

**A DEVELOPMENT OF COMPUTER ENHANCED
VOCABULARY LEARNING PROGRAM FOR
JUNIOR HIGH SCHOOL STUDENTS**



**A Thesis Submitted in Partial Fulfillment of the Requirements for
the Degree of Master of Arts in English Language Studies**

Suranaree University of Technology

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การพัฒนาโปรแกรมคอมพิวเตอร์เพื่อยกระดับการเรียนรู้คำศัพท์สำหรับ
นักเรียนระดับมัธยมศึกษาตอนต้น

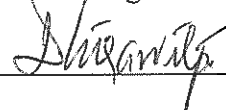


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มหาวิทยาลัยเทคโนโลยีสุรนารี
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Suranaree University of Technology has approved this thesis submitted in partial fulfillment of the requirements for a Master's Degree.

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จณิสตา ศุภสาร : การพัฒนาโปรแกรมคอมพิวเตอร์เพื่อยกระดับการเรียนรู้คำศัพท์สำหรับ
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การศึกษาวิจัยนี้มีวัตถุประสงค์เพื่อทดสอบนักเรียนที่ใช้คอมพิวเตอร์เพื่อช่วยในการ
ยกระดับการเรียนรู้คำศัพท์วัตถุประสงค์ของการศึกษาวิจัยครั้งนี้ถูกแบ่งออกเป็นสองส่วน ส่วนแรก
คือการเปรียบเทียบระหว่างนักเรียนกลุ่มที่ควบคุมและนักเรียนกลุ่มทดลองในแง่ของผลสัมฤทธิ์ของ
การเรียนรู้คำศัพท์ กลุ่มทดลองได้เรียนรู้คำศัพท์ผ่าน โปรแกรมคอมพิวเตอร์ ที่เรียกว่า โปรแกรม
คอมพิวเตอร์ที่ช่วยในการยกระดับการเรียนรู้คำศัพท์ ในขณะที่กลุ่มควบคุมได้เรียนรู้คำศัพท์ใน
ห้องเรียนแบบปกติ ส่วนที่สองคือการสำรวจความคิดเห็นของนักเรียนที่มีต่อการใช้โปรแกรมที่ช่วย
ในการยกระดับการเรียนรู้คำศัพท์

กลุ่มตัวอย่างมีจำนวน 30 คน ที่ศึกษาอยู่ระดับมัธยมศึกษาปีที่ 3 ของโรงเรียนบ้านเหล่าอ้อย
โดยแบ่งออกเป็นกลุ่มควบคุม และกลุ่มทดลอง ทั้งสองกลุ่มได้ทำการทดสอบก่อนเรียนชุดเดียวกัน
หลังจากนั้น กลุ่มทดลองทำการเรียนรู้คำศัพท์ผ่าน โปรแกรมที่ช่วยในการยกระดับคำศัพท์ ในขณะที่
กลุ่มควบคุมทำการเรียนรู้คำศัพท์ในห้องเรียนแบบปกติที่มีครูเป็นผู้สอน จากนั้นทั้งสองกลุ่มทำการ
ทดสอบหลังเรียน สำหรับกลุ่มทดลองจะตอบแบบสัมภาษณ์และแบบสอบถามความคิดเห็น
การวิเคราะห์ข้อมูลทางสถิติใช้การวิเคราะห์การแปรปรวนร่วม (ANCOVA)

ผลของการศึกษาวิจัยได้แบ่งออกเป็นสามส่วนดังนี้ ผลการศึกษาส่วนแรกแสดงให้เห็นว่า
นักเรียนที่เรียนรู้ผ่าน โปรแกรมคอมพิวเตอร์ ที่ช่วยในการยกระดับการเรียนรู้คำศัพท์ มีผลการ
ทดสอบหลังเรียนดีกว่า ซึ่งสามารถกล่าวได้ว่า โปรแกรมนี้ ช่วยนักเรียนได้เรียนรู้คำศัพท์ได้อย่างมี
ประสิทธิภาพ ผลการศึกษาส่วนที่สองอธิบายเกี่ยวกับการเปรียบเทียบผลสัมฤทธิ์ทางการเรียนของ
การเรียนรู้คำศัพท์ระหว่างกลุ่มควบคุมและกลุ่มทดลองในรูปแบบของสถิติ การวิเคราะห์ทางสถิติ
พบว่าผลสัมฤทธิ์ทางการเรียนรู้คำศัพท์ของนักเรียนในกลุ่มทดลองสูงกว่ากลุ่มควบคุมอย่างมี
นัยสำคัญทางสถิติที่ระดับ 0.05 และผลการศึกษาส่วนสุดท้ายในการสอบถามความคิดเห็นของ
นักเรียนที่มีต่อโปรแกรมที่ช่วยในการยกระดับการเรียนรู้คำศัพท์ซึ่งการสัมภาษณ์และการตอบ
แบบสอบถามถูกนำมาใช้ในการเก็บข้อมูล ผลที่ได้แสดงให้เห็นว่านักเรียนที่เรียนรู้ผ่าน โปรแกรม
คอมพิวเตอร์ มีความคิดเห็นเชิงบวกในการใช้โปรแกรมในการเรียนรู้คำศัพท์

สาขาวิชาภาษาต่างประเทศ
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ลายมือชื่อนักศึกษา จณิสตา ศุภสาร
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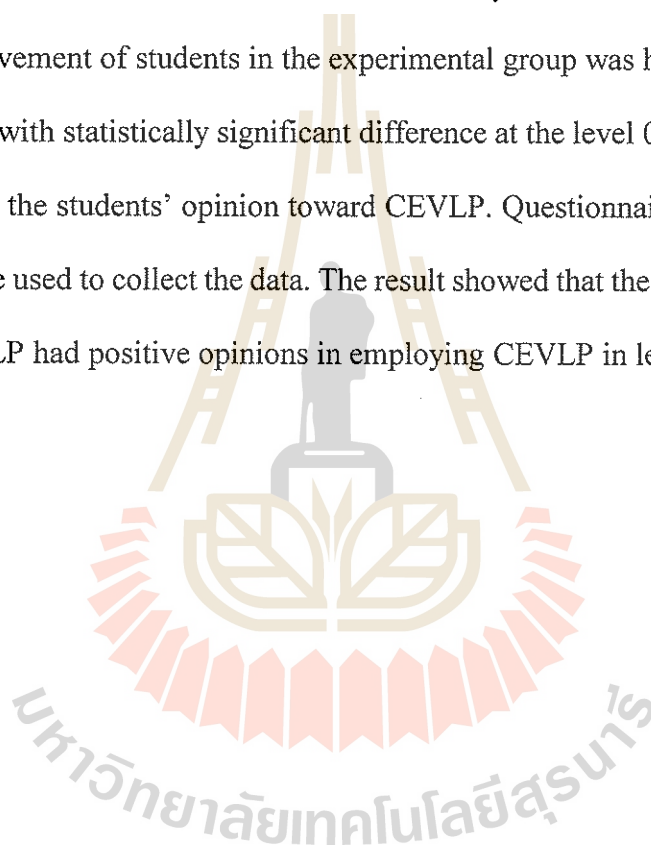
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COMPUTER ENHANCED VOCABULARY LEARNING/ CONSTRUCTIVISM THEORY

This research study aimed at investigating students' use of Computer Assisted Language Learning for enhancing their vocabulary learning. The purposes of this research study were divided into two parts. The first part was the comparison of the control group students and the experimental group students in terms of vocabulary achievement. The experimental group learned vocabulary through a CALL program called Computer Enhanced Vocabulary Learning Program (CEVLP) whereas the control group learned in the traditional classroom. The second part was the exploration of the students' opinions towards using CEVLP in learning vocabulary.

The participants consisted of 30 students in grade 9 at Ban Lao Aoi School. The participants were divided into the control group (n=15) and the experimental group (n=15). Both groups took the same pre-test. After that, the experimental group learned vocabulary through CEVLP while the control group learned vocabulary in the traditional classroom with a teacher. Then two groups took the post-test. For the experimental group, a semi-structured interview and opinion questionnaires were administered. Then, the statistical analysis of the data, ANCOVA, was applied.

The results of the research study were presented into three parts. The finding of the first part showed that the students who learned through CEVLP performed better in the post-test. It could be said that CEVLP helped the students improve their vocabulary learning effectively. The second part explained about the comparison of learning achievement of vocabulary learning between the control group and the experimental group in the form of statistic. The statistical analysis showed that the vocabulary learning achievement of students in the experimental group was higher than that of the control group with statistically significant difference at the level 0.05. Finally, the final part examined the students' opinion toward CEVLP. Questionnaire and semi structure interview were used to collect the data. The result showed that the students who learned through CEVLP had positive opinions in employing CEVLP in learning vocabulary.



School of Foreign Languages

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Student's Signature ศศิธร ด่าน

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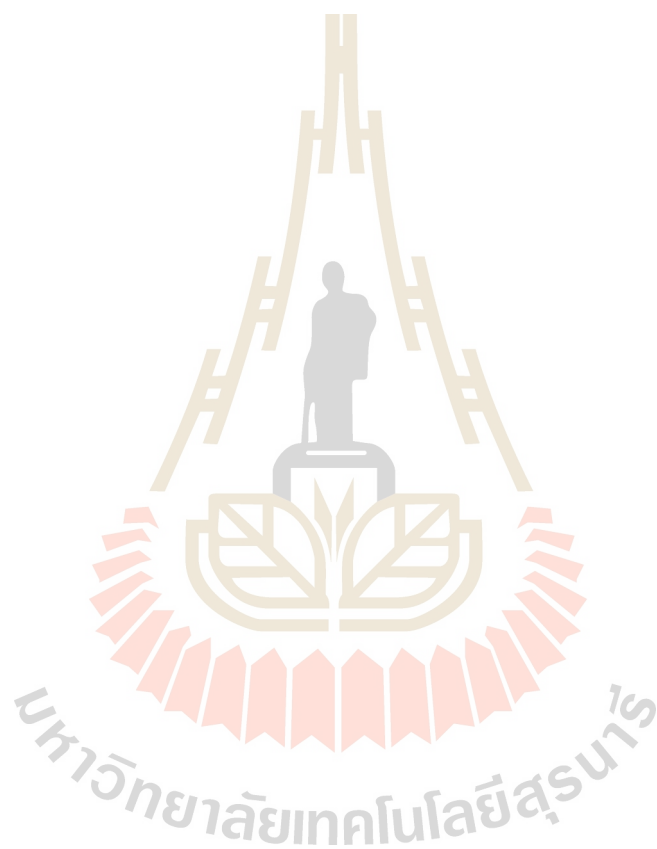
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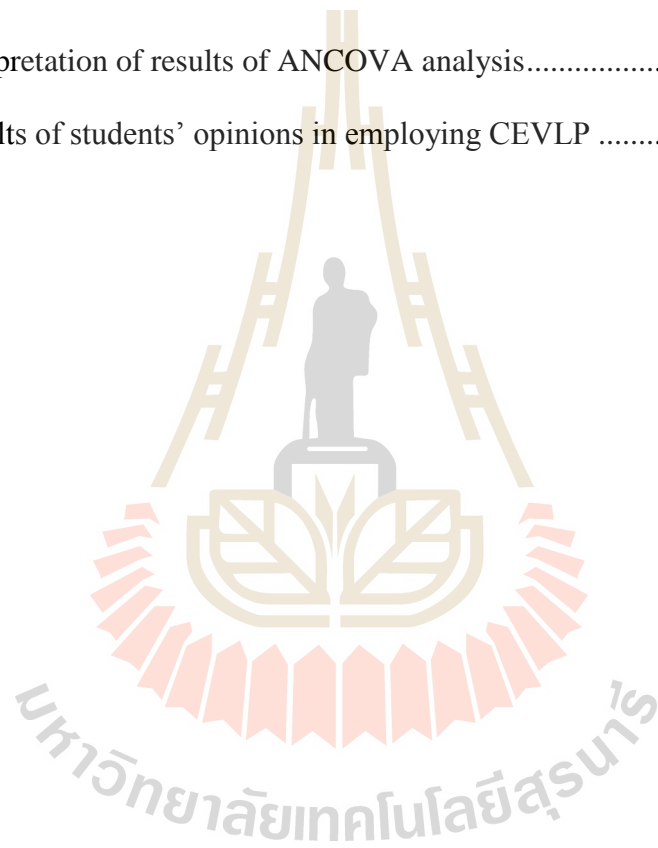
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CHAPTER 1

INTRODUCTION

Since this study is an investigation of the use of Computer Assisted Language Learning to enhance vocabulary for students at the Ban Lao Aoi School, this chapter describes the background of the study, rationale, purposes of the study, research questions, expected outcomes and it ends with the summary.

1.1 Background of the Study

The English language is a widely used language around the world. Many countries employ it for communication. Therefore, it can be said that the English language is very important nowadays. Some countries employ it as a second language while some countries employ it as a foreign language. In Thailand, the English language is employed as a foreign language. Even though Thailand uses Thai as an official language, the English language has an influence in Thailand and English is quite essential for Thai people. It is used in many fields such as business, science, education, etc. (Wiriyachitra, 2001). In Thailand, the English language plays an important role in its educational system, it started in the reign of King Rama III (Darasawang, 2007). At present, Thai students have to study English as a compulsory subject in the curriculum for many years. However, it is still too difficult for students to understand and use English correctly (Pawapatcharandom, 2007). Vocabulary, pronunciation, and grammatical structure are the obstacles in learning English. All of them are difficult for

Thai students (Thep-Ackrapong, 2005). Moreover, learning motivation and learning background are also obstacles in English learning because Thai students are not motivated in English learning and they have different learning backgrounds to understand what they learn (Prarubrugsa, 1997).

The students' problems in English learning might come from the lack of emphasis on vocabulary learning. Vocabulary is a foundation of language learning. Read (2000, p.1) mentioned that "vocabulary is the heart of language learning". Vocabulary learning should be the first priority in language learning and teaching. However, vocabulary is always an obstacle of language learning for the students (Yang and Dai, 2011). Nation (1990, p. 2) stated, "Learners feel that many of their difficulties in both receptive and productive language use result from an inadequate vocabulary". Moreover, the lack of attention to vocabulary is one of the problems with English language learning (Hedge, 2000).

However, foreign language students realize that vocabulary is very important but it is still difficult for them to increase their vocabulary skill and they still cannot employ it in communication (Maley, 1986). According to Tassana-ngam 1994, numerous explicit teaching techniques of vocabulary are created and employed to solve the students' problems such as learning a single meaning of target words, deriving word meaning from context, guessing meaning, using a dictionary, studying in context, repetition and studying from keywords. Each technique probably helps the students learn vocabulary effectively. Specifically, studying vocabulary in the context or reading can increase students' vocabulary because each context contains the target words and unknown words (Webb, 2008). The students might learn both of them together. Therefore, it can be said that learning vocabulary in context should be a way for students

to increase new vocabulary (Sedita, 2005). To be a successful student in language learning, they can study vocabulary through English reading passages. Using authentic texts to study vocabulary may be one of the beneficial activities. In order to reach a goal of vocabulary learning, knowledge and information that generate that goal need to be available. Information about vocabulary can come from reading or listening texts or the context provided with a worksheet (Nation, 2001). Therefore, the teachers should prepare interesting lessons and interesting reading materials for the students. To facilitate their work, the teachers need to employ the appropriate kinds of vocabulary instruction and use technology that accommodates and supports that instruction (Sedita, 2005).

At present, Computer Assisted Language Learning (CALL) plays an important role in many English classrooms. CALL is employed to facilitate both teachers and students in language learning and teaching processes. It is used to make interesting and exciting lessons for the students, especially for those who lack the motivation to learn (Pagnucci, 1998). In addition, teachers can cope with a range of activities and develop programs to facilitate their work. Teachers can check students' exercises and teachers can move students from the easiest exercise to the most difficult one according to the students' levels and abilities. Moreover, it can support a variety of uses for language teaching. It can be employed effectively in language learning (Hegelheimer and Tower, 2004). Moreover, it can support students' opportunities for interaction, help them learn language efficiently, and lead them to understand how to use language in real situations (Harless, Zier, and Duncan 1999). To be effectively used, it should not be separated from the teaching and learning that it supports.

Looking at different aspects and usefulness of CALL, students' vocabulary problems might be solved by using a CALL program. It can be used to stimulate and

enhance students' vocabulary learning. It has many advantages not only for students but also for teachers. Higgins (1993) mentioned that computer programs provide teachers with new teaching methods of incorporating culture and authentic language use in the classroom. At the same time, students are able to learn many new vocabulary items. Thus, CALL programs could be very useful in language learning and could become valuable equipment for language teaching and learning.

The present research study was conducted in a Thai secondary government school, named Ban Lao Aoi School. This is a small school and is located in the rural area in the Sakaew Province. There are around 500 students in the Ban Lao Aoi School. All students of the Ban Lao Aoi School learn English as a required subject of the syllabus. According to the English syllabus, it has a special focus on the four language skills (i.e reading, writing, listening, and speaking) and on pronunciation. The aim of learning was for the students to be able to communicate and write in a basic everyday language (Ministry of Education, 1978a).

The following section will mention the rationale of the present research study and the reasons that encouraged the researcher to do this project.

1.2 Rationale

In Ban Lao Aoi School, English has been taught as a foreign language to all grade 1 to grade 9 students. Nevertheless, language learning and teaching in the Ban Lao Aoi School was not quite successful. English learning problems in the classroom were observed by the researcher. They consisted of using Thai language in the English classroom, using ineffective teaching methods, lacking of prior knowledge of the students, employing unsuitable teaching materials, and a large number of

students in each class. In the English classroom, some students might not understand what they were taught, accordingly the teacher needed to use the Thai language in class. It was possible that the English language was not used to teach the students. For this reason, the students might not use the four language skills effectively because the teacher always used the Thai language in teaching. In order to solve this problem, learning vocabulary might help the students to learn English effectively. However, inadequate vocabulary knowledge might be a vital problem for the students in learning English. There are many unknown words that the students are probably unable to translate the meaning.

In order to solve the problems mentioned above, the researcher attempted to find ways to help the students. This research project attempts to aid vocabulary teaching and learning at Ban Lao Aoi School. The researcher will conduct a project in enhancing vocabulary for students. In this study, students will learn vocabulary via reading passages. Each reading passage introduces new vocabulary to the students. Reading can help students acquire new vocabulary knowledge. Moreover, students will learn vocabulary through a computer program which is called Computer Enhanced Vocabulary Learning Program (CEVLP). The CEVLP is developed for grade 9 students in order to solve the vocabulary problems by employing technology enhanced language learning to achieve the goal.

1.3 Purposes of the Study

The purposes of this study are:

1. To compare the control group students and the experimental group students in terms of vocabulary achievement. The experimental group will learn vocabulary via a CALL program called Computer Enhanced Vocabulary

Learning Program (CEVLP) whereas the control group will learn in the traditional classroom.

2. To explore students' opinions towards using CEVLP in learning vocabulary.

1.4 Research Questions

To fulfill the purposes of this study, the following research questions have been purposed:

1. Can CEVLP help students to improve their vocabulary learning effectively?
2. Is there any significant difference in the vocabulary learning between the control group and the experimental group?
3. What are the students' opinions in employing CEVLP in learning vocabulary?

1.5 Expected Outcomes

The research findings are expected to shed some light on teaching and learning vocabulary via CALL. CEVLP is expected to help the students to effectively improve their vocabulary knowledge.

1.6 Scope and Limitations of the Study

The present study investigates students' use of Computer Assisted Language Learning for enhancing their vocabulary. The researcher will evaluate the effectiveness of the Computer Enhanced Vocabulary learning Program itself in order to use research findings for instructional management. The research findings are expected to be used

for teaching and learning vocabulary and to develop a Computer Enhance Vocabulary Learning Program for increasing students' vocabulary skills. The CEVLP is employed by fifteen students in grade 9 at the Ban Lao Aoi School in the Sakaew Province. The contents in the CEVLP are based upon vocabulary items in the curriculum, which students will learn through reading. There are some limitations in the study. First, the students in this study are a small group. Therefore, the results of this study cannot represent other students who study at the same level in other schools. Second, some students were not familiar with the computer and they might not successfully achieve the learning vocabulary goal via this program. Finally, the school is located in the rural area, so it is possible that the facility at the Ban Lao Aoi School might not sufficient.

1.7 Definitions of Key Terms

1.7.1 Ban Lao Aoi students mean the students who are learning at the Ban Lao Aoi School in the Sakaew Province. They are grade 9 students who are 14-15 years old.

1.7.2 Computer Enhanced Vocabulary Learning Program (CEVLP) means the use of a computer in the teaching and learning of a foreign language. It is designed to teach vocabulary for grade 9 students at the Ban Lao Aoi School. It was created by the researcher using Authorware 7.0 Program and can be presented to the students via a personal computer.

1.8 Summary

This chapter gives a brief introduction to the study. It first describes the background of the study, and then, the rationale of vocabulary learning of students at Ban Lao Aoi School, the purposes of the study, research questions, scope and limitations of the study, and definitions of key terms in the study are briefly discussed. In the next chapter, a review of the related literature on the present study will be presented.



CHAPTER 2

REVIEW OF RELATED LITERATURE

This chapter discusses the related literature on the present project. It presents details about the English Curriculum in Thailand, the importance of vocabulary learning, and Computer Assisted Language Learning and the Constructivism Theory. Finally, this chapter concludes with related research on Computer Assisted Language Learning and vocabulary learning.

2.1 English Curricula in Thai Educational system

The Ministry of Education announced an implementation of the Basic Education Curriculum 2001, which served as the core curriculum for national education at the basic level. The curriculum determines goals and learning standards. It also provided a framework for enhancing the quality of life of the students. At the same time, the curriculum was appropriately adjusted to correspond with the objectives of the National Education Act 1999 and the amendment made in 2002 (Ministry of Education, 2008). This Educational Act has placed emphasis on the decentralization of educational authority to local communities and schools, which play an important role and actively participate in preparing curricula suitable to actual situations and serving their real needs (Office of the Prime Minister, 1999). The Basic Education Core Curriculum was formulated to provide local communities and schools with a framework and orientation for preparing school curriculums (Ministry of Education, 2008).

Teaching-learning activities were organized for all Thai children and youths at the basic education level that aimed to enhance students' quality of education regarding essential knowledge and skills required for their lives in today's society. Thus, the students will probably seek further knowledge for continuous lifelong self-development. The core curriculum has determined the following eight learning standards such as Thai Language, Mathematics, Science, Social Studies, Health and Physical Education, Arts, Occupations and Technology, and Foreign language respectively. Each learning standard serves as the goals to be achieved in developing students' quality of education. These standards prescribe what the students should know and should be able to perform. In addition, the learning standards support the essential mechanisms in advancing the whole education system and they inform students about the contents and teaching and evaluation methods. They also provide the instruments for learning quality in the educational service area and national levels. In this chapter, the learning standard of foreign language in the basic core curriculum will be discussed.

According to the learning standard of foreign languages in the basic core curriculum, foreign languages are very important and essential to daily life, as foreign languages serve as an important tool for communication, education, seeking knowledge, livelihood and creating understanding of cultures and visions of the world community. The foreign language subjects include French, German, Chinese, Japanese, Arabic, Pali and languages of neighboring countries. However, the foreign languages which include basic learning contents and is prescribed for the entire basic education core curriculum is English. The objective of English language curriculum is aimed at enabling students to acquire a desirable attitude towards the English language, the ability to use it for communicating in various situations, acquiring knowledge, engaging

in a livelihood and attempting to learn at higher levels. Students will have knowledge and understanding of stories and cultural diversity of the world community, and will be able to creatively convey Thai concepts and culture to the global society.

Moreover, the contents of learning the English subject include four main categories. First, the language for communication is essential for students. It is probably employed for listening, speaking, reading and writing, exchanging information, expressing feelings and opinions, presenting data, and creating interpersonal relationships appropriately. The second type is language and culture. English is used harmoniously with the culture of native English speakers. The students learn language to know about the relationships, similarities and differences between language and culture of native speakers and Thai culture. Third, language and the relationship with other learning areas. Students learn the English language to link knowledge with other learning areas, forming the basis for further development, seeking knowledge and broadening the learners' world views. Finally, language and the relationship with the community and the world related to others. The students use the English language in various situations, both in the classroom and the outside community and the global society, forming a basic tool for further education, livelihood and exchange of learning with the global society.

According to the main contents of the English language in the Basic Education Core Curriculum, learning English language is necessary. The students should employ the English language appropriately and correctly. However, Thai students are not familiar with the English language even though they study for years (Numpoon, 2012). In fact, the students might use the four language skills ineffectively. They are probably lack of the vocabulary knowledge. Although vocabulary is not explicitly specified in

the Basic Education Core Curriculum, it is important for English language learning. The students should be taught about vocabulary before learning other parts of the English subject. Therefore, its importance will be discussed in the next section.

2.2 Vocabulary Learning

Even though vocabulary is the sub-component of a language, it plays a crucial role in language learning and teaching. Many important aspects of vocabulary learning will be discussed in this part, such as the definitions of the vocabulary, the importance of vocabulary, vocabulary retention, vocabulary learning through reading, etc.

2.2.1 Definitions of Vocabulary

In this section, an attempt to separate the term word and vocabulary is carried out to be appropriate to the context of the present investigation with the hope that it may result in a better comprehension of the term vocabulary learning.

Words and vocabulary were viewed as a comparative way by some researchers such as Jackson and Amvela (2000); Richards et al. (1992); and Hornby et al. (1984). Richards et al. (1992) defined the term word as the smallest units of structure and it was employed in speech or writing, but the vocabulary was a set of lexemes which consists of single words, compound words and idioms. Furthermore, a word was defined as sound or integration of sounds forming a unit of the grammatical structure or vocabulary of a language, whereas vocabulary was defined as the total number of words which it used to create a language (Hornby et al., 1984). In addition, according to the definition of word and vocabulary, Sheeler and Markley (2000) stated that the word is a component of sounds or letters that have a meaning while vocabulary is a total number of words people know and are able to employ.

Based on the scholars' view points of word and vocabulary, we can see that the word is the smallest meaningful item of language employed to make phrases and sentences that normally represents an object, idea, action, etc. Vocabulary is seen as a set of lexemes which includes single words, compound words and idioms in all aspects of language. In summary, it can be said that a word is a part of vocabulary in a language.

2.2.2 The Importance of Vocabulary Learning

The main purpose of this section is to study and review the importance of vocabulary in language learning in order to look at what we should know about English vocabulary as well as to indicate how this has been applied in language teaching and learning. Vocabulary learning is a basic component in language learning. The importance of vocabulary in a language has been reported by many researchers (Harris, 1969; Evans, 1978; Bowen, 1985; MaCarthy, 1990; Bismonte, Foley & Petty, 1994; Laufer, 1990). It can play an important role in the development of the four language skills. Students who have a large vocabulary were believed to improve their listening, speaking, reading, and writing (Smith, 1998). In second and foreign language learning, no one can communicate in any meaningful way without vocabulary (Campillo, 1995). Evans (1978) explained that inappropriate use of vocabulary can lead to misinterpretation while the appropriate use of vocabulary makes it easier for people to read and write better as well as understand the main ideas and speak correctly. This corresponds with Nation (1990) who confirmed that vocabulary was a crucial element in language learning.

Vocabulary is the tool students employ to think, to express ideas and feelings, as well as to explore and analyze the environment around them. Limited vocabulary keeps them from expressing their thoughts and feelings. Furthermore, Kitajima (2001)

claimed that students are not able to express the intended meaning without vocabulary. It can be said that vocabulary is the foundation in communication both for receptive and productive skills (Zhong, 2011). Krashen and Terrell (2000) indicated that if the students desire to express some idea or ask for information, they have to produce vocabulary items to convey their meaning. When the students do not understand the meaning of the keywords employed by those who talk with them, certainly, they cannot participate in the conversation, although they know the morphology and syntax (Lewis, 1993). Although vocabulary is very important, many scholars in the fields of vocabulary learning and teaching pointed out that vocabulary was neglected in language learning for a long time (Allen, 1983; Hedge, 2000; Maley, 1986; Richards, 1985; Zimmerman, 1997). Vocabulary is neglected because there is a tendency to concentrate on grammar. Some scholars indicated that grammatical structure learning is more important than vocabulary in the language classroom. Most of the teachers believe that grammar instruction and providing grammar exercises for students are necessary. (Edilian, 2009; Farrell, 1999; Farrell & Lim, 2005; Golombek, 1998; Richards, Gallo, & Renandya, 2001).

In fact, both vocabulary and grammar are more important, but when comparing vocabulary with grammar, vocabulary might be more important and should receive more attention than grammar. Allen (1983) pointed out that in the best classroom, vocabulary and grammar should not be neglected. Likewise, Flower (2000) stated that vocabulary is crucial and students have to learn. He also said that grammar is essential, but vocabulary is much more important. Lewis (1993) also pointed out that vocabulary is the center of language learning and teaching because grammar is subordinate to vocabulary. These scholars affirmed that vocabulary should precede grammar. Thus,

vocabulary seems to be the main point of language learning, and it is accepted to as being more important than grammar. Without grammar, the message can be conveyed but without vocabulary nothing can be conveyed (Wilkins 1972)

In summary, vocabulary in language learning is necessary for the students. If the students have enough vocabulary knowledge, they are able to achieve a great deal of success in the classroom, social life, and acquisition of the target language. Adequate vocabulary gives students a chance to employ the right words at the suitable time. Moreover, they will listen, speak, read, and write effectively. It could be said that students cannot learn anything about language without vocabulary. For the methods of vocabulary learning, Herman (1987) claimed that students learn new words incidentally from listening and reading. One of the appropriate methods to learn to improve the vocabulary of students is probably through reading. Richard (1976) claimed that students' vocabulary can be improved when they have learned from reading. Thus, learning vocabulary via context of reading will be implemented in this project and will be described in the next part.

2.2.3 Learning Vocabulary through Reading

The main purpose of this section is to explain why reading is a good method for learning vocabulary. In the reading process, beginning readers may encounter a large number of unfamiliar words. Basically, as the students read a text and attempt to understand it, their vocabulary knowledge is enhanced (Nation, 1990; Oxford & Scarcella, 1994). Rubin (1993) stated that good vocabulary should go together with good reading. The students are able to recognize new vocabulary in print.

There were numerous investigations to support the belief about learning vocabulary through reading, including Jeckins, Stein and Wysocki (1984), Konopak,

Shcard, Longman, Lyman, Slaton, Atkinson and Thames (1987), and Nagy, Anderson and Herman (1987). These studies found that students could learn vocabulary indirectly in context while reading. Nagy, Anderson and Herman (1987, p.261) stated that the results “demonstrate beyond reasonable doubt that incidental learning of word meaning does take place during normal reading”. Nagy (cited in Sanacore 1994) stated that vocabulary improvement can be enhanced by encouraging students to spend time for reading a variety of books inside and outside the classroom. Therefore, it can be said that students might acquire vocabulary from the context of reading.

Furthermore, several research studies report that the vocabulary knowledge and reading relate to each other (Joshi, 2005; Joshi & Aaron, 2000; Manyak & Bauer, 2009; Martin-Chang & Gould, 2008; Ricketts, Nation, & Bishop, 2007). Joshi and Aaron (2000) found that students learned to interpret the meaning of vocabulary from reading. Martin-Chang and Gould (2008) pointed out that reading was very important because it was seen as the background of vocabulary learning. Consequently, reading was an essential component of vocabulary learning since it helps students to increase their vocabulary knowledge.

The above information showed a good relationship between reading and vocabulary. In general, students frequently read a variety of material; thus, incidental vocabulary knowledge might take place during reading. Therefore, this project will use reading to increase students' vocabulary. However, vocabulary items in reading materials should be appropriate to the level of the students. Teachers should consider how they select suitable materials for the students. If the teacher selects materials without being based upon any references or theory, vocabulary in the materials may not appropriate for the students. Hence, the way to help the teachers evaluate and choose

appropriate reading materials are the readability formulas. The following section will discuss the readability formulas that are employed to access reading materials.

2.2.3.1 Readability

Readability formulas have been used for more than 80 years for many languages such as Spanish, French, German, Dutch, Swedish, Russian, Hebrew, Hindi, Chinese, Vietnamese, and Korean (Rabin, 1988). For the principle of readability, one factor of concern is that reading materials are at an appropriate level of difficulty based on the students reading ability. Klare (1963) defined readability as the simplification of understanding or comprehension due to the writing style. Similarly, Hagis, Hernandez, Hughes, Ramaker, Rouiller, and Wilde (1998) defined readability as the ease of reading words and sentences. McLaughlin (1969) who created the Simplified Measurement of Gobbledygook (SMOG) readability model identified readability as the interaction between the text and the level of reader such as reading skill, background knowledge, and motivation.

The use of readability formulas began during the late 19th century in the United States. Schools in the US initiated grading reading materials in 1847 (Dubay, 2004). After that many researchers attempted to develop several readability formulas. Thorndike (1921) used mathematical formulas to measure readability. He counted the frequency of difficult words. Later, Flesch (1949) developed a readability formula called Flesch Kincaid Grade Level. It employed the number of syllables per 100 words and the average number of words per sentence. In 1963, another readability formula was developed by George R. Klare, who used readability formulas to enhance the effectiveness of writing and speaking. In 1969, the SMOG Formula was created by McLaughlin. It is used to evaluate and determine the reading level of written materials.

In 1968-1969, the Fry Graph Readability Formula was created. Initially, Fry's original graph was created to measure the readability of high school students. It was validated with comprehension scores of primary and secondary school texts. Later, he extended it through the college level. Even though vocabulary continues to increase during college level, reading ability in each person is quite different. The graph is quite easy to understand because it shows the number of each difficulty level. Moreover, the Fry graph readability formula is a validity formula to evaluate reading material (Dubay, 2004) Therefore, the appropriate readability formula for the study is the Fry graph. The reasons that the Fry graph was selected for the study are the following. First, the Fry graph formula can measure the grade reading level of the document and it can help the researcher consider if it is understandable to a wide population. Second, the formula reveals the types of words and sentences that are more difficult for readers to understand. Lastly, the formula is easy to use and takes 15 to 20 minutes to obtain results (Dubay, 2004). On his graph, there are numbers to determine the levels of texts for students at different levels of reading (Figure 2.1).

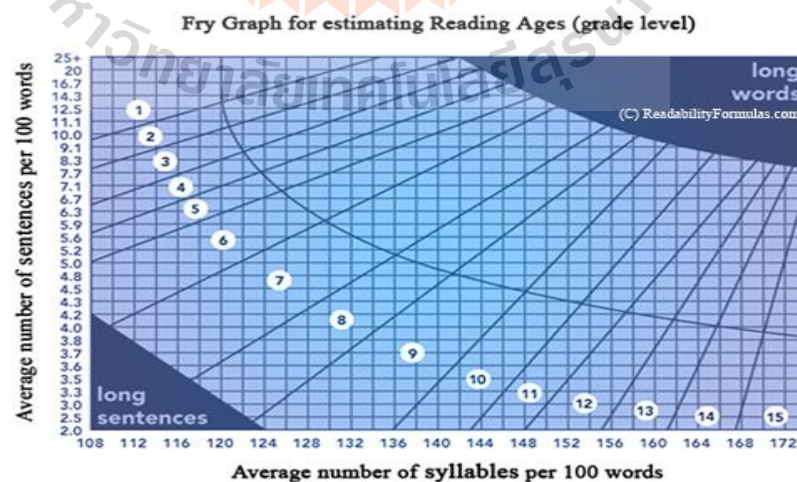


Figure 2.1: Fry Graph for estimating Reading Ages (Grade level)

In summary, readability has made teachers aware of the many factors affecting the students' achievement in the reading process. Moreover, the readability formula was used to grade level of texts properly. Teachers can help students increase the opportunity of being successful in reading when they use the appropriate text. Therefore a readability formula is needed to evaluate reading passages used in this research study. This research study uses the Fry Graph readability formula for estimating the level of text. The following section will discuss the learning instrument employed in the research study, Computer Assisted Language Learning (CALL) because it is hoped that this learning instrument can be used to facilitate vocabulary learning.

2.3 Computer Assisted Language Learning

Computer Assisted Language Learning is a term used by teachers and students to describe the employment of computers as part of a language course. (Hardisty & Windeatt, 1989). It is traditionally mentioned as a means of “presenting, reinforcing and testing” particular language items (Gündüz, 2005). The students are first introduced to a rule and given some examples, and then answer a series of questions that test their knowledge of the rule and the computer gives appropriate feedback and awards a mark, which may be stored for later inspection for the teacher. Jones & Fortescue (1987) pointed out that CALL was presented as a flexible classroom aid that can be used by teachers and students, in and out of the classroom, in a variety of ways and for a variety of purposes. However, when the computer needs to be integrated with traditional classrooms, CALL lessons need to be planned carefully

2.3.1 Definitions of CALL

At present, the computer is a significant tool in education and has been integrated into classrooms. CALL is a language learning and teaching approach in which the computer is employed as equipment for presentations, assisting students, and evaluating materials, and has an instructional element. Levy (1997, p. 1) defined CALL as “the search for computer applications in language teaching and learning”. CALL is interdisciplinary in nature, and it has developed from early efforts to find ways of employing the computer for teaching and learning. A computer program is used to facilitate teaching and learning process such as lesson presentation, graphical movement, animation sound, immediate feedback, and students’ achievement scores (Teeranitigul, 2000). CALL is an approach which focuses on using computer technology in learning or teaching a foreign language to students. It is referred as the technique of using technology in a field of language learning (Almekhlafi, 2006). Moreover, Beatty (2003, p7) defined CALL as “any process in which a learner uses a computer and, as a result, improves his or her language”. As this definition implies, CALL covers a wide range of activities that makes it difficult to explain as a single idea or simple research field. For all those definitions, it can be said that CALL is an interdisciplinary term that may include several activities in language learning by employing computers

2.3.2 History of CALL

Computers have been used for language teaching for more than three decades. In accordance with Warschauer & Healey (1998), the history of CALL can be divided into three stages, namely, behavioristic CALL, communicative CALL and integrative CALL. Each stage corresponds to a certain pedagogical approach.

Firstly, behavioristic CALL was developed in the late 1960s and used widely in the 1970s under the influence of the Audio-lingual teaching method. In this stage, CALL was referred to as drill-and practice. The computer was seen as a mechanical tutor who never allowed students to work at an individual path and they were not allowed to think for themselves as well (Warschauer & Healey 1998, Bax 2003).

Secondly, communicative CALL was in the period of the 1980s (Seedhouse, 1995; Warschauer, 1998; Bax, 2003). This period was the time that the behavioristic approach to language teaching was being rejected from the theoretical and pedagogical level. Communicative CALL related to the cognitive theories. It was emphasized that learning was a process of discovery, expression, and development. Some scholars asserted that computer activities should not be focused on form. Thus, software included text reconstruction program and simulation were developed in this stage. Communicative CALL does not focus so much on what the students use the computer, but this stage focused on what they work with each other while working at the computer.

Nevertheless, in the 1990s, there were some criticisms about communicative CALL. New second language acquisition theories and socio-cognitive views influenced many teachers and led them to use more social and learner-centered methods. At that time, this stage emphasized language use in authentic social contexts. Task-based, project-based and content-based approaches attempt to integrate students in authentic environments, and to integrate several skills of language learning and use. This led to a new stage, namely, integrative CALL. As in the integrative approach, students are able to employ a variety of technological tools as a continuing process of language learning and use (Warschauer & Healey (1998); Bax, 2003; Fotos & Browne, 2004)

Regarding the three stages of the history of CALL, we can see that each stage of CALL has different methods of learning. The audio-lingual teaching method was used in the Behavioristic CALL. In this stage the computer was a mechanical tutor and the students were not allowed to think. For the Communicative CALL stage, computers provided context for students to use the language. It continued to provide skill practice but not in a drill format, for example, text reconstruction and language games or simulations. However, the computer continued its function as a tutor. On the contrary, the integrative CALL focused on language use in authentic situations. A variety of technological tools, such as multimedia and internet, were integrated into the language learning process. Multimedia and the Internet were used to support authentic language learning for the students.

Based upon the above review stages, this research project falls into the Communicative CALL. This study considered that the students choice, control, and interaction in the Communicative CALL play an important role in the CEVLP. Moreover, the development of the computer program in the Communicative CALL should include the following characteristics. First, the computer program should provide meaningful communicative interaction with the students. Second, the computer program should motivate students to learn the English language. Third, the overt error correction should not be provided in the computer program (Hubbard, 1988). As mentioned above, the features of CEVLP in the present study followed these characteristics of the Communicative CALL. The CEVLP was formulated to encourage the students to be interested in the content of the program and it provided the interaction with the students such as the feedback of the program to the students. CEVLP provided instruction which students could progress at their own path. The error correction was

not displayed in the program but it was implied to the students. Students could create or construct their knowledge from their own errors as well. Moreover, the development of CALL should consider and design a learning theory such as the behaviorism theory, the cognitive theory, and the constructivism theory. This research study designed a CALL program on the constructivism theory. Thus, the following section will describe the Constructivism theory.

2.4 The Fundamentals of Constructivism

The main point of constructivism is that human knowledge is constructed. Students build new knowledge based on the basis of prior experience. This view of learning quite contrasts with one in which learning is the passive transmission of information from one individual to another. This new learning theory came to change the view of learning and instruction since 1985 (Fosnot, 1996). The term constructivism is derived from Piaget's reference to his views as constructivist as well as from Bruner's description of discovery learning as "constructionist". According to the concept of Piaget, his constructivist model expanded to include the idea that the students were an active participant in their learning from the earliest age. For the Bruner's concept, he supported the belief that students construct new ideas or concepts based upon existing knowledge. The process of learning was active and involved the changing of information, deriving meaning from experience, forming hypotheses, and decision making (Overbaugh, 2004)

Moreover, Constructivists believe that students can construct their own knowledge based on their perceptions of experiences, thus an individual's knowledge is a function of one's prior experiences, mental structures, and beliefs that are employed

to interpret objects and events (Confrey, 1990), and the individual's knowledge should be established in perception of the physical and social experiences that are comprehended by the mind (Jonasson, 1991). Constructivism proposes that students' perceptions of knowledge are derived from a meaning-making in which students are involved in a process of constructing individual interpretations of their experiences or prior knowledge.

For the present research study, the CEVLP provided several of exercises to the students. They have freedom to think about which exercises they would like to learn. If students select the exercises by themselves, they could construct their own knowledge from those exercises.

2.4.1 Constructivism Theory and Technology

The constructivism theory states that students can construct their own knowledge. Students will construct, obtain, and interpret their own knowledge differently. Adams (2006) mentioned that constructivism allows the students to make sense of their world. One of the basic achievements in employing constructivist in teaching is that students might be given the opportunity to learn. They might be able to take initiative and responsibility for their own learning experience as well.

In the constructivist classroom, the emphasis tends to change from the teacher to the students. The students are motivated to actively be involved in their own process of learning. At the same time, the teacher becomes a facilitator or coach who prompts to guide the students to understand in their own learning. Killen (2007) pointed out that there are several characteristics of a constructivist in the classroom. First, learning was interactive, depending on what the students already know or their prior knowledge. Second, students' knowledge was seen as dynamic and changing based upon their experience. Third, the

teacher's responsibility was a mediating process to guide students to construct their own meaning of concepts and contents. Fourth, learning assessment should include students' work, observations and opinions, as well as task, projects and tests. Fifth, collaboration between students in groups was more preferable than work in person. Finally, learning materials can be used to motivate the students' learning such as using technology to urge students' learning. According to learning materials in the constructivist classroom, technology should be considered for employment in the classroom. Since it has probably been a useful tool of learning, teachers might use it to encourage students learning or students might employ it to accumulate their own knowledge.

For the Constructivism Theory and technology, when they were integrated in the classroom, the real world experience and social contexts of students were emphasized (Mayes, 2001). Clouse and Nelson (2000) stated that in a constructed learning environment, students can create their own knowledge, and technology can adapt the process of teaching with the realities of the students' world and move from a teacher-centered to student centered environment. Student learning becomes an active rather than a passive undertaking. Therefore, the constructivism theory can support the integration of technology when using it with the correct approach. This approach is to sustain a constructivist classroom by encouraging higher order thinking skills and by linking learning to the real life situation of students.

The constructivism theory is important for instruction in the CALL program. This research study focuses on the vocabulary learning by using the computer as a tool of learning. The researcher designs the computer program to enhance students' learning. It is called Computer Enhanced Vocabulary Learning (CEVLP) based on the constructivism theory. The constructivism theory allows students to create their own

knowledge and it supports that students should learn as active learners. This research study attempts to support the students to learn and to build personal knowledge based on their own perception. In CEVLP, there are several exercises provided to the students. The students are not forced to do exercise one to exercise five but they can choose the exercise that is appropriate to their ability. The students can construct knowledge in their own way when they learn through CEVLP.

As mentioned above, this research project employed the computer in facilitating vocabulary. The following section will review the about advantages and disadvantages of the computer in language learning.

2.5 Advantages and Disadvantages of Computer in Language Learning

Computers are being employed as tools to support language teaching and learning as well as a general enhancement to the learning environment. There are many possible advantages of applying computer in the English language classroom.

Firstly, a computer is easy to access. Teachers and students are able to search information via the World Wide Web. It can be used anytime and anywhere, where they are available (Gillespie, 2008; Huggins, 1993; Lee, 2000; Panda & Mishra, 2007; Warschaner & Kern, 2000).

Secondly, some computer programs aid students in practicing their English abilities. In an English language learning system, students gain immediate and objective correction, feedback, and suggestions from the program. After students finish each lesson, the computer program automatically reports students' achievement scores. Furthermore, students are able to repeat the lessons anytime and anywhere when they want to understand all lessons more thoroughly (Mishra & Panda, 2007)

Thirdly, using the computer as a learning tool can motivate students' self confidence, and positive attitude towards language learning. The students' motivation is increased as well. Furthermore, employing a computer program can reduce the learning anxiety of the students. These aspects of computers are essential factors for enhancing the students' motivation and interests to learn the language (Veermans & Tapola, 2002; Wang & Zhang, 2005 Janregi & Banados, 2008). Finally, computer can be employed as a communication tool between teachers and students or between students and friends for sending e-mails, submitting homework, or chatting with friends (Chapelle, 2001; Lai, 2006, Lee, 2000)

As mentioned above, it could be seen that there were many advantages of CALL in language learning. However, the advantages always come together with the disadvantages because every coin has two sides. The disadvantages of CALL are described in following paragraphs.

First, Gips, DiMattia, & Gips (2004) pointed out that the first drawback of computer assisted language with learning is that they will increase education costs. Once the computer becomes a part of the language classroom and language learning, the low budget schools and low income of the students' family cannot afford a computer. At this point, it might be unfair for the poor schools and students. In addition, expensive computer equipment has also become bigger problems for parents and schools (Lai, 2006).

Second, it is necessary for both teachers and students to have basic knowledge before they employ the computer to assist language learning and teaching. No one can use a computer if they lack adequate training. Unfortunately, most teachers are not trained to use computer in language classrooms. They cannot guide the students to

utilize the computer program effectively. Therefore, the computer programs were not appropriate for the students who are not familiar with it (Roblyer, 2003).

Third, the software of Computer Assisted Language Learning program is quite imperfect (Lai, 2006). Computer technology deals with four language skills (listening, speaking, reading, and writing). Even though some computer programs have been developed, their functions might be still limited.

Finally, the computer cannot solve all problems of the students. Due to the limitations of the computer, it is unable to deal with students' learning problems, and not responding to students' questions immediately as the teachers do (Lai, 2006). Therefore, greater expertise is still needed to develop and improve computer technology in order to assist language learning (Blin, 1999).

In summary, computers used in learning provide both advantages and disadvantages in the learning process. Computers are advantageous in the sense that these machines teach more effectively in a technical sense, they can reach and teach more students and kept students more emphasis with the subject. Computers in the teaching process is very useful. The use of computer can motivate the students, make them more attractive as well as participatate learning activities. It can be said that computer can be used to enhance students learning. Moreover, the use of computer technology in education allows the students to learn modern tools and knowledge that will help prepare them ready for the possible technological changes in the future. As the advantages of computer, therefore, the computer is considered that it is useful tool in the research study. The following section review the related research studies that involve the research study.

2.6 Related research studies

There are many researchers and instructors studying and comparing the achievement scores of students using CALL programs. The research studies can be divided into two groups. The first group is the overseas related research studies. The second group is domestic related research studies, respectively.

2.6.1 Oversea research studies

Reinking and Rickman (1990) investigated whether intermediate-grade readers' vocabulary learning and comprehension would be affected by displaying text on a computer screen that provided the meanings of difficult words. Sixty sixth-grade subjects read two informational passages containing several target words that had been identified as difficult. Subjects were assigned to four treatment conditions. In two of the conditions, they read the passages on printed pages accompanied by either a standard dictionary or a glossary comprised of the target words. In the remaining two conditions they read the passages on a computer screen that provided either optional or mandatory assistance with the meanings of the target words. The results indicated that the subjects who read passages on the computer assistance scored significantly higher on a vocabulary test that measured subjects' knowledge of the target words. Subject who read the passages on the computer screen with mandatory assistance also outperformed on a comprehension test of the experimental passages.

Bekleyen and Yilmaz (2011) studied the use of the program in language classes to teach new vocabulary. The researchers used a free computer program that allows users to take a picture of what they see on their computer screen. It also allows adding texts and highlighting the picture. The study participants were freshman ELT students of Dicle University, ELT Department. The results indicated a substantial increase in the

students' post-test scores. It was also found that the students had a positive attitude towards the use of computers in vocabulary learning.

Iheanacho (1997) had researched the effect of two multimedia program CALL on vocabulary acquisition. The participants were eighty six intermediate level English as a second language students. Students were assigned to one of two treatment groups. Students in group one viewed a program with Motion Graphic and texts. Students in group two viewed a program that had still Graphics and text. The results showed that the students in group one performed significantly better on the recall test than the students in group two.

Burkhead, Corbett, Cuneo, Junker, and Skla (2000) studied on one aspect vocabulary learning – of a larger study comparing computerized oral reading tutoring to classroom instruction and one-on-one human tutoring. 144 students in second and third grade were assigned to one of three conditions: (a) classroom instruction, (b) classroom instruction with one-on-one tutoring replacing part of the school day, and (c) computer instruction replacing part of the school day. For second graders, there were no significant differences between treatments in word comprehension gains. For third graders, however, the computer tutor showed an advantage over classroom instruction for gains in word comprehension. The main result in this study showed the computer tutor did better than classroom instruction for vocabulary learning.

Okuyama (2007) investigated the effects of using Romanized spellings on beginner level Japanese vocabulary learning. Sixty-one first-semester students at two universities in Arizona were both taught and tested on 40 Japanese content words in a computer-assisted language learning (CALL) program. The results of the project indicated that the use of Romaji did not facilitate the beginners' L2 vocabulary intake.

However, the more intensive use of audio recordings was found to be strongly related to a higher number of words recalled, regardless of the presence or absence of Romaji.

Rezaee and Ahmadzadeh (2012) investigated the effects of integrating synchronous and asynchronous CMC with Face-to-Face Communication (FFC) on vocabulary improvement among EFL learners. The eighty-eight participants of the study were divided into one comparison, FFC, and two experimental, CMC and Integrated CMC (ICMC), groups. The results revealed that the students in the comparison group had no significant improvement in their vocabulary scores. In contrast, both experimental groups did much better in the post-test. The results implied that the ICMC group outperformed the CMC one, meaning the superiority of the ICMC group over the other groups.

2.6.2 Domestic research studies

Kachasiriphong (1983) compared success and persistence in learning the vocabulary of Mathayom 1 students who learned English through lesson practices with games and without games. It appeared that success in learning vocabulary and permanence in vocabulary understanding of students learning English with lessons practices in games are better than those of students learning with lesson practice without games.

Prarubrgsa (1997) created the Multimedia Computer Assisted Instruction (MCAI) to teach English vocabulary in Reading and Writing (E022) for Mathayomsuksa I students and studied the opinions and satisfaction of the students on the program. The results showed that the students liked to learn English vocabulary from the Multimedia Computer Assisted Instruction.

Bauluang, Sinprajakphol, Chanphrom (2012) studied enhancing English vocabulary learning and the retention ability through the use of CALL. The target

sample students were twenty grade four students from Banbon School who learned English during the 2011 academic year. The target group was selected by using cluster random sampling without special needs students. Then, the students used the CALL lessons. Before and after learning through CALL and two weeks later, the students were tested with a type of parallel test form. The research findings showed that CALL lessons can enhance students' vocabulary learning and they retained vocabulary knowledge through CALL lessons. In conclusion, the students were satisfied with the CALL lessons. They found that the CALL lessons were interesting and easy to use. They learned with fun as well. The CALL lessons also helped students to develop their English vocabulary learning.

The overseas and domestic research studies showed that most CALL programs were effective in both promoting learning motivation and enhancing vocabulary learning for students. However, there were few domestic research studies done in CALL to enhance vocabulary learning. Therefore, it is interesting and useful to find out more since technology is an unavoidable tool in the present and in the future.

2.7 Summary

In this chapter, the related literature provided an overall picture of the previous research studies on CALL. It also discussed the relevance of the present study to preceding research studies. It started with providing the details of the English curriculum in Thailand, vocabulary learning, Computer Assisted Language Learning and the constructivist theory. Finally, it presented related research in Computer Assisted Language Learning and vocabulary, both overseas and domestically. The next chapter concentrates on the design and methodology implemented in the present study.

CHAPTER 3

RESEARCH METHODOLOGY

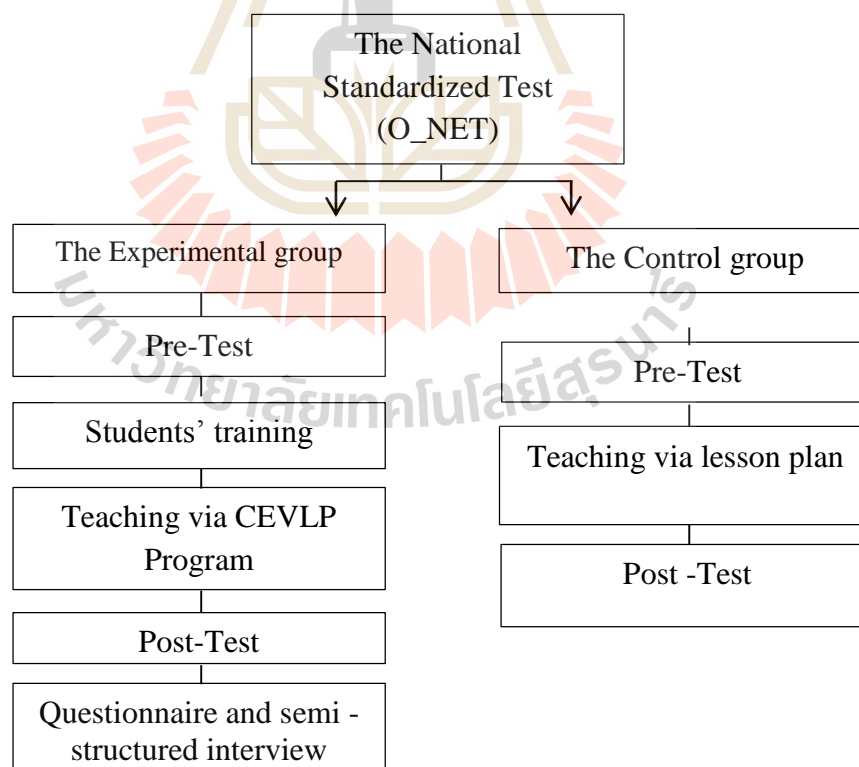
This chapter describes the research methodology employed in the present study. It includes the participants, the research instruments, the data collection, and data analysis respectively.

3.1 Research Methodology

This investigation employed a quasi-experimental method to determine the effectiveness of the Computer Enhanced Vocabulary Learning Program on Grade 9 students at Ban Lao Aoi School in May 2013, which was the first semester of Academic Year 2013. There were thirty subjects in this study who were the students at Ban Lao Aoi School in the Sakoew Province. Students were asked to take the National Standardized Test (O-NET). The scores of the O-NET test were used to separate students into two groups: the control group and the experimental group. There were 15 students in each group. The students in each group were mixed in term of abilities ranging from low ability to high ability. After the O-NET test was given, the control group were given a pre-test in paper test form before learning in the face-to-face classroom, whereas the experimental group was given a pre-test via CEVLP before studying the lesson through the CEVLP. Both groups were given the post-test and questionnaire about the program was administered to the experimental group. The questionnaire involves students' opinions about the program. Later, the experimental group was interviewed.

3.2 Research Design

The experimental group studied the lessons through the Computer Enhanced Vocabulary Program, while the control group was taught by the researcher in a classroom setting using the same lesson plan. Pictures, flashcards, and worksheets will be employed with students in the control group. The experimental group was trained to use the program for two hours before the experiment to make sure that the students understood the program. The questionnaire concerned the students' opinions towards learning via CEVLP. Moreover, all 15 students in the experimental group was interviewed. The semi-structured interview guided questions were employed. Below was the research design diagram :



3.3 Variables

There were two variables in this study. Firstly, the independent variables includes teaching in the traditional classroom and teaching by using Computer Enhanced Vocabulary Learning. Secondly, the dependent variables consist of the students' English accomplishment and also the students' opinions towards learning through the computer program.

3.4 Research instruments

There were five research instruments in this study: Computer Enhanced Vocabulary Learning Program, tests, lesson plans, questionnaire, and semi-structure interview.

3.4.1 The Computer Enhanced Vocabulary Learning Program

The Computer Enhanced Vocabulary learning program was created by a researcher. The researcher studied the English vocabulary in the curriculum for grade 9 students. The Authorware 7.0 program was used to create the computer program in the present study. Authorware has now become a tool for educators to create electronic learning applications deployed through the Web or on CD-ROM (Johns, 1999; Kachian & Wieser, 1999, Neo & Kian, 2003). Authorware provided a very flexible and versatile feature whereby applications created in other popular authoring software packages such as Director and Flash, could be imported directly into the Authorware application and thus easily embedded as part of the Authorware application. In addition, Authorware applications could also be used to create a website for those wanting to put interactive modules on the Internet or Intranet.

The CEVLP contained the learning objectives, a page for registration and login, pre-test, five vocabulary lessons, exercises, and post-test respectively. Moreover, the lessons were designed and based upon reading interesting topics. Reading was the one instrument in the CEVLP that help students to increase vocabulary. Each lesson included one reading passage and 5 different types of exercises. Each exercise type was employed to help students in learning vocabulary. The details of the exercises are described in the following paragraphs.

First, matching exercises require the students to find two matching items that have the same dictionary definition, or are opposites—antonyms. They could easily cater for learners of different levels, and are widely used for vocabulary study. For example, matching exercises include matching pictures and words, matching text and pronunciation, matching words and meanings, and matching words together. Second, fill-in-the-blank exercises, in which the students must fill in gaps in a question, are used to learn grammar constructions and learning vocabulary. Finally, spelling exercises included spelling words from meaning and letter-sequences spelling. These exercises required learners to construct a word correctly. These were used for vocabulary learning, or for mastering easily misspelled words (Wu, 2007). In this research project, matching words and pictures, matching words and meanings, fill-in-the-blank, spelling vocabulary of meaning, and *letter-sequences exercises* are implemented in the CEVLP. These exercises were probably appropriate for most beginners starting their language learning.

3.4.2 Tests

A pre-test and post-test were used for measuring the students' English achievement before and after the experiment. Both of tests were not the same test but they were the same level of difficulty. The constructed tests consist of 20 multiple

choice questions. Each question was analyzed for the level of difficulty and the discrimination power (r) by using the Item Response Theory or IRT software program developed by Assoc. Prof. Kanit Khaimook, a lecturer at Suranaree University of Technology. The criteria used to select the test items are $0.3 \leq p \leq 0.7$, and (r) was equal to or more than 0.2 (See Appendix C).

Test Difficulty Formula

$$P = \frac{R}{N}$$

P = Difficulty of the test

R = Number of students who answer a test item correctly

N = Number of students who take the test item

Discrimination Formula

$$D = \frac{RU - RL}{\frac{n}{2}}$$

D = Discrimination index

RU = Number of students who correctly answered in the high group

RL = Number of students who correctly answered in the low group

n = Number of students in both the high and low group

Moreover, the reliability of the test was determined by using Kuder Richardson's formula (K.R 20). It was accepted as $KR-20 \geq 0.70$. The K.R. 20's formula is presented below (See Appendix C).

K.R.20 Formula

$$rtt = \frac{n \{ 1 - \sum pq \}}{n-1} S^2t$$

n = Numbers of question

p = The portion of students who correctly answered each question

q = The portion of students who incorrectlay answered each question

$$= 1 - p$$

S²t = Variance of the total score

3.4.3 Lesson plans

The lessons for vocabulary learning for students in the control group were the same those presented to the students in the experimental group through Computer Enhanced Vocabulary Learning program (See Appendix A).

3.4.4 Questionnaire

The questionnaire towards learning through Computer Enhanced Vocabulary Learning Program consisted of three parts: students' background information, students' experiences in employing the computer and opinions towards the pr ogram. The design of the questionnaire was based on CALL research projects (Reinking 1990, Iheanacho 1997, Kachasiriphong 1983, Prarubrgusa 1997). The questionnaire in those CALL research projects were formulated in the same direction. However, the ideas of each item in the questionnaire were adopted from the questionnaire in the Prarubrgusa's research study (1997). There were 10 items in the questionnaire, they comprised 5 positive questions and 5 negative questions. All questions were used to elicit the participants' opinions whether they had good or bad opinions with the CEVLP. All of

the questionnaire items in English were translated into the Thai language to avoid misunderstanding and confusion.

The Five-point Likert scale was used in the questionnaire for students to rate their opinions such as 5 means Strongly agree, 4 means Agree, 3 means Uncertain, 2 means Disagree, and 1 means Strongly disagree. The method of Coefficient Alpha of Conbach in SPSS software program was used to measure the reliability of the questionnaire.

3.4.5 Semi-Structured Interview

The researcher constructed the semi-structured interview to acquire more in-depth information about the students' opinions towards a CEVL lesson. All 15 students in the experimental group were interviewed. The interview topics included seven questions. Each question paraphrased the question to get more in depth information from the questionnaire. The students were interviewed for 10 minutes for each person. The researcher interviewed the students by using a tape recorder and noted the information on the interview in the report.

3.5 Pilot Study

The pilot study evaluated the effectiveness of the Computer Enhanced Vocabulary Learning before it was implemented in the research project. There were 20 students participating in this pilot. They had learned vocabulary via Computer Enhanced Vocabulary Learning Program for 2 weeks. They were asked to do the pre-test and exercises in the first week. Later, they did the exercises and the post-test in the second week. After the pilot study, some drawbacks of the program were improved. For example, the size and the color of the letters were improved. Some buttons in the

program did not correctly link to the pages. They were amended as well. However, there were not any major problems in the program. Overall, the CEVLP was quite effective.

3.6 Data Collection

The data collection involved the following steps:

3.6.1 The participants, both the experimental group and the control group, were given the pre-test.

3.6.2 The participants in the control group were taught by the teacher based on the lesson plan and the participants experimental group were taught by the computer program. Both groups studied the same content, vocabulary through reading passages.

3.6.3 The participants in both groups were asked to complete the post-test and then the experimental group were asked to do the questionnaire.

3.6.4 The students in the experimental group were interviewed about their opinions after studying with the CEVLP.

3.7 Data Analysis

In order to achieve the purpose of present study and to answer the research questions both quantitatively and qualitatively data were used to analyze the collected data in the study.

3.7.1 Quantitative data analysis

Quantitative data were collected from the pre-test, post-test, and questionnaire.

3.7.1.1 Scores from the Pre-test and Post-test

ANCOVA analysis was used to remove external variability that derived from pre-existence of individual differences, such as students' English background knowledge or English proficiency level of the students. The pre-test was used to adjust the variables. The ANCOVA model by Scheffe was an uncontrolled variable-reducing experiment design. The computer software program SPSS was employed to analyze the data. To measure the students' English proficiency before and after being taught by Computer Enhanced Vocabulary Learning and by the teacher, the pre-test and post-test were calculated for the arithmetic means (\bar{x}).

3.7.1.2 Data from the questionnaire

The data from 5-rating scale were calculated in the arithmetic mean (\bar{x}). These means showed the students' opinions towards learning through the computer program. The criteria to interpret the data was taken from a range divided by numbers of levels created. This is $(5-1) \div 5 = 0.80$. The means were increased by 0.80 for each level.

Means (x)	Interpretation
1.00- 1.80	Very bad attitude
1.81- 2.60	Bad attitude
2.61- 3.40	Moderate attitude
3.41 - 4.20	Good attitude
4.21- 5.00	Very good attitude

3.7.2 Qualitative data analysis

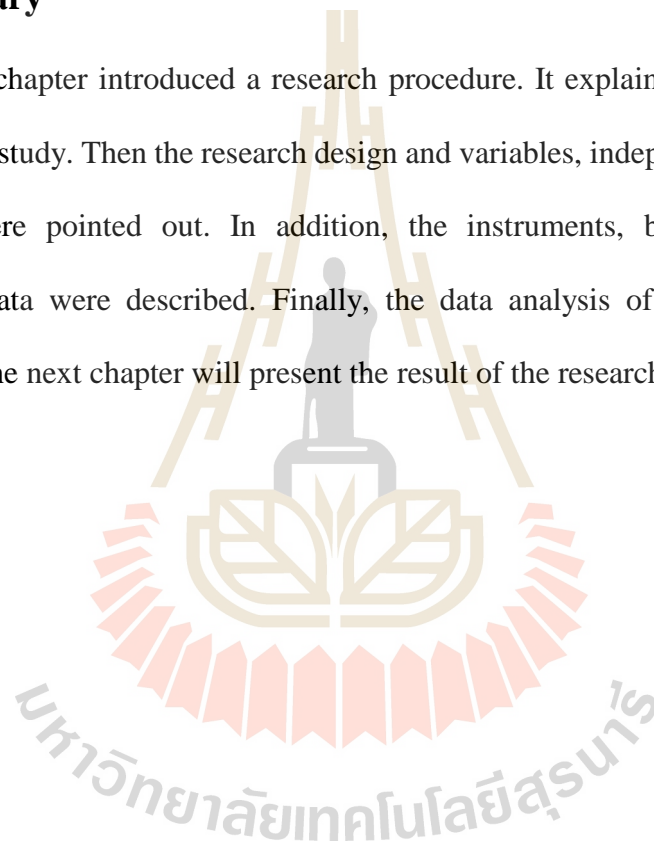
Qualitative data included the data from interviews about the students' opinions on Computer Enhanced Vocabulary Learning Program (CEVLP)

3.7.2.1 Analysis of the data from the interview

The data were gained by recording and transcribed. Later, the transcripts were interpreted to find out the students' opinions and reaction towards learning with the CEVLP.

3.8 Summary

This chapter introduced a research procedure. It explained the participants of this research study. Then the research design and variables, independent and dependent variables were pointed out. In addition, the instruments, both quantitative and qualitative data were described. Finally, the data analysis of the instruments was identified. The next chapter will present the result of the research and the discussion.



CHAPTER 4

RESULTS

4.1 Introduction

This chapter presents the results of the research study and answers three research questions. The results will be divided into three main parts. The first part elaborates the result of the effectiveness of CEVLP in helping the students improve their vocabulary learning. The second part explains the comparison of learning achievement of vocabulary learning between the control group and the experimental group in the form of statistics. The final part reveals the students' opinions in employing CEVLP in learning vocabulary.

4.2 Results

4.2.1 The result of Research question 1: Can CEVLP help students improve their vocabulary learning effectively?

In order to answer this question, the pre-test and post-test were used to investigate students' learning achievement. Fifteen students in the experimental group were asked to take the pre-test that was provided in CEVLP. Later, they learned vocabulary through 5 provided lessons and did exercises in the program. The students were allowed to learn through CEVLP during their class time by spending 3 days per week for 5 weeks consecutively. After every student completed all exercises in CEVLP, they took the post-test so the researcher could find out whether CEVLP could improve

students' vocabulary learning or not Pre-test and post-test scores were used to compare students' learning achievement. The result showed that the post-test scores were higher than the pre-test scores after the students learned and completed all exercises in CEVLP. Simultaneously, the students in the control group took the pre-test as well. The control group learned vocabulary 5 weeks as well. Afterwards, the students in the control group completed all exercises in each lesson. They then took the post-test. The post-test of the control group was the same test as the experimental group. The post-test scores between two groups were compared. The post-test scores of two groups showed that the control group scores were lower than the experimental group scores. The control group showed only a little improvement in vocabulary learning. The post-test scores of were slightly higher than their pre-test scores.

4.2.2 The results of Research question 2: Is there any significant difference in vocabulary learning between the control group and the experimental group?

An analysis of covariance or ANCOVA model by Scheffe was employed to compare the data between the control group and the experimental group. This approach of data analysis was employed to increase statistical power by reducing error variance. The results of the post-test could be compared fairly. Before computing ANCOVA, the homogeneity-of-slopes assumption was measured to determine the interaction between the covariate (pre-test) and the factor (group) in the prediction of the dependent variable (post-test). The analysis of the homogeneity-of-slopes assumption pointed out that the relationship between the covariate and the dependent variable did not differ. The results of the test are showed in Table 4.1

Table 4.1 The Test of Homogeneity of regression

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Group	10.328	1	10.328	4.179	.051
Pretest	12.667	1	12.667	5.125	.032
Group*Pretest	.521	1	.521	.211	.650
Error	64.266	26	2.472		

From Table 4.1, significant main effects were obtained for pre-test ($F= 12.667$, $p<.005$). The homogeneity of regression of the pre-test scores showed no statically significant difference ($p=.650$) between the control group and the experimental group. The result showed that the regression lines of the pre-test scores of the control group and the experimental group were parallel. After analyzing the data with ANCOVA, the F test was utilized to indicate the statistical significance of the mean difference. The result of ANCOVA showed that the experimental group scored significantly higher than the control group on the post-test. The results of analysis are shown in Table 4.2.

Table 4.2: The results of ANCOVA for the Pre-test and Post-test

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	89.080(a)	2	44.540	18.562	.000
Intercept	361.853	1	361.853	150.803	.000
PRETEST	12.280	1	12.280	5.118	.032
GROUP	66.882	1	66.882	27.873	.000
Error	64.787	27	2.400		
Total	5172.000	30			
Corrected Total	153.867	29			

a R Squared = .579 (Adjusted R Squared = .548)

From Table 4.2, the results of the analysis were interpreted into table 4.3.

Table 4.3: The interpretation of results of ANCOVA analysis

Source of Variable	Sum of Squares	df	Ms	F	Sig
Pre-test	12.280	1	12.280	5.118	0.032
Between groups	66.882	1	66.882	27.873	0.000
InExperimental group	64.787	27	2.400		
Total	153.867	29			

Table 4.3 shows that there was a significant effect of the covariate (pre-test) on the dependent variable (post-test), $p < .005$. It was found that the experimental group scores were significantly higher than the control group ($F = 27.873$, $Sig = 0.000$). There was a significant difference in the post-test of the two groups. The numbers of significance between groups shown in Table 4.3 was less than 0.05. According to the result, it could indicate that the post-test scores of the experimental group were significantly higher than the post-test scores of the control group after the treatment. Therefore, it could be concluded that the participants who learn through CEVLP had significantly higher post-test scores than the participants in the control group.

4.2.3 The results of the Research Question 3: What are the students' opinions in employing CEVLP in learning vocabulary?

In order to know the opinions of the students in using CEVLP, a questionnaire was employed for collecting the data. The questionnaire consisted of 3 parts. The first part aimed at collecting the students background information. The second part was about students' experience in using computer. The final part was the five point rating scale questionnaire about the students' opinions in employing CEVLP. Each question and statement in the questionnaire was translated into Thai.

The data obtained from the first part showed that there were 8 boys and 7 girls. For their grade of the English subject in the previous semester, it was shown that 20

percent of them got grade 1, 33.3 percent got grade 2, 33.3 percent got grade 3, and 13 percent got grade 4. Moreover, the data about the students' ability in using the computer showed that 13.3 percent of them had a low ability level and 86.7 percent of them had fair ability.

The following table is the final part of the questionnaire. It shows the results of students' opinions in employing CEVLP.

Table 4.4 The results of students' opinions in employing CEVLP

Items	\bar{X}	S.D.
1. CEVLP can increase your vocabulary skill.	4.60	.632
2. CEVLP is very useful in your learning.	4.87	.352
3. CEVLP makes learning language enjoyable.	4.47	.516
4. You want to learn with a program like CEVLP again	4.07	.458
5. CEVLP gives you useful experiences	4.73	.458
6. CEVLP cannot motivate and makes the English language learning more boring.	1.47	.640
7. CEVLP is not useful in your learning	1.27	.458
8. Learning with CEVLP takes too much time.	1.60	.507
9. CEVLP cannot increase your language learning at all.	1.20	.458
10. The content of CEVLP makes the lesson uninteresting.	1.20	.414

Table 4.4 shows that the students had good opinions in employing CEVLP. It confirmed that the students thought CEVLP could increase their vocabulary skill (\bar{X} =4.60). They stated that CEVLP was very useful in their learning (\bar{X} =4.87). They

thought that the CEVLP could make learning language enjoyable ($\bar{x}=4.47$). They also mentioned that they wanted to learn using a program like CEVLP again and they thought that CEVLP gave them a useful learning experience ($\bar{x}=4.07$ and $\bar{x}=4.73$). Moreover, students disagreed that CEVLP cannot motivate their learning ($\bar{x}=1.47$). They also disagreed that CEVLP was not useful in their learning ($\bar{x}=1.27$)

4.3 The results of semi-structured interview

The interview was employed to survey the opinions of the students about using CEVLP. There were seven questions used in a semi-structured interview. The following are the results of the interviews.

For the first question, the students were asked if they liked to learn through CEVLP. 13 students or 86 percent of students mentioned that they favored CEVLP. They said that they received a lot of knowledge and it was very interesting and convenient to use. For example, a student said “ I thought this program was good. I thought I liked it because I am empowered to select the exercise that I wanted to do”.

For the second question, they were asked about their feelings in learning English vocabulary via CEVLP. 11 students or 73 percent of the students were very satisfied with CEVLP because it was very interesting and it could enhance students' vocabulary skills. For example, a student said “I feel this program was useful for vocabulary learning. I thought I could improve my vocabulary learning”.

For the third question, 12 students or 80 percent of the students responded that they had no problem in learning with CEVLP because it was very easy to use. For example a student said “I had no problem in learning with the program, For me, it was

quite easy to use”. However, few students had problems with their computer skills so they were a little confused and they learned slowly.

For the fourth question, the students were asked about the difficulty in using CEVLP. 14 students or 93 percent of them said that CEVLP was easy to use and understand while 1 student or 6.6 percent of the students stated that it was difficult to understand. For example, a student said “the program was easy to use and easy to learn”

For the fifth question, the students were asked about the convenience in learning via CEVLP. 12 students or 80 percent of the students mentioned that it was convenient for them to study via CEVLP because they were able to learn vocabulary as many times as they wanted. If they did not understand some parts, they could go back to revise the lessons by themselves. For example, one student said “ This program is very convenient for vocabulary learning. I did not use a paper dictionary when I wanted to know the meaning I just clicked on that word and I learned its meaning”.

For the sixth question, the students were asked about learning with CEVLP by themselves. 10 students or 66 percent of students said that they could study by themselves at home or anywhere and anytime if they were assigned to use it by themselves outside classroom. They pointed out that CEVLP was convenient for them to use. For example, a student said “I can learn vocabulary through this program by myself. It was easy to me”

For the final question, the students were asked to explain which part of CEVLP they liked the most. 7 students or 46 percent of students said they liked the exercises. Meanwhile, 8 students or 53 percent of students liked the content of lessons. 2 students or 13 percent of them liked the colors in each page. For example, a student said “I like the matching exercise, it was very fun. I could remember vocabulary when I did the matching exercises”.

4.4 Summary

This chapter discussed the results in the present study. The researcher attempted to find out the results to answer the research questions. The procedures of the data collection were described. The pre-test, post-test, written questionnaire and semi-structured interviews were employed to investigate the students' learning achievement and opinions in using CEVLP. The data from the research project were analyzed both of quantitative and qualitative to gain more reliable information to answer the research questions.



CHAPTER 5

DISCUSSIONS AND CONCLUSIONS

This chapter presents the discussion and the conclusion of the result of the present research study. It is composed of two parts. The first part introduces the discussion of the results from Chapter 4. The second part discusses the conclusion of the present research study, the implications and suggests some recommendations for further research studies.

5.1 Discussion of the results

The results obtained from this research study support the research purposes and all three research questions declared in Chapter 1.

The first purpose was to compare the control group and the experimental group in terms of achievement of vocabulary learning. The students in the experimental group learned vocabulary via CEVLP whereas the control group learned in the traditional classroom. The results from Chapter 4 showed that students in the experimental group who employed CEVLP could improve their vocabulary effectively. On the contrary, students in the control group showed only a little improvement in learning vocabulary.

The students in the experimental group could remember more vocabulary items than the students in the other group because they employed CEVLP and could choose suitable lessons and exercises by themselves. On the other hand, every student in the control group was taught from Chapter 1 to Chapter 5 through the guidance of the

teacher. Through CEVLP, the students had more opportunities to learn than the students in the control group. This supports the Constructivism theory because in this theory the students should be allowed to try to learn and understand in their own way (Adam, 2006). Furthermore, this result goes in the same direction as Naraghizadeh and Barimani (2013). They investigated the effectiveness of CALL on Iranian EFL learners' vocabulary learning. The participants of their study were divided into two groups. The first group learned vocabulary through CALL whereas the other group learned vocabulary in the traditional classroom. Their result showed that CALL instruction could improve learners' knowledge of vocabulary. Therefore, learners who learn through Computer Assisted Language Learning outperformed the learner in the traditional classroom setting in this study. The results are similar to the present research study.

The students in the experimental group who studied via CEVLP improved more than students in the control group. From the result of the present research study, it would be concluded that CEVLP was an effective instructional tool for vocabulary learning. It could motivate students to learn and be more interested in the lessons. It also provided more interesting content and ways of learning for the students through its interactive features.

The second purpose was to explore students' toward using CEVLP in learning vocabulary. According to the of the students towards learning through CEVLP, based on the data gained, it was clear that the students had positive toward CEVLP. It was noticed that they had good towards CEVLP usage and they thought the contents in the CEVLP were interesting to learn. They mentioned that CEVLP was useful for their learning. This is related to Bekleyen's (2011) research, which stated that the students

in his experimental group had a positive attitude towards the use of computers in vocabulary learning. The results of the semi-structured interview supported the results of the questionnaire since students were satisfied with learning through CEVLP and had positive towards CEVLP. Most of the students stated that CEVLP was interesting and convenient to use. They were satisfied with CEVLP because the program could improve and enhance their vocabulary skills. Even though a few students were confused and learned slowly, the majority of the students had no problems in using CEVLP. They stated that if they could not do any exercises, they could go back to the page of content at any time. CEVLP was a helpful tool in learning vocabulary because the students could use it independently. Furthermore, CEVLP was an appropriate tool for students. It could motivate the students to learn effectively. Therefore, CEVLP was helpful for students in the experimental group.

5.2 Conclusions

The purposes of this research study were to develop Computer Enhanced Vocabulary Learning Program for grade 9 students at Ban Lao Aoi School. It compared students' learning achievement of vocabulary in the control group and the experimental group and explored the students' in using CEVLP for vocabulary learning. There participants in this research study were 30 grade 9 students. There were 15 students in the control group and 15 students in the experimental group. The instruments in this research study were the Computer Enhanced Vocabulary Learning Program (CEVLP), pre-test and post-test for measuring the students' English achievement before and after the experimental stage, the questionnaire, and the semi-structured interview.

For the research procedures, CEVLP was designed and created by the researcher. It was tried out with a group of students before it was implemented in the present research study. CEVLP was employed by the experimental group to confirm the effectiveness, whereas the control group was taught in the traditional classroom. To compare the learning achievement of the students in both groups, pre-test and post-test were used to compare the statistical difference. The result showed that the experimental group scores were significantly higher than those of the control group. Therefore, CEVLP could help students learn English vocabulary effectively.

Then, the researcher analyzed the students opinions towards using CEVLP in learning vocabulary and interpreted the data obtained from the semi-structured interview. The results from the present research study showed that CEVLP could help improve students' vocabulary knowledge effectively. In the questionnaire and interview, the opinions of the students in the experimental group who learned vocabulary through CEVLP were positive towards learning through CEVLP. The following part describes the implications that were found in the present research study.

5.3 The implications of research study

The standard of teaching and learning English for students living in rural areas do not receive enough attention. From observation before starting this research project, the researcher found that English structure or English grammar was the focus in most classrooms. However, the majority of the students in the English classroom could not achieve their learning goals. There were many researchers who have stated that in order for student to receive achievement in English learning, teaching should focus on the basic component in language learning. This was vocabulary learning (Harris, 1969;

Evans, 1978; Bowen, 1985). Moreover, Nation (1990) mentioned that vocabulary was an important element in language learning. Therefore, vocabulary learning was emphasized in the present research study. CEVLP was created to support vocabulary learning. CEVLP can help the students learn vocabulary efficiently. Consequently, the implications of this research may shed some light on ways to help students learn vocabulary more effectively.

Vocabulary is the most necessary piece of information for English learning. The students need to know enough vocabulary items for learning English. However, English vocabulary is difficult for students especially those with a low proficiency level. Some vocabulary items are difficult to remember. This is a big obstacle for English learning. In the traditional classroom, the students are forced to memorize vocabulary items by repeating them many times. In fact, the repeating or drilling method might not be good for some students may only temporarily remember the vocabulary items by repeating. In order to help the students learn vocabulary effectively, the present research study was conducted to apply a CALL program named Computer Enhanced Vocabulary Learning (CEVLP) to improve students' vocabulary learning. It is clear that CEVLP can help the students in learning vocabulary. Through CALL, the students can select the exercises to do for each lesson by themselves. They can learn at their own pace. Moreover, they are provided with freedom in learning. The students have more chances to learn vocabulary through the use of technology rather than learn in the traditional classroom with pencil and paper activities. Technology provides students with an effective way of vocabulary learning by themselves and it provides flexibility in learning for students. The students can enhance vocabulary learning after they have

learned vocabulary through technology. Furthermore, technology does not only support students' vocabulary learning but also supports English teachers.

The CALL program is the teacher in the classroom while the teacher acts as a facilitator for the students. The teacher does not have to force students to memorize vocabulary by repeating. The responsibility of the teacher in the classroom is to help and to guide students in using CALL in vocabulary learning efficiently. Technology or the CALL program can create good principles for interaction between the English teacher and students. The teacher can pay more attention to low proficiency students. At the same time, the teacher does not have to interrupt the students who could learn by themselves. The teachers need to make sure that all students have the skill to use computer to learn the CALL program. Using technology leads to successful learning when teachers provide a purpose for learning and explains the expectation of vocabulary learning in the CALL program for the students. On the other hand, in the traditional classroom teaching might put more pressure on the students to learn vocabulary. Through the use of technology, teachers do not need to force the students to learn in only a passive way. Consequently, technology is a helpful tool for both students and teachers.

5.4 The recommendations for further research study

Based on the results of this study, recommendations are proposed for future research studies. Firstly, for future research, the CALL program used for improving vocabulary learning should provide all vocabulary meaning for the students or provide a hyperlink to connect with an online dictionary. The students can click to see the meaning that they do not know. The students can study and understand not only target

vocabulary but also other vocabulary items. Therefore, the students can also increase their vocabulary skills.

Secondly, the students who participated in the present research study took 3 days per week for 5 weeks total for learning through CEVLP during their class time. For further research study, longer usage time might be employed to see the effectiveness of CALL in learning vocabulary.

Thirdly, the researcher should examine the use of computer programs for language learning in different ways. For example, learning in a group might be compared with learning individually.

Finally, the researcher should focus on the students' retention after learning vocabulary through CALL. The time interval between learning and testing should be separated. For example, the test might be provided for students in 2 weeks after they complete their lessons. This method can check if the students are able to remember vocabulary or not after a period of time.



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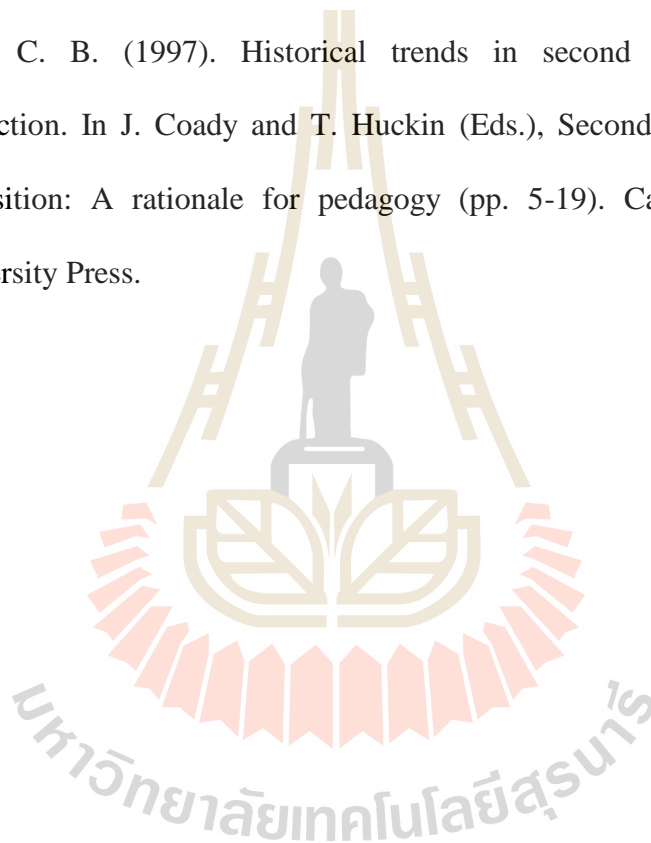
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APPENDIX A

Lesson Plan for the Control Group and the Experimental group

Course's objective

1. Be able to give the meaning of vocabulary.
2. Be able to guess the unfamiliar vocabulary items or difficult vocabulary items
3. To study vocabulary can help the students to apply them in the communication and use them correctly.

Content of study

- To study vocabulary through providing reading passages.

Ability development

1. To enable the students to increase their vocabulary.
2. To enable the students to gain knowledge and have a better understanding of the following items:
 - 2.1 To understand the unknown words.
 - 2.2 To enable the students to guess unfamiliar words from the context.
 - 2.3 To enable the students to select words for suitable situations.
3. To enable the students to be happy from studying and admire their work.

Activities

1. The teacher explains about the activities that students have to do in class.
2. The students learn vocabulary through providing reading passages.

There are five interesting topics.

3. The students are asked to read the reading passages. Find the meaning of the vocabulary and dictation.

4. The students will be explained about the difficult vocabulary items in each reading passage by the teacher. For example, the pictures are used to explain the meaning of difficult vocabulary in a reading passage. Sometimes, flash cards or worksheet is used to facilitate in teaching and learning.

5. The students are asked to do the exercises about the difficult vocabulary in each reading passage. For example, matching the vocabulary with meaning or completing the sentences.

6. The students are required to read next reading passages as a homework. They have to prepare themselves for the next class.

Teaching aids

1. Pictures
2. Flashcards
3. Worksheets
4. Assignments

Evaluations

Students' work/Activities/Behavior	Methods	Indicator
1. Students' participation	1. Observation and Note	1. Behavioral record
2. Students' assignment	2. Checking students' assignment	2. Assignment record
3. Pre-test / Post-test	3. Checking paper test	3. Paper score

Lesson plan of the Experimental Group

Content	Activities	Teaching Instrument	Evaluation
1. Pre-test	- The students are assigned to do a pre-test on vocabulary in CEVLP	A multiple choice pre-test with 20 questions	Checking from the result of the pre-test
2. Learning methods	- The students study the CEVLP to enhance vocabulary. - Each student clicks to install the program. - The students are introduced to CEVLP for vocabulary learning - The students are assigned to go to the learning menu. - The teacher explains how to learn.	Computer Assisted Language Learning for enhancing vocabulary learning Program (CEVLP)	
3. Learning objectives	- After learning, the students go to the next page to study the learning objectives.		
5. Lessons of Vocabulary learning -Learning vocabulary via reading passages - There are five interesting reading passages.	- Each student studies each lesson. - The students select and do the exercise and check the response. If they have any problems, they can ask the teacher.		

Content	Activities	Teaching Instrument	Evaluation
5.1 Learning vocabulary in each lesson	<ul style="list-style-type: none"> - Students learn vocabulary via one to five interesting reading passages respectively. Then, students do the providing exercises of lesson one to lesson five. - Students are able to study each lesson by themselves 	Computer Assisted Language Learning for enhancing vocabulary learning Program (CEVLP)	Result from each exercise in the CEVLP
6. Post-test	<ul style="list-style-type: none"> -The students are not allowed to do the Post-test if they have not done the exercises - The students are assigned to do a post-test. -After that the students will complete a questionnaire about their opinions towards the CEVLP. -They are interviewed about the program. 	<ul style="list-style-type: none"> - A multiple choice post-test with 20 questions in CEVLP -The questionnaire about the students' opinions toward CEVLP to enhance vocabulary learning 	- Result form doing a post - test and the questionnaires

APPENDIX B

Pre-test and Post-test

Pre-test

1. I received a certificate of Appreciation for a job well done. What does the word "certificate" in this sentence mean?

- a) paper
- b) file
- c) credential
- d) envelope

2. They made him an offer he couldn't refuse. What does the word "refuse" in this sentence mean?

- a) reject
- b) accept
- c) recommend
- d) agree

3. A third-degree is Burn much worse than a first-degree. What does the word "burn" in this sentence mean?

- a) freeze
- b) heat
- c) glace
- d) refrigerate

4. I didn't do it. It wasn't my Fault . It was someone else's Fault! What does the word "Fault" in this sentence mean?

- a) correct
- b) right
- c) mistake
- d) truth

5. Should you suffer in silence because no one wants to hear you complain? What does the word "suffer" in this sentence mean?

- a) happy
- b) lucky
- c) fine
- d) hurt

6. My brand new TV is still in the box. What does the word "brand" in this sentence mean?

- a) logo
- b) name
- c) sign
- d) card

7. Fruits, vegetables, and fish should always be fresh. What does the word "fresh" in this sentence mean?

- a) new
- b) fishy
- c) stuffy
- d) foul

8. You should put cold water on coffee and blood stains immediately. What does the word "stains" in this sentence mean?

- a) cleans
- b) blemishes
- c) rinses
- d) wipes

9. Hundreds of people are injured in traffic accidents daily. What does the word "injured" in this sentence mean?

- a) healed
- b) cured
- c) pained
- d) pleased

10. Most working people are employees employed by employers. What does the word “employees” in this sentence mean?

- a) laborers
- b) librarians
- c) lawyers
- d) roommates

11. Almost every tourist carries a camera with him. What does the word “tourist” in this sentence mean?

- a) carpenter
- b) traveler
- c) cameraman
- d) engineer

12. "Put this stuff away at once!" she yelled in an anger. What does the word “yelled” in this sentence mean?

- a) whispered
- b) gossiped
- c) shouted
- d) cried

13. Love and hate are opposite emotions. What does the word “emotion” in this sentence mean?

- a) feelings
- b) tastes
- c) thoughts
- d) beliefs

14. The baby often annoys the mother. What does the word “annoy” in this sentence mean?

- a) bothers
- b) loves
- c) hates
- d) Impresses

15. Computers are difficult, so I get confused. What does the word “confuse” in this sentence mean?

- a) uncleared
- b) understood
- c) stressed
- d) frustrated

16. This hospital has a lot of new equipment. What does the word “equipment” in this sentence mean?

- a) doctor
- b) tool
- c) medicine
- d) patient

17. Try to estimate how much you spent on books. What does the word “estimate” in this sentence mean?

- a) evaluate
- b) predict
- c) answer
- d) think

18. This grass is too wet to sit. What does the word “wet” in this sentence mean?

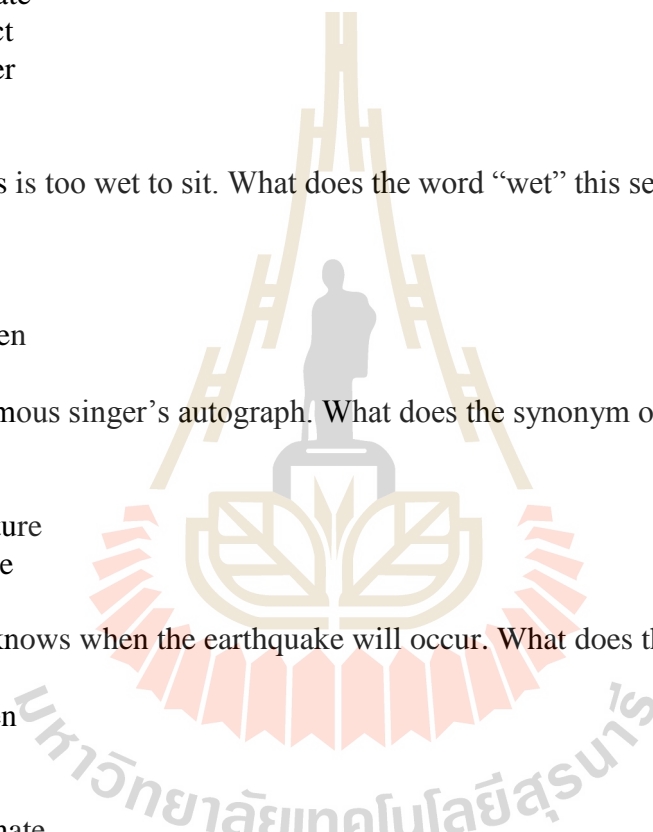
- a) dry
- b) hot
- c) cold
- d) moisten

19. I got a famous singer’s autograph. What does the synonym of “autograph”?

- a) name
- b) photo
- c) signature
- d) picture

20. Nobody knows when the earthquake will occur. What does the synonym of “occur”?

- a) happen
- b) stop
- c) finish
- d) terminate



Post-test

1. Come back! he shouted. What does the synonym word of shouted?
 - a) yelled
 - b) spoke
 - c) talked
 - d) said

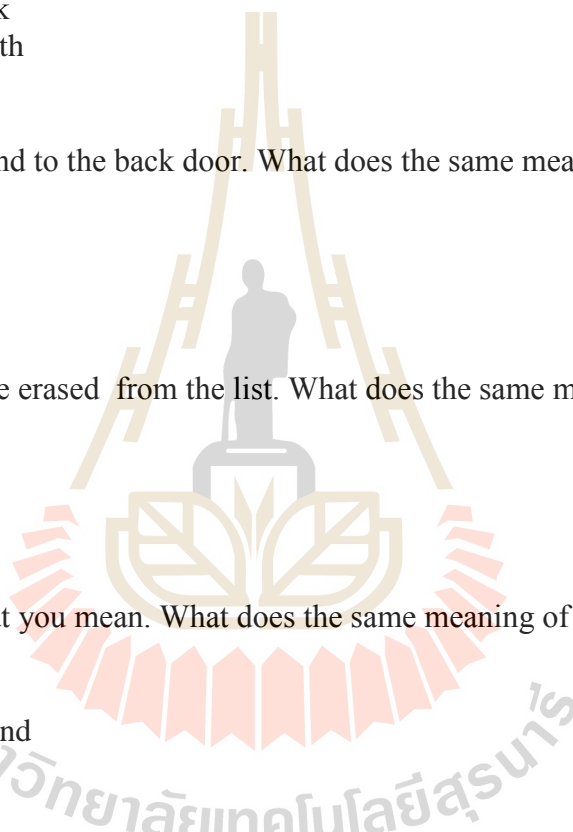
 2. I don't know my father's annual income. What does the meaning of "annual"?
 - a) Once a year
 - b) Once a week
 - c) Once a month
 - d) Once a day

 3. He sneaked around to the back door. What does the same meaning of "sneak"?
 - a) expressed
 - b) Furtive
 - c) Avoided
 - d) escape

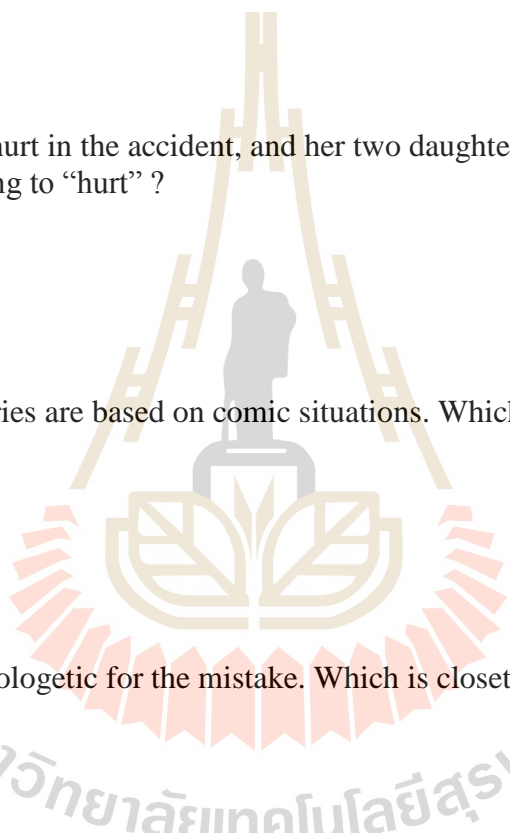
 4. Their names were erased from the list. What does the same meaning of "erased" ?
 - a) Deleted
 - b) Included
 - c) put
 - d) increased

 5. I understand what you mean. What does the same meaning of "understand"?
 - a) confuse
 - b) grasp
 - c) misunderstand
 - d) unknown

 6. We had a thrilling time at the fun park. What does the same meaning of "thrilling" ?
 - a) exciting
 - b) boring
 - c) trying
 - d) tedious

 7. The whole class burst into laughter at the teacher's joke. What does the same meaning of "burst" ?
 - a) explode
 - b) quiete
 - c) anxious
 - d) serious
- 

8. He impatiently asked for repayment. Which is closet in the meaning to “Impatiently”?
- patiently
 - happily
 - sadly
 - not patiently
9. It is strange that you should know nothing about her wedding. Which is closet in the meaning to “strange”?
- odd
 - normal
 - usual
 - common
10. The little boy embraced his dog Which is closet in the meaning to “embraced”?
- hit
 - kicked
 - enfold
 - punch
11. This ticket is available for a whole year. Which is closet in the meaning to “available”?
- unavailable
 - ready to use
 - cannot be used
 - unusable
12. She is working hard this semester. Which is closet in the meaning to “semester”?
- Education term
 - Academic year
 - school year
 - Learning program
13. You are always findings fault with me Which is closet in the meaning to “fault”?
- error
 - value
 - advantage
 - good point
14. It is dangerous to ride a motorbike without a helmet Which is closet in the meaning to “helmet” ?
- cap
 - hat
 - headpiece
 - bonnet

15. Look at the sign just ahead of you. Which is closest in the meaning to “sign”?
- a) the notice
 - b) the picture
 - c) the graphic
 - d) the photograph
16. A person who has control or direction of an institution, business, etc. Who is he?”
- a) Manager
 - b) Employee
 - c) sponsor
 - d) seeker
17. A woman was hurt in the accident, and her two daughters were too. Which is closest in the meaning to “hurt” ?
- a) sad
 - b) suffer
 - c) please
 - d) comfort
18. Most funny stories are based on comic situations. Which is closest in the meaning to “comic” ?
- a) humorous
 - b) sad
 - c) real
 - d) unhappy
19. He was very apologetic for the mistake. Which is closest in the meaning to “Apologetic”?
- a) happy
 - b) pleasure
 - c) apology
 - d) worry
20. An establishment where meals are served to customers. What is this place?”
- a) hospital
 - b) school
 - c) airport
 - d) restaura
- 

APPENDIX C

Item Analysis

The item analysis results showing the level of difficulty (p), the discrimination index (r), and the reliability (KR-20) of the pre-test and post –test

Pre test

Item	P	R
1	.529	.563
2	.529	.352
3	.412	.515
4	.417	.352
5	.412	.492
6	.529	.586
7	.529	.703
8	.359	.547
9	.471	.534
10	.412	.336
11	.529	.328
12	.412	.336
13	.647	.473
14	.353	.413
15	.412	.470
16	.647	.500
17	.471	.534
18	.529	.703
19	.471	.534
20	.529	.774

CKR20 = .828

Post test

Item	P	R
1	.505	.474
2	.536	.342
3	.659	.622
4	.536	.491
5	.598	.429
6	.474	.724
7	.505	.694
8	.474	.712
9	.659	.340
10	.474	.724
11	.536	.504
12	.567	.384
13	.659	.735
14	.474	.604
15	.567	.384
16	.628	.561
17	.598	.416
18	.628	.358
19	.505	.328
20	.443	.590

CKR20 = .812

APPENDIX D

Questionnaire

Instruction: This questionnaire is designed to gather information about your opinions towards Computer Enhanced Vocabulary Learning Program (CEVLP). It is composed of 3 parts. The first part is about your background information, the second part about your experience in using computers and the last part is your opinions towards CEVLP

Part I : Background Information

Direction: This questionnaire is designed to gather your background information.

Please provide the information about yourself by putting a tick () in the box provided

1. Sex () Male () Female
2. Age () 10 -12 () 13-15
3. Grade of English Proficiency in Grade 8

0 1 2 3 4

Part II: Your experience in using computer

Direction: Please provide your experience in using computers by putting a tick (/) in the box given.

1. What is your ability in employing computer
() Poor () Fair () Good

Part III: The Opinions towards Computer Enhanced Vocabulary Learning Program to learn vocabulary.

Direction: Please read each statement carefully and mark (/) the response which best describes your opinions towards CEVLP

5 = Strongly agree

4 = Agree

3 = Uncertain

2 = Disagree

1 = Strongly disagree

Your Opinions towards Computer Enhanced Vocabulary Learning in English Vocabulary Learning	5	4	3	2	1
1. CEVLP can increase your vocabulary skill.					
2. CEVLP is very useful in your learning.					
3. CEVLP makes learning language enjoyable.					
4. You want to learn program like CEVLP again					
5. CEVLP gives you useful experiences.					
6. CEVLP cannot motivate and make the English language learning more boring.					
7. CEVLP is not useful in your learning.					
8. Learning with CEVLP takes too much time.					
9. CEVLP cannot increase your language learning at all.					
10. The content of CEVLP makes the lesson uninteresting.					

APPENDIX E

Interview Guided Questions

1. Do you like learning English vocabulary through Computer Enhanced Vocabulary Learning Program?

2. How do you feel about learning English vocabulary through Computer Enhanced Vocabulary Program?

3. Do you have any problems in learning English vocabulary through Computer Enhanced Vocabulary Program? If yes, what are your problems?

4. Are the directions in the Computer Enhanced Vocabulary Learning Program easy to understand?

5. Is learning English vocabulary through Computer Enhanced Vocabulary Learning Program convenient to employ?

6. Do you think that you can study vocabulary through Computer Enhanced Vocabulary Learning Program on your own?

7. What part of this Computer Enhanced Vocabulary Learning Program lessons do you like most?

APPENDIX G

Interview Guided Questions (THAI VERSION)

1. คุณชอบเรียนคำศัพท์ภาษาอังกฤษผ่านโปรแกรมคอมพิวเตอร์หรือไม่

2. คุณรู้สึกอย่างไรกับการเรียนภาษาอังกฤษผ่านโปรแกรมคอมพิวเตอร์เพื่อการยกระดับการเรียนคำศัพท์

3. คุณมีปัญหาเกี่ยวกับการเรียนภาษาอังกฤษผ่านโปรแกรมคอมพิวเตอร์เพื่อการยกระดับการเรียนคำศัพท์หรือไม่ ถ้ามีปัญหาคืออะไร

4. โปรแกรมคอมพิวเตอร์เพื่อการยกระดับการเรียนคำศัพท์ที่จะเข้าใจหรือไม่

5. โปรแกรมคอมพิวเตอร์เพื่อการยกระดับการเรียนคำศัพท์ง่ายต่อการใช้หรือไม่

6. คุณคิดว่าคุณสามารถเรียนคำศัพท์ผ่านโปรแกรมคอมพิวเตอร์เพื่อการยกระดับการเรียนคำศัพท์ด้วยตัวเองหรือไม่

7. ส่วนไหนใน โปรแกรมคอมพิวเตอร์เพื่อการยกระดับการเรียนคำศัพท์ที่คุณชอบมากที่สุด

APPENDIX H

The results of the students' pre-test and post-test scores in the control group and the experimental group

The results of the students' pre-test and post-test Scores in the control group.

Students Number	Pre-test	Post-test
1	3	5
2	7	9
3	6	10
4	9	12
5	3	8
6	5	9
7	9	13
8	5	10
9	6	11
10	8	9
11	5	7
12	4	7
13	7	8
14	5	6
15	5	12
Total score	<u>87</u>	<u>136</u>
Mean score	<u>5.80</u>	<u>9.06</u>

The results of the students' pre-test and post-test scores in the experimental group.

Students Number	Pre-test	Post-test
1	9	12
2	9	13
3	9	15
4	6	16
5	8	14
6	7	13
7	5	14
8	3	15
9	5	13
10	5	13
11	9	13
12	2	12
13	9	13
14	9	16
15	4	14
Total score	99	206
Mean score	6.60	13.7

APPENDIX I

Examples of Computer Enhanced Vocabulary Learning Program



มหาวิทยาลัยเทคโนโลยีสุรนารี

CEVLV2
File

Objective (วัตถุประสงค์)

1. นักเรียนสามารถให้ความหมายของคำศัพท์ที่เรียนได้
2. นักเรียนสามารถคาดเดาคำศัพท์ที่ไม่คุ้นเคยและคำศัพท์ที่ยากได้
3. นักเรียนสามารถนำคำศัพท์ที่เรียนนำไปประยุกต์ใช้ในชีวิตประจำวันได้



CEVLV2
File



Main Page



PRE-TEST

LESSON1

LESSON2

LESSON3

LESSON4

LESSON5

POST-TEST



Vocabulary



Exit

CEVLV2
File

 **Lesson 1** 

Reading

Exercise1

Exercise2

Exercise3

Exercise4

Exercise5

Back

English is Confusing

PREPARE TO LEARN



Vocabulary 

CEVLV2
File

PRE_TEST

จงเติมเลือกคำตอบที่ถูกต้องที่สุด

Question : I didn't do it. It wasn't my Fault . It was someone else's Fault! Fault mean?

1 correct

2 right

3 mistake

4 truth

CEVLV2
File

Page1

English is Confusing

"Good evening, everybody!" said the teacher, Donna.

"Where is everybody?" That was sort of a daily joke by Donna. Usually the class started with only two or three students present, and then filled up as the minutes went by. It was summertime. Summer school was only eight weeks long. Class **attendance** was always smaller than during fall and spring **semesters**.

"I don't know, teacher. Maybe they late or no come," said one student. "Maybe watching TV football tonight."

"Is there a **soccer** game tonight? It seems like there's a soccer game every night. Oh, well. Let's get started, okay? We're on page 36 in the workbook. Tonight we're studying participles as adjectives. Students are always **confused** when they learn about the present and past participles, so we will practice this a lot. Tonight, we're just going to practice the present participle.

Page2

"The present participle tells us what **emotion** or feeling the subject is causing. For example, 'Grammar is boring?' means that the subject—grammar—causes an **emotion** of **boredom**. If we say, 'The movie is interesting,' we are saying that the movie causes a feeling of interest. If we say, 'The roller coaster is exciting,' we are saying that the roller coaster causes a feeling of excitement. Any questions so far? Am I **confusing** you? Is everyone **confused**?"

The classroom was quiet. Donna looked at **blank** faces. They were **confused**. She knew this would take a while. But eventually, the faster students would **grasp** it, and then they would help the slower students. By the end of the evening, most of the class would feel comfortable using the present participle.

Donna **erased** the board and put some new examples on it. She loved guiding her students through difficult topics like this one. She always felt a little bit **thrilled** when the look of understanding came to their faces.

Back

CEVLV2
File

Exercise1

จงพิมพ์คำศัพท์ภาษาอังกฤษที่มีความหมายดังต่อไปนี้ (มีทั้งหมด 10 ข้อ ข้อละ 1 คะแนน)

หน้าเบื่อ (The state of being bored; tedium; ennui.)

Ans

ลองใหม่อีกครั้งนะคะ ___edom

CEVLV2
File

Exercise 2

จงเรียงตัวอักษรให้ถูกต้องตามลำดับ

c e f o n u s

Thai Meaning : สับสน

Meaning : To make unclear or indistinct.

Next

CEVLV2
File

Exercise 3

จงเติมคำในช่องว่างด้วยคำต่อไปนี้ thrilled, grasp, confused, attendance, emotion, semesters, soccer

“Good evening, everybody!” said the teacher, Donna. “Where is everybody?” That was sort of a daily joke by Donna. Usually the class started with only two or three students present, and then filled up as the minutes went by. It was summertime. Summer school was only eight weeks long. Class was always smaller than during fall and spring .

“I don’t know, teacher. Maybe they late or no come,” said one student. “Maybe watching TV football tonight.”

“Is there a soccer game tonight? It seems like there’s a game every night. Oh, well. Let’s get started, okay? We’re on page 36 in the workbook. Tonight we’re studying participles as adjectives. Students are always when they learn about the present and past participles, so we will practice this a lot. Tonight, we’re just going to practice the present participle.

Next

CEVLV2
File

Exercise 4

จงเติมคำต่อไปนี้ลงในช่องว่าง attend, blank, emotion, confuse, grasp, erase, semester

Some schools present students who have perfect _____ance a certificate for coming to school every day.

Answer ▶

CEVLV2
File

1

Exercise 5

Question	Answer	Thai Meaning
attendance		
blank		
boredom		
confuse		
emotion		

Next

Football	Feeling	ลบทิ้ง, กำจัด	Half of the regular academic year.	Unclear
ความตั้งใจ	ตื่นเต้น	เทอมการศึกษา	The act of attending	ฟุตบอล
Boring	Understand	อารมณ์	สับสน	น่าเบื่อ
เข้าใจ	ว่างเปล่า	Delete	Excitement	Nothing

CEVLV2
File

Lesson 1

ผลการทดสอบในแต่ละ Exercise ของ
คุณ kik

Exercise1 = 0	คะแนน	คิดเป็น % ที่ทำถูกต้อง = 0%
Exercise2 = 0	คะแนน	คิดเป็น % ที่ทำถูกต้อง = 0%
Exercise3 = 0	คะแนน	คิดเป็น % ที่ทำถูกต้อง = 0%
Exercise4 = 0	คะแนน	คิดเป็น % ที่ทำถูกต้อง = 0%
Exercise5 = 0	คะแนน	คิดเป็น % ที่ทำถูกต้อง = 0%

คะแนนรวม = 0 คะแนน
เปอร์เซ็นต์ที่ทำถูก 0 %

CURRICULUM VITAE

Ms. Janisata Supasan was born on September 19th, 1986 in Bangkok. She went to study in International Business major, Faculty of Business at Rajamankala University of Technology, Bangkok. After that she studied in the school of Foreign languages, Institute of Social Technology, Suranaree University of Technology for a Master's Degree because she wanted to gain more knowledge about teaching language through Technology.

