

CHAPTER THREE

METHODOLOGY

The methodology to carry out this study was divided into five parts: participants, materials, instruments, data collection, and data analysis. Figure 1 shows the details of the methodology.

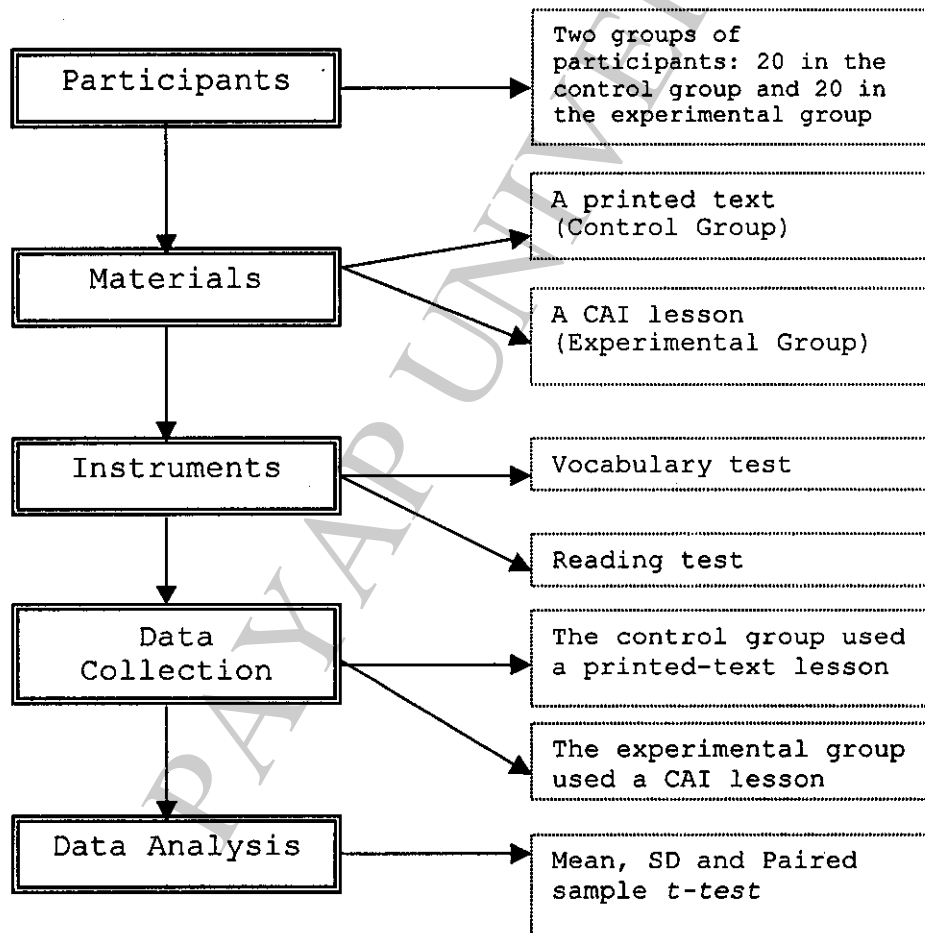


Figure 1: The Details of the Methodology

The process of data collection was carried on in the following order, selecting the participants, choosing the materials, designing the instruments, collecting data, and analyzing the data respectively.

Participants

The participants in this study were Mattayom Suksa Four students, enrolling in the first semester of English at a private school in the north of Thailand. Forty percent of the participants were female and 60 percent were male. Their average age was 16. Prior to the experiment, the participants were paired based on their English test scores from the class taken before enrolling in this course. Those who got the highest and the lowest scores were eliminated from the sample. Therefore, the final number of the participants whose data were analyzed was 40. They were divided into two groups, a control group and an experimental group. Each group was comprised of 20 participants. The experimental group studied the text by using a CAI lesson and the control group studied the text in a printed-text lesson.

Materials

The content of the lesson was selected from *Family Album, U.S.A.* by Macmillan, Inc. (Alvin & Lefferts, 1997). Episode Seven, "Man's Best Friend" was selected from the overall 15 episodes by tenth-grade students, who did not participate in the later experiment. They were asked to select their favorite topic. The readability of the text was at level 6 as measured by the Fry Readability (Fry, 1977), which was at the same level as the school English text. The materials in this research were divided into two types, the printed text and the CD-ROM.

The Printed Text

Episode Seven, "Man's Best Friend", was divided into three parts (see Appendix A). It was rewritten by an English native speaker to convert from a dialogue format to a narrative text. The target words were presented in the new format of the text at the same frequency as in the original text. In addition, the printed text had black and white pictures incorporated into the contents.

The CD-ROM

The CAI lesson was presented in a multimedia system in a video format and was separated into three sessions: Act I, Act II, and Act III (see Appendix B). English subtitles were provided at the bottom of the computer screen (see Figure 2).

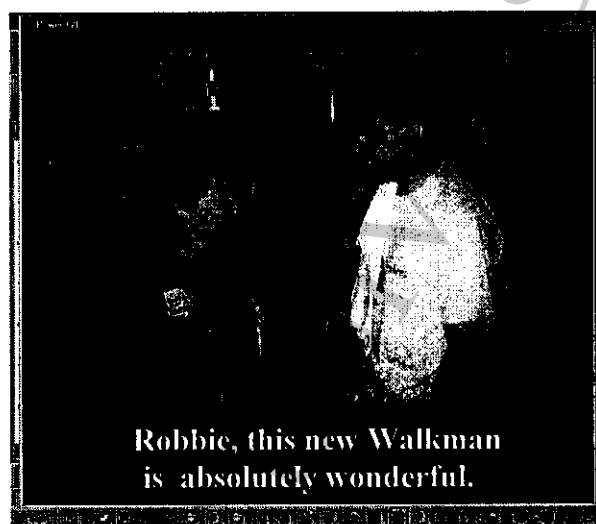


Figure 2: The Presentation of the CD-ROM

Instruments

Two instruments, reading comprehension tests and four vocabulary tests, were used to collect the data in this study.

Reading Comprehension Tests

Based on the exercise book of *Family Album, U.S.A.* (Allen & Lefferts, 1997), three reading comprehension tests were prepared by the researcher under the supervision of the thesis advisor. Each of the tests consisted of five multiple-choice questions, based on each act of the reading text (see Appendix C). Since the reading comprehension tests were constructed in order to set the purpose of reading for the participants and to discern target words; therefore, the data were not analyzed in this study.

Vocabulary Tests

The other instruments were vocabulary tests, which were constructed by the researcher under the approval and supervision of the thesis advisor. The vocabulary tests were designed to test the participants' vocabulary acquisition and retention. To select the target words, the researcher asked 20 tenth-grade students, to read "Man's best friend" and underline the words that they did not know the meaning. The ten most often underlined words in each session were chosen as target words.

Therefore, the total target words used in the vocabulary tests were 30.

The vocabulary test was divided into four sets. The first three sets were similar in formats. Each of them contained 10 target words. It also asked the participants to identify (a) whether they knew the meaning of each word, (b) whether they had seen the word but could not recall the meaning, or (c) whether they did not know the meaning. Then, they were asked to write the meaning of each word either in Thai (L1) or in English (L2) (see Appendix D). The three tests were given to the participants after they finished the lesson. The fourth set of the vocabulary tests consisted of all 30 target words but their order was rearranged (see Appendix E). It was given to all participants two weeks after all three reading tasks had been completed. The first three vocabulary tests were pilot tested with five tenth-grade students before they were used in the present study. Since, they had no problems understanding and performing the test, no correction was made.

Scoring

One English teacher and the researcher scored all vocabulary tests. The teacher's age was 45, and has had

more than 10 years experience in teaching English in high school. The teacher was not informed of the classification of the participants in each group. She checked the vocabulary tests as per the scoring criteria by Waring (2002). The scoring procedure was straightforward. If the definitions were a correct synonym or translation, 2 scores were given. If the definition was close but not exact in meaning, 1 score was given. A score of "0" was given when the meaning was not correct. A correct answer did not necessarily require providing the exact meaning as long as it was semantically accurate. For example, the meaning given for *complain* might be "to talk about the things that disturb them", "to talk to annoy other person". If the answer was semantically accurate but contained a minor spelling mistake, which did not distort the meaning, it was considered correct. For instance, the meaning given for *cheeseburger* might be "อาหารตะวันตกชนิดหนึ่ง" (a kind of western food), or *cuddle* might be "การดูแลทะนุถนอมบางสิ่งบางอย่าง" (to care about something), and they were scored 2. In case of dissimilar grading, the graders discussed and came up with an agreement. The interrater reliability was 90 percent.

Data Collection Procedure

This study lasted for one month. The participants studied the CD-ROM and the printed text for at least one hour and performed vocabulary tests on the 1st, 8th, 15th and the 30th day (see Table 1).

Day	Description
1	Study the first part of the lesson and perform the reading test I and vocabulary test I.
8	Study the second part of the lesson and perform the reading test II and vocabulary test II.
15	Study the third part of the lesson and perform the reading test III and vocabulary test III.
30	The last set of the vocabulary test.

Table 1: Data Collection Schedule

According to the data collection schedule, the participants of both groups, the control group and the experimental group, were asked to perform the reading lessons, the reading comprehension tests and the vocabulary tests. The first part of the reading lesson,

the reading comprehension test I, and the vocabulary test I took place on Day 1. The second part of the reading lesson, the reading comprehension test II, and the vocabulary test II took place on Day 8. The third part of the reading lesson, the reading comprehension test III, and the vocabulary test III were tested on Day 15th. On Day 30, only the fourth set of the vocabulary test was given to the participants of both groups.

The Control Group

For the control group, who studied a printed text lesson, the study took place in an English classroom. The participants were asked to study each act of the narrative format of "Man's Best Friend". The teacher told the participants to read a printed text, and they would be tested on their reading comprehension. They were not told about the vocabulary test to avoid the students' attention on target words. After they finished reading, they had to return the text to the teacher. Then, the reading test was distributed. After that, the vocabulary test was distributed. The time was counted when participants started the lesson in order to manage equally the experimental duration for the both groups within one hour. On the 30th, the vocabulary retention

test was given to participants without informing them in advance.

The Experimental Group

This group performed the task in a computer lab. The teacher told the participants that they were asked to study a CD-ROM and then they would be tested on their reading comprehension. They were not told about the vocabulary test to avoid the students' attention on target words. The participants could watch the CD-ROM as long as they wanted but they were not allowed to ask their peers during watching the CD-ROM. However, they could ask the teacher if they had any technical problems. The teacher explained how to use the Power DVD program to study the CD-ROM lesson (See Figure 3).

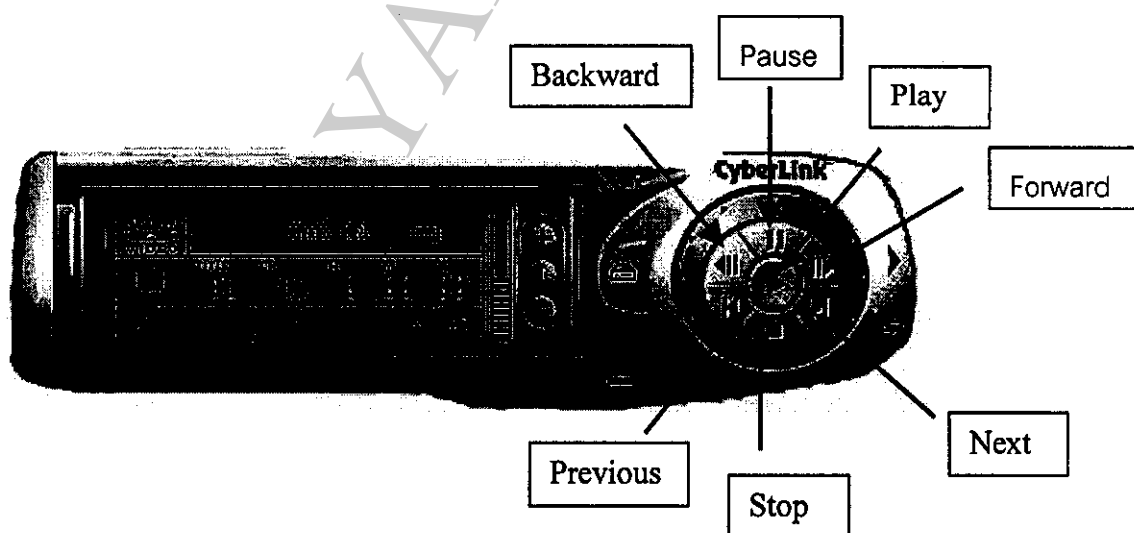


Figure 3: The Function of Control System of the Program

Then, the participants were ready to start studying the lesson and could control the function of the program according to their needs. Finally, the participants clicked on a play button to start the lesson (see Figure 4). The CAI lesson ran automatically until the end of the lesson.

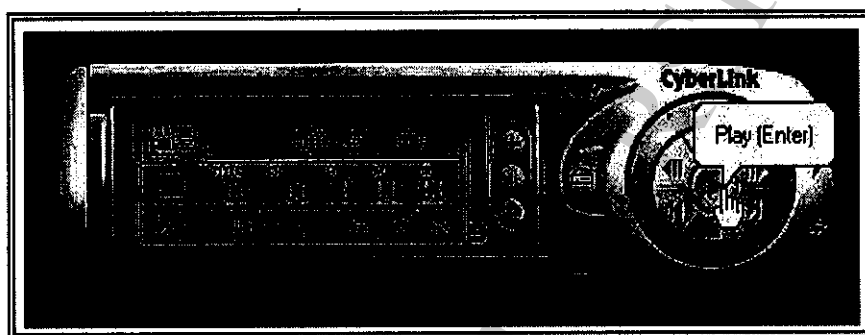


Figure 4: The Start of the Lesson in CD-ROM

After the participants finished studying, they had to turn off the computer. Then, the reading test was distributed. After that, the vocabulary test was distributed. The time was counted when participants started the lesson in order to manage equally the experimental duration for both groups within one hour. On the 30th, the vocabulary retention test was given to participants without informing them in advance.

Data Analysis

The first three sets of vocabulary tests, which asked the participants to indicate whether (a) they knew the meaning of each word, (b) they had seen the word but could not recall the meaning, or (c) they did not know the meaning, were analyzed. Words that the participants selected (a) or (b) were compared with their answers. If the score was 2, that particular word was considered a "known word", and it was deleted from the final analysis. All in all, nine words were deleted because the participants knew the meaning before performing the reading tasks. Therefore, the total target words, which were analyzed in this study, were 21 words. In Act I, there were six target words left to be analyzed, which were absolutely, thoughtful, received, complain, across, and identification. In Act II, there were seven target words left after deleting, which were prevention, branch, adopt, resist, shelter, semester, and affection. In Act III, there were eight target words left, which were responsible, unfortunately, cuddle, pleasure, bringing, claimed, residence, and scratched.

The descriptive statistical analysis, mean (\bar{x}) and standard deviation (SD), were used to analyze the vocabulary scores of the two groups. In addition,

inferential statistics, two-sample dependent *t*-test (the paired two-sample *t*-test), was used to examine whether there was a significant difference between the CAI group and the printed text group in their scores on the vocabulary acquisition tests and the vocabulary retention tests. The details of data analysis and the findings will be discussed in the next chapter.

Summary of the Chapter

This chapter demonstrated the research methodology. The participants were 40 EFL learners in a Thai school. They were divided into two groups, the control group and the experimental group. The control group was asked to study a printed text lesson, while the experimental group studied a CAI lesson. Data collection procedure took place for one month. The participants' vocabulary acquisition and retention were measured by four sets of vocabulary tests. Both descriptive and inferential statistics were used to analyze the data.