the most beautiful Buddha image in Thailand.	T	6. Pattaya was the capital of Thailand.	F	7. The Bridge on the River Kwai is in the south of Thailand	F
	Statements	T/F																		
1. There are many interesting places in Thailand.	T																			
2. There are good places in every part of Thailand.	T																			
3. If you go to the north of Thailand, you can visit Pukradung.	F																			
4. Phuket is in the south of Thailand	T																			
5. Phra Buddhashinaraj is the most beautiful Buddha image in Thailand.	T																			
6. Pattaya was the capital of Thailand.	F																			
7. The Bridge on the River Kwai is in the south of Thailand	F																			
			-Do exercises. -Give answers to the class. 20. Get students to work on scrambled words in Exercise 2(Worksheet 1C) and monitor students. 21. Give feedback by inviting answers from students. Answer (Exercise 2): If you tour <u>around</u> (auordn) Thailand, you can find many <u>interesting</u> (tignetesrin) places to <u>visit</u>(ivtis)), for example, Pukragung, Pattaya, the Bridge on the River Kwai, and Phuket. Ayutthaya, one of the <u>ancient</u> (catnein) cities, was the <u>capital</u> (acatpil) of Thailand. In this province, there are a lot of places to see. In Phitsanulok, we can go to Wat Phra Sri Mahathat where we can see Phra Buddhashinraj, one of the most <u>beautiful</u> (elaubutif) Buddha images in Thailand.																	

AIM & DESCRIPTION OF STAGE	TIME		WHAT THE LEARNERS DO	NOTES (E.G. language focus/learner's problems anticipated/procedures you will use/blackboard display/language recycling)
	plan	actual		
While-reading stage (continued):			- Do exercises.	22. Get students to do Exercise 3 (Worksheet 1D) by matching the vocabulary with the correct definition. And monitor students. 23. Go over the answers with the class. Answer (Exercise 3): <u>Column A</u> <u>Column B</u> f..... 1. interesting d..... 2. around e..... 3. visit a..... 4. ancient g..... 5. city b..... 6. capital c..... 7. Lord of Buddha a. very old b. the chief city of a country c. The founder of Buddhism d. on every side, surrounding e. go to see f. making somebody pay attention to g. large and important town
Post-reading stage: -To enable students to practice making sentences, using the target vocabulary.	25 mins		- Do group work's writing. - Do an individual work's writing. - Present individual work in class	Post-reading stage: 24. In groups, get students to make 4-5 sentences in Exercise 4 (Worksheet 1E) by using the words they have learned. Possible answer (Exercise 4): Thailand has many interesting places to visit. We can choose to get to each place around Thailand by bus, train, plane, or car. If you want to visit one of ancient places, Ayutthaya is the one that is interesting. There are many places in this province. One example is Wat Yai Chai Mongkol. The large Buddha image there can be seen from a great distance. 25. If time is available, get students to do an individual work, writing a paragraph to introduce an interesting place in Thailand that is different from their group work. 26. Ask 1-2 volunteers to present their work in class.

Date...November ., 2008... Class...P.6 (Grade 6) Text...English P. 6..Unit 6 : All around the world (P. 108-109).. Teacher..Chalida Janenoppakarn Page .1.....**(CON-1)**

AIM & DESCRIPTION OF STAGE	TIME		WHAT THE LEARNERS DO	NOTES (E.G. language focus/learner's problems anticipated/procedures you will use/blackboard display/ language recycling)
	plan	actual		
1. To enable students to correctly pronounce target vocabulary. 2. To enable students to correctly spell target vocabulary. 3. To enable students to give the meaning of target vocabulary. 4. To enable students to use target vocabulary (i.e., part of speech) in sentences. 5. To develop students' reading comprehension skill	100 mins (2 sessions)			Level : P.6 (Grade 6) Students : 40 Text : English P.6 Skill : Vocabulary learning through reading Language Focus : Vocabulary : around, visit, ancient Function : - Learning vocabulary through reading skills(using the conventional approach) Vocabulary Revised: Some known words, e.g., round, sit etc. Materials Used : 1. Textbook (English P.6) 2. Pictures 3. Examples of LINCS study cards 4. Worksheets 5. Blackboard 6. Markers Evaluation: Using exercises to evaluate: - Students' accuracy in spelling, and giving the meaning of target vocabulary - Students' fluency in practicing making sentences using target vocabulary - Students' development in reading comprehension

Date...November ..., 2008. Class...P.6 (Grade 6) Text...English P. 6..Unit 6 : All around the world (P. 108-109).. Teacher..Chalida Janenoppakarn Page.2.....**(CON-1)**

AIM & DESCRIPTION OF STAGE	TIME		WHAT THE LEARNERS DO	NOTES (E.G. language focus/learner's problems anticipated/procedures you will use/blackboard display/ language recycling)
	plan	actual		
Lead-in stage: - To get students to be ready to learn.	5-7 mins.	.	- Think about places in Thailand and answer the questions. - Look at the pictures, and answer the questions.	Lead-in stage 1. Ask students about places in Thailand they would like to go. 2. Flash the pictures of three places in Thailand one by one (e.g. Doi Suthep, the Bridge on the River Kwai, and Pukradung), and get students to guess where they are.
Pre-teach vocabulary: - To enable students to know the meaning, spelling and the use of target vocabulary.	20 mins.		- Repeat after teacher. - Look at the pictures, and listen to teacher. - Answer the questions. - Look at the board.	Pre-teach vocabulary: 3. Tell students that they are going to read a passage on "Thailand Tour" on page 108, and pre-teach vocabulary (i.e. around, visit, ancient). - Pronounce the words three times and get students to repeat after teacher. - Show the picture and give a model sentence for each word. 1) The earth moves around the sun. 2) The children would like to visit Lin Hui and Chung Chuang in Chiang Mai. 3) Ayutthaya is an ancient city in Thailand. - Check the meaning from students. (Students may answer in Thai). - Write the meaning of each word on the board. 1) Around means "surrounding or on every side." 2) Visit means "go to see." 3) Ancient means "very old."

Date...November ..., 2008..Class...P.6 (Grade 6) Text...English P. 6..Unit 6 : All around the world (P. 108-109) .Teacher...Chalida Janenoppakarn..Page...3...(CON-1)

AIM & DESCRIPTION OF STAGE	TIME		WHAT THE LEARNERS DO	NOTES (E.G. language focus/learner’s problems anticipated/procedures you will use/blackboard display/ language recycling)															
	plan	actual																	
Pre-reading stage: -To encourage students to guess the story before reading the passage. While-reading stage: -To enable students to develop their reading comprehension skill. -To enable students to practice spelling and giving the definition of target vocabulary.	5-7 mins 35 mins	- Guess the places about the reading text. -Read after teacher. -Compare the results with guesses before reading. -Do exercises.	Pre-reading stage: 4. In groups, get students to guess what places in Thailand they are going to find in the passage on “Thailand Tour”(Worksheet 1 A). While-reading stage: 5. Read the passage on “Thailand Tour” in Worksheet 1A aloud, and get students to repeat after teacher. 6. Get students to find out the places in the reading passage, and to compare the results with their guesses before reading. The group with the most correct guesses will be the winner. 7. Get students to work on Exercise 1 (Worksheet 1B) to check whether each statement is T or F. 8. Go over the answers in Exercise 1 with a class. Answer (Exercise 1): <table><tr><th>Statements</th><th>T/F</th></tr><tr><td>1. There are many interesting places in Thailand.</td><td>T</td></tr><tr><td>2. There are good places in every part of Thailand.</td><td>T</td></tr><tr><td>3. If you go to the north of Thailand, you can visit Pukradung.</td><td>F</td></tr><tr><td>4. Phuket is in the south of Thailand</td><td>T</td></tr><tr><td>5. Phra Buddhashinaraj is the most beautiful Buddha image in Thailand.</td><td>T</td></tr><tr><td>6. Pattaya was the capital of Thailand.</td><td>F</td></tr><tr><td>7. The Bridge on the River Kwai is in the south of Thailand</td><td>F</td></tr></table>	Statements	T/F	1. There are many interesting places in Thailand.	T	2. There are good places in every part of Thailand.	T	3. If you go to the north of Thailand, you can visit Pukradung.	F	4. Phuket is in the south of Thailand	T	5. Phra Buddhashinaraj is the most beautiful Buddha image in Thailand.	T	6. Pattaya was the capital of Thailand.	F	7. The Bridge on the River Kwai is in the south of Thailand	F
Statements	T/F																		
1. There are many interesting places in Thailand.	T																		
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3. If you go to the north of Thailand, you can visit Pukradung.	F																		
4. Phuket is in the south of Thailand	T																		
5. Phra Buddhashinaraj is the most beautiful Buddha image in Thailand.	T																		
6. Pattaya was the capital of Thailand.	F																		
7. The Bridge on the River Kwai is in the south of Thailand	F																		

Date...November ..., 2008..Class...P.6 (Grade 6) Text...English P. 6..Unit 6 : All around the world (P. 108-109) .Teacher...Chalida Janenoppakarn..Page...4....**(CON-1)**

AIM & DESCRIPTION OF STAGE	TIME		WHAT THE LEARNERS DO	NOTES (E.G. language focus/learner's problems anticipated/procedures you will use/blackboard display/ language recycling)
	plan	actual		
While-reading stage (continued):			-Do exercises.	9. Get students to work on scrambled words in Exercise 2(Worksheet 1C) and monitor students.
			-Give answers to the class.	10. Give feedback by inviting answers from students. Answer (Exercise 2): If you tour <u>around</u> (auordn) Thailand, you can find many <u>interesting</u> (tignetesrin) places to <u>visit</u> (ivtis)), for example, Pukragung, Pattaya, the Bridge on the River Kwai, and Phuket. Ayutthaya, one of the <u>ancient</u> (catnein) cities, was the <u>capital</u> (acatpil) of Thailand. In this province, there are a lot of places to see. In Phitsanulok, we can go to Wat Phra Sri Mahathat where we can see Phra Buddhashinraj, one of the most <u>beautiful</u> (elaubutif) Buddha images in Thailand.
			- Do exercises.	11. Get students to do Exercise 3 (Worksheet 1D) by matching the vocabulary with the correct definition. And monitor students. 12. Go over the answers with the class. Answer (Exercise 3): <u>Column A</u> f..... 1. interesting d..... 2. around e..... 3. visit a..... 4. ancient g..... 5. city b..... 6. capital c..... 7. Lord of Buddha <u>Column B</u> a. very old b. the chief city of a country c. The founder of Buddhism d. on every side, surrounding e. go to see f. making somebody pay attention to g. large and important town

[illegible]

Worksheet 1A

Thailand Tour

There are many interesting places all around Thailand. Doi Suthep in the north, Pukradung in the northeast, Pattaya in the east, the Bridge on the River Kwai in the west, and Phuket in the south are some good places to visit.

Ayutthaya is an ancient city. It was the capital of Siam. There are many interesting places in this province.

Phra Buddhashinaraj is an image of the Buddha. It is one of the most beautiful Buddha images in Thailand. It's in Phitsanulok.



Worksheet 1B

Exercise 1

Directions:

Read the passage and put T (True) or F (False) for each statement.

Statements	T/F
1. There are many interesting places in Thailand.	
2. There are good places in every part of Thailand.	
3. If you go to the north of Thailand, you can visit Pukradung.	
4. Phuket is in the south of Thailand.	
5. Phra Buddhashinaraj is the most beautiful Buddha in Thailand.	
6. Pattaya was the capital of Thailand.	
7. The Bridge on the River Kwai is in the south of Thailand.	



Worksheet 1C**Exercise 2**

Directions: Unscramble the words and fill in the blanks.

If you tour _____(auordn) Thailand, you can find many _____ (tignetesrin) places to _____(ivtis), for example, Pukragung, Pattaya, the Bridge on the River Kwai, and Phuket.

Ayutthaya, one of the _____ (catnein) city, was the _____ (acatpil) of Thailand. In this province, there are a lot of places to see.

In Phitsanulok, we can go to Wat Phra Sri Mahathat where we can see Phra Buddhashinraj, one of the most _____ (elaubutif) Buddha images in Thailand.



Worksheet 1D**Exercise 3**

Directions: Match the words in Column A with the correct definitions in Column B.

<u>Column A</u>	<u>Column B</u>
..... 1. interesting	a. very old
..... 2. around	b. the chief city of a country
..... 3. visit	c. the founder of Buddhism
..... 4. ancient	d. on every side
..... 5. city	e. go to see
..... 6. capital	f. making somebody pay attention to
..... 7. Lord of Buddha	g. large and important town



Worksheet 1E

Exercise 4

Directions:

You have a friend from England who wants to visit some interesting places in Thailand. You, as a host, need to introduce visiting places to him. Work in groups of three or four, and use the words you have learned to write a paragraph of four or five sentences.

.....

.....

.....

.....

.....

.....

.....



APPENDIX F

English Vocabulary Achievement Test

English Vocabulary Achievement Test

PART 1 : Spelling test

Directions: Choose the correct spelling of words that matches with the pictures.

1. _r_s_n_

- | | |
|------------|------------|
| a) p,e,e,d | b) p,e,e,t |
| c) p,i,e,d | d) p,i,e,t |



2. e_p_o_i_n

- | | |
|------------|------------|
| a) x,r,s,o | b) c,l,s,o |
| c) x,l,s,o | d) x,l,t,o |



3. _n_i_n_

- | | |
|------------|------------|
| a) a,x,e,t | b) a,s,e,t |
| c) a,c,e,t | d) a,t,e,t |



Directions: Match the correct spelling.

4.

(a)

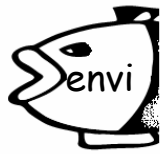
(b)

(c)

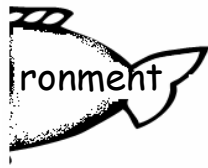
(d)



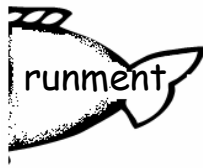
5.



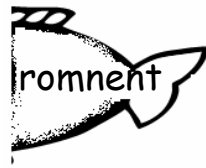
(a)



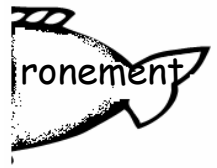
(b)



(c)



(d)



6.



(a)



(b)



(c)



(d)



7.



(a)



(b)



(c)



(d)



8.



(a)



(b)



(c)



(d)



9.



(a)



(b)



(c)



(d)



10.



(a)



(b)



(c)



(d)



PART 2 ; Meaning test

Directions: Match the words with the pictures.

11.

- | | |
|-----------|--------------|
| a) shorts | b) stockings |
| c) pants | d) trousers |



12.

- | | |
|------------|---------|
| a) damage | b) keep |
| c) protect | d) save |



13.

- | | |
|------------|------------|
| a) massage | b) message |
| c) magnet | d) metal |



14.

- | | |
|------------|---------------|
| a) cartons | b) chemicals |
| c) candles | d) continents |



Directions: Choose the best answer.

15. Which one is not "Sight Pollution"?



a



b



c



d

16. Which one is not a festival?



a



b



c

Happy Working Day



d

17. Sometimes we call _____ a periodical.

a) a magazine

b) a comic

c) a textbook

d) a newspaper

18. A _____ is a set of printed sheets of paper that comes out daily.

a) magazine

b) comic

c) textbook

d) newspaper

19. What does it mean by "visit"?

a) go to smile

b) go to sleep

c) go to sit

d) go to see

20. What is the opposite of "ancient"?

a) old

b) very new

c) very old

d) antique

PART 3 : The use of vocabulary in sentences.

Directions: Choose the words to complete the sentences.

21. During Songkran _____, we enjoy water-throwing on public roads.
- a) festival b) province
c) function d) tournament
22. Foreigners can _____ money at the banks.
- a) escape b) explain
c) excite d) exchange
23. A _____ gives us some knowledge in many subjects, e.g. history, math etc.
- a) newspaper b) comic
c) textbook d) magazine
24. Somsak's leg was broken because he had a car _____ yesterday.
- a) color b) sale
c) accident d) park
25. The robbers were sent to _____ by the policemen.
- a) church b) garage
c) temple d) prison

26. Doi Suthep is one of the interesting places in Chiang Mai _____.

- | | |
|-------------|-------------|
| a) province | b) party |
| c) island | d) festival |

27. People go to a _____ station to fill some petrol into their cars.

- | | |
|----------|-----------|
| a) train | b) bus |
| c) gas | d) police |

28. A _____ is a collection of varieties such as sports and tourism, which comes out weekly, twice a month, or monthly.

- | | |
|--------------|-------------|
| a) newspaper | b) comic |
| c) textbook | d) magazine |

29. Children hang up _____ when they go to bed on Christmas Eve for Santa Claus to fill them with presents.

- | | |
|--------------|-------------|
| a) shorts | b) pants |
| c) stockings | d) trousers |

30. When paper gets fire, there is a lot of _____.

- | | |
|---------|----------|
| a) soil | b) water |
| c) air | d) smoke |

Answer Key

Part 1	Part 2	Part 3
1. b	11. b	21. a
2. c	12. a	22. d
3. c	13. b	23. c
4. c	14. b	24. c
5. a	15. d	25. d
6. d	16. d	26. a
7. b	17. a	27. c
8. b	18. d	28. d
9. c	19. d	29. c
10. d	20. b	30. d

APPENDIX G

Questionnaire on Student's Attitudes towards Vocabulary Learning

Questionnaire on Students' Attitudes towards Vocabulary Learning

PART I

Directions: Please put a tick (/) in the column that matches with how you feel about vocabulary learning after the course.

The scale consists of 5 levels as follows:

- 5 : Highest
- 4 : High
- 3 : Moderate
- 2 : Low
- 1 : Lowest

Statements	Highest----->Lowest				
	5	4	3	2	1
1. I have learned more about the target vocabulary.					
2. I have participated in vocabulary learning more than I did in the past.					
3. I have increased my understanding of how to use new target vocabulary in sentences.					
4. I have had more fun with vocabulary learning.					
5. I am proud to have been able to develop my vocabulary.					
6. I have become more eager to learn vocabulary.					

PART 2

What issues are important to help you learn the target vocabulary?

Additional comments as how to improve vocabulary learning (if any).

VITAE

VITAE

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