# การพัฒนาบทเรียนคอมพิวเตอร์ช่วยสอนเรื่องปัจจุบันกาลและปัจจุบันกาลต่อเนื่องสำหรับนักเรียนชั้นประถมศึกษาปีที่ 6 โรงเรียนอัสสัมชัญระยอง

นางสาวกุหลาบ สอาด

วิทยานิพนธ์นี้เป็นส่วนหนึ่งของการศึกษาตามหลักสูตรปริญญามหาบัณฑิต
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# THE DEVELOPMENT OF COMPUTER ASSISTED INSTRUCTION ON PRESENT SIMPLE TENSE AND PRESENT CONTINUOUS TENSE FOR PRATHOM VI STUDENTS AT ASSUMPTION COLLEGE RAYONG

**Miss Kularb Sa-ard**

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

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# THE DEVELOPMENT OF COMPUTER ASSISTED INSTRUCTION ON PRESENT SIMPLE TENSE AND PRESENT CONTINUOUS TENSE FOR PRATHOM VI STUDENTS AT ASSUMPTION COLLEGE RAYONG

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

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กุหลาบ สอาด : การพัฒนาบทเรียนคอมพิวเตอร์ช่วยสอนเรื่องปัจจุบันกาลและปัจจุบันกาลต่อเนื่อง สำหรับนักเรียนชั้นประถมศึกษาปีที่ 6 โรงเรียนอัสสัมชัญระยอง (THE DEVELOPMENT OF COMPUTER ASSISTED INSTRUCTION ON PRESENT SIMPLE TENSE AND PRESENT CONTINUOUS TENSE FOR PRATHOM VI STUDENTS AT ASSUMPTION COLLEGE RAYONG) อาจารย์ที่ปรึกษา: อาจารย์ ดร.บรรเจิด จงอภิรัตนกุล, 146 หน้า. ISBN 974-533-347-6

การวิจัยนี้มีวัตถุประสงค์คือ 1) เพื่อพัฒนาการสอนผ่านบทเรียนคอมพิวเตอร์ช่วยสอนเรื่องปัจจุบันกาลและปัจจุบันกาลต่อเนื่อง 2) เพื่อหาประสิทธิภาพของบทเรียนตามเกณฑ์มาตรฐาน 80/80 3) เพื่อเปรียบเทียบผลสัมฤทธิ์ทางการเรียนก่อนและหลังการเรียนของนักเรียนในกลุ่มควบคุมและกลุ่มทดลองที่เรียนด้วยบทเรียนคอมพิวเตอร์ช่วยสอนเรื่องปัจจุบันกาลและปัจจุบันกาลต่อเนื่อง 4) เพื่อศึกษาเจตคติของนักเรียนที่มีต่อการเรียนด้วยบทเรียนคอมพิวเตอร์ช่วยสอน

กลุ่มตัวอย่างคือนักเรียนชั้นประถมศึกษาปีที่ 6 ที่กำลังเรียนวิชาภาษาอังกฤษ (Grammar) ในภาคเรียนที่ 1 ปีการศึกษา 2546 โรงเรียนอัสสัมชัญระยอง อำเภอเมือง จังหวัดระยอง จำนวน 80 คน โดยแบ่งเป็นกลุ่มควบคุมและกลุ่มทดลอง หลังจากได้ทำการทดสอบก่อนเรียนทั้งสองกลุ่มแล้ว กลุ่มควบคุมได้เรียนแบบปกติ กลุ่มทดลองได้เรียนผ่านบทเรียนคอมพิวเตอร์ช่วยสอนเรื่องปัจจุบันกาลและปัจจุบันกาลต่อเนื่อง จากนั้นให้นักเรียนทำแบบทดสอบหลังเรียน กลุ่มทดลองจะตอบแบบสัมภาษณ์และทำแบบสอบถามเจตคติ การวิเคราะห์ข้อมูลใช้การวิเคราะห์ความแปรปรวนร่วม (ANCOVA), การหาค่าเฉลี่ย และค่าร้อยละ

ผลการวิจัยพบว่า การสอนผ่านบทเรียนคอมพิวเตอร์ช่วยสอนเรื่องปัจจุบันกาลและปัจจุบันกาลต่อเนื่องที่สร้างขึ้นมีค่าประสิทธิภาพ 83.65 / 80.65 คะแนนที่ได้จากการสอบหลังเรียนของกลุ่มทดลองและกลุ่มควบคุมแตกต่างกันอย่างมีนัยสำคัญทางสถิติที่ระดับ 0.01 และนักเรียนมีเจตคติที่ดีต่อการสอนผ่านบทเรียนคอมพิวเตอร์ช่วยสอน

สาขาวิชาภาษาอังกฤษ ลายมือชื่อนักศึกษา……..

ปีการศึกษา 2547 ลายมือชื่ออาจารย์ที่ปรึกษา……..

ลายมือชื่ออาจารย์ที่ปรึกษาร่วม……..

ลายมือชื่ออาจารย์ที่ปรึกษาร่วม……..

KULARB SA-ARD: THE DEVELOPMENT OF COMPUTER ASSISTED INSTRUCTION ON PRESENT SIMPLE TENSE AND PRESENT CONTINUOUS TENSE FOR PRATHOM VI STUDENTS AT ASSUMPTION COLLEGE RAYONG. THESIS ADVISOR: BANJERT CHONGAPIRATTANAKUL, Ph.D., 146 PP. ISBN 974-533-347-6.

The purposes of this study were 1) to develop the Computer Assisted Instruction on Present Simple Tense and Present Continuous Tense; 2) to determine the efficiency of the courseware based on the 80/80 standard; 3) to compare between control group and experimental group students' learning achievement between the pre-test and the post-test of the Computer Assisted Instruction entitled Present Simple Tense and Present Continuous Tense; 4) to study students' attitudes towards learning CAI lesson.

Through randomly assigned, 80 students were selected from Prathom VI students who studied English (Grammar) in the first semester in the Academic Year 2003 at Assumption College Rayong, Muang District, Rayong. They were divided into the control group and the experimental group. After giving a pre-test, the control group was taught by the researcher using teacher's manual whereas the experimental group was taught by Computer Assisted Instruction on Present Simple Tense and Present Continuous Tense. After that, both groups were asked to do a post-test. For the experimental group, a semi-structured interview and attitude questionnaires were administered. The statistical analysis of the data included ANCOVA, arithmetic mean, and percentage.

The findings were as follows:

1. The efficiency of the Computer Assisted Instruction developed was 83.65/80.65.

2. The English learning achievement of students in the experimental group was higher than the control group with statistically significant difference at the level 0.01.

3. The students' attitudes towards learning via the Computer Assisted Instruction were positive.

School of English

Academic Year 2004

Student's Signature……

Advisor's Signature……

Co-advisor's Signature……..

Co-advisor's Signature …….

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Kularb Sa-ard

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# CHAPTER 1

# INTRODUCTION

## 1.1 Introduction

This study is a report of the use of the Computer Assisted Instruction by the students at Assumption College Rayong. The first chapter of this study presents the background of the study, defines the research, and indicates the study purposes and expected outcomes. The chapter concludes by noting the parameters of the study and defining some special terms used.

## 1.2 Background of the Study

In the world of globalization, there continues to be an ever-increasing interaction and interrelationship between the use of languages and their interface with technology. This is particularly true in the world of communication, especially as this is applied to teaching and the acquisition of learning. English is now the main international language that is heard around the world. People use English language in communication and in a wide variety of contexts. These range from political dialogue between nations to the implementation of international trade and global economic issues. The primary concern of this thesis, however, is the impact of English in the world of education with a special focus on the interaction between the teaching of English as a global language and the use of telecommunications to this end.

English is the language taught as a second language and foreign language in Thailand. Throughout Thailand, English is a curriculum subject for every level of education. It has been taught in kindergarten schools, primary schools, secondary schools and universities. However, learning and teaching English in Thailand has not been very successful due to many factors, for example, students' lack of motivation in learning English, differences in students' English background knowledge, and in teaching techniques (Prarubruksa, 1999). In the factors mentioned above, teachers attempt to provide efficient instruction, and instructional materials for ESL and EFL learners.

Presently, it is seen that computer technology plays an important role in the English language classroom. This is useful not only for teachers but also for students. Since the 1980's, it is obvious that the computer has a great potential in language learning (Nasir, 1999). Therefore, computers have been used in language learning and have become a valuable tool for language teaching and learning activities. They enable teachers to employ new methods to integrate culture, grammar, and real language use.

Higgins stated that computers provided teachers with new methods of incorporating culture, grammar, and real language use in the classroom while students gained access to audio, visual, and textual information about language (Higgins, 1993). Technology, in general, and computers in particular, are used in both the ESL and NSs classrooms for both teachers and learners to facilitate the language learning process and to make it more interesting and exciting for the learners, especially those who have no motivation and have at last found a remedy (Pagnucci, 1998). Furthermore, teachers can handle a range of activities and performed-programmed

functions at remarkable speed. They can check exercises each time they are done, move students along from easier to more difficult exercises according to their levels and abilities.

The computer can serve a variety of uses for language teaching. It can be a tutor offering language drills or skill practice; a stimulus for discussion and interaction; or a tool for writing and research (Warschauer, 2000). However, Garrett pointed out that, " the use of the computer does not constitute a method ." Rather, it is a, "medium in which a variety of methods, approaches, and pedagogical philosophies may be implemented." (Garrett, 1991)

CAI or Computer Assisted Instruction assists teachers with spreading information to students and providing practice opportunities for sharpening language skills. Teachers are able to use CAI to provide remedial help for students requiring extra assistance in a specific content area, to extend and expand on concepts taught for those students requiring further change, and provide additional practice on skills for all students (Mathison and Lungren, 1989). Gourgey (1987) reported that traditional uses of Computer Assisted Instruction could have significant implications for improving both student, “academic achievement and student attitudes” especially as this applies to at-risk learners.

What relevance might these research findings have on contemporary Thai education, and what further research is required to test these findings within one area of the Thai educational system? The present research is conducted in this Thai context with primary education in one school as its particular emphasis and focus, namely Assumption College Rayong. Although ACR is a private school, it comes within the remit of the Thai Ministry of Education, which is responsible for the syllabus for

language at the all levels, including primary. The principal aims at primary level is to provide the learners with sufficient background for their further study of the language in the future. It gives special emphasis to speaking and listening skills, and to correct pronunciation. The learner should be able to communicate and write in basic every day language (Ministry of Education 1978a). The structure of the English syllabus for the primary level has been divided into two levels such as Preparatory Level for Prathom 1-3, Beginner Level for Prathom 4-6 (Ministry of Education, 1999).

In Assumption College Rayong, English has been taught as a foreign language at every level, kindergarten, primary and secondary. However, learning and teaching English in ACR are not very successful for several reasons. These reasons include ineffective teaching methods, lack of background knowledge of the students, inappropriate teaching materials and large numbers of the students in each class. Especially in primary level, the students learn English for many years but they still cannot communicate in their daily life. More importantly, the results of the achievement test in English for Prathom Six students showed that the scores of testing were quite low, especially in grammar. In this research, the researcher examined the scores for the test and found that the students had a lot of problems, especially with grammar and vocabulary.

To be successful learners, there are requirements not only for the four English language skill practice, but also those for grammar. The study and practice of the rules of grammar help learners know how words change and how they are put together to construct sentences. There are several kinds of grammatical rules of English, but the most common mistakes of Prathom VI students in Assumption College Rayong are

the confusions of tense use, especially the Present Simple Tense and the Present Continuous Tense.

The researcher is interested in developing CAI for Prathom VI students in order to solve grammar problem with the use of the Present Simple Tense and the Present Continuous Tense and to use technology enhanced language learning to achieve this. Therefore, this study includes an exploration of the development of a Computer Assisted Instruction to teach English Grammar especially in these areas for Prathom Six students at Assumption College Rayong.

## 1.3 Research Definitions

This research is concerned with exploring the use of the Computer Assisted Instruction of Assumption College Rayong students. It is a combination of quantitative and quanlitative ( Classroom research ). It possesses experimental design, quantitative data and interpretative analysis. The study involves the use of the attitudes towards Computer Assisted Instruction (CAI) in language learning questionnaire.

## 1.4 The Purposes of the Study

The purposes of the study are:

1. to develop to determine the efficiency of the Computer Assisted Instruction on Present Simple Tense and Present Continuous Tense based on the 80/80 standard.

2. to compare control students and experimental students' learning achievement between the pre-test and the post-test of the Computer Assisted Instruction entitled Present Simple Tense and Present Continuous Tense.
3. to study students' attitudes towards learning through a CAI lesson.

## 1.5 Research Hypothesis

1. The Computer Assisted Instruction entitled Present Simple Tense and Present Continuous Tense has the efficiency on the 80/80 Standard.
2. There will be a significant difference between the pre-test and the post-test at the .05 level of significance.
3. The rating scale of the attitude test will show that more than 80% of the students have a good attitude positive opinion towards learning this course ware at more than 2.50 criteria.

## 1.6 Scope and Limitations of the Study

The subjects for this study are Prathom VI students at Assumption College Rayong in Rayong Province. Therefore, the results of this study cannot be representative of other students who study at the same level in other schools.

The present study investigated students' use of Computer Assisted Instruction in basic Education in English language learning. In addition, assesses the effectiveness of CAI itself at Assumption College Rayong in order to make use of the research findings for instructional management supported by the Computer Assisted Instruction.

## 1.7 Expected Outcomes

The research findings are expected to be used for implications for teaching and learning and development of Computer Assisted Instruction to teach English grammar for basic education and distance learning.

## 1.8 Definitions of Key Terms

1.8.1 **Assumption College Rayong Students** mean the students who are studying at Assumption College Rayong in Rayong province. They are the Prathom VI students that are 11-13 years old.

1.8.2 **Computer Assisted Instruction (CAI)** means a Computer Assisted Instruction designed to instruct on Present Simple Tense and Present Continuous Tense for Prathom VI students at Assumption College Rayong. It was created by the researcher using a Macromedia Dreamweaver 4.01 Program and can be presented to the students via web or personal computer.

1.8.3 **Attitudes** means the opinions of the students about learning via the Computer Assisted Instruction on Present Simple Tense and Present Continuous Tense.

## 1.9 Summary

In this chapter, the researcher has given a description of the background of the study. This was followed by research definitions, purposes of the study and research hypothesis. Then, the scope and limitations of the study, the expected outcomes, and finally the definitions of key terms are presented.

# CHAPTER 2

# REVIEW OF RELATED LITERATURE

## 2.1 Introduction

This chapter discusses the related literature Computer Assisted Instruction (CAI). It presents some details about computer, Computer Assisted Instruction, constructivist theory, distance education, use of the Web for learning, and the English curriculum. Lastly, this chapter concludes with previous researches on Computer Assisted Instruction both on domestic researches and overseas researches.

## 2.2 Computer

### 2.2.1 What is the computer?

Sharp (2002) has defined that a computer is a machine that can handle huge amounts of information at an incredible speed. Computers do not have brains, feelings, or the ability to solve their own problems, they can solve only those problems they have been programmed to solve. A typical computer system found in a normal classroom might have a monitor, keyboard, mouse, printer, internal disk drive, hard disk drive, CD-ROM drive, modem, and speakers.

A computer performs four tasks:

1. receiving input such as figures, facts, or sets of instructions;
2. storing information by placing it in a memory;
3. processing the data by acting on the information, and

4. outputting the information by generating the results of the processing.

For many years computers have been used widely by educational agencies for administrative purposes such as maintaining students' records and scheduling classes. More recently, with the advent of the microcomputer, applications to direct instruction have been increasing rapidly. The computers, especially when combined with electronic transmission systems, can be used in an almost unlimited variety of ways in an almost unlimited variety of instructional situations and settings (Heinich, Molenda, and Russell,1985).

### 2.2.2 Computer -Based Education

The general concept of Computer-Based Education, however, is commonly considered to encompass two major categories: Computer Assisted Instruction (CAI) and Computer-Managed Instruction (CMI).

CAI uses the computer directly as a medium of instruction and information delivery system. The computer's ability to engage in instructional "dialogue" with the students while delivering information makes it adaptable to any number of instructions.

CMI is basically a management technique for keeping track of instruction and supplying support services, such as materials appropriate to specific learning objectives, at specific stages of learner progress.

### 2.2.3 Computer Activities

The computer revolution impacts upon all aspects of society including education. The numbers of computers in the schools steadily increases each year.

Education futurists such as Perelman (1992) stated that the rapid growth of information technology will force restructuring of the way we operate academic activities in school. Many schools are already involved in setting up problem - oriented environments, with students working co-operatively to solve computer-simulated problems.

The possibility that students in school today will need to be able to operate computers in their post- high school job in some capacity is almost a certainty. Therefore, teaching effective and creative uses of the computer is imperative for teachers.

As teachers prepare students to be productive, active members of society, the need for knowledge of computer and computer capability is essential. Students need to learn computer skills that demonstrate they are in control of the functions of the computers. Students should view the computers as a tool or source of information they, themselves control. Unfortunately drill and practice software still dominates the uses of computers in most schools. The learners are guided by the software and responds when prompted.

Today many school reformers believe that the use of the computers can develop critical thinking and problem-solving skills in students, if the computers are properly used in learning activities. They also believe that students are able to access, manipulate, organize, and evaluate information (Bazeli, and Heintz, 1997).

Papert (1980) stated that a computer should be an object to think with rather than a dispenser of information. Furthermore, students should be prepared to be active life -long learners, engaging in authentic tasks and producing realistic projects (Heinich et al., 1996)

### 2.2.4 The Advantages of Computers

As an active mode of instruction, computers require learners response. Gagne (2000) has mentioned that the advantages and the limitations of computers are as followed:

**The Advantages of Computers are:**

1. Computers can facilitate self-paced learning. In the CAI mode, for example, computers individualize learning, while giving immediate reinforcement and feedback.
2. Computers are multimedia tools. With integrated graphics, prints, and video capabilities, computers can effectively link various technologies. Interactive video and CD-Rom technologies can be incorporated into Computer-Based Instructional units, lessons, and learning environments.
3. Computers are interactive. Microcomputer systems incorporating various software packages are extremely flexible and maximize learner control.
4. Computer technology is rapidly advancing. Innovations are constantly emerging, while related costs drop. By understanding their present needs and future technical requirements, the cost-conscious educator can effectively navigate the volatile computer hardware and software market.
5. Computers increase access. Local, regional, and national networks link resources and individuals wherever they might be. In fact, many institutions now offer complete undergraduate and graduate programmes relying almost exclusively on Computer-Based Resources.

**The Limitations of Computers are:**

1. Computer networks are costly to develop. Although individual computers are relatively inexpensive and the computer hardware and software market is very competitive, it is still costly to develop instructional networks and purchase the system software to run them.
2. The technology is changing rapidly. Computer technology evolves so quickly that the distant educator focused solely on innovation "not meeting tangible needs" will constantly change their equipments in an effort to keep pace with the "latest" technical advancements.
3. Widespread computer illiteracy still exists. While computers have been widely used since the 1950's there are many who do not have access to computers or computer networks.
4. Students must be highly motivated and proficient in computer operation before they can successfully function in a computer-based distance learning environment.

### 2.2.5 Types of Educational Applications

Taylor (quoted in Merrill and et al, 1996) has suggested that all educational applications of computers can be placed into one of three major classifications: tutor, tool, or tutee. Taylor's scheme, by defining several subcategories within each classification, and identifying where specific applications might be placed.

#### 2.2.5.1. Tutor Applications

In tutor applications, the computers act as a tutor by performing a teaching role. In effect, the student is tutored by the computer. These types of applications are often referred to by several different labels such as Computer-Based Instruction (CBI), Computer Assisted Instruction (CAI), or Computer Assisted Learning (CAL). The general process is as followed:

1.1 The computers present some information.

1.2 The students are asked to respond to questions or problems related to the information.

1.3 The computers evaluate the students' respond according to specified criteria.

1.4 The computers determine what to do next on the basis of its evaluation of the response.

Tutor applications can be further classified into five categories : drill-and practice applications, tutorial applications, simulations, problem-solving applications, and games.

1. Drill-and-Practice Applications

In drill-and practice applications, the computers are used to help the students memorize the appropriate responses to some stimuli. The most common applications include drills on maths facts, spelling words, shapes, and colors.

2. Tutorial Applications

The primary purpose of tutorial applications is to teach new information. Tutorial applications are similar to a programmed textbook. Some relatively small pieces of information are presented, the students are asked to respond

to questions about the informations, and the computers provide feedback concerning the accuracy of the students' responses. Then the cycle is repeated: more informations, questions, and feedback. Ideal tutorial programmes are able to tailor the materials to the needs of individual students. If particular students are having difficulty, the computers can present remedial materials. Students who are doing well may skip over elaborations, extra examples, or practice items.

3. Simulations

Simulations are representations or models of real systems or phenomena. They allow students to experience certain phenomena vicariously with less risk and cost. Simulations can also allow students to experience phenomena that would otherwise be too expensive or time consuming. A computer simulation of the stock market enables students to buy and sell stocks without investing real money, and they can see the results of their decisions immediately.

4. Problem-Solving Applications

Problem-solving applications provide settings in which students can learn and improve their problem-solving skills. These settings may or may not simulate some real-world phenomenon. In any case, the students are given a variety of problem situations in which they must use logical reasoning skills.

5. Game Applications

Game applications are used to bring interest and motivation to the learning situation. Computer Programmes of this type involve competitive play between a student and one or more opponents. Elements of gaming can be added to each of the tutor applications already described.

#### 2.2.5.2. Tool Applications

In tool applications a computer is an instructional tool similar to a pencil, a typewriter, a microscope, a slide rule, a piano, or a drafting table. With the computers, students can calculate numbers with great speed and accuracy. They can type and edit papers, reports, and themes using a word- processing computer programme. The computers can even be used as a tool to assist the student composers and artists. Computer based tools are also helpful to teachers and school administrators. Tool applications are beginning to invade our work, our play, our schools, and even our homes.

#### 2.2.5.3. Tutee Applications

In tutee applications the computers become the tutees, or students, and the users become the teachers. The users have to teach the computers to do some tasks. To do this, the users have to learn how to communicate with the computers in a language that the computers understand. In essence, the learners must learn how to write computer programmes. A computer programme is a set of commands that tell the computers how to accomplish particular tasks or solve problems. Before students can programme the computers to solve problems, they must first understand how to solve the problems themselves. These require the development and the use of thinking skills and problem-solving skills. Most educators would agree that the development of such skills is one of the major goals of education.

### 2.2.6 Instructional Design and Computer Applications

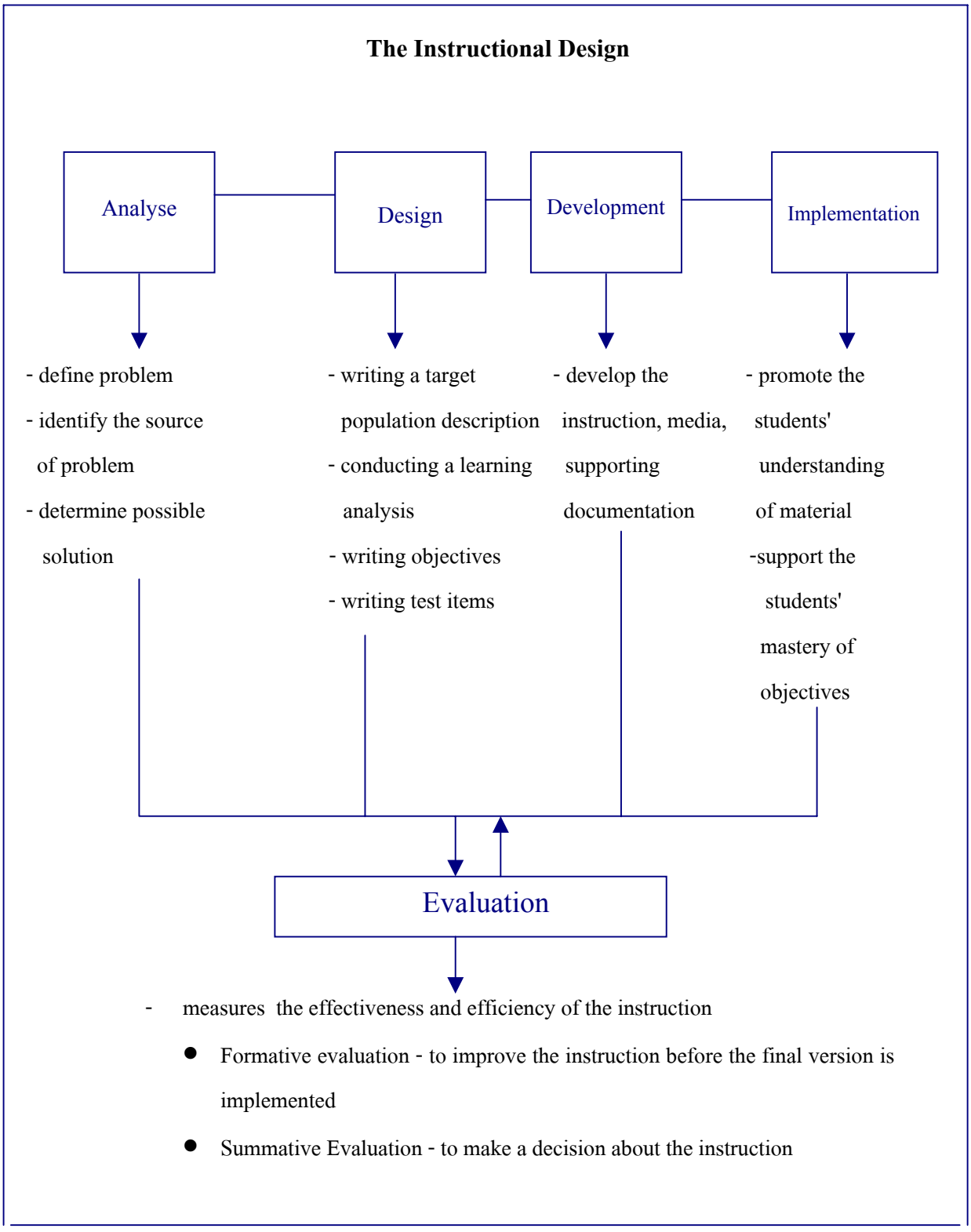
Instructional design is a systematic approach to course development that ensures that specific learning goals are accomplished. It is an interactive process that

requires ongoing evaluation and feedback (General Instruction Design Phases, 2000). It refers to the process of instructional programme development from start to finish. The teachers or instructional designers need to consider instructional design theory as well as linguistic theories when designing and developing curricula and materials (Hart, 1987 as cited in Hoffman, 1995-1996). Otto stated that performance objectives must not only correspond to course content and evolve sequentially, they must take into account how language and culture interact and how this interact affects lesson organization (Otto, 1982 as cited in Hoffman, 1995-1996).

As pointed out above, the teachers can apply this model of instructional design to develop the materials or technology tools such as computers in teaching methods.

Many models exist for use by different levels of instructional designers and for different instructional processes; however, the following diagram illustrates the different levels of instructional design that can be summarized into five general phases.

Figure 2.1: The Instructional Design




Source: General Instruction Design Phases, 2000

## 2.3 Computer Assisted Instruction

### 2.3.1 The Definitions of Computer Assisted Instruction

There are various definitions of CAI; Computer Assisted Instruction and they are as followed;

According to the Longman Dictionary of language Teaching and Applied Linguistics, the Computer Assisted Instruction is the use of a computer in a teaching programme. This may include; first, a teaching programme, which is presented by a computer in a sequence. The students respond on the computers, and the computers indicate whether the responses are correct or incorrect. The second stage is the use of computers to monitor students' progress, to direct students into appropriate lessons, material, etc (Platt et al, 1992).

Computer Assisted Instruction involves the use of computers to present instruction to students. It is the interaction between a computer system and students. Computer Assisted Instruction is designed to help students learn new material or improve their knowledge of materials previously studied.

Merrel (1985) has given the meaning of computer as an electronics instrument that has capability of displaying information data in the programme that human created.

Miller (1986) said that CAI is the computer programme that focuses on having newly three types of skill or cause convenience in study. The three types of skill are acceptable to all as followed: practical and performance skills, simulation skills and teaching skills.

Sawananount (1987) said that Computer Assisted Instruction uses a computer in the studying processes, reviewing lessons, doing exercises or testing and provides a means of continuous communication between students and computers.

Sukpredee (1990) has given the meaning: that is one type of teaching programmes that includes the combination of lessons in programmes and assisted instruction materials together.

Malithong (1993) has mentioned that CAI is the high technology instructional media while using computers in CAI in the studying process can facilitate communicative skills between students and computers providing the same opportunity as instructors and students in a normal classroom. Besides, the computers have the ability of simultaneous response to the students input data that much assists the student. For that reason, CAI is widely used in order to provide a variety of teaching process. In creating CAI lesson, programmes used the theory of correlation between motivation and response by designing the programme to be started from motivating the students, evaluating the response or feedback from students and then the students shall select the next step.

Rattanapian (1993) said that CAI lesson is the use of computer technology to assist the teaching process and the students studying from the created programme in any available set. The computer programme will monitor the contents and study activities.

Sang-ong (1993) has summarized the meaning of CAI as followed:

1. Utilizing microcomputer in teaching and studying process so that the students can use it in a self-study package where they are able to study and review their lessons any time.

2. It is a computer programme that includes the contents of the subject matter presented systematically.

3. Using a computer as an instrument in this study will include the contents, exercises, and the examination that have developed into computer programmes. The capability of presenting the contents in the form of letter and graphics include the questions and answers from the students, checking the answers and providing results as feedback to the students.

Computer Assisted Instruction (CAI) usually can be used by an individual student at a time, as part of the instructional activity. The major strength of Computer Assisted Instruction is that it is interactive, the informations, questions, and other stimuli flow from computers to students, but then the students can provide the input that shapes the next computer output (Moore, 1998).

It can be summarized that, CAI is a computer programme used for teaching a particular subject matter which students can use as a self-study tool. The instructors are no longer the teachers, instead CAI becomes the medium of teaching, guided by the instructors. The teaching process that uses CAI will treat the computer as instructional media not the instructors.

### 2.3.2 Classification of Computer Assisted Instruction

Computer systems deliver instructions directly to students by allowing them to interact with lessons programmed into the system, this is referred as Computer Assisted Instruction (CAI). The various instructional methods that the computers can facilitate most effectively are drill-and-practice, tutorial, games, simulation, discovery learning, and problem solving.

#### 2.3.2.1 Drill and Practice Method

The programme leads the learners through the series of examples to increase dexterity and fluency in the skill. The computer cannot display impatience and will proceed ahead only when mastery is shown. Drill and practice is predominantly used for maths drills, foreign language translating practice, vocabulary building exercises, and the like. Other drill and practice programmes, such as sentences, let the learners practice construction of sentence.

Drill and practice programmes provide a variety of questions with various formats. The trainees are usually given several attempts before the computers present the correct answers. Several levels of difficulty are available within the same drill-and-practice programmes. Positive and negative feedback as well as reinforcement can be included.

#### 2.3.2.2 Tutorial Method

In the tutorial role, the computers act as teachers. All interactions are between the computers and the learners. One example of the tutorial method is Problem - Solving Strategies, which guide the learners through the applications of three strategies, providing instruction, practice, and feedback based upon the students' response. The students are encouraged to guess, and the programmes provide feedback and do not penalize them for guessing.

#### 2.3.2.3 Teaching Through Games

Game activities may or may not entail simulation elements. Likewise, the games may or may not be instructional. It depends on whether or not

the skills practiced in the games are an academic or training one, which are related to specific instructional objectives.

Currently, recreational games can serve useful purposes in building up computer literacy in an enjoyable, non-threatening manner. But the ultimate goal of useful learning must be kept in mind. Instructors, experienced in computer use, recommend rationing purely recreational game use, using it as a reward for completing other assignments.

#### 2.3.2.4 Simulation Method

In this method, the learners confront a scaled-down approximation of a real -life situation. It allows realistic practice without the expense or risks otherwise involved. A large number of civilian and military occupations involve the operation or maintenance of complex equipments such as aircrafts, manufacturing machines, weapons systems, nuclear power plants, and oil rigs with the assistance of computer simulation.

A number of open-ended simulations that do not have stated objectives are available. Instructors and / or learners must determine their own objectives. Some of these simulations do not provide instructions within the programmes. The instructors must provide this information before the simulation or let the learners discover the effect of changing certain variables for themselves. These simulations can be used in a variety of ways to suit the needs of the instructional situation.

#### 2.3.2.5 Discovery Method

Discovery is a general term to describe activities using an inductive approach to learning; that is, presenting problems, which the students solve through trial and error or systematic approaches. It is equivalent to laboratory learning outside the classroom.

In CAI, using the discovery method the learners employ an information retrieval strategy to get information from a database. For example, a salesperson interested in learning about competitors' products can select from a set of critical product features, display them on the computer, and draw conclusions about the comparisons of the products.

#### 2.3.2.6 Problem-Solving Method

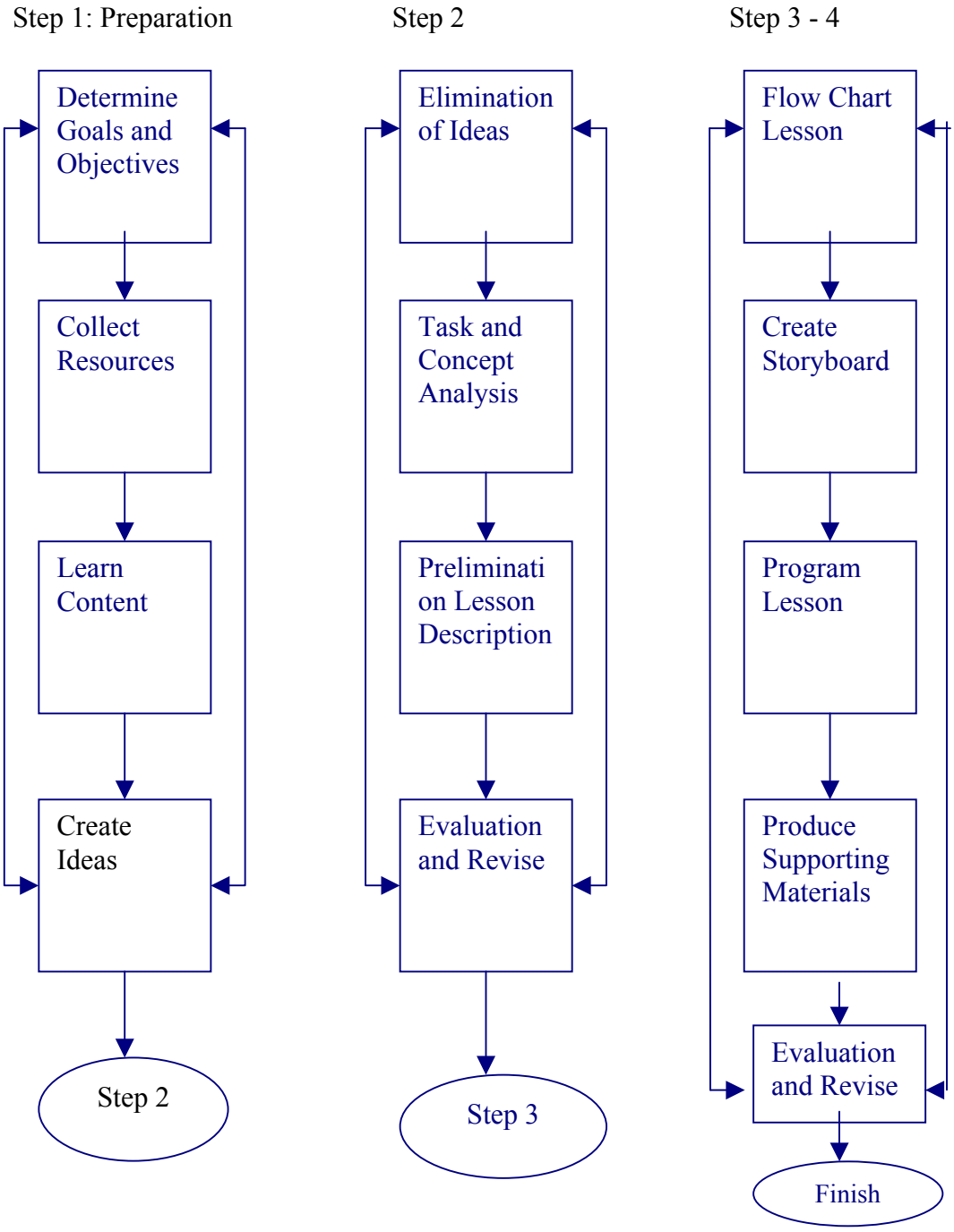
Problem-solving programmes fall into two categories, those the learners write and those written by someone else to help the learner solve problems. In learner-written programmes, the students define a problem logically and write a computer programme to solve it. The computers will do the necessary calculations and/or manipulations to provide the answers. In this case the computers aid the learner in attaining problem-solving skills by doing complex calculations and manipulations.

In the second category, the computers are the problem solver. The computers make the calculations while the students manipulate one or several variables. The learners may wish to factor a certain trinomial so that a mathematical problem involving rectangles can be solved. The issue is not whether the learners can factor, but whether the learners can solve a problem involving rectangles. Factoring is a tedious task that can be done quickly by the computers. A previously written programme can be used to factor as many trinomials as are supplied by the learners.

### 2.3.3 Step by Step Approach to Computer Assisted Instruction

Step of design the Computer Assisted Instruction is prime importance step that affected the efficiency of CAI consists of 7 steps (Alessi and Trollip, 1991) as followed:

**Figure 2.2:** CAI Design Model of Alessi and Trollip, 1991



#### 2.3.3.1 First Step: Preparation

It is vital in designing a lesson to ensure that the preparation is through, if it is to be effective. The designer has to be ready with clear goals and objectives. In order to create and get the best of brain-storming, this step is of vital importance and might need plenty of time in both the design and follow up usage.

**1. Determine Goals and Objectives**

The goals and objectives for the students' study need to be clearly set. This involves the initial lesson, supplement, additional exercise and test which must reflect the objective of the original lesson plan. However, the designer needs to learn the background of the targeted audience beforehand. Since the goals and objectives need to influence the lesson plan.

**2. Collecting Resources**

Collecting resources includes the availability of information resources which includes the materials, instructional development and instructional delivery system which involves the use of a computer.

**3. Learning the Contents**

It is very important thing for the designers in learning the contents. Because, if the designers don't know the contents clearly, it will lead to the limitation of guiding to study, presentation of contents or feedback and even for testing the students.

**4. Generate Ideas**

This step is to generate ideas by brain-storming to obtain a wide variety of ideas from a team in a short period of time. There are four rules of brain-storming to be observed as followed:

- Suspend judgments the teacher's behalf
- Free wheel
- Quantity
- Cross fertilize

#### 2.3.3.2 Second Step: Design Instruction

This step will cover: the elimination of ideas, first analyse the possible design plan idea, evaluate and revise. This is the one of most important steps to determine what form the instruction will take.

**1. Elimination of Ideas:**

This will begin with eliminating the ideas that are impossible to put into practice, or the repetition of ideas and gathering the remainder of interesting ideas for reconsideration.

**2. Task and Concept Analysis:**

This is the attempt to analyse the content that the students will study, including the issue they are required to learn. In addition, idea analysis involves carefully considering all the possible content until the final content is refined and defined.

**3. Preliminary Lesson Description:**

This will include study description, type of CAI, steps in learning and the necessary skills required. This is a primary factor to be considered in the design of each CAI.

**4. Evaluation and Revision of the Design**.

It is important to design the instruction in a systematic way and to examine regularly during the design stage, not only after the completion of the programme. Evaluation may include the ability test with the students.

**2.3.3.3 Third Step: Flow Chart of Lesson**

A flow chart is a symbolic way of explaining the programme of learning. Flow chart is one of important step and will not display on monitor screen as in making storyboard. But, it will present the structure of Computer Assisted Instruction with the data of programme, such as what will be displayed if the students selected the wrong answer or when would the lesson be completed.

**2.3.3.4 Fourth Step: Step of Creating Storyboard**

The fourth step of preparation is to present the contents on paper in order to present the next and other media on computer screen in appropriation. This step should include evaluation, revision of the lesson from storyboard until it reaches satisfaction. This will help in examining the contents that might not be clear, confusing, missing or too easy or difficult for the students.

**2.3.3.5 Fifth Step: Creating and Writing the Programmes**

It is the process of changing storyboard into CAI. Writing the program means using programme to create CAI lesson such as multimedia and tool book. The designer must know how to select the appropriate programme to ensure best use is made of the time available.

#### 2.3.3.6 Sixth Step: Produce Supporting Materials

The supporting materials are grouped in four areas and are: 1. Student handbook, 2. Instructor handbook, 3. Trouble shooting technique handbook and 4. Additional documents such as worksheet.

#### 2.3.3.7 Seventh Step: Evaluation and Revision

All study guide and publications should have been passed evaluation step, especially in the portion of presentation and performance of the instruction. The evaluator shall be the person who has previous experience in designing the process. The evaluator should have observed students' behaviour while using the instruction or be able to interview the students after completion of the instruction.

The seven steps in designing of CAI are a flexible guide. Although the design that follow step by step is important. But sometimes a modification of design process is also important. And just in case if it is impossible to follow the model as in straight line, the evaluator can change the steps.

### 2.3.4 Advantages and Limitations of Computer Assisted Instruction for Students and Teachers

#### 2.3.4.1 Advantage of Computer Assisted Instruction

The computer can be viewed as a tool for enhancing instruction through CAI. It is the interactive nature of computer instruction that underpins most of its advantages because as an active mode of instruction, it requires learner response. The specific advantages are the following:

1. Simply allowing the students to learn at their own pace produces significant time saving over conventional classroom instruction. Computer- Base Instruction allows students some control over the rate and sequence of their learning. (learner controlled learning)
2. High-speed personalized responses to learner actions yield a high rate of reinforcement.
3. The patient, personal manner that can be programmed provides a more positive affective climate, especially for slower learners.
4. Colour, music, and animated graphics can add realism and appeal to drill exercises, laboratory activities, simulation, etc.
5. The record-keeping ability of the computers make individualized instruction feasible; individual prescriptions can be prepared for all students (particularly mainstreamed special students), and their progress can be monitored.
6. Memory capacity allows students' past performance to be recorded and used in planning the next steps.
7. Computers can provide coverage of a growing knowledge base associated with the information explosion. More information is put easily at the instructors' disposal. Computer- Based Instruction also provides a board diversity of learning experiences. The types of learning experiences can utilize a variety of instructional methods and can be at the level of basic instruction, remedial, or enrichment.

8. The computers provide reliable and consistent instruction from learner to learner, regardless of the teacher/trainer, the time of the day, or the location.
9. Computer Based Instruction can improve efficiency and effectiveness. Effectiveness refers to improved learner achievement, where as efficiency means achieving objectives in less time or at lower cost. Efficiency is very important to business and industrial applications and is becoming increasingly important in education settings.
10. One serendipitous effect of working with computers is that they literally force us to communicate with them in an orderly and logical way. The computer users must learn to communicate with explicit, exact instructions and responses. The computers reject any departure from precision. Observers who have watched the development of young people as they work with computers, particularly in computer programming, note a tendency for orderly, logical thinking to be carried over into other areas of the students' work. Deductive reasoning thus becomes the "hidden curriculum" or concomitant learning an unintended but welcome side effect of contact with computers.
11. Computer users learn keyboarding or typing skills. Now very young children as well as adults are developing these skills in order to communicate with computers.

Gerrard has also mentioned about advantage of CAI as followed:

1. While dismiss from class the student able to study from CAI.
2. CAI is better than many other normal instructions.

3. CAI is student's private computer.
4. CAI will automatically assess the student progress.
5. CAI will provide a chance for the students to work with numerous software and better than normal class lesson. Also the students can participate in active learning aspect and solve a complicated problem.

#### 2.3.4.2 Limitations of Computer Assisted Instruction

As we have seen with all the other media and technological innovations, there are always trade-offs to be made and limitations to consider. Some of the major limitations of the computers in instruction are as followed:

1. Despite the dramatic reduction in cost of computers and computer use, computerized instruction is still relatively expensive. Careful consideration must be given to the costs and benefits of computers in education and training. Maintenance can also be a major cost consideration, especially if the equipment is subjected to heavy use.
2. There is a lack of high- quality materials for use with computers. There is also a compatability problem. Software developed for one computer system usually cannot be used with another. The ease with which software can be duplicated without permission has inhibited some commercial publishers and private entrepreneurs from producing and marketing quality instructional software.
3. Users, both learners and teachers, may have unrealistic expectations of Computer-Base Instruction. They view computers as magical and expect

learning to happen with little or no effort. Unfortunately, learners and teachers derive benefits proportional to their investments.

4. Computers can teach a limited range of objectives. Most Computer-Base Instruction does not teach effectively in the affective, motor, or in the cognitive domain, programmes tend to teach at the lower levels of knowledge and comprehension.
5. Design of instructional materials for use with computers is a laborious task, even for instructors with courseware design skills. Consequently, quality Computer-Base Instruction is expensive.
6. Creativity may be stifled in computerized instruction. The computer is slavish in its adherence to its programme. A creative or original learner responses will be ignored or even rebuked if the programme's designer has not anticipated such a possibility.
7. Computer-Based Instruction usually lacks socialization. Learners tend to work on their own at the computers, and there is little if any face-to-face interaction with teachers or other learners.
8. Some learners, especially adult learners may resist the linear, lock-step control of the learning process typical of computer instruction materials.
9. The novelty associated with CAI in its earlier days seems to be decreasing. As learners become more familiar with computers in home and the workplace, the newness of the stimulus wears off and has less motivational value.
10. Design and production of computers specifically for instructional purposes has lagged behind design and production for other purposes.

## 2.4 Constructivism and Technology

Constructivism is an educational philosophy, which holds that learners ultimately construct their own knowledge that then resides within them, so that each person's knowledge is as unique as they are. It is based on students' active participation in problem-solving and critical thinking regarding a learning activity, which they find relevant, and engaging. They are "constructing" their own knowledge by testing ideas and approaches based on their prior knowledge and experience, applying these to a new situation, and integrating the new knowledge gained with pre-existing intellectual constructs (Briner, 1999). In the constructivist theory the emphasis is placed on the learners or the students rather than the teachers or the instructors. It is the learners who interact with objects and events and thereby gains an understanding of the features held by such objects or event.

Clouse and Nelson (2000) stated that in a constructed learning environment, students can create their own knowledge, and technology can re-align the process of teaching with the realities of the students' world and move from a teacher-centered to learner-controlled environment. Student learning becomes an active rather than a passive undertaking. The teacher becomes a facilitator/coach as opposed to “an all knowing wizard.”

### 2.4.1 The Basics of Constructivism

Bartlett (1932) pioneered what became the constructivist approach as quouated in Good & Brophy (1990). Constructivists believe that "learners construct their own reality or at least interpret it based upon their perceptions of experiences, so an individual's knowledge is a function of one's prior experiences, mental structures,

and beliefs that are used to interpret objects and events." "What someone knows is grounded in perception of the physical and social experiences which are comprehended by the mind." (Jonasson, 1991).

If each person has their own view about reality, then how can we as a society communicate and/or coexist? Jonasson, addressing this issue in his article *Thinking Technology: Toward a Constructivist Design Model,* makes the following comments:

- "Perhaps the most common misconception of constructivism is the inference that we each therefore construct a unique reality that reality is only in the mind of the knower, which will doubtlessly lead to intellectual anarchy."
- "A reasonable response to that criticism is the Gibsonian perspective that contends that there exists a physical world that is subject to physical laws that we all know in pretty much the same way because those physical laws are perceivable by humans in pretty much the same way."
- "Constructivists also believe that much of reality is shared through a process of social negotiation..."

Forman (1987) has described several constructivist beliefs:

First, a constructivist believes that knowledge can never be reduced to what we learn from our senses.

Second, a constructivist believes that development is progressed in how well the children can reflect on his or her own thinking.

Third, a constructivist believes that meaningful learning results only when the learner can ask his or her own questions.

Fourth, the constructivist believes that we teach others by providing them with opportunities to experiment. Teachers design a rich problem-solving environment.

The definitions and interpretations of Piaget's constructivist model expand to include the idea that the learner is an active participant in his/her learning from the earliest age. Constructivist learning emphasizes effort, observation, hypothesis generation and testing, and reflection more than it demands ability. In constructivist learning, both the teachers and the children have responsibilities. The children have responsibility for engaging in the learning and making connections and the teachers have responsibility for facilitating or creating a scaffold developmentally appropriate to learning strategies (Davidson and Maurer, 1998).

## 2.5 Distance Education

### 2.5.1 Definition

Distance learning or distance education as defined by Professor Dr. Wichit Srisa-an (1998) is " a teaching and learning process in which a significant proportion of the teaching is conducted by someone remote or removed in space and time from the learners. It usually involves the use of mix media reinforced by printed materials and two way communication between the tutors and the learners. It overcomes the constraints of specified location and timing of study which characterize face-to-face teaching."

Distance education can be considered as industrialized form of teaching based on objectivised, rationalized technologically produced interaction between the institution and the learner.

The Longman Dictionary of Language Teaching and Applied linguistics (1992) says that distance learning is the linking of the learners and the teachers in different locations and in real time, by telephone and telecast, via satellite, or through the use of learning package.

In summary, distance learning is a learning and a teaching system whereby the learners and the teachers interact to each other via video, radio, audio tape, television, satellite, computers, LANs, Internet, CAI, and new technology or using print materials and learning package from anywhere and far away in any time.

### 2.5.2 Case study

Distance education in Thailand was first developed in 1933 with the establishment of the University of Moral and Political Sciences and further developed by Ramkamhange University in 1971. The full use of distance education techniques was developed and implemented at the establishment of Sukhothai Thammathirat Open University in 1978 and the Borderless Education concept was initiated by Suranaree University of Technology (SUT) in 1996. SUT began its distance education project aiming at providing education to remote students in its Education Centres initially commencing in Udorn Thani and Burirum Provinces using on Screen Interactive (OSI) and Web-Based Instruction as the core media supplemented by prints, audio-visual media, and telecommunication.

The Klai Kangwon Royal Sattelite Secondary Project was a Royal initiative, inaugurated on December 5, 1995. The project is located at Klai Kangwon School in Hua Hin District, Prajuab Kirikhan Province. The project received technical

support for installation of Direct-to- Home (DTH) TV stations mainly from Shinnawatra Satellite Corporation and the Telephone Authority of Thailand (TAT).

### 2.5.3 Advantages and Limitations of Multimedia in Distance Education

Sahoo (1999) has described the advantages of multimedia in distance education as followed:

1. It can be used by distance learners having more potential for learners' autonomy in learning situation. Different features of individualized instruction like choice of content, self-paced learning, varieties of learning style, privacy, reinforcement for self-progress and interactivity are very well present in multimedia.

2. It is economical from the point of view of quality out put, reduced learning time and provision of alternative packages of instruction.

3. It is a most significant tool for motivating learners in studies, and is both exciting and enjoyable. It sustains the involvement of learners interaction between the learner and the computer with artificial intelligence.

However, there are some limitations:

1. It involves costly technology, which cannot be afforded by an ordinary learner. It can be used mainly through study centers of Distance Education institution.

2. It requires technological know how for hardware and software integration.

3. High initial costs are needed on the part of institutions to provide multimedia instruction facilities to learners in its study centers.

### 2.5.4 Computer Assisted Instruction and Distance Education

The reluctance to introduce CALL into distance education is more easily understood when one recognizes that distance education in general has made little use of computer technology. What is true of CALL and the teaching of language at a distance is also true of Computer Assisted Instruction (CAI) and distance education in general.

Researchers in the 1980s continue to refer to the future of CAI and distance education ( Kaufman, 1986; Bates, 1986); however they find little to report about the present and past. ( The Open University, or BOU, which has used Computer Aided Learning [CAL] in many science, mathematics, and technology courses, is somewhat an exception.) In fact, Laaser (1988) suggests that the two most significant ventures by distance education institutions into the field of CAI ( the STEP- Project at the Fern University and the CVCLOPS project at the BOU) proved to be expensive add-ons which failed to live up to expectations.

Distance educators refer to three distinct applications of computers to the home-study environment. Since these will form the framework for examining possible application of CAI to distance education, it is important that they be understood. These applications are Computer Managed Instruction, Computer Aided Learning, and Computer Conferencing.

## 2.6 Use of the Web for Learning

### 2.6.1 What is the World Wide Web

Roblyer (1997) has stated that the World Wide Web (WWW) is a way of organizing Internet resources so people can find them faster. The WWW began as a

text-based resource but recently has become popular for its graphic, multimedia, features. For example, hyperlinks can use pictures instead of words and can link to sounds and movies as well as text.

The Internet is a global network of networks made possible by common protocols for information exchange. The WWW acts like a global, distributed hypermedia system. It provides a standard for structuring applications as hypertext documents that can be "published" on the Internet (Boyle, 1997).

### 2.6.2 Advantages of Studying Using Web Site

As pointed out by Roblyer (1971), studying by using a web site is different from studying in a normal classroom. In the classroom, the teachers normally given knowledge to the students. This way the students are not only encouraged to search knowledge by themselves or seek for additional knowledge outside the classroom. Self-study is very useful to help the students learn on their own, which in turn helps them to understand and maintain their attention for a longer period of time. Especially by using electronic technology in developing the quality of education in higher efficiency such as teaching and learning on web in Internet network. This type of learning gives many advantages:

1. Unlimited effect: the students can be anywhere in the world that has Internet network available and can study any time. It is limited neither by place or environment, and there is no need to attend a class or go to a laboratory building.
2. Promotion of education among people. This type of studying provides a better chance of communication with other people around the world. It

allows the exchange of ideas in a wide variety of issues, without the need to travel.

3. The biggest source of knowledge in the world: Normally the students in normal classroom are using textbooks from the library which might not be up to date and the students may not find various data as fast and or as convenient as using the Internet. Since, in the Internet network students are able to search for knowledge from other institute's libraries all over the world. Besides that they are able to easily search the data from other students activities by just sitting in front of computer monitor located anywhere in the world. It can obviously be seen that the Internet network is the biggest source of knowledge in the world and it is appropriate for students involved in self-study.
4. No limitation for ones who are keen to learn. In studying in a normal class the teachers will take the part of speakers and present ideas to the students. In addition studying time is limited and the content of knowledge lacks continuity. It revealed that there are many more days that the teachers and the students will meet again in the class. Management of teaching and studying do not respond to the different needs of each student that has unequal of potential and requirement.

   So, it can be seen that if managed properly, teaching by using web can get rid of these limitations and also improve the provision of distance education and reduce the budget and expenses of management. The students will have time for searching knowledge as they require and able

to search the data continuously, also has freedom to communicate with other personnel.

5. Allows for different learning styles; The efficiency of teaching and studying has to respond to the different needs of those who study. So, studying by using the web will help and support the students in meeting their specific requirement without any influence for their study behaviour unlike when they study in a normal classroom. Students will have freedom to set the time and to read the amount of text contents and freedom to select location to present their ideas and exchange these with other students. They can study whenever they like. This is different from studying in normal class which is normally monitored by teacher all the time until the task is finished.
6. Expand the border of the class: Studying activity on Internet network will help expand the border of the class, because the students are able to use sources of knowledge in the Internet network in searching various solutions that they are interested in. In addition to that, the use of Internet network in study gives the students a chance to co-operate with others who have different ideas which allows them to see the problem from another point of view.

### 2.6.3 Computer Assisted Instruction on Web

As time has passed the technology has significantly developed. The computer systems have gained new capabilities and ability to display photographs, audio or even animation displays and can be linked within network. For this reason,

there are several producers developing software in order to assist studying processes , which is called "CAI" or Computer Assisted Instruction. The learning of CAI lesson would be student centre type.

Also the development of telecommunication systems have extended. The Internet network has been introduced and linked to schools' network. The efficiency two-direction communication network can be linked between home and school to enable communication among students, teachers, and parents over a 24 hour period regardless of student location. A chance of education are scattering with efficiency cause studying and teaching in aspect of "Asynchronous" that is mean not essential to manage students and instructors in a real classroom.

Thus "asynchronous" instruction can take place outside the set class times. The teachers can use document data or other information from the computer network that is called server to store instruction documents that can be drawn for use anytime. The teachers are able to create online text in the network and the students are able to use these texts anytime and anywhere.

The teachers using a computer network as a medium to communicate with the students and assign homework so that the students receive and complete the homework task on- line and then the students can submit work to the teachers by electronic mail or by their own homepage.

## 2.7 English Curriculum

### 2.7.1 Course of Fundamental Education BE. 2544

The progress of various technologies in the world has affected the economic and social change in every country including Thailand. It is essential to

adjust the National Education Course, which is an important part in the development of quality of education in the country. This will prepare even citizen to a global economy and create a competitive situation where everyone reaches his true potential.

The existing education course in Thailand is the Primary Education Course BE. 2521(revised BE. 2533), Beginning Secondary Education Course BE. 2521 (revised BE. 2533) and Final Secondary Education Course BE.2524 (revised BE.2533). The Department of Intelligence and Technology, Ministry of Education has researched in order to develop the course since then. They found that the existing course has been used for more than ten years and has many limitations that have prevented the improvement of the Thai society in the following important issues.

1. The course that reinforced from central could not reflect the real requirement of school and local.
2. The course management and learning of Mathematics, Science, and Technology could not place Thailand as a world leader in Science, Mathematics and Technology. It is essential to modify the learning and teaching process in order to give Thais the skills and an eagerness to study Mathematics, Science and Technology.
3. In the conduct of the course, it was demonstrated that teaching thought processes and skill management, while facing a variety of social problems, was vitae to develop an effective economy.
4. In the studying of a foreign language, the student could not use foreign language, especially English language for communication and searching for knowledge from various sources without a development in technology

The Constitution of Kingdom of Thailand BE.2540 has declared

that all personnel have an equal right to receive fundamental education up to 12 years, and the government is to provide a sufficient quality of education to all at no cost. The management of education is to rest with a local administration in the local community. Together with the Act of National Education BE.2542 which said that education is the process of learning for personal growth by means of transference of knowledge, training, teaching, the on- going study of culture, make progress in science, acquire knowledge on how to manage the environment, society of study and support factors that help the person have continuous learning for the whole of his life. Management of education must therefore be guided to develop every Thai citizen in mind, body and spirit.

Education management shall focus on knowledge, idea, ability, and morality, studying process and social responsibility to develop a balanced society. The key is the student, so that everyone can develop at any level. The aim is to fully support the students to develop naturally, emphasize knowledge about themselves and link to responsibilities in society such as family, community, nation and the world

Education institute shall manage the process of study that stresses on skills, training on thinking, acquiring knowledge to prevent and solve a problem, and to provide an activity for the students to learn from real experience. Provide practical training in order to be able to perform, think reasonably, learn continuously and mix with other branches knowledge proportionately. Develop a sound mind and character required for every group of learners. Facilitate the students to form a learning habit and to thirst for knowledge. Also to have ability of using research along with learning process with appropriate consideration of the personal differences of student in learning style.

## (1) Structure

The structures of Fundamental Education Course are as followed:

1. Educational levels:

The course is comprised of 4 levels

Level 1: $1^{st} – 3^{rd}$ year of primary class

Level 2: $4^{th}$ - $6^{th}$ year of primary class

Level 3: $1^{st} – 3^{rd}$ year of secondary class

Level 4: $4^{th} – 6^{th}$ year of secondary class

2. Studying subjects

The main subjects shall consist of knowledge, skill, or learning process and character or moral principles, behaviour of students are 8 groups as follows:

2.1 Thai language

2.2 Mathematics

2.3 Science

2.4 Social education, religion and culture

2.5 Health and physical education

2.6 Arts

2.7 Vocational and technologies

2.8 Foreign languages

## (2) Studying Management

An Act of National Education BE. 2542 in section 13 has defined the term education management as management which follows guidelines where

everyone is able to learn and develop themselves and where the students are the most important.

For this reason, studying management for each levels should have various patterns and a wide variety of method and emphasize on real time situation, self-study, group study, nature study, study by actual practice and integrated learning, analysis is one of learning process, study along with morality.

### 2.7.2 Group of Studying Foreign Language

#### 1. Preface

Group of studying foreign language is one of the eight fundamental studying group that set up to be a knowledge and study process for the enhancement of fundamental humanitarian goals and create the ideal and talent of working. By using the objective of fundamental education course as a theme and learning standardization for foreign language group that set to study English language at every level.

Studying institute could manage additional studying theme for each new subject that include the variety of intensity for the students selection by their skills, interests, requirement and the difference among personnel from level two ($4^{th}$ – $6^{th}$ year of primary class) and above. For the other foreign language and the neighbor country's language is up to the studying institute consideration in management of each subject for study as appropriate. Anyhow, the studying institute has to provide the theme of studying for each subject by their own, using themes and learning to standardize the teaching and study of foreign language.

**2. Nature / Particular Type of Study**

Studying a foreign language is different from other types of study, since students do not only study the language itself but also study to use that language as an instrument of communication with others in daily life and possibly in their future jobs. In order that the students can communicate clearly, the language used must be clear and fluent. Therefore, the best method of studying language is for the students to practice both in class and outside as much as possible. And studying should consist of various activities such as language skill practice and student practice which leads to be a learner- independence and can be used as life long learning opportunity.

The structure of foreign language course depends on proficiency-based which is of prime importance and classified in 4 levels:

1. Preparatory level ($1^{st}$ – $4^{th}$ year of primary class)
2. Beginner level ($4^{th}$ – $6^{th}$ year of primary class)
3. Developing level ($1^{st}$ – $3^{rd}$ year of secondary class)
4. Expanding level ($4^{th}$ – $6^{th}$ year of secondary class)

**3. Targeting / Expectation**

3.1 Vision:

Management of studying and teaching of foreign language in fundamental

study course is expected to whom who has continuous study of foreign language from first of primary class through the secondary class shall have a good opinion of foreign language and is capable of using foreign language to communicate in a wide variety of situation, search for knowledge, for work and to pursue the education to

higher level, know and understand the story and culture of various global communities and can exchange idea and discuss Thai culture to global society.

3.2 Quality of students:

To achieve the expected quality, the fundamental education course has specified the knowledge contents, study process and moral principles that students should have upon graduation from beginner level ($6^{th}$ – year of primary class) as followed.

Beginner level (graduate $6^{th}$ year of primary class)

1. To be able to understand and use foreign language to communicate and present information, establish personal opinion concerning their own life, daily life and community environment.
2. Should develop the skills of listening, reading, speaking about themselves, family, school, environment, food, drinks and personal relation in leisure time and entertainment, health and welfare, selling and buying, and the climate by using a vocabulary of approximately 1,050-1,200 words.
3. To be able to use single sentence and compound sentence to describe any aspect of any event.
4. Understand an article and indefinite article in both formal and informal speech.
5. Know and understand the culture and life style of the native people.
6. Capable of using foreign language in presenting and searching for knowledge in other subjects that they are interested at each level.
7. Capable of using a foreign language in the classroom and in the school in searching for more knowledge and for their pleasure.

## 2.8 Concern Researches

Computer Assisted Instruction (CAI) has been used for over 25 years. In CAI, students receive feedback from the computer, which controls the sequencing of the subject matter (Freeman, 2001). Because of increased access to computers, teachers are concerned about the effects the computer has on instruction. Many researchers and instructors have studied and compared the achievement scored of students using Computer-Assisted Instruction with the achievement scores of students receiving regular instruction. Generally, the results indicate that CAI produces equal or greater achievement. This can be supported by the following research findings.

### 2.8.1 Domestic Researches

Kachasiriphong (1983) had compared success and persistence in learning vocabulary of Mathayom 1 students who learn English by teaching method both with lesson practices in 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.

Soontthornwipharb (1985) had compared educational success of Mathayom 4 students who learn English with teachers and students learning English using computer programmes as teaching aids. It appeared that the students who learn English using a computer programme as teaching aids have a better educational success than those who learn English with teachers with a significant statistical level of 0.05.

Moryadee (1989) had compared educational success and educational persistence in learning English of Mathayom 2 students who learn English using computer programmes as teaching aids with sounds and without sounds. It appears that the educational success of both groups is not different.

Inphan (1991) had researched on the creation of English lessons with the use of computer as teaching aids for slow learners at Prathom 5. It appeared that additional English lessons with computer programme as teaching aids can help students gain better scores and students spent less time in learning English than regular learning.

Intha (1992) had studied the production of programmes as teaching aids on the ecology system for Mathayom 1 students. It appeared that the use of computer programs as teaching aids help students gain more knowledge than the original learning with significant result.

Prarubrugsa (1997) had created the Multimedia Computer Assisted Instruction (MCAI) to teach English vocabulary in Reading and Writing (E022) for Mathayomsuksa I students and studied the opinion and satisfaction of the students to the Multimedia Computer Assisted Instruction. The result of this research showed that the Multimedia Computer Assisted Instruction to teach English vocabulary in E022 subject for Mathayomsuksa I students has efficiency as criteria 94.12/85.23 and valued effectiveness index is .65, higher than expected. The students liked to learn English vocabulary from the Multimedia Computer Assisted Instruction.

Suppasetseree (1998) researched the development of communicative English Grammar courseware on conditional sentences for engineering students at Suranaree University of Technology in Nakhon Ratchasima Province. The results showed that

the Communicative English Grammar Courseware had the efficiency of 95.13/ 95.75 that was higher than the 80/80 standard level. There was a significant difference between the pre-test and the post-test at the level 0.01of significance and the students had good attitude towards learning using this courseware.

Chaisaeng (1999) had constructed preparatory Computer Assisted Instruction in English Vocabulary for Prathom Suksa 2 students. His findings showed that the Computer Assisted Instruction efficiency met the criterion at 85 percent of objective. The students were satisfied and appreciated with this Computer Assisted Instruction programme.

Dokkham (1999) had studied a comparison of Mathayom Suksa II students' English performance and motivated in learning through concentrated language encounter multimedia Computer Assisted Instruction and instruction based on the teachers' manual. The finding of the study revealed that the students taught by the instruction of concentrated language encounter multimedia Computer Assisted Instruction and instruction based on the teacher's manual showed significant difference in English performance at the level 0.01.

Chaichana (2000) had studied a comparison of learning outcomes by using Computer Assisted Instruction on stand-alone computers and the Internet. The results indicated (1) no significant difference between learning achievement by using CAI on stand-alone Computers and Internet at the level .05, and (2) the students who learned on stand-alone computers had significantly more positive opinion concerning their learning whilst using CAI than the students who learned on Internet at the level .05.

Hankul (2000) had studied about a production of Computer Assisted Instruction for teaching tenses in English (E011) for Mathayom Suksa I students. The

result of the study showed that the Computer Assisted Instruction on English tenses for E011 has achieved the expected criteria with an efficiency ratio of 85.43/84.00 and an effectiveness index of .66 which shows that it is a suitable tool for teaching and learning of English tense.

Pongkitwitoon (2000) had developed the Computer Assisted Instruction (CAI) based on constructivist theory in theoretical probability distribution on the business statistics course of Rajabhat Institute curriculum 2000. In comparing students' learning achievement and satisfaction between the students learning via CAI and students learning via CAI follow by constructivist process, the findings were as followed:

1. The efficiency of the CAI in theoretical probability distribution was 78.2/72.5, which met prescribed criterion 75/75 level.
2. Both groups of the students who studied with CAI and who studied with CAI followed by the constructivist process had significantly higher post-test scores than pre-test scores at the level .05.

**2.8.2 Overseas Researches**

Adam (1971) had studied the learning of basic vocabulary of students in primary level and concluded that lessons having contents with a clear content and which are interesting to students will help students learn vocabulary more rapidly than lesson having contents with unclear content.

Friedman (1974) had researched the teaching with computer programmes with secondary students in New York. It appeared that at first, students faced some problems about understanding lessons but later on, they understood better

and learned more rapidly. Moreover, lesson by computer programmes can be used for teaching and learning.

Miller (1974) had studied the result of the usage of computer as a teaching aid in reading English literature by experimenting with 2 groups of students, i.e. one group learned with a computer and the other group learned with a teacher in regular classroom. It appeared that the success of both groups is not different but the group who learned with computer learned the subject within a shorter time.

Schvanveldt (1977) was interested in studying the result of Semantic Context whether it will have any effect on the word recognition of Grade 2 students or not. He had the students learn words in pairs. These words are separated into 4 types as followed:

1. Both words have their individual meanings and the meanings of both words are related for example king/queen, bread/butter etc.
2. Both words have their individual meaning but their meanings are not related. For example, sing/butter, bread/queen etc.
3. One word has a meaning but the other does not have a meaning. For example hear/gmds etc.
4. Both words don't have any meaning. For example dhse/rtha etc.

After the teaching and the test, it appeared that the Semantic Context, (item 1) can help the students learn words better than the other types i.e. Students can answer quickly and correctly. He concluded that both strong and weak groups use Semantic Context in remembering English words.

Kurik et al (1983) had researched on the result of the utilisation of computer programmes within lessons in a secondary school and found that English

lesson with a computer programme can help students to have increased GPA and can study English in less time. Although students have positive attitude towards computer but it has small effects towards the contents of subjects and the learning and teaching.

Crow and Quigley (1985) had studied the method of vocabulary teaching for using Productive vocabulary in reading subject by relating the scope of meaning to international students who were studying at North Texas State University, in the intensive English language Institute of 420 students. It appeared that the students who were subjects to the experiment can learn vocabulary more than the control group and the students like the teaching by this method.

Bangert-Drowns et al (1985) researched the Results of an English lesson using computer programme at Secondary level and found that computerised lesson made students have a good attitude towards the teaching and learning by computer. Students at higher secondary level have a good attitude indeed more than the students of lower secondary level and have a significant result towards students who have a bad attitude towards computer and students who learn slowly.

Kulik, J.A. & Kulik, C.C. (1989) researched the result of using a computer as a teaching aid and found that the lesson using computer as a teaching aid can help reduce learning period and students develop a good attitude towards computer subject and teaching.

Clayton, Ida Long (1992) had studied the relation between the method of using computer as a teaching aid in reading and the success of learning in mathematics. The result of the research is that use of the computer as a teaching aid can improve the reading skills of students in level 4, improve their grades and improve their attitude towards reading.

Khalili and Shashaani (1994) reviewed 36 published studies to see how effective CAI was in improving students' academic achievement. They concluded that computers were very effective in improving academic performance and that duration of computer usage was an important factor.

Mann and Shakeshaft (1997) did a study that was commissioned by participating New York school districts to see if computer technology made a difference for the region's students, teachers, and schools. The Researchers found that students' achievement was higher in schools in which teachers believed that technology had a positive impact on learning. Moreover overall gain from increased use of computer-related technology for students and teachers was statistically significant.

Christmann, Badgett, and Lucking (1997) compared the academic achievement of secondary students across academic areas. These students were instructed by CAI alone, by traditional methods supplemented with CAI, or by traditional methods alone. In addition, the study compared the recent results with earlier research findings. The study result showed that the average student receiving traditional instruction supplemented with CAI achieved higher academic achievement than did 57.2 percent of the students receiving traditional instruction alone. However, the effect of CAI on academic achievement showed a decline during the 12-year period; there was a very high correlation between the size of the effect and the number of years.

Sivin-Kachala (1998) did find an increase in achievement from pre-school through higher education for regular and children with special needs.

Schacter (1999, as sited in Sharp, 2002) examined 700 studies on current research on achievement and technology. He found that students who use CAI and other technologies show achievement gains on standardized tests, national tests, and constructed tests.

## 2.9 Summary

This chapter has provided the details of computer, Computer Assisted Instruction and constructivist theory. Then, it was followed by the feature of distance education, and use of the web for learning. Moreover, it extended over the details of English curriculum. Finally, it presented concerned research on Computer Assisted Instruction both on domestic and overseas researches.

# CHAPTER 3

# RESEARCH METHODOLOGY

## 3.1 Introduction

This chapter describes the research methodology used in the present study. The research methodology includes the participants, the instruments, the data collection, the data analysis, and the statistical method.

## 3.2 Research Methodology

This investigation was a quasi - experimental research to determine the efficiency of the Computer Assisted Instruction on English Grammar in Prathom VI students at Assumption College Rayong in the first semester of Academic Year 2003.

The 80 subjects for this study were randomly selected from 240 Prathom VI students at Assumption College Rayong. They were divided into one experimental group and one control group. Both groups were given the pre-test.

After giving a pre-test, the control group was taught by the teacher following the teacher's manual. Meanwhile the experimental group was taught by the Computer Assisted Instruction. The experimental group was interviewed. After that, both groups were given a post-test and the attitude questionnaires concerning CAI was administered for the experimental group. The statistical analysis of the data included, T-test, percentage, mean of frequency and two-way ANCOVA.

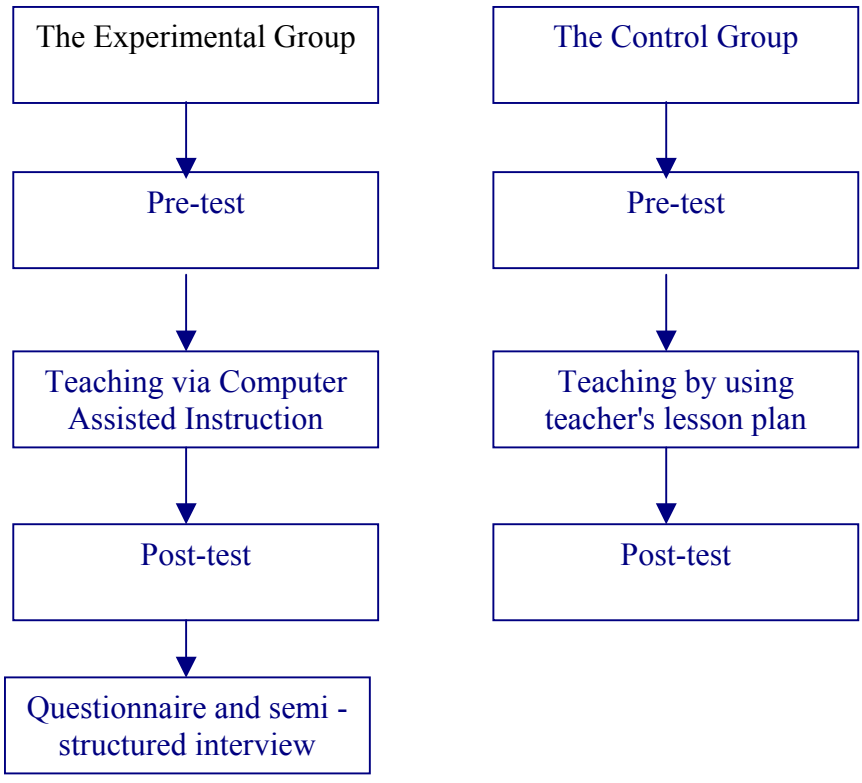
## 3.3 Research Design

This study employed non-equivalent control group design or pre-test – post-test a random design.

| | | |
|---|---|---|
| O 1 | x | O 2 |
| O 3 | | O 4 |

The experimental group was taught by the Computer Assisted Instruction on Present Simple Tense and Present Continuous Tense via the school web site, meanwhile the control group was taught by the researcher followed by the teacher's lesson plan. The experimental group was trained in using the courseware for three hours before the experiment to adjust their computer experiences. After that the questionnaire concerning students' attitudes towards learning via the Computer Assisted Instruction and the interview guided questions were administered to the experimental group at the last lesson.

Figure: 3.1 Research Design



## 3.4 Variables

### 3.4.1 Independent Variables

1. Teaching Methods

   1.1 Teaching method based on the teacher' s manual

   1.2 Teaching method based on the Computer Assisted Instruction of Present Simple Tense and Present Continuous Tense

### 3.4.2 Dependent variables

1. Students' English achievement
2. Students' attitudes towards learning the courseware

## 3.5 Population, Sampling and Location of Research

The population were 240 Prathom VI students studying in the first semester, in the Academic Year 2003 at Assumption College Rayong. There were six classes in Prathom VI, consisting of 40 students in each class. The 80 students were a randomly selected sample resulting in an experiment group and a control group from 240 students. There were 40 students in an experimental group and 40 students in a control group. The participants in the experiment group were trained in using the courseware for three hours before the experiment to adjust their computer experiences. This study was investigated at Assumption College Rayong, Rayong Province, Thailand.

## 3.6 Instrumentation

The instruments that were used in this study were the Computer Assisted Instruction, pre-test and post-test, questionnaire, the lesson plans and the semi-structured interview.

1. The Computer Assisted Instruction on English Grammar entitled Present Simple Tense and Present Continuous Tense was designed by a researcher.
2. The tests for measuring the students' English achievement before and after the experiment consisted of pre-test and post-test. The constructed tests were 20 multiple-choice questions. The specialists examined them to measure content validity and reliability before they were used.
3. The questionnaire was designed to gather the following information from the participants in this investigation. It was composed of 3 parts. The first part was about background information, the second part was about students' experience in using computers and the last part was their attitudes towards Computer Assisted Instruction in English language learning.
4. The lesson plans for English grammar on Present Simple Tense and Present Continuous Tense for the students in control group were the same content as in Computer Assisted Instruction for the students in the experimental group.
5. The semi- structured interview was employed with the students of experimental group.

## 3.7 Construction and Efficiency of the Instrument

The instruments were constructed and tested their efficiency as the following:

**3.7.1 The Computer Assisted Instruction** on English Grammar entitled Present Simple Tense and Present Continuous Tense was designed by a researcher as follows:

1. The researcher studied the English Grammar for Prathom VI students.
2. The researcher designed and created the Computer Assisted Instruction lesson by using Dreamweaver Version 4.0 Program.
3. The researcher designed the pages of the Computer Assisted Instruction. The first page of the CAI consisted of instruction, links, downloads, home, learning objectives, pre-test, Present Simple Tense lesson and exercises, Present Continuous Tense lesson and exercises, post-test, search, and activities. The details of each menu are as followed:

"Instruction" is a page of step by step instruction about how to learn through this CAI.

"Links" is a page consisted of the web site of the schools of St. Gabriel' s foundation in Thailand, free e-mail address, newspaper that the students can study and search for new information by themselves

"Download" is a page for the students to download some useful web site for them.

"Home" is a first page of the CAI. It consists of a school symbol, a welcome page, a title of the CAI, a researcher's name, an instruction, links, downloads, home,

learning objectives, pre-test, Present Simple Tense lesson and exercises, Present Continuous Tense lesson and exercises, post-test, search and activities.

"Learning Objectives" is a page to inform the students about the objectives of learning on Present Simple Tense and Present Continuous Tense.

"Pre-test" consists of ten multiple choice test that the students have to do before studying the content. They can check the answer and know the result.

"Present Simple Tense" is a page consisting of seven parts as followed;

- The meaning of Present Simple Tense
- Structure of the sentences
- Examples
- How to use the present tense of a verb
- How to use Present Simple Tense
- Form of the sentences
- Exercises

"Present Continuous Tense" is a page containing seven parts that includes;

- The meaning of Present Continuous Tense
- Structure of the sentences
- Examples
- How to add "ing" after verb
- How to use Present Continuous Tense
- Form of the sentences
- Exercises

"Post-test" is a page containing ten multiple choice questions that the students have to do after studying both Present Simple Tense and Present Continuous tense lessons.

"Search" is a page providing some web site about English Grammar which the students can study by themselves out side the classroom.

"Activities" is a page for the students to do and practice more exercises about Present Simple Tense and Present Continuous Tense.

4. The courseware was examined and evaluated by specialists.
5. The researcher tried out the Computer Assisted Instruction lesson in order to improve the quality of the courseware.

To evaluate the effectiveness of the Computer Assisted Instruction on Present Simple Tense and Present Continuous Tense, there were three steps to carry out. The three steps of the pre trials were as follows.

**3.7.1.1 The one- to- one try out**

The CAI lesson was used with 3 students with different proficiency, which represents 1 able student, 1 moderate student and 1 less able student. The able student got English test scores in Prathom V from 80% up, the moderate student was got 60-79 %, and the less able student got below 60 % scores. The three students were assigned to do a pre-test, and then they learned English on Present Simple Tense and Present Continuous Tense via Computer Assisted Instruction for 8 sixty minute periods. While the students were studying through the Computer Assisted Instruction on Present Simple Tense and Present Continuous Tense, they were asked to do the exercises. After that, they were asked to do a post –

test and give some opinions about Computer Assisted Instruction. The scores students obtained from the exercises and a post-test were calculated to find out the efficiency of process (E1) and the efficiency of the outcomes respectively. Then the researcher improved the Computer Assisted Instruction following the students' comments. The following formula was used to evaluate and calculate for the efficiency of the CAI lesson.

**Formula 1**

1. $E_1 = \frac{\overline{x}}{A} \times 100$

$E_1$ = Efficiency of the process

$\overline{x}$ = Average score students obtained from the exercises

$A$ = Total score of the exercises in the lessons

2. $E_2 = \frac{\overline{x}}{B} \times 100$

$E_2$ = Efficiency of the outcomes

$\overline{x}$ = Average score students obtained from the post-test

$B$ = Total score of the post-test in the lessons

( Promwong, 1978 )

**3.7.1.2 The small group try out**

The nine students who participated in this step were three from each group of the able, moderate, and the less able students. They were asked to do pre-test before learning grammar on Present Simple Tense and Present Continuous Tense via Computer Assisted Instruction for 8 sixty - minute periods. While the students were studying through Computer Assisted Instruction, they did the exercises

from the lesson. Then they were asked to do a post-test and give some opinions. In the step of small group try out, the efficiency of the process (E1) and the process of the out comes (E2) were calculated from the students' exercises and a post-test. The researcher improved some parts by changing the size and the colour of the letters and also the movement of the letters in some parts where the students said it was too fast to follow. The research added the sound in the Computer Assisted Instruction and added more moving pictures.

#### 3.7.1.3 The field study try out

There were 30 students with three different English proficiency levels participated in this step. There were 10 able, 10 moderate, and 10 less able students. They were asked to do pre-test. Then they learnt via Computer Assisted Instruction for 8 sixty minute periods, did the exercises and the post-test. The scores of the exercises in the Computer Assisted Instruction on Present Simple Tense and Present Continuous Tense, and the post-test scores from the field study try out were determined to find out the efficiency of the CAI based on 80/80 standard level (Promwong, 1978).

### 3.7.2 The Lesson Plan for the Control Group and the Experimental Group

Both lesson plans covered the contents of Present Simple Tense and Present Continuous Tense. The lesson plan for the experimental group was constructed followed by the teacher's manual and it was examined by the specialists. Meanwhile, the lesson plan for the control group was constructed followed by the

Computer Assisted Instruction and then the specialists examined the lesson plan before it was used. (see Appendix B)

**3.7.3 Tests**

The pre-test and post-test were constructed and tried out by the researcher. Each test consisted of same twenty multiple choice questions. The following are the steps of construction of the test.

1. The researcher studied the content of English Grammar focus on Present Simple Tense and Present Continuous Tense for Prathom VI.
2. The researcher constructed the test about Present Simple Tense and Present Continuous Tense that consisted of 40 multiple choice with four alternatives.
3. The items of the test were improved and corrected by the specialist.
4. A pilot study was conducted with the students who studied in Phatom VI at Assumption College Rayong the 2002 academic year.
5. An Item analysis was carried out from the data obtained from the pilot study. Each question was analyzed for the level of difficulty and the discrimination power (r) by using the Item Response Theory or IRT software programme developed by Assoc. Prof. Dr. Sirichai Kanjanavasi, Assoc. Prof. Kanit Khaimook, and Assoc. Prof. Dr. Suwimol Wongwanit, the lecturers at Suranaree University of Technology. The criteria used to select the test items are $0.3 <= p => 0.7$, and (r) is equal or more than 0.2.

6. The researcher selected 20 test items as a pre-test and a post-test. (See Appendix C)
7. The reliability of the test was determined by using the Kuder-Richardson's formula (K.R.20) The IRT software programme was used to calculate the reliability of the test. It was accepted at KR-20 ≥ 0.7. (see Appendix D) The K.R. 20's formula is presented below.

**Formula 2 : K.R.20**

$$r_{tt} = \frac{n}{n-1}\left\{1 - \frac{\Sigma pq}{S^2_t}\right\}$$

n = Numbers of question

p = The portion of students who correctly answered each question

q = The portion of students who incorrectly answered each question

= 1 - p

$S^2_t$ = Variance of the total score

The following formula was used to analyse the discrimination index of the questions in both pre-test and post- test.

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

D = Discrimination index

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

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

n = Number of students in both high and low group

### 3.7.4 Questionnaire

The researcher designed and constructed a questionnaire concerning attitudes towards learning by Computer Assisted Instruction lesson which had 3 parts; students background information, students' experiences in using Computer and attitudes towards the courseware. A rating questionnaire was developed to determine the students' attitudes towards learning with CAI lesson in the second part. Five- point Likert scales was used for rating their attitudes were as followed:

5 4 3 2 1

5 means Strongly agree

4 means Agree

3 means Uncertain

2 means Disagree

1 means Strongly disagree

The questionnaire was constructed and developed step by step as follows:

1. The researcher studied how to construct the attitude questionnaire as explained by Likert's method.

2. The researcher collected and arranged the issues with regard to learning via the Computer Assisted Instruction on Present Simple Tense and Present Continuous Tense into a list.

3. The researcher constructed sixteen statements based on the issues complied from learning via computer assisted instruction on Present Simple Tense and Present Continuous Tense. The statements comprised 8 positive statements, and 8 negative statements.

Rating scale used for positive statements were as follows.

| | | |
|---|---|---|
| 5 | means | Strongly agree |
| 4 | means | Agree |
| 3 | means | Uncertain |
| 2 | means | Disagree |
| 1 | means | Strongly disagree |

Rating scale used for negative statements were as follows.

| | | |
|---|---|---|
| 1 | means | Strongly agree |
| 2 | means | Agree |
| 3 | means | Uncertain |
| 4 | means | Disagree |
| 5 | means | Strongly disagree |

4. The sixteen statements were examined by the specialists, Assoc. Prof. Dr. Kanit Khaimook and Dr. Banjert Chongapirattanakul from Suranaree University of Technology, Archarn Marisa Singhapan, the head of Academic Department from Assumption College Rayong, and Archarn Cholthicha Boonleing, the vice president of Classroom Research Department from Assumption College Rayong.

5. The researcher tried out the statements with 30 samples.

6. Each item for five –point rating scale was calculated by using the t-test.

7. The researcher selected ten items which had the most significant differences at the level 0.05 to be part of the questionnaire (See Appendix G).

8. The method of Coefficient Alpha of Cronbach, the reliability coefficient value must be more than 0.80. The reliability coefficient value calculated was .8763 (See Appendix G).The data obtained were calculated by SPSS software programme.

### 3.7.5 Semi- Structured Interview

The researcher constructed the semi structured interview to inquire about the students attitudes towards a CAI lesson. The interview topics were developed into seven questions. The specialist examined the interview before using with the experimental group after they were assigned to do the attitude test. The students were divided into groups of eight and were interviewed for twenty minutes. The researcher recorded the interview by using a tape recorder and noted in the report.

## 3.8 Data Collection

The data collection involved the following steps:

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

3.8.2 The participants in the control group were taught by the teacher based on the lesson plan and the experiment group was taught by the Computer Assisted Instructions. Both groups studied the same content, Present Simple Tense and Present Continuous Tense.

3.8.3 The participants in both groups were asked to complete the post-test and then the experimental group were asked to do the attitude test towards Computer Assisted Instruction after the last lesson.

3.8.4 The students in the experimental group were interviewed about their attitudes and their cognitive after studying through the courseware.

## 3.9 Data Analysis

The data was analyzed and interpreted by using the data analysis methods as the follows.

### 3.9.1 Quantitative Data Analysis

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

#### 3.9.1.1 The Scores from the Pre-test and Post-test

ANCOVA analysis was employed to remove extraneous variability that derives from pre-existing individual differences, such as students' English background knowledge or English proficiency level of the students. Pre-test, a covariate, was used to adjust the variability. The ANCOVA model by Scheffe is an uncontrolled variables-reducing experimental design. The computer software programme SPSS was used for the analysis.

In order to measure the students' English proficiency before and after being taught by the Computer Assisted Instruction and by teacher 's manual instruction, the pre-test and post-test were calculated for the arithmetic means ($\bar{x}$).

### 3.9.1.2 Data from the Attitude Questionnaire

The data from 5-rating scale was calculated for the arithmetic means ($\bar{x}$). These means presented the students' attitudes towards learning through the Computer Assisted Instruction. The criteria for interpretating the data was from a range divided by numbers of levels created. This was (5-1) ÷ 5 = 0.80. The mean was added up with 0.80 for each level. The following criteria was used for interpretation.

| **Means ($\bar{x}$)** | **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 |

### 3.9.2 Qualitative Data Analysis

Qualitative data included the data from the interviews about the students' opinion through the Computer Assisted Instruction.

### 3.9.2.1 The Analysis of the Data from the Interview.

The data was obtained by recording and transcribed in full. After that the transcripts were interpreted to find out their attitudes and reaction towards learning the Computer Assisted Instruction.

## 3.10 Summary

This chapter presented a research procedure. It explained a definition of population and samples of the 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. Lastly, the data analysis of the instruments were identified. The next chapter will present the result of the research and the discussion.

# CHAPTER 4

# RESEARCH RESULTS AND DISCUSSIONS

## 4.1 Introduction

This chapter presents the result of the research and reflects back to the purposes as stated back in chapter I. The aims were

1. to develop the Computer Assisted Instruction on Present Simple Tense and Present Continuous Tense for Prathom VI students at Assumption College Rayong.
2. to determine the efficiency of the courseware based on the 80/80 Standard
3. to compare control students and experimental students' learning achievement between the pre-test and the post-test of the Computer Assisted Instruction entitled Present Simple Tense and Present Continuous Tense.
4. to study students' attitudes towards learning through a CAI lesson.

The finding has been presented in three main parts. The first part presents the results of the development of Computer Assisted Instruction on Present Simple Tense and Present Continuous Tense. The second part presents the comparison of the students' learning achievement between the pre-test and the post-test in form of a statistical. The last part presents the students' attitudes towards learning through a CAI lesson.

## 4.2 Results

### 4.2.1 The Results of the Development of Computer Assisted Instruction

The researcher tried out the Computer Assisted Instruction lesson in order to improve for better quality courseware. There were three trial steps to evaluate CAI lesson such as one to one trial, a small group trial and the field study trial. The table 4.1 below shown the results of the trial.

Table 4.1: The Results of the Three Trials

| Trials | E1 (Efficiency of process) | E2 (Efficiency of results) |
|---|---|---|
| One- to -one | 73.30 | 66.65 |
| A small group | 76.10 | 70.00 |
| The field study | 83.65 | 80.65 |

As can be seen from the table 4.1, the results of the three trials shown that the efficiency index of the Computer Assisted Instruction entitled Present Simple Tense and Present Continuous Tense was 83.65/80.65 after the one- to- one trial and the small group trial which met the specific criteria.

### 4.2.2 The Results of the Comparison of the Students' Learning Achievement

An analysis of covariance or ANCOVA model by Scheffe was used to compare the data from the experimental group and the control group. The table 4.2 presents the results to show if there were significant differences.

Table 4.2: The Results of Students' English Learning Achievement

| Source | Type III Sum of Squares | Df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Corrected Model | 359.015 | 2 | 179.507 | 21.700 | .000 |
| Intercept | 355.039 | 1 | 355.039 | 42.919 | .000 |
| PRETEST | 277.002 | 1 | 277.002 | 33.485 | .000 |
| MODE | 86.126 | 1 | 86.126 | 10.411 | .002 |
| Error | 636.973 | 77 | 8.272 | | |
| Total | 14751.000 | 80 | | | |
| Corrected Total | 995.988 | 79 | | | |

R Squared = .360 (Adjusted R Squared = .344 )

From table 4.2, it can be seen that the mean scores for the post-test of the students both from the experimental group and the control group were statistically highly significant at 0.01 (F= 21.700, sig = .000)

The results in Table 4.2 shows that the control and the experimental students' learning achievement between the pre-test and the post-test were different. The mean score of the experimental students was higher than the control students, which was similar to the second hypothesis as stated in Chapter 1.

### 4.2.3 The Results of Students' Attitudes towards Learning through a CAI Lesson

In order to find out the attitudes of the students towards learning by Computer Assisted Instruction lesson: the three- part questionnaire were used for collecting the data. The first part of the questionnaire was composed of students background information, the second part was about students' experiences in using computer and the last part was the five point rating scale questionnaire about the attitudes of the students towards learning with CAI lesson. In developing the questionnaire for this study, customized questions for this project were drafted and reviewed with experts in the field of questionnaire design. After that the questionnaire was translated into Thai.

The data obtained from the first part showed that one hundred percent of the students were boys and ninety two point fifty percent of them were about ten – twelve years old. For their GPA of the last semester, it was shown that forty two point fifty percent of them got grade 3-4 and seventy percent of them had computer and Internet at home.

The data about their experiences in using computer also showed that sixty percent of them use computer for 1 – 3 hours per day. The type of work that the students use with computer in the highest percent was Games.

Table 4.3: The Results of Students Attitudes towards the Courseware

| Items | $\bar{x}$ | S.D. |
|---|---|---|
| 1. CAI can enhance your understanding of the content | 4.15 | .58 |
| 2. CAI is very helpful in your learning | 4.32 | .76 |

| Items | $\bar{x}$ | S.D. |
|---|---|---|
| 3. CAI makes learning language enjoyable | 4.30 | .76 |
| 4. CAI is very easy and convenient to use | 4.25 | .78 |
| 5. CAI gives you useful experiences | 4.17 | .84 |
| 6. The interactive nature of CAI can motivate and make the content more interesting | 4.03 | .92 |
| 7. CAI is not helpful in your learning | 4.53 | .75 |
| 8. Learning with CAI takes a lot of time | 3.15 | 1.17 |
| 9. CAI can not increase your language learning | 4.23 | .89 |
| 10. The content of CAI can make the lesson uninteresting | 4.18 | .84 |
| Total | 41.31 | 8.29 |
| Mean | 4.13 | 0.83 |

Table 4.3 shows that the students had good attitudes toward learning via Computer Assisted Instruction. It can be interpreted from the mean of all items ($\bar{x}$ = 4.13). And the consideration for each item, it confirmed that the students thought that CAI was very helpful in their learning ($\bar{x}$ = 4.32). They stated that CAI was very easy and convenient to use ($\bar{x}$ = 4.25). They also thought that the CAI can enhance their understanding and make learning language enjoyable ($\bar{x}$ = 4.15 and $\bar{x}$ = 4.30). They mentioned that the interactive nature of CAI can motivate and make the content more interesting ($\bar{x}$ = 4.03) and they did not agree that CAI was not helpful in their learning. ($\bar{x}$ = 4.53).

### 4.2.4 The Results of Semi-Structured Interview

The Interview was also used as an opportunity to survey the opinions of the students about the courseware. There were seven questions used for the semi-structure interview. The following were the results from the interviews.

For the first question, the students were asked if they liked to learn English via CAI entitled Present Simple Tense and Present Continuous Tense, ninety seven point five percent of the students stated that they responded favour this courseware. They enjoyed learning through CAI and they liked the colourful graphic and animation. They said that they gained a lot of knowledge and it was very interesting and convenient to use.

When they were asked about their feeling in learning English through CAI, seventy six percent of the students were very satisfied with the CAI because it was very exciting and convenient for them. They preferred the pictures, sound and the colourful pages.

Sixty seven point five percent of the students responded that they had no problem in learning with CAI because it was very easy to use. But for some of them, they have a problem with their computer skills that made them confused and they proved to be slower than other students.

When asked about the command that was used in the CAI, eighty two point five percent of the students said that it was very easy to understand, but seventeen point five percent of them said that it was very difficult to understand. That might be because of they lack concentration in listening and reading skill.

When they were asked about the convenience in learning via CAI, ninety five percent students stated that it was very convenient for them to study via

CAI because they could learn English as many times as they wished. If they didn't understand in some parts, they can go back to revise by themselves.

When asked if they could learn English through CAI by themselves, ninety two point five percent of them said that they could learn by themselves at home or anywhere and anytime. The reason was that it was very easy for them to understand and very convenient to use.

When they were asked to explain what part of CAI did they like most, thirty percent of them said they liked the pictures and animation. Meanwhile twenty five percent of them liked the exercise because they could practice many times. Seventeen point five percent of the students liked the test. Fifteen percent of the students stated that they preferred all parts of the CAI. Ten percent and two point five percent of them like the colourful pages and the first page in order.

## 4.3 Discussions

As the results presented above, the following was a discussion of the results that can reply the hypothesis as declared in the first chapter.

The Computer Assisted Instruction entitled Present Simple Tense and Present Continuous Tense had the efficiency on the 83.65/80.65 which was higher than the 80/80 standard. The results of the three trials showed that all the first efficiency of the process (E1) were higher than the second efficiency of the outcomes (E2). That meant the students got exercise scores more than post-test scores. It might be that they had done repeated exercises while they were learning before doing the post-test, they could revise, do the exercises and check the answers by themselves. That could motivate and encourage them to learn a language through the CAI. Furthermore, the

post –test had more difficulty than the exercises, therefore, the efficiency of the outcomes was lower than the efficiency of the process.

To compare the students' learning achievement for both the experimental and control group between the pre-test and the post-test, the results indicated that the experimental group had a higher average post-test score ($\bar{x}$ = 14.12) than the control group ($\bar{x}$ = 12.10). There was a significant difference between the pre-test and the post-test at the level 0.01. It can be concluded that CAI entitled Present Simple Tense and Present Continuous Tense had the efficiency because it could make the students achieve higher learning. It was quite new for the students to learn language through the CAI. It could motivate the students to learn and be interested in the content more than they used to be.

For the attitudes of the students towards learning through CAI, based on the data obtained, it was clear that the students had positive attitudes towards the course ware. It is noticed that they had generally good attitudes towards Computer Assisted Instruction usage, their language learning via CAI, the contents and also the interactive nature of CAI.

Furthermore they stated that CAI was very helpful, easy and convenient to use. That corresponded with Supasetsaree's research, which stated that the students had positive attitudes towards learning a language through Computer Assisted Instruction.

The results from the semi- structured interview showed that the students were satisfied with learning via CAI. They enjoyed and were excited with this new way to learn language. The results of the experiment in this study as well as the interpretation of the data are presented in the next chapter.

The results from the interview, most students responded that they enjoyed learning with CAI and they preferred the motivation and interactive nature of the CAI that made learning a language more interesting. They favoured the sound, the motivation and the colour of each page. They stated that if they didn't understand or when they had some problems with some exercises they could go back to the pages of the contents anytime. Thus it can be seen that a computer can be one of the technical aids in language learning, because the learners can interact with the computer independently. Computer Assisted Instruction is a suitable tool for both teachers and students. It can assist the teacher efficiently. That depends on whether it supported the content and the objectives of the curriculum or not. The students could study by themselves anytime and anywhere. Furthermore, not only for the teachers and the students in school that would benefit of the CAI but also for other people outside the school. CAI can be provided to the public via school website and can develop the individual learning system that is one way to use the technology to enhance language learning.

## 4.4 Summary

This chapter presented and discussed the results of this study which was allied to with the stated hypothesis. The last chapter of the thesis is chapter 5 which will present a summary of these research findings and implications derived from the suggestion for the further research.

# CHAPTER 5

# CONCLUSIONS AND RECOMMENDATIONS

## 5.1 Introduction

The last chapter of this study includes the purposes of the study, the sample, the instrumentation, the research procedure, the results, and the recommendation for further research.

## 5.2 The Purposes of the Study

The purposes of this study were to develop the Computer Assisted Instruction on Present Simple Tense and Present Continuous Tense for Prathom VI students at Assumption College Rayong. Determining the efficiency of the course ware based on the 80/80 Standard, comparing the experimental and control students' learning achievement between the pre-test and post-test of the CAI entitled Present Simple Tense and Present Continuous Tense and studying students' attitudes towards learning through CAI lesson.

## 5.3 The Samples of the Study

The samples of this study were 80 Prathom VI students who studied in the first semester at Assumption College Rayong in the Academic Year 2003. They were randomly assigned sampling to be an experimental group and a control group from

240 students. There were 40 students in an experimental group and 40 students in a control group.

## 5.4 The Instrumentation

The instruments that were used in the present study were the CAI entitled Presents Simple Tense and Present Continuous Tense, the pre-test and the post-test for measuring the students' English achievement before and after the experimental stage, the questionnaire which composed of 3 parts; the background information, students' experience in using computer and attitudes questionnaire towards CAI in English language learning, the lesson plans for English grammar on Present Simple Tense and Present Continuous Tense for both groups, and the semi-structured interview

## 5.5 The Research Procedure

5.5.1 Study the content and the learning objectives.

5.5.2 Construct the tests and try it out to find the reliability and the discrimination index.

5.5.3 Design and create the CAI lesson.

5.5.4 Try out the CAI lesson in order to improve the courseware in 4 steps; the one to one try out, the small group try out, the field study try out and use with the experimental group to confirm the efficiency.

5.5.5 Compare the learning achievement of the students in both experimental and control group between the pre-test and the post-test with statistically significant differences.

5.5.6 Analyze the attitudes of the students towards learning through CAI and interpret the data obtained from the semi- structured interview.

## 5.6 The Results of the Research

5.6.1 The efficiency of the CAI on Present Simple Tense and Present Continuous Tense was 83.65/80.65 which met the criterion 80/80 standard.

5.6.2 The students' learning achievement of the students in experimental group was higher than the students in the control group with statistically significant differences at the level 0.01.

5.6.3 The students had generally positive attitudes towards learning through the CAI.

## 5.7 The Recommendations for the Present Study

1. The samples of the study need to have computer background knowledge and computer skills. The most important factor is the teachers should introduce and comment on the use of CAI, step by step.

2. CAI can be used as an efficiency tool for language learning not only in class but also for distance learning. It can be used by the students and other people via school web site.

3. To let the students learn English effectively, the time should not be limited because the students have different learning ability.

## 5.8 Suggestions for Further Research

1. Research on language learning through CAI should be done in other grammar content or on other skills such as listening and speaking.

2. The researchers or the teachers should investigate the students' learning achievement in other levels of the students.

3. A comparison of language learning through CAI and other teaching media should be done.

4. Computers can be " a fun tool " for learning therefore fun programmes and games are essential.

# REFERENCES


Adam, E.R. (1971). Influence of meaningfulness and familiarization training on basic height vocabulary learning with first graders. **Dissertation Abstract a International** 31, 5832A.

Armsy, J.W. and Dahl, N. D. (1973). **An inquiry into the use of instructional technology**. New York: Ford Foundation.

Balkcom, S. (1992). Cooperative learning. **Education Research Consumer Guide**. 1: (6).

Bangert-Drowns, R.L., Kulik, J.A., and Kulik, C.C. (1985). Effectiveness of computer-based education in secondary school. **Journal of Computer-Based Instruction**. 12(3): 59-68.

Bazeli, J. M. and Heintz, L.J. (1997). **Technology across the curriculum (Activities and idea)**. Colorado: Englewood.

Blake, R. J. (1999). **Technology, multimedia, and second language learning** . [On-line]. Available: http//www.mhhe.com/socscience/passport/spotlight.html.

Boyle, Tom. (1997). **Design for multimedia learning**. London: Prentice-Hall.

Brahmawong, Chiyong. (2000). **An Overview on Distance Education System: A case of Sukhothai Thammathirat Open University**. A Paper Printed to the Delegation from College of Education and Human Development. University of Minesota, June 14,2000.

Briner, M. (1999). **Constructivism**. [Online]. Available: http//www.sedl.org/scimath/compass/vol 03.

Chaichana, Narach. (2000). **A comparison of learning outcomes by using computer-assisted instruction on stand-alone computers and internet.** M. A. Thesis, Khon Kaen University, Thailand.

Chaisaeng, Yuwadee. (1999). **Construction of preparatory computer assisted instruction in English vocabulary for Prathom Suksa 2 students**. M. A. Thesis, Chiang Mai University, Thailand.

Chapelle, C. A. (1998). Research on the use of technology in TESOL. **Tesol Quarterly.** 32 (4): pp753-761.

Christmann, E., Badgett, J., and Lucking, R. (1997). Progressive comparison of the effects of computer assisted instruction on the academic achievement of Secondary Students. **Journal of Research on Computing in Education**. 29(4): (Summer 1997).

Clayton, Ida Long, Ph.D. (1992). The relationship between computer-assisted instruction in reading and mathematics achievement. **Dissertation Abstract International**. 53 (8): (1993, February).

Clouse, R.W. and Nelson, H. E. (1999). **School reform, constructed learning, and educational technology.** New York: New York University Press.

Crow, J.T., and Quigley, J.R. (1985). A semitic field approach to passive vocabulary acquisition for reading comprehension. **Tesol Quarterly.** 19(3):497.

Davidson, S.G., and Maurer, M.M. (1998). **Leadership in instructional technology**. New Jersey: Prentice.

Desberg, P. (1994). **Hyper interactive CAI: Using hyperCard to develop computer- assisted instruction.** Massachusetts: Allyn and Bacon.

Dokkham, Somyoung. (1999). **A Comparison of Mathayom Suksa II students' English performance and interesting in learning through concentrated language encounter multimedia computer assisted instruction and instruction based on the teachers' manual.** M. A. Thesis, Srinakarintarawirot University Prasarnmitr, Thailand.

Forman, G. (1987). Constructivist Perspective**. J. L. Roopnarine & J.E. Johnson (Eds).** Approaches to Early Childhood Education (pp. 71-84). New Jersey: Prentice Hall.

Freeman, W. (2001). **The right of privacy in the computer age**. New York: Quorum Books.

Friedman, L.t. (1974). Programmed lesson in RPG computer programming for New York City high school senior. **Dissertation Abstract International.** 29, 799A.

Garrett, N. (1991). Technology in the service of language education: A resource list. ERIC Digest. **Modern Language Journal**. 75: pp74-101.

Gagne, R . (2000). **What is a conputer?** [Online]. Available: http://thor.cl.uh.edu/Course_Docs/DDISTED/What/Computer_Prog.html

General Instructional Design Phases. (2000). [Online Available: http://www.seas.gwu.edu/student/sbraxton/ISD/general-phases.html.

Groot, P. J. M. (2000). Computer assisted second language vocabulary acquisition. **Language Learning & Technology**. 4(1): pp.60-81.

Gourgey, A.F. (1987). Coordination of instruction and reinforcement as enhancers of the effectiveness of computer assisted instruction, **Journal of Education Computing Research.** 3(2): pp.219-230.

Hankul, Thanakorn. (2000). **A production of computer assisted instruction in English (E011) on tense for Mathayom Suksa I students.** M. A. Thesis, Khon Kaen University, Thailand.

Harmer, J. (1987). **Teaching and learning grammar.** London: Longman.

Heimans, S. (1995). **The Internet & ESL: Resources and Roles.** [WWW document Retrieved on May 4, 1997 from URL:] http://www.cltr.uq.oz.au:8000/oncall/article.htm#AllB.

Heinich, R., Molenda, M., and Russell, D.J. (1985). **Instructional media and the new technologies of instruction** (2nd ). New York: Macmillan Publishing Company.

Heinich, R., Molenda, M., Russell, J.D., and Smaldino, S. (1996). **Instructional Media and Technologies for Learning**. New Jersey : Prentice- Hall.

Higgins, C (1993). **Computer assisted language learning: Current program and Project.** Washington D.C.: ERIC Digest.

Hoffman, S. (1995-1960). Computers and instructional design in foreign language/ second language instruction. **TESOL Journal.** 5(2): 24-29.

Hooper, S.R (1989). **The Effects of cooperative group composition and a performance contingency on learning, interaction, and performance during computer-based instruction**. Ph.D. Dissertation, The Pennsylvania State University, Pennsylvania.

Huntley, H. (1998). Communicative activities for the language Laboratory. **Thai TESOL, Newsletter.** 11(2): 16-17.

Inphan, Theraphong. (1991). **The production of computer assisted instruction for slower Prathom 2 students in English subject.** M. A. Thesis, Chiang Mai University, Thailand.

Intha, Jirapha. (1992). **The creation of computer assisted instruction on ecological system for Mathayom Suksa 1.** M. A. Thesis, Mahidol University, Thailand.

Jones, B.G. (2000). Emerging technologies. **Language Learning & Technology.** (1): pp.6-11.

Kachasiriphong, Nanthaphorn. (1983). **The comparison of the students achievement and the constant in learning English vocabulary of Mathayom 1 students using games in exercises and without games in exercises**. M.A. Thesis, Srinakarintarawirot University Prasarnmitr, Thailand.

Khalili,A., and Shashaani. L. (1994). The effectiveness of computer applications: A meta- analysis. **Journal of Research on Computing in Education**. 27(1): 48-61. (Fall 1994).

Kulik, J.A., Bangert, R.L., and Willim, G.w. (1983). Effects of computer- based teaching on secondary school student. **Journal of Education Psychology**. 75 (1): 19-26.

Kulik, J.A., and Kulik, C.C. (1989). Effective of computer-based instruction. school. **Library Media Quarterly**. 17(13): 156-161.

Lapp, et al. (1989). **Content area reading and learning**. New Jersey: Prentice-Hall, Inc.

Malithong, Kidanont. (1993). **Modern education technology**. Bangkok: Chulalongkorn University.

Mann, D., and Shakeshaft, C. (1997). The impact of technology in the schools of the Mohawk regional information center area. Technical Report, 1997. **ERIC Document.** No.-ED 405893 (800) 443-ERIC.

Merrel, L.E. (1985, June). The effect of computer assisted instruction on the cognitive ability gain of third, fourth and fifth grade students. **Dissertation Abstracts International**. (CD-Rom). 5 (12) : 3502-A

Merrill, M. D. (1991). Constructivism and instructional design. **Educational Technology.** May: 45-53.

Miller. J. D. (1986). The result of using computer assisted instruction to solve the teaching problems. **Dissertation Abstracts International**. 8(4) : 1911-A

Miller, L.K., Semb, G.A., and Weaver F.T., (1974). Produce for maintaining student progress in personalization. University Course. **Journal of Applied Behavior Analysis.** 7: 87-97.

Ministry of Education. (1978a). **Report on the conference in the English syllabus at the primary level.** Bangkok: The Center for Educational Materials Department of Educational Techniques.

Ministry of Education. (1995). **English Syllabus 1995**. Bangkok: Kurusapa Printing.

Moore, K.D. (1998). **Classroom teaching skills.** New York: McGraw-Hill.

Moryadee, Thawat. (1989). **The comparison of the students achievement and the constant in studying English of Mathayom 2 students from studying via computer assisted instruction with sound and without Sound**. M. A. Thesis, Chulalongkorn University, Thailand.

Muyskens, J. A. (1998). **New ways of learning and teaching: Focus on technology and foreign language education.** Massachusetts: Heinle & Heinle Publishers.

Nazir,E. (1996). **The benefit of Internet in second language learning.** London: Longman.

O' Leary, L. I., O' Leary, T. J. (1999). **Computing essentials**. New York: McGraw-Hill.

Platt, J., Platt, H., and Richards, C. (1992). **Language teaching and applied linguistics.** London: Longman.

Pagnucci, (1998). **Using computer technology to enhance learning.** Boston: Heinle & Heinle.

Perelman, L.J. (1992). **School's out: A radical new formula for the revitalization of America's educational system**. New York: Avon.

Pongkitwitoon, Rungrote. (2000). **The development of the computer assisted instruction (CAI) based on constructivist theory in theoretical probability distribution on the business statistics course of Rajabhat Institute curriculum 2000.** M. A. Thesis, Rajabhat Institute Nakorn Rajchasima, Thailand.

Prarubrugsa, Warangkana. (1997). **The creating of a multimedia computer assisted instruction to teach English vocabulary in reading and writing (E022) for Mathayomsuksa I students.** M. A. Thesis, Khon Kaen University, Thailand.

Promwong,C. (1978). **Introduction to social research: quantitative and qualitative approaches**. London: SAGE.

Rattanapian, Vichuda. (1993). CAI theories. **The Document for Academic Seminar: Using Computer in Education System**. Bangkok: Chulalongkorn University.

Roblyer, M.D. (1997). **Integrating the Internet into your classroom**. New Jersey: Prentice-Hall Inc.

Sang-ong, Sunan. (1993). **The Innovation in teaching and learning science**. Nontaburi: University

Sahoo, P.K. (1999). **Educational Technology in Distance Education**. NewDelhi: Aravali Printer and Publishers.

Sawananount, Taksina. (1993). **Computer for education.** Bangkok: Kurusapa Printing.

Scott, B. J., Vitale, M. R., and Woodul, C. E. (2000). Using a cooperative multimedia learning environment to enhance learning and affective self- perceptions of at - risk students in grade 8. **Educational Technology System**, 28(3): 239-252.

Schvanveldt. (1977). The effect of semantic context on children's word recognition. **Child Environment.** 48: 612-616.

Scrimshaw, P. (1993). Communicating through computers in the classroom. **Language, classrooms and computers.** London: Routledge.

Sharp, F.V. (2002). **Integrating technology into classroom teaching**. ( 4th ed.) New York: McGraw Hill.

Sharp, Vicki. (2002). **Computer Education for Teachers: Integrating Technology into Classroom Teaching**. (4th ed ) New York: McGraw-Hill.

Sivin-Kachala, J. (1998). **Report on the effectiveness of technology in schools, 1990 - 1997**. Washington, D.C: Software Publishers Association.

Soontthornwipharb, Weerasak. (1985). **A comparison of the students' achievement in physic subject of Mathayom 4 students by using computer assisted instruction and based on the teacher's manual.** M. A. Thesis, Chulalongkorn University, Thailand.

Spencer, D.D. (1980). **The Illustrated computer dictionary**. Columbus Ohio : E. Merrill.

Srisa-an, Wichit. (1998). **Global education: Borderless world.** Nakorn Ratchasrima: Somboon Printing.

Stolurow, L.M. (1971). "Computer," **In Encyclopedia of Education**. P.390-400.

Sukpredee, Nipon. ( 1990). “Computer and teaching behaviour,” **Computer for education.** Bangkok: Religion Publishing.

Suppasetseree, Suksan. (1998). **The development of communicative English grammar courseware on conditional sentences for engineering students at Suranaree University of Technology in Nakhon Ratchasima Province**. M. A. Thesis, Kasetsart University, Thailand.

The Internet & ESL: Resources and roles. (1997). **The Internet &ESL.** [Online] Available: http://www.cltr.uq.oz.au:8000/oncall/article.html#AllB.

Visser, Annette. (1990). Learning vocabulary through underlying meaning: An Interactive Teaching. **RELC Journal.**

Warschauer, M. (1996). Computer-assisted language learning: An introduction. In S. Fotos (ED). **Multimedia Language Teaching.** (pp. 3-20). Tokyo: Logos International.

# Appendix A

# The Evaluation of Efficiency of

# the Computer Assisted Instruction

**The individual trial for effectiveness evaluation of Computer Assisted Instruction on Present Simple Tense and Present Continuous Tense**

| Student Number | Pre-test score (20 points) | Exercise score (20 points) | Post-test score (20 points) | $E_1$ | $E_2$ |
|---|---|---|---|---|---|
| 1 | 5 | 12 | 11 | | |
| 2 | 8 | 15 | 13 | | |
| 3 | 10 | 17 | 16 | | |
| **Total score** | **23** | **44** | **40** | | |
| **Mean score** | **7.66** | **14.66** | **13.33** | | |
| **Percentages** | **38.30** | **73.30** | **66.65** | **73.30** | **66.65** |

$$X = \frac{44}{3}$$

$$\bar{x} = 14.66$$

$$E_1 = \frac{14.66}{20} \times 100$$

$$E_1 = 73.30$$

$$X = \frac{40}{3}$$

$$\bar{x} = 13.33$$

$$E_2 = \frac{13.33}{20} \text{ x } 100$$

$$E_2 = 66.65$$

**The small group trial for effectiveness evaluation of Computer Assisted Instruction on Present Simple Tense and Present Continuous Tense**

| Student Number | Pre-test score (20 points) | Exercise score (20 points) | Post-test score (20 points) | $E_1$ | $E_2$ |
|---|---|---|---|---|---|
| 1 | 6 | 13 | 10 | | |
| 2 | 9 | 14 | 14 | | |
| 3 | 5 | 15 | 12 | | |
| 4 | 12 | 17 | 18 | | |
| 5 | 10 | 18 | 16 | | |
| 6 | 8 | 14 | 15 | | |
| 7 | 7 | 16 | 15 | | |
| 8 | 11 | 17 | 16 | | |
| 9 | 4 | 13 | 10 | | |
| **Total score** | **72** | **137** | **126** | | |
| **Mean score** | **8.00** | **15.22** | **14.00** | | |
| **Percentages** | **40.00** | **76.10** | **70.00** | **76.10** | **70.00** |

$$X = \frac{137}{9}$$

$$\bar{x} = 15.22$$

$$E_1 = \frac{15.22}{20} \times 100$$

$$E_1 = 76.10$$

$$X = \frac{126}{9}$$

$$\bar{x} = 14.00$$

$$E_2 = \frac{14.00}{20} \text{ x } 100$$

$$E_2 = 70.00$$

**The field trial for effectiveness evaluation of Computer Assisted Instruction on Present Simple Tense and Present Continuous Tense.**

| Student Number | Pre-test score (20 points) | Exercise score (20 points) | Post-test score (20 points) | $E_1$ | $E_2$ |
|---|---|---|---|---|---|
| 1 | 4 | 15 | 16 | | |
| 2 | 12 | 17 | 18 | | |
| 3 | 10 | 17 | 17 | | |
| 4 | 5 | 16 | 15 | | |
| 5 | 11 | 16 | 19 | | |
| 6 | 9 | 17 | 15 | | |
| 7 | 12 | 17 | 14 | | |
| 8 | 11 | 19 | 19 | | |
| 9 | 6 | 15 | 13 | | |
| 10 | 14 | 19 | 20 | | |
| 11 | 10 | 15 | 17 | | |
| 12 | 12 | 18 | 18 | | |
| 13 | 8 | 16 | 15 | | |
| 14 | 11 | 17 | 16 | | |
| 15 | 10 | 16 | 16 | | |
| 16 | 4 | 14 | 12 | | |
| 17 | 12 | 17 | 16 | | |
| 18 | 11 | 19 | 19 | | |
| 19 | 10 | 17 | 16 | | |
| 20 | 5 | 15 | 12 | | |

| Student Number | Pre-test score (20 points) | Exercise score (20 points) | Post-test score (20 points) | $E_1$ | $E_2$ |
|---|---|---|---|---|---|
| 21 | 4 | 13 | 16 | | |
| 22 | 12 | 17 | 19 | | |
| 23 | 9 | 18 | 16 | | |
| 24 | 12 | 18 | 17 | | |
| 25 | 7 | 17 | 15 | | |
| 26 | 10 | 18 | 16 | | |
| 27 | 10 | 19 | 15 | | |
| 28 | 6 | 16 | 14 | | |
| 29 | 9 | 16 | 17 | | |
| 30 | 7 | 18 | 16 | | |
| **Total score** | **273** | **502** | **484** | | |
| **Mean score** | **9.10** | **16.73** | **16.13** | | |
| **Percentages** | **45.50** | **83.65** | **80.65** | **83.65** | **80.65** |

$$X = \frac{502}{30}$$

$$\bar{x} = 16.73$$

$$E_1 = \frac{16.73}{20} \times 100$$

$$E_1 = 83.65$$

$$X = \frac{484}{30}$$

$$\bar{x} = 16.13$$

$$E_2 = \frac{16.13}{20} \text{ x } 100$$

$$E_2 = 80.65$$

# Appendix B

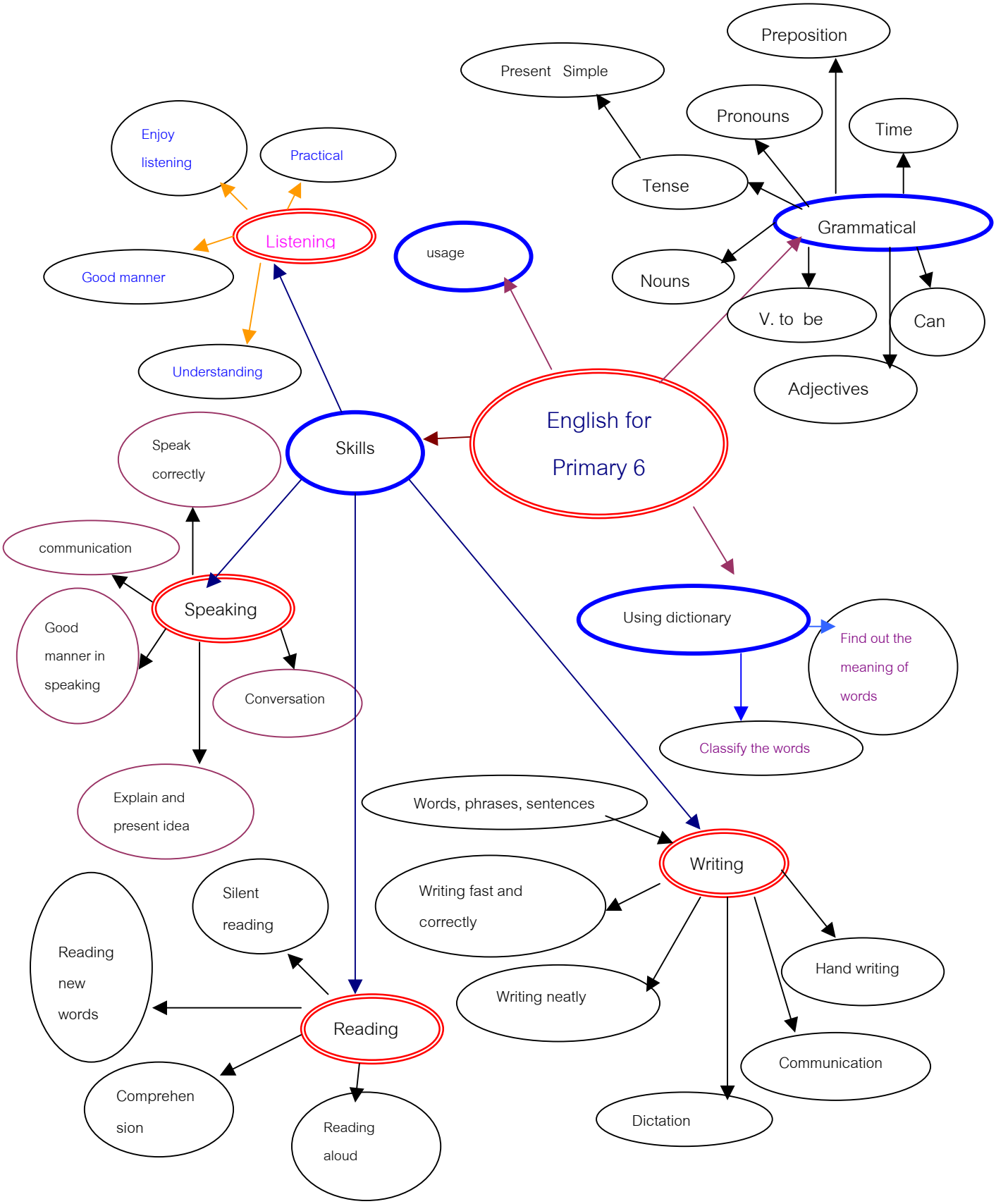
## Lesson Plan for a Control Group

## Assumption College Rayong

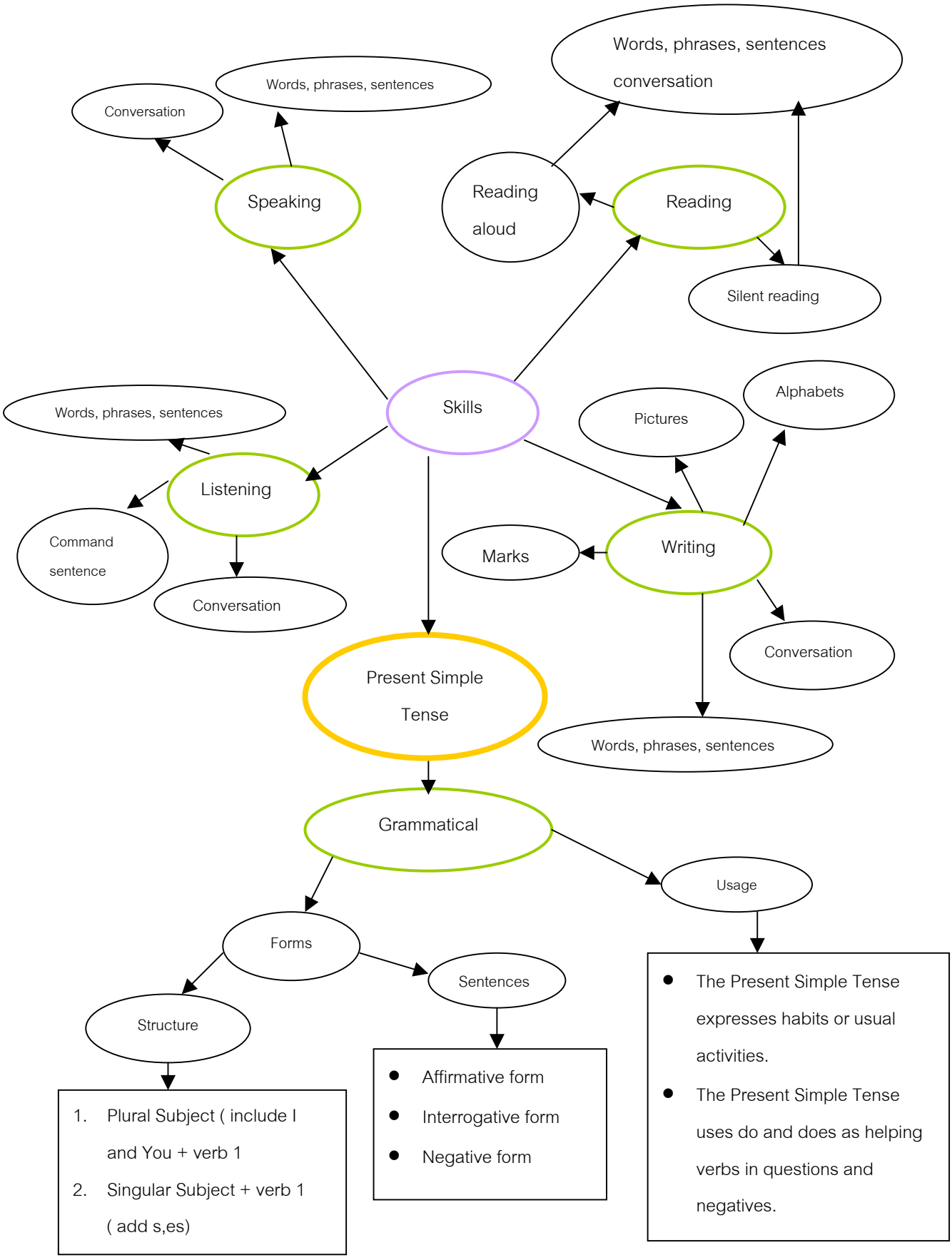
Lesson Plan

| | |
|---|---|
| Title | Tense (Present Simple Tense) |
| Class | Primary 6 |
| Subject | English |
| Time | 5 periods |
| Instructor | Miss Kularb Sa-ard |

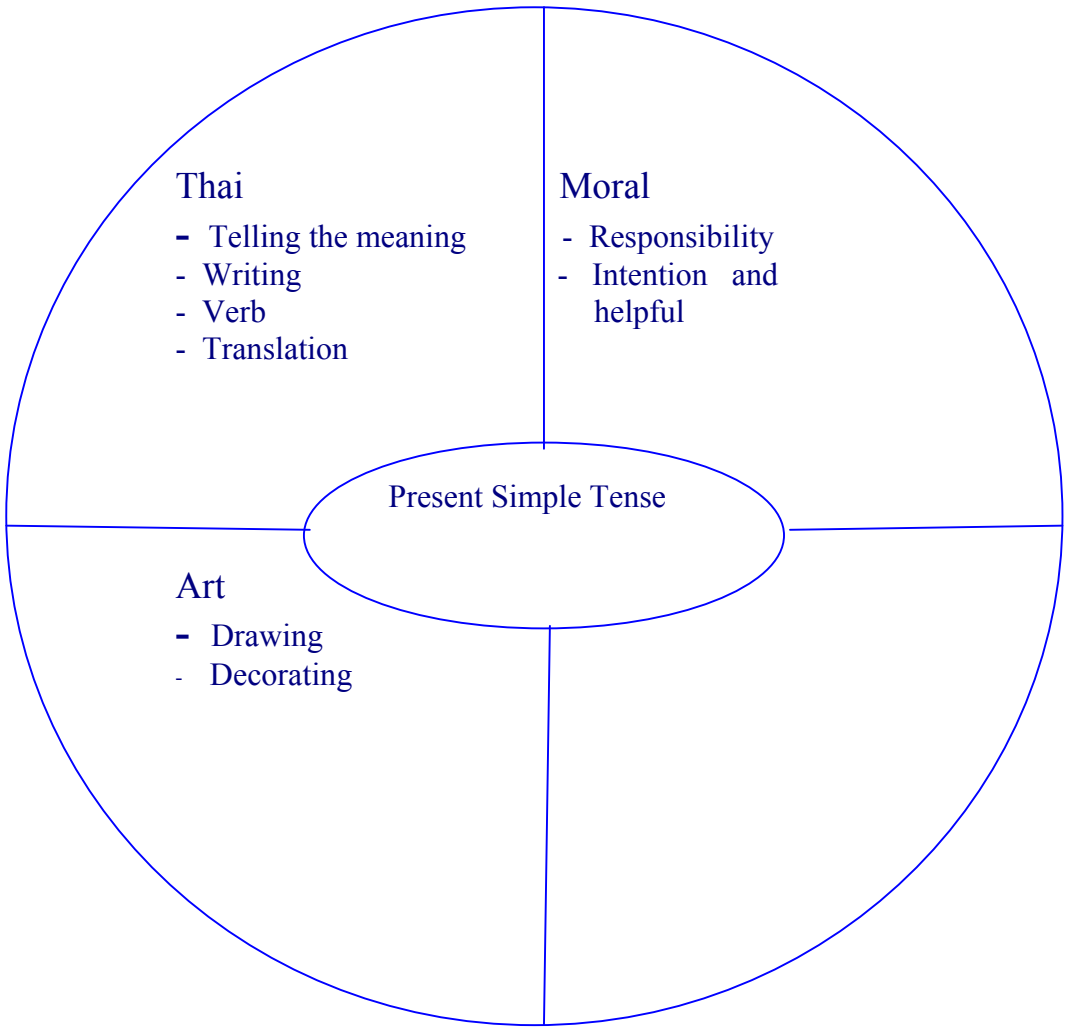
# Topic Analysis



# Content Analysis



# Integrated Activity Plan



## Main Idea of the topic

1. Be able to listen, speak, read and write words, phrases, sentences and conversation correctly.

2. Be able to use dictionary for searching new vocabulary and pronounce the word clearly and correctly.

3. Studying grammar can help the students to know about the principle of language, classify the sentences and use them correctly.

3.1 Tense

3.1.1 Present Simple Tense

3.1.2 Form

- Affirmative Form
- Interrogative Form
- Negative Form

3.1.3 Usage

- The Present Simple Tense expresses habits or usual activities.
- The Present Simple Tense uses do, does in questions and negatives.

**Ability Development**

1. To enable the students to gain knowledge and have a better understanding of the following.

1.1 The grammatical, structure, classification of sentences

1.2 Using dictionary for searching the meaning of new word

1.3 Listen, speak, read and write correctly

2. To enable the students to be good, be responsible, honest, helpful and cooperative in group activities.

3. To enable the students to be happy from studying and admire their work.

**Activities**

1. The students and the teacher talk about the activities that they do every day. The students look at the pictures of the activities and make sentences using " I. "

2. The teacher writes the sentences on the board. The students practice to read. Make sure that the students point to the item in the sentences. Try to change the subject by using noun or pronoun.

3. Let the students observe how to change verb following the object.

4. The students and the teacher make a summary about the structure of Present Simple Tense that used for expressing habits or usual activities. The students study the correct form of the verb.

5. The students study from the textbooks and do the exercises. The teachers say the adverbs of frequency aloud. The students listen and read silently. Check that the students understand that “always” means all of the time and “never” means none of time. Say the adverbs of frequency aloud again, the students listen and repeat.

6. The students read the story in the students' book. Find the meaning of the vocabulary and dictation.

7. The students study the structure of Affirmative, Interrogative, and Negative form in Present Simple Tense. Practise to ask and answer about daily life. Individual students ask questions for their classmates to answer. Alternatively, the students can work in pairs, taking turn to ask and answer the questions.

8. Read the story and answer the questions.

9. The students choose an activity that they do every day. They draw and colour a picture of their activity. They then write five sentences with the pictures. The teacher

goes round the class helping where necessary.

10. Ask the students to show their work to class holding up the picture and reading out what they have written. If possible, display students' finished work in the classroom.

## Tools

1. Pictures
2. Flashcards
3. Worksheet
4. Accessory
5. Assignment

## Evaluations

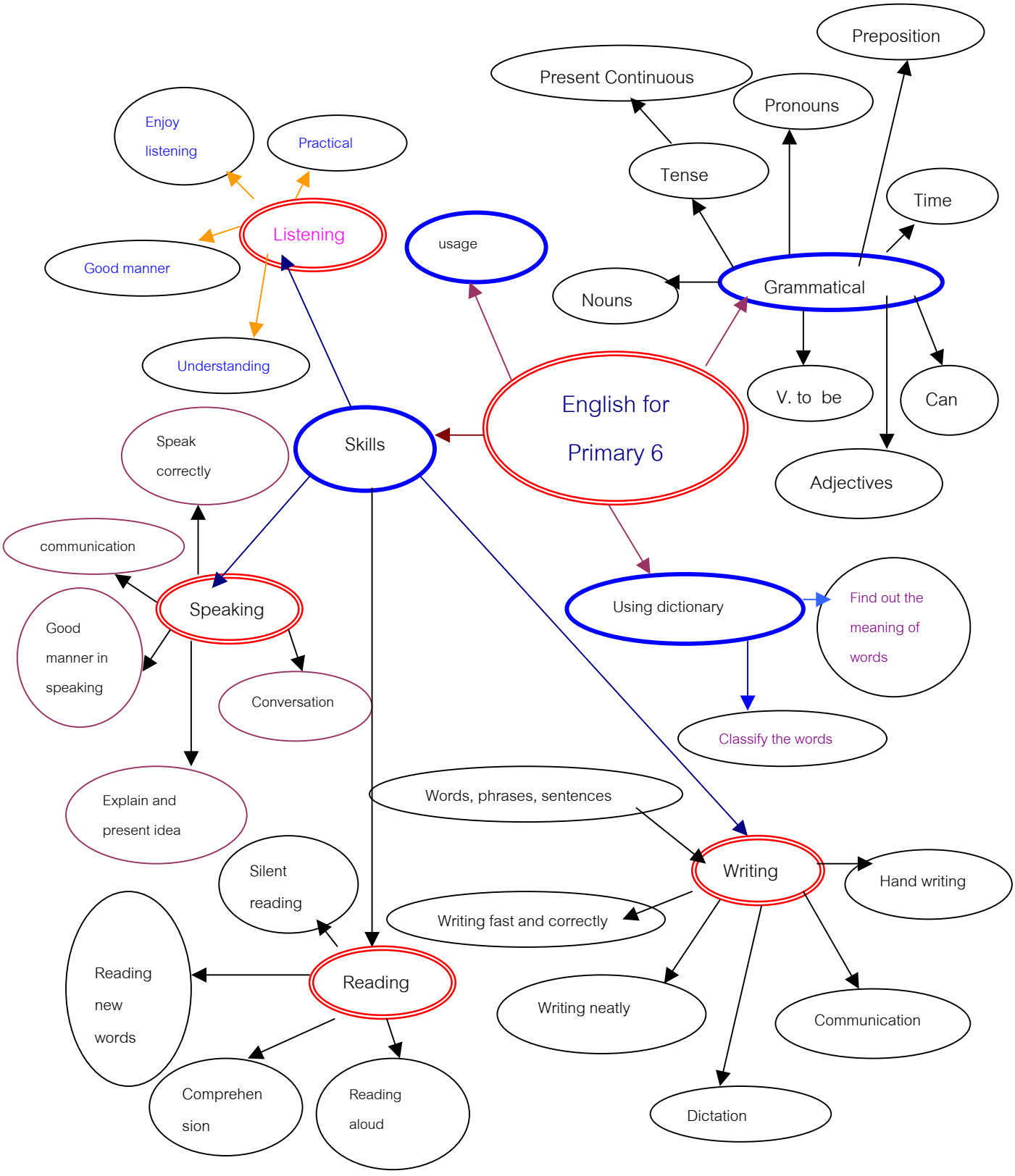
| Activities/Behavior/Students' work | Methods | Indicators |
|---|---|---|
| 1. Students' participation | 1. Observation & Note | 1. Behavioral record |
| 2. Students' assignment | 2. Checking their Assignment | 2. Assignment record |
| 3. Pre-test / Post-test | 3. Checking paper test | 3. Paper marking |

# Assumption College Rayong

Lesson Plan

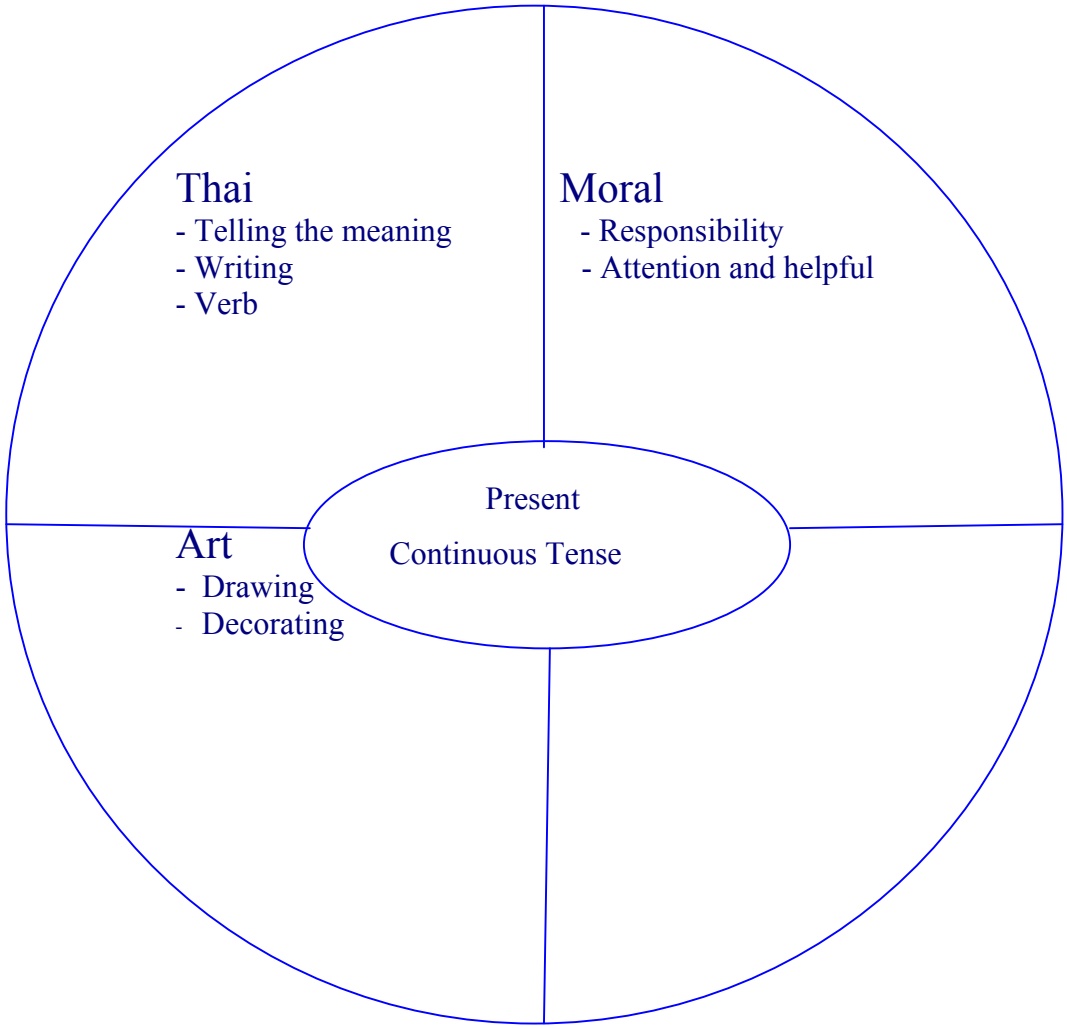
| | |
|---|---|
| Title | Tense (Present Continuous Tense) |
| Class | Primary 6 |
| Subject | English |
| Time | 5 periods |
| Instructor | Miss Kularb Sa-ard |

# Topic Analysis



# Content Analysis

# Integrated Activity Plan



## Main Idea of the Topic

1. Be able to listen, speak, read and write words, phrases, sentences and conversation correctly.

2. Be able to use dictionary for searching new vocabulary and pronounce the word clearly and correctly.

3. Studying grammar can help the students to know about the principle of language, classify the sentences and use them correctly.

3.1 Tense

3.1.1 Present Continuous Tense

3.1.2 Form

- Affirmative Form
- Interrogative Form
- Negative Form

3.1.3 Usage

- The Present Continuous Tense expresses actions that are happening right now, while the speaker is speaking.
- The Present Continuous Tense uses is, am, are in questions.

**Ability Development**

1. To enable the students to gain knowledge and have a better understanding of the following.

1.1 The grammatical, structure, classification of sentences.

1.2 Using dictionary for searching the meaning of new word.

1.3 Listen, speak, read and write correctly.

2. To enable the students to be good, be responsible, honest, helpful and cooperative in group activities.

3. To enable the students to be happy from studying and admire their work.

## Activities

1. The students look at the sentences on flash cards. The teacher asks the students to consider " verb to be " with any subjects. Individual student gives an example sentence using " verb to be. "

2. The students and the teacher make a conclusion about how to use " verb to be " in Affirmative, Interrogative and Negative form. The students practise to make sentences one by one.

3. The students look at the pictures. The teacher makes the sentences about the pictures. The students listen to the teacher and write the sentences on the board. Then both the teacher and the students analyze the sentences and write them in the table.

| Subjects | Verb to be | V+ ing | Object/Complement |
|---|---|---|---|
| She | is | playing | tennis. |
| They | are | sleeping | in the bedroom. |

4. The students and the teacher make a summary about the structure of Present Continuous Tense and then the teacher explains more about how to add -ing after verb. Then, let the students make their sentences individually.

5. Divide the students into five groups and make five sentences from the pictures given. The group, which finishes first and has the most correctly answers, will be the winner.

6. The students study how to make Interrogative sentences and Negative sentences from the workbook. Individual students ask questions for their classmates to answer. Alternatively, the students can work in pairs, taking turns to ask and answer the questions.

7. The students do the assignment. They draw the pictures and write the sentences

about the picture in Present Continuous Tense form.

8. The students do the exercise in their workbook. Practise to read aloud.

Find out the meaning of new words in dictionary.

9. The teacher asks the students to show their work to the class holding up the picture and reading out what they have written. Display students' finished work in the classroom.

## Tools

1. Pictures
2. Flashcards
3. Students themselves
4. Worksheet
5. Accessory
6. Assignment

## Evaluations

| Activities/Behavior/ Students' work | Methods | Indicators |
|---|---|---|
| 1. Students' participation | 1. Observation & Note | 1. Behavioral record |
| 2. Students' assignment | 2. Checking their assignment | 2. Assignment record |
| 3. Pre-test / Post-test | 3. Checking paper test | 3. Paper marking |

# Lesson Plan for an Experimental Group

| Period | Content | Activities | Teaching Aids | Evaluation |
|---|---|---|---|---|
| 1st | 1. Pre-test | 1. The students are assigned to do a pre-test on Present Simple Tense and Present Continuous Tense. | 1. A multiple choice pre-test with 20 questions | 1. Checking from the result of doing a pre-test |
| 2nd | 1. Learning method<br>2. Learning objective<br>3. Pre-test on CAI | 1. The student studies the Computer Assisted Instruction on web individually.<br>2. Each student goes to the school web site. (http://www.acr.ac.th)<br>3. The students are introduced to the CAI on web and main menu on CAI on web.<br>4. The students are assigned to go to the learning method menu. And the teacher explains how to learn.<br>5. After learning method, the students go to the next page to study the learning objectives.<br>6. The students are assigned to answer 10 multiple choice questions at the pre-test menu. The teacher asks the students about the result and record. | 1. Computer connected with the Internet | 1. Result from doing a pre-test on Computer Assisted Instruction on web |
| 3rd | 1. Present Simple Tense<br>2. Structure and examples<br>3. How to | 1. Each student studies about the structure and some examples page by page.<br>2. After that the students do exercise 1- 2 and check the response. If they have any problems, they can ask the | 1. Computer connected with the Internet | 1. Result from doing the exercises and doing |

| | | | | |
|---|---|---|---|---|
| | put s, es after verb depending on subject | teacher.<br>3. The students practice to put s, es after verb from activities page. ( Practice 11) | | some practices |
| 4th | 1. Revision<br>2. How to use Present Simple Tense | 1. The students revise the last lesson by going to the first page of Present Simple Tense.<br>2. Each student studies how to use Present Simple Tense and studies some examples.<br>3. The students are assigned to do exercise 3 – 4. | 1. Computer connected with the Internet | 1.Result from doing the exercises |
| 5th | 1. Revision<br>2. How to change Affirmative sentences in-to Negative and Question sentences | 1. The students revise the last lesson for 5 minutes.<br>2. Each student studies how to change Affirmative sentences into Negative and Question sentences page by page and studies some examples from the tables.<br>3. After that the students are assigned to do practice 7 -8-9. | 1. Computer connected with the Internet | 1. Result from doing the practices |
| 6th | 1. Present Continuous Tense<br>2. Structure and examples<br>3. How to put - ing after verb | 1. Each student studies about the structure and some examples page by page.<br>2. After that the students do the exercise 1- 2 and check the response. If they have any problems, they can ask the teacher.<br>3. The students practice to put -ing after verb from activities page.<br>( Practice 1 -2 ) | 1. Computer connected with the Internet | 1.Result from doing the exercises and doing some practices |

| | | | | |
|---|---|---|---|---|
| 7th | 1. Revision<br>2. How to use Present Continuous Tense | 1. The students revise the last lesson by going to the first page of Present Continuous Tense.<br>2. Each student studies how to use Present Continuous Tense and studies some examples.<br>3. The students are assigned to do exercise 3-4. | 1. Computer connected with the Internet | 1.Result from doing the exercises |
| 8th | 1. Revision<br>2. How to change Affirmative sentences in-to Negative and Question sentences | 1. The students revise the last lesson for 5 minutes.<br>2. Each student studies how to change Affirmative sentences into Negative and Question sentences page by page and studies some examples from the tables.<br>3. After that students are assigned to do the practice 3-4, 5-6. | 1. Computer connected with the Internet | 1. Result from doing the practices |
| 9th | 1. Present Simple Tense and Present Continuous Tense on activity page | 1. Each group goes to the activity page and chooses any practices for revision about Present Simple Tense and Present Continuous Tense.<br>2. The students are given 20 minutes to do the practices.<br>3. After that the students are allowed to play games about English that include vocabulary, reading, writing, grammar, etc.<br>4. Finally, the students are assigned to answer 10 multiple choice questions at the post-test menu. | 1.Computer connected with the Internet | 1. Result from doing a pre-test on Computer Assisted Instruction on web |

| | | | | |
|---|---|---|---|---|
| 10th | 1. Post-test | 1. The students are assigned to do a post-test.<br>2. After that they will complete the questionnaire about their attitudes towards Computer Assisted Instruction on Present Simple Tense and Present Continuous Tense. | 1. A multiple choice post-test with 20 questions<br>2.The question-naire about the students' attitudes towards CAI | 1. Result from doing a post-test and completing the questionnaire |

# Appendix C
## Pre-test on Present Simple Tense and Present Continuous Tense

Direction: Choose the best answer.

1. The sun …… from the east every day.
   a. rise
   b. rises
   c. is rising
   d. are rising
2. The worker is ……on the machine.
   a. work
   b. works
   c. working
   d. are working
3. I ……..a glass of water before going to bed every night.
   a. drink
   b. drinks
   c. am drinking
   d. is drinking
4. He……very fast.
   a. run
   b. runs
   c. running
   d. to run
5. She ……at the restaurant now.
   a. eats
   b. am eating
   c. are eating
   d. is eating
6. She ……the piano every day.
   a. play
   b. plays
   c. is playing
   d. are playing
7. The sun……around the earth.
   a. move
   b. moves
   c. moving
   d. are moving
8. Mary ……..to the library now.
   a. walk
   b. walks
   c. walking
   d. is walking

9. You are …….a newspaper.
   a. eating
   b. reading
   c. washing
   d. drawing
10. Jack……to see the doctor every six month.
   a. go
   b. going
   c. goes
   d. is going
11. Mrs. Judith is……her clothes now.
   a. wash
   b. washes
   c. to wash
   d. washing
12. The farmers……in the field every day.
   a. work
   b. works
   c. working
   d. are working
13. Henry and Don……..in their classroom now.
   a. study
   b. studies
   c. is studying
   d. are studying
14. Henry is ……a red jacket now.
   a. wear
   b. wears
   c. wearing
   d. to wear
15. The students study English…….
   a. now
   b. every day
   c. yesterday
   d. last week
16. The fruit sellers are……..mangoes.
   a. selling
   b. to sell
   c. sells
   d. sell
17. The cleaners are……the toilet.
   a. wash
   b. washes
   c. washing
   d. is washing

18. The baby is …….in the bedroom now.
    a. sleep
    b. sleeping
    c. sleeps
    d. are sleeping
19. ……..he watch television every day?
    a. Do
    b. Does
    c. Is
    d. Are
20. My mother is ……..a cake in the kitchen now.
    a. bake
    b. bakes
    c. baking
    d. are baking

## Post-test on Present Simple Tense and Present Continuous Tense

Direction: Choose the best answer.

1. The sun……around the earth.
   a. move
   b. moves
   c. moving
   d. are moving
2. The worker is ……on the machine.
   a. work
   b. works
   c. working
   d. are working
3. The sun …… from the east every day.
   a. rise
   b. rises
   c. is rising
   d. are rising
4. Mary ……..to the library now.
   a. walk
   b. walks
   c. walking
   d. is walking
5. She ……the piano every day.
   a. play
   b. plays
   c. is playing
   d. are playing
6. The cleaners are……the toilet.
   a. wash
   b. washes
   c. washing
   d. is washing
7. ……..he watch television every day?
   a. Do
   b. Does
   c. Is
   d. Are
8. The students study English…….
   a. now
   b. every day
   c. yesterday
   d. last week

9. The farmers……in the field every day.
   a. work
   b. works
   c. working
   d. are working
10. He…….very fast.
   a. run
   b. runs
   c. running
   d. to run
11. Henry and Don……..in their classroom now.
   a. study
   b. studies
   c. is studying
   d. are studying
12. Jack……to see the doctor every six month.
   a. go
   b. going
   c. goes
   d. is going
13. I ……..a glass of water before going to bed every night.
   a. drink
   b. drinks
   c. am drinking
   d. is drinking
14. You are …….a newspaper.
   a. eating
   b. reading
   c. washing
   d. drawing
15. She ……at the restaurant now.
   a. eats
   b. am eating
   c. are eating
   d. is eating
16. Mrs. Judith is……her clothes now.
   a. wash
   b. washes
   c. to wash
   d. washing
17. My mother is ……..a cake in the kitchen now.
   a. bake
   b. bakes
   c. baking
   d. are baking

18. The baby is …….in the bedroom now.
    a. sleep
    b. sleeps
    c. sleeping
    d. are sleeping
19. The fruit sellers are……..mangoes.
    a. selling
    b. to sell
    c. sells
    d. sell
20. Henry is ……a red jacket now.
    a. wear
    b. wears
    c. wearing
    d. to wear

# Appendix D

# 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 on Present Simple Tense and Present Continuous Tense

| Item | P | R |
|---|---|---|
| 1. | .294 | .496 |
| 2. | .412 | .470 |
| 3. | .529 | .563 |
| 4. | .471 | .534 |
| 5. | .359 | .547 |
| 6. | .412 | .336 |
| 7. | .417 | .352 |
| 8. | .294 | .609 |
| 9. | .294 | .429 |
| 10. | .412 | .492 |
| 11. | .529 | .352 |
| 12. | .647 | .473 |
| 13. | .412 | .515 |
| 14. | .353 | .413 |
| 15. | .176 | .384 |
| 16. | .529 | .703 |
| 17. | .529 | .586 |
| 18. | .647 | .500 |
| 19. | .529 | .774 |
| 20. | .529 | .328 |

CKR20 = .828

# Appendix E

# The Results of the Students' Pre-test and Post-test Scores in Experimental and Control Group

**The Results of the Students' Pre-test, Exercise, and Post-test Scores in Experimental Group.**

| Student Number | Pre-test Score (20 points) | Exercise Score (20 points) | Post-test Score (20 points) |
|---|---|---|---|
| 1 | 7 | 16 | 19 |
| 2 | 8 | 19 | 20 |
| 3 | 4 | 13 | 16 |
| 4 | 8 | 16 | 17 |
| 5 | 7 | 19 | 19 |
| 6 | 14 | 19 | 20 |
| 7 | 5 | 16 | 16 |
| 8 | 10 | 13 | 15 |
| 9 | 11 | 16 | 16 |
| 10 | 15 | 18 | 15 |
| 11 | 15 | 19 | 19 |
| 12 | 11 | 13 | 13 |
| 13 | 5 | 10 | 10 |
| 14 | 7 | 15 | 13 |
| 15 | 11 | 17 | 12 |

| Student Number | Pre-test Score (20 points) | Exercise Score (20 points) | Post-test Score (20 points) |
|---|---|---|---|
| 16 | 6 | 15 | 12 |
| 17 | 9 | 14 | 13 |
| 18 | 8 | 13 | 11 |
| 19 | 7 | 12 | 13 |
| 20 | 5 | 13 | 9 |
| 21 | 10 | 14 | 14 |
| 22 | 9 | 12 | 9 |
| 23 | 10 | 18 | 13 |
| 24 | 16 | 20 | 20 |
| 25 | 12 | 17 | 13 |
| 26 | 10 | 16 | 12 |
| 27 | 8 | 13 | 13 |
| 28 | 12 | 17 | 15 |
| 29 | 7 | 12 | 12 |
| 30 | 7 | 17 | 15 |
| 31 | 10 | 16 | 13 |
| 32 | 8 | 17 | 11 |
| 33 | 8 | 16 | 13 |
| 34 | 6 | 18 | 19 |
| 35 | 9 | 13 | 14 |

| Student Number | Pre-test Score (20 points) | Exercise Score (20 points) | Post-test Score (20 points) |
|---|---|---|---|
| 36 | 8 | 16 | 13 |
| 37 | 10 | 16 | 13 |
| 38 | 10 | 17 | 14 |
| 39 | 9 | 11 | 12 |
| 40 | 4 | 10 | 9 |
| **Total score** | **356** | **612** | **565** |
| **Mean score** | **8.90** | **15.30** | **14.12** |

**The Results of the Students' Pre-test, Exercise, and Post-test Score in Control Group.**

| Student Number | Pre-test Score (20 points) | Exercise Score (20 points) | Post-test Score (20 points) |
|---|---|---|---|
| 1 | 7 | 11 | 10 |
| 2 | 12 | 12 | 13 |
| 3 | 10 | 16 | 11 |
| 4 | 12 | 16 | 18 |
| 5 | 6 | 12 | 10 |
| 6 | 7 | 10 | 8 |
| 7 | 13 | 18 | 17 |
| 8 | 9 | 18 | 11 |
| 9 | 12 | 17 | 14 |
| 10 | 12 | 18 | 15 |
| 11 | 8 | 17 | 12 |
| 12 | 4 | 12 | 5 |
| 13 | 7 | 6 | 9 |
| 14 | 9 | 16 | 15 |
| 15 | 15 | 18 | 19 |
| 16 | 7 | 11 | 10 |
| 17 | 7 | 13 | 11 |
| 18 | 4 | 13 | 16 |
| 19 | 12 | 19 | 19 |
| 20 | 5 | 17 | 9 |

| Student Number | Pre-test Score (20 points) | Exercise Score (20 points) | Post-test Score (20 points) |
|---|---|---|---|
| 21 | 8 | 15 | 12 |
| 22 | 7 | 17 | 9 |
| 23 | 10 | 17 | 11 |
| 24 | 12 | 19 | 17 |
| 25 | 13 | 19 | 19 |
| 26 | 7 | 9 | 10 |
| 27 | 10 | 11 | 18 |
| 28 | 12 | 18 | 12 |
| 29 | 7 | 13 | 9 |
| 30 | 8 | 8 | 10 |
| 31 | 7 | 13 | 8 |
| 32 | 11 | 15 | 12 |
| 33 | 10 | 12 | 11 |
| 34 | 11 | 16 | 18 |
| 35 | 7 | 11 | 8 |
| 36 | 7 | 15 | 10 |
| 37 | 12 | 14 | 12 |
| 38 | 8 | 16 | 10 |
| 39 | 6 | 13 | 8 |
| 40 | 8 | 9 | 8 |

| Student Number | Pre-test Score (20 points) | Exercise Score (20 points) | Post-test Score (20 points) |
|---|---|---|---|
| **Total score** | **359** | **570** | **484** |
| **Mean score** | **8.97** | **14.25** | **12.10** |

# Appendix F

## Questionnaire of Students' Attitudes towards Learning English Grammar on Present Simple Tense and Present Continuous Tense via the Computer Assisted Instruction

**Questionnaire:**

**The Students' Attitudes towards Computer Assisted Instruction (CAI) on Present Simple Tense and Present Continuous Tense**

**Instruction:** This questionnaire is designed to gather information about your attitudes towards Computer Assisted Instruction in English language learning on Present Simple Tense and Present Continuous Tense. It is composed of 3 parts. The first part is the questionnaire of background information, the second part is the questionnaire about your experience in using computers and the last part is your attitudes towards Computer Assisted Instruction in English language learning on Present Simple Tense and Present Continuous Tense.

**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. Your sex Male Female
2. Your age 10 -12 13-15
3. GPA of English Proficiency in Prathom 5

   0 1 2 3 4

4. Do you have a computer with the Internet at home? Yes No

**Part II: Your experience in using computer**

**Direction:** Please provide your experience in using computers by putting a tick ( / ) in the box given or write the response where necessary.

1. How many hours do you work with computers per day?

   1-3 hours 4-6 hours 7-10 hours more than 10 hours

2. What type of work do you use with computers?

   Word processing Graphics Games

   Internet E-mail Other……

**Part III: The Attitudes towards Computer Assisted Instruction (CAI) in English Language Learning on Present Simple Tense and Present Continuous Tense.**

**Direction:** This questionnaire is designed to gather information about your attitudes towards Computer Assisted Instruction. Please read each statement carefully and mark ( / ) the response which best describes your attitudes towards Computer Assisted Instruction in English language learning on Present Simple Tense and Present Continuous Tense.

5 = Strongly agree 4 = Agree 3 = Uncertain

2 = Disagree 1 = Strongly disagree

**Example :** CAI is very useful in English Language Learning

| 5 | 4 | 3 | 2 | 1 |
|---|---|---|---|---|
| | / | | | |

| **Your Attitudes towards Computer Assisted Instruction in English Language Learning** | **5** | **4** | **3** | **2** | **1** |
|---|---|---|---|---|---|
| 1. CAI can enhance your understanding of the content. | | | | | |
| 2. CAI is very helpful in your learning. | | | | | |
| 3. CAI makes learning language enjoyable. | | | | | |
| 4. CAI is very easy and convenient to use. | | | | | |
| 5. CAI gives you useful experiences. | | | | | |
| 6. The interactive nature of CAI can motivate and make the content more interesting. | | | | | |
| 7. CAI is not helpful in your learning. | | | | | |
| 8. Learning with CAI takes a lot of times. | | | | | |
| 9. CAI can not increase your language learning. | | | | | |
| 10. The content of CAI can make the lesson uninteresting. | | | | | |

Thank you very much for your co-operation

# Appendix G

## The t - test for Each Item of Five-Point Rating Scale Questionnaire

| Item No. | t | Sig. | Statement |
|---|---|---|---|
| 1 | 2.857 | .022 | Positive Statement |
| 2 | 4.890 | .000 | Positive Statement |
| 3 | 2.786 | .015 | Positive Statement |
| 4 | 3.042 | .017 | Positive Statement |
| 5 | 3.786 | .008 | Positive Statement |
| 6 | 3.435 | .009 | Positive Statement |
| 7 | 3.710 | .003 | Negative Statement |
| 8 | 3.972 | .004 | Negative Statement |
| 9 | 4.685 | .001 | Negative Statement |
| 10 | 3.977 | .003 | Negative Statement |

## Reliability Analysis - Scale (Alpha)

Reliability Coefficients

Numbers of Cases = 30

Numbers of Items = 10

Alpha = .8763

# Appendix H

# Interview Guided Questions

1. Do you like learning English through Computer Assisted Instruction via Web?

……

……

2. How do you feel about learning English through Computer Assisted Instruction via Web?

……

……

3. Do you have any problems in learning English through Computer Assisted Instruction via Web? If yes, what are your problems?

……

……

4. Are the directions in the Computer Assisted Instruction easy to understand?

……

……

5. Is learning English through Computer Assisted Instruction via Web convenient to use?

……

……

6. Do you think that you can study through Computer Assisted Instruction via Web on you own?

……

……

7. What part of this Computer Assisted Instruction lesson do you like most?

……

……

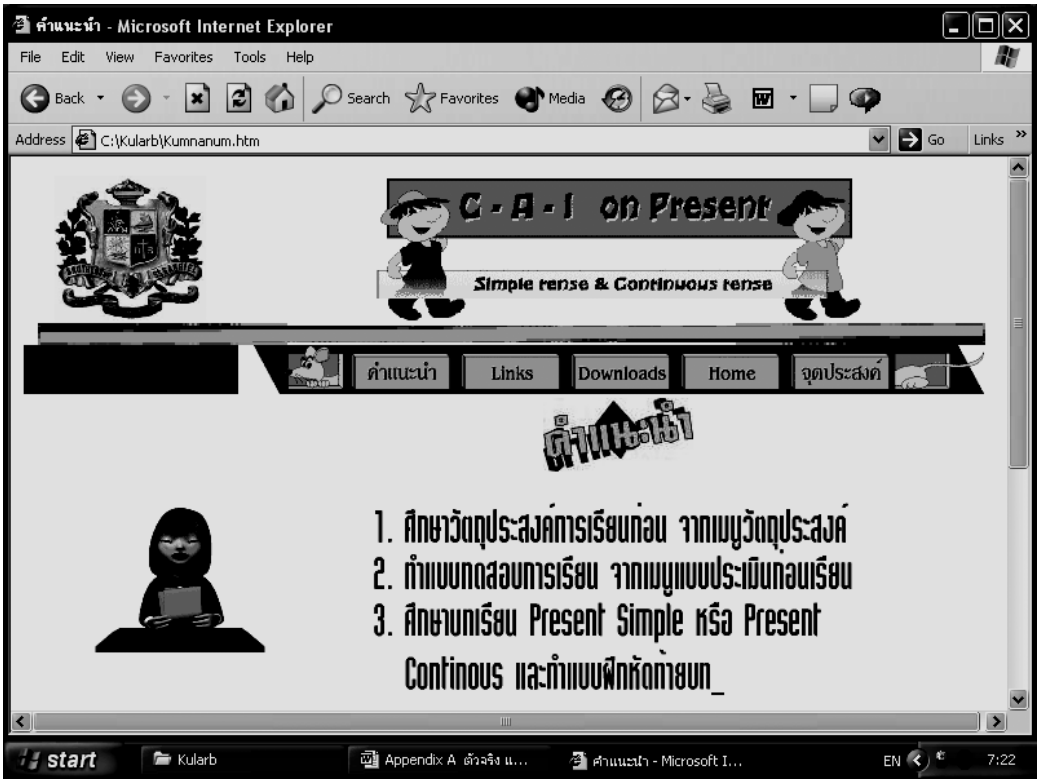
# Appendix I

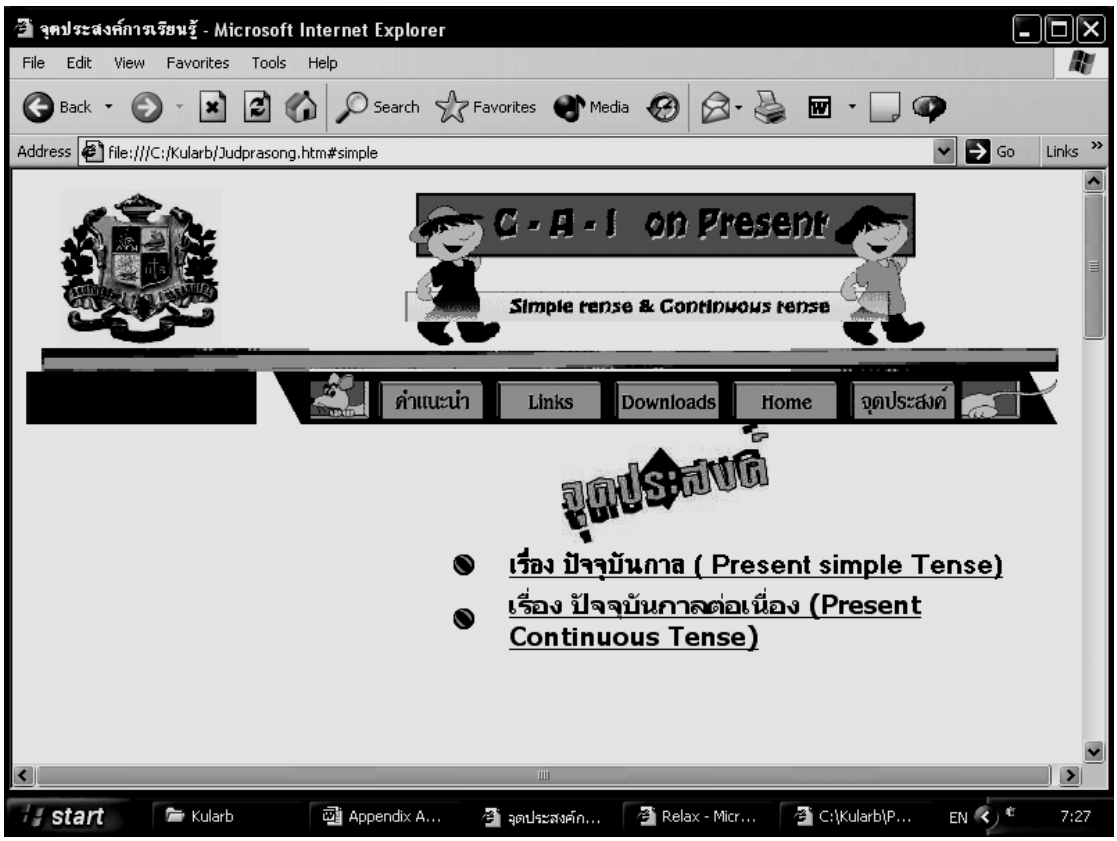
## List of Specialists

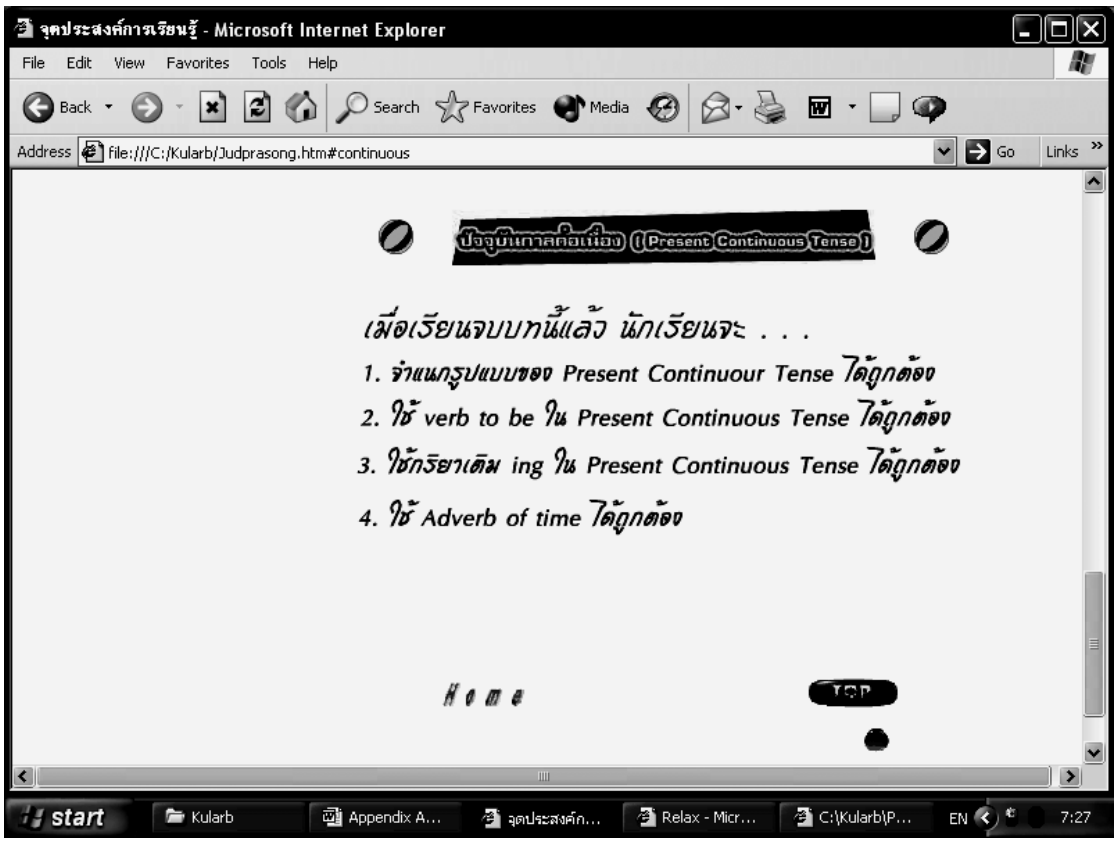
| Names | Position | Instrument Examined |
|---|---|---|
| 1. Assoc. Prof. Dr. Kanit Khaimook | The head of school Information Technology at Suranaree University of Technology, Nakhon Ratchasima | - Questionnaire<br>- Interview Guides |
| 2. Dr. Banjert Chongapirattanakul | A lecturer at Suranaree University of Technology, Nakhon Ratchasima | - Questionnaire<br>- Interview Guides |
| 3. Asst. Prof. Dr. Chonawat Srisa-An | A dean, Faculty of Information Technology at Rangsit University, Bangkok | - Computer Assisted Instruction |
| 4. Archarn Marisa Singhapan | The head of Academic Department at Assumption College Rayong | - Lesson plans |
| 5. Archarn Chonticha Boonlieng | The head of School Research Department at Assumption College Rayong | - Questionnaire<br>- Tests |
| 6. Archarn Yupawadee Thongkam | The head of English Department at Assumption College Rayong | - Lesson Plans |

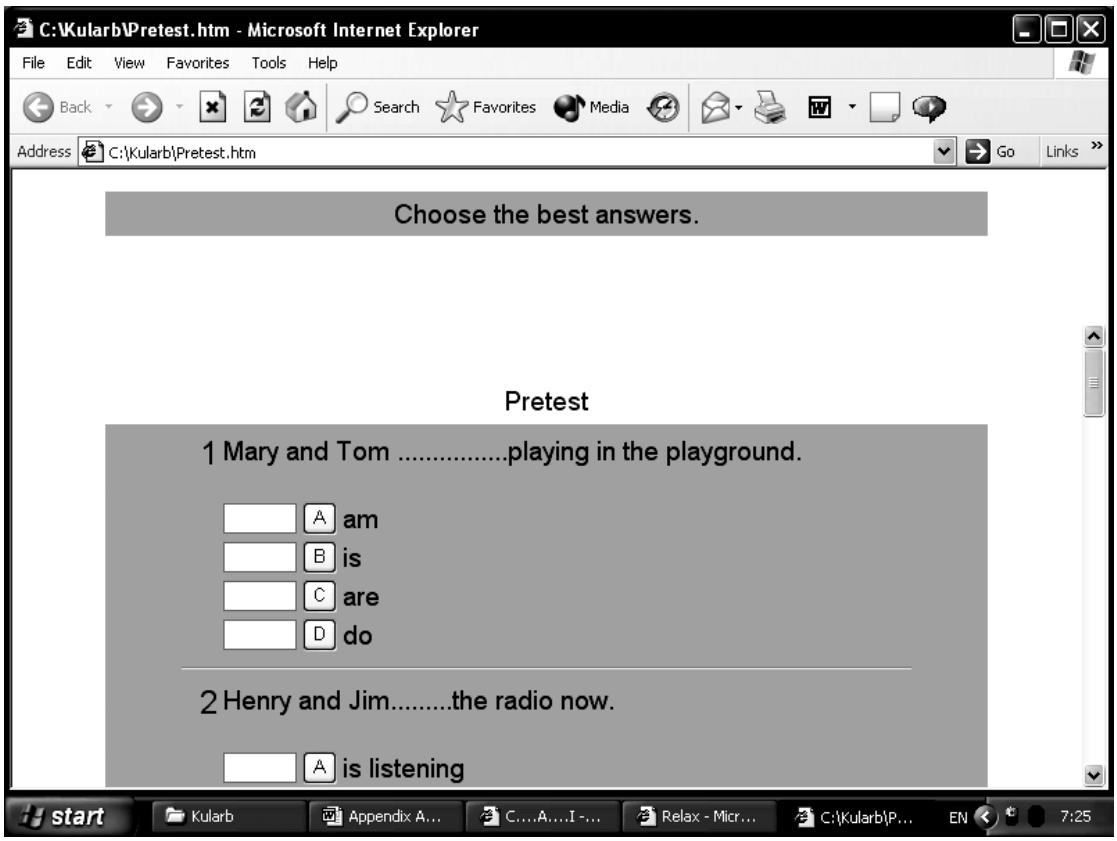
# Appendix J

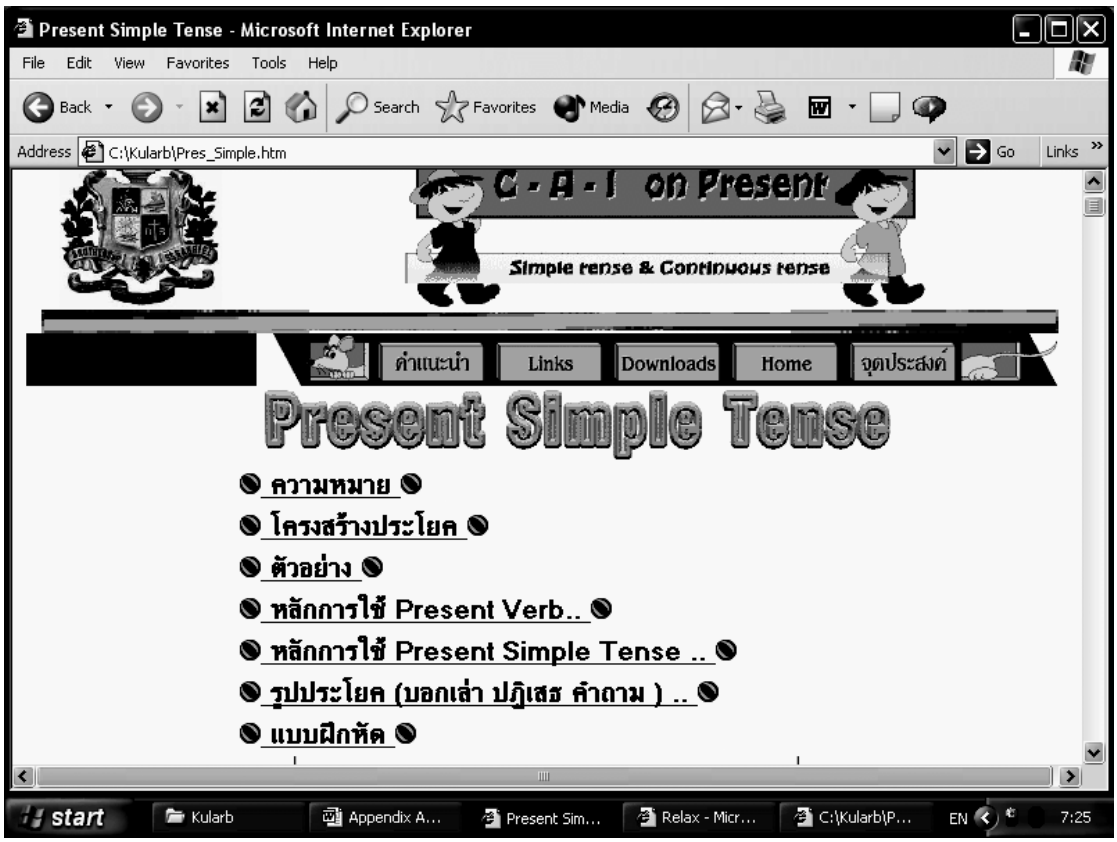
Examples of Web pages from the CAI on Present Simple Tense and Present Continuous Tense

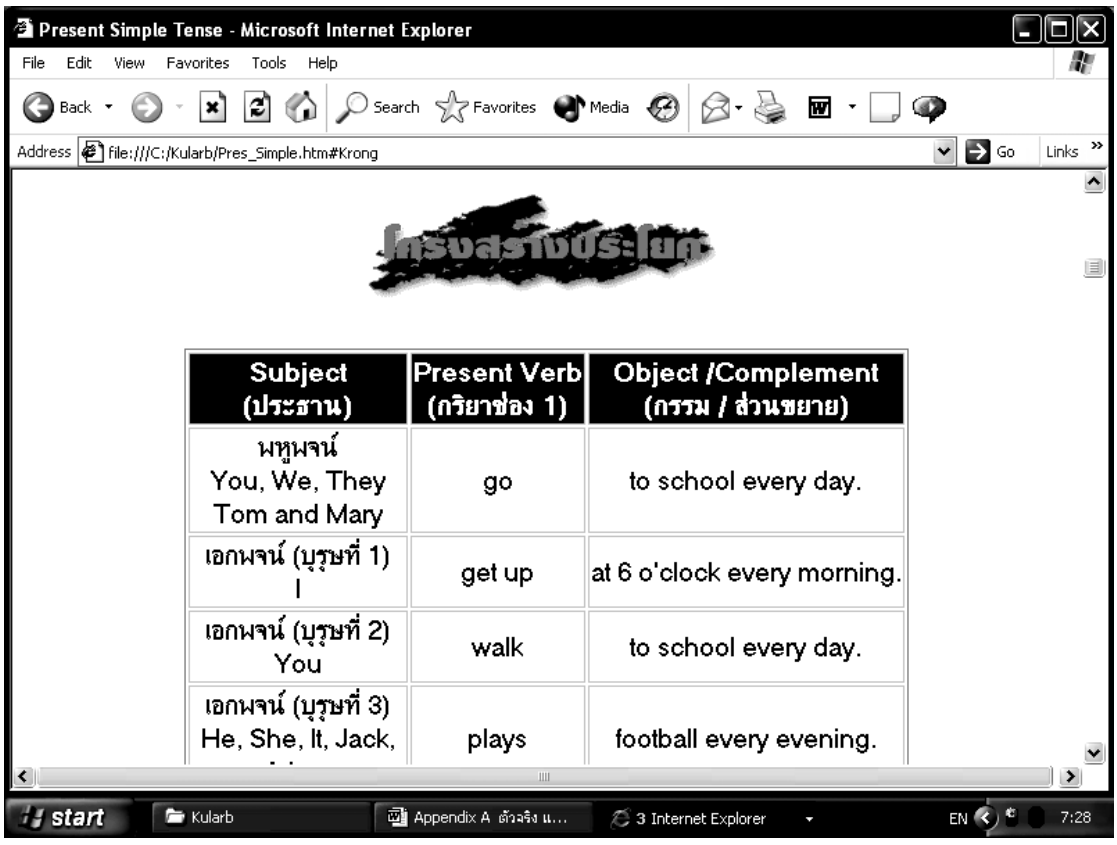




จุดประสงค์การเรียนรู้ - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites Media
Address file:///C:/Kularb/Judprasong.htm#simple
Go Links
C - A - I on Present
Simple tense & Continuous tense
คำแนะนำ
Links
Downloads
Home
จุดประสงค์
จุดประสงค์
เรื่อง ปัจจุบันกาล ( Present simple Tense)
เรื่อง ปัจจุบันกาลต่อเนื่อง (Present Continuous Tense)
start
Kularb
Appendix A...
จุดประสงค์ก...
Relax - Micr...
C:\Kularb\P...
EN
7:27

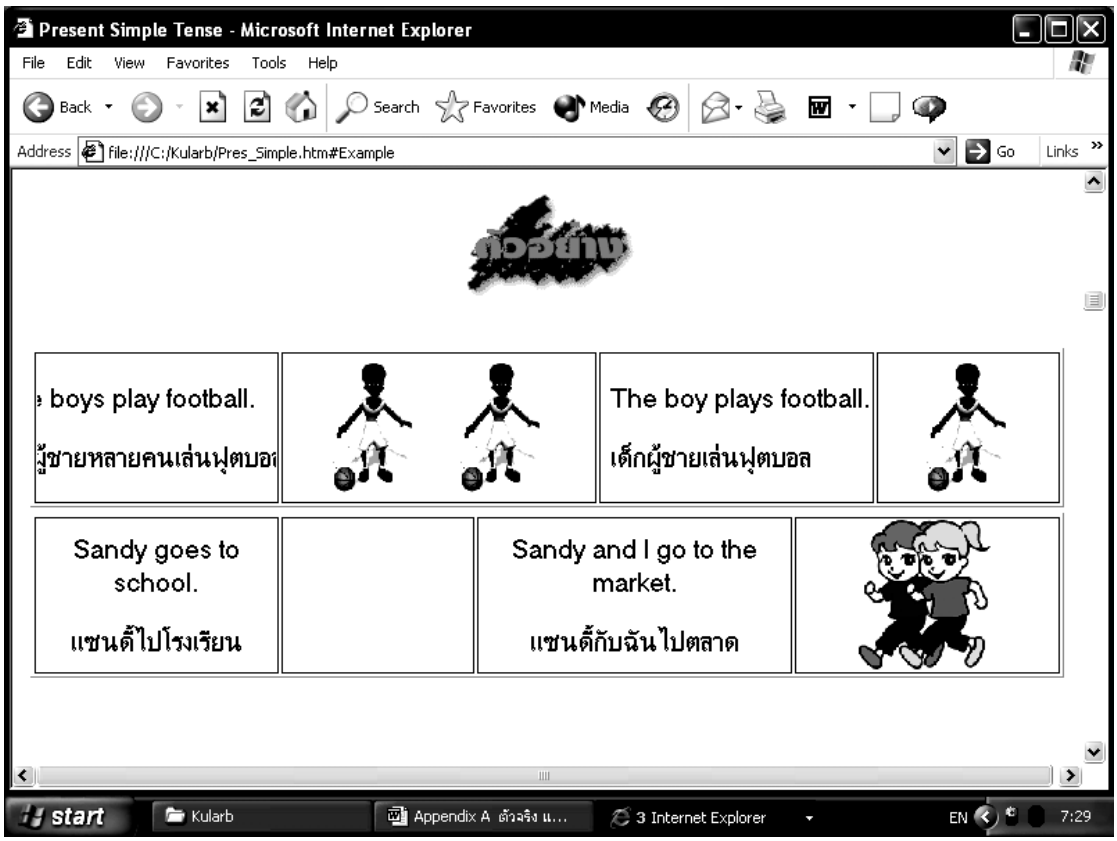

จุดประสงค์การเรียนรู้ - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites Media
Address file:///C:/Kularb/Judprasong.htm#continuous
Go Links
ปัจจุบันกาลต่อเนื่อง (Present Continuous Tense)
เมื่อเรียนจบบทนี้แล้ว นักเรียนจะ . . .
1. จำแนกรูปแบบของ Present Continuour Tense ได้ถูกต้อง
2. ใช้ verb to be ใน Present Continuous Tense ได้ถูกต้อง
3. ใช้กริยาเติม ing ใน Present Continuous Tense ได้ถูกต้อง
4. ใช้ Adverb of time ได้ถูกต้อง
Home
TOP
start
Kularb
Appendix A...
จุดประสงค์ก...
Relax - Micr...
C:\Kularb\P...
EN
7:27

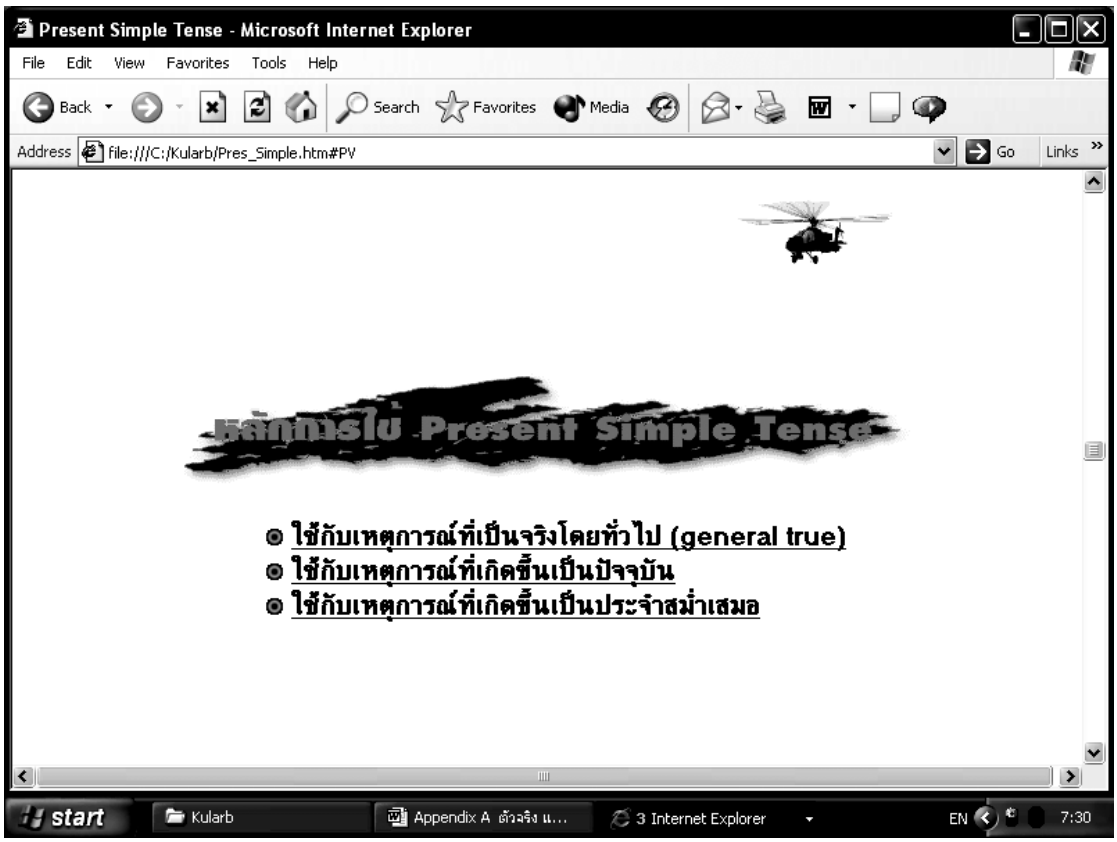

C:\Kularb\Pretest.htm - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites Media
Address C:\Kularb\Pretest.htm
Go Links
Choose the best answers.
Pretest
1 Mary and Tom .....playing in the playground.
A am
B is
C are
D do
2 Henry and Jim.....the radio now.
A is listening
start
Kularb
Appendix A...
C....A....I -...
Relax - Micr...
C:\Kularb\P...
EN
7:25


Present Simple Tense - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites Media
Address C:\Kularb\Pres_Simple.htm
Go Links
C - A - I on Present
Simple rense & Continuous rense
คำแนะนำ
Links
Downloads
Home
จุดประสงค์
Present Simple Tense
ความหมาย
โครงสร้างประโยค
ตัวอย่าง
หลักการใช้ Present Verb..
หลักการใช้ Present Simple Tense ..
รูปประโยค (บอกเล่า ปฏิเสธ คำถาม ) ..
แบบฝึกหัด
start
Kularb
Appendix A...
Present Sim...
Relax - Micr...
C:\Kularb\P...
EN
7:25


| Subject (ประธาน) | Present Verb (กริยาช่อง 1) | Object /Complement (กรรม / ส่วนขยาย) |
|---|---|---|
| พหูพจน์ You, We, They Tom and Mary | go | to school every day. |
| เอกพจน์ (บุรุษที่ 1) I | get up | at 6 o'clock every morning. |
| เอกพจน์ (บุรุษที่ 2) You | walk | to school every day. |
| เอกพจน์ (บุรุษที่ 3) He, She, It, Jack, | plays | football every evening. |


Present Simple Tense - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites Media
Address file:///C:/Kularb/Pres_Simple.htm#Example
Go Links
ตัวอย่าง
boys play football.
ผู้ชายหลายคนเล่นฟุตบอ
The boy plays football.
เด็กผู้ชายเล่นฟุตบอล
Sandy goes to school.
แซนดี้ไปโรงเรียน
Sandy and I go to the market.
แซนดี้กับฉันไปตลาด
start
Kularb
Appendix A ตัวจริง แ...
3 Internet Explorer
EN
7:29


Present Simple Tense - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites Media
Address file:///C:/Kularb/Pres_Simple.htm#PV
Go Links
หลักการใช้ Present Simple Tense
ใช้กับเหตุการณ์ที่เป็นจริงโดยทั่วไป (general true)
ใช้กับเหตุการณ์ที่เกิดขึ้นเป็นปัจจุบัน
ใช้กับเหตุการณ์ที่เกิดขึ้นเป็นประจำสม่ำเสมอ
start
Kularb
Appendix A ตัวจริง แ...
3 Internet Explorer
EN
7:30

# Curriculum Vitae

Ms. Kularb Sa-ard was born on May 2nd , 1967 in Rayong. She went to study in English Major, Faculty of Education at Srinakarinwirot University, Chonburi. After that, she has been working for Assumption College Rayong in Rayong Province since 1989. She studied in the school of English, Institute of Social Technology, Suranaree University of Technology for a Master's Degree.