CHAPTER III
RESEARCH METHODOLOGY

This chapter contains research questions, research design, population and samples, research procedures, research instruments, data collection, and data analysis.

III.1. Research Questions

As stated in the previous chapters, this study was focused on research questions as follows.

1. Does the implementation of CALL by using DynEd program significantly improve the English proficiency of vocational school students?

2. What are the students' responses toward the implementation of CALL by using DynEd program in improving their English proficiencies?

III.2. Research Design

The present study dealt with the effect of the implementation of CALL by using DynEd program in improving English proficiency of Vocational High School students. Therefore, the present study employed experimental research. Nevertheless, this study used quasi-experimental design and a pretest-posttest control group. As stated in Tuckman (1972, cited in Azizah (2010)), since true experimental research is difficult or impossible to be arranged, the quasi experimental is the best alternative method to organize a research in education

world which consists of limitation in assigning sample randomly. Moreover, in quasi experimental design, research variables such as human behavior and language learning behavior are more possible to be controlled and investigated (Hatch and Farhady, 1982).

In this study, two groups were involved. They were experimental and the control group. Firstly, both of the groups were given TOEIC pretests to measure whether their initial English proficiencies were equal. Meanwhile, only the experimental group was given eight times treatments which were the implementation of CALL by using DynEd program as, while the control group was given conventional method. Furthermore, both of the groups were given TOEIC as posttests to check whether or not there was significant improvement of their English proficiencies. The design of this study was shown as follows:

Table 3.1
Quasi Experimental Design

Sample	Control group (G1)	Experimental Group (G2)
Pretests	X_1	X1
Treatment	T_1	T_2
Posttests	X_2	X_2

X_1 : initial students' English proficiencies

T_1 : treatment using conventional method

X_2 : students' English proficiencies after the treatment

T_2 : treatment which is the implementation of CALL by using DynEd program

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III.3. Population and Sample

According Sugiyono (2010), the population is the generalization which consists of objects or subjects that have a certain quantity and characteristics defined by the researchers to learn and then draw conclusions. The population of this study was the third grade students of one public vocational high school in Bandung which concerns with chemistry programs. Moreover, sample is representative of the population. In this study, the sample was not selected randomly, because in formal education department such as school, there were circumstances in which randomly sampling was not feasible and practical to be administered. Therefore, two classes were selected as the samples; the first was the control group and the second was the experimental group, each group was consisted of 33 students.

III.4. Research Procedures

Several procedures were arranged in conducting this study. Firstly, two groups of third grade of vocational high school students were selected as the control and the experimental groups. Furthermore, both of them were given TOEIC as pre-test to determine whether their initial English proficiencies of these groups were equal.

Second, simple eight lesson plans with different themes were designed for implementing DynEd program as CALL (see Table 3.2). The lesson plan was used for treatments which were given only to the experimental groups, whereas the control group was given conventional method. Those selected themes and

material were designed for Beginner until Intermediate levels in DynEd program.

The lesson plan is as follows:

Table 3.2
Treatments Lesson Plan

Meeting	Duration	Theme	Material
1st	60'	Names and Places	Basic personal information: name, where from, languages spoken, countries and cities of the world, relative location, and nationality. Simple introductions, *be, do*, negation, pronouns, *Yes/No* and *Wh*-questions. Introduces the most basic structures in English.
2nd	60'	Family Schedule	Family relationships and daily schedules of four members of the Harris family. The focus is on specific times, frequency, and duration of habitual activities that make up daily life.
3rd	60'	Daily Activities	Reinforces and extends the language of daily life to include both past and future activities. Topics include talking about occupation, family and daily routines.
4th	60'	Planning Ahead	Within the context of a business trip to London, the focus is on making future plans and choices, including reasons and alternatives. Degrees of certainty, modals, and simple conditionals are further developed.
5th	60'	On a Trip	Extends the language necessary to talk about one's life, expectations and intentions. Relates singular events to durative events and experience. Contrasts past tense with the present perfect. Vocabulary of travel is reviewed and extended.
6th	60'	Life Experiences	Extends the ability to talk about one's life in more detail: past experiences, current situations, plans and hopes for the future. This lesson completes and reinforces the presentation of pre-intermediate verb

				structures.
7th	60'	Life Choices	Introduces conditional constructions to talk about past and future events and their consequences. Presents different types of cause-and-effect relationships using connecting phrases such as "as a result," "even though," "because of," and "unless."	
8th	60'	The Secret Code	Students examine evidence in a mystery and draw conclusions from the evidence as they try to solve it. The focus is on degrees of certainty, making inferences, conditionals and suppositions.	

The duration of each treatment was 50 minutes. The students were instructed to do CALL by using DynEd program while teacher kept monitoring, and 10 minutes for discussion session.

Next, conducting posttests using TOEIC to find out English proficiencies of the control and the experimental groups after getting the different treatments. Fourth, delivering the questionnaire to the experimental group to figure out what students perceive about the implementation of CALL by using DynEd program in improving their English proficiencies. Fifth, analyzing and interpreting the data collected from pretests, posttests and questionnaire. Sixth, concluding and proposing suggestion for further study.

III.5. Research Instrument

In this study, TOEIC was used as instrument to measure the English proficiency of Vocational High School students both in pretests and posttests. TOEIC is intended in order to fulfill demand towards improvements of education

quality in Indonesia for work fields (Bukit 2003, cited in Lismawati (2007)). Besides TOEIC, there was other instrument to explain how students perceive the implementation of CALL by using DynEd program in improving their English proficiencies. It was questionnaire which also helped to acquire more information.

III.5.1. TOEIC Pretests and Posttests

Pretests were administered to measure that the initial English proficiencies of the control and the experimental groups were equal. The test was TOEIC which was suggested for Vocational High School graduates before continue to the work field. TOEIC consists of 200 questions, 100 numbers are listening comprehension section and 100 numbers are reading comprehension section. The questions of TOEIC are delivered from everyday situation and language in business setting. The TOEIC used in this study was produced by Vocational English Teachers Association (VETA) in West Java Province.

Afterward, different TOEIC was administered to both groups after different eight treatments as posttests. Posttests were used to find out whether or not there was significant different of English proficiencies between the two groups after getting different treatments.

III.5.2. Questionnaire

A questionnaire is a research instrument consisting of a series of questions and other prompts for the purpose of gathering information from respondents (Sugiyono, 2010). In this study, questionnaire was used to acquire students'

views toward the implementation of CALL by using DynEd program and to gain further information.

The type of questionnaire used in this study was Likert scale response which consisted of fifteen items with three categories. The categories were students' responses toward learning English, students' responses toward CALL, and students' responses on the implementation of DynEd program in improving their English proficiencies.

To classify the students' responses, the students' answers were categorized as follows: strongly disagree (STS: *sangat tidak setuju*), disagree (TS: *tidak setuju*), not sure (R: *ragu-ragu*), agree (S: *setuju*), and strongly agree (SS: *sangat setuju*).

III.6. Data Collection

III.6.1. Pretests

Pretests were conducted to measure that the initial English proficiencies of the control and the experimental groups before the treatments were equal. This test was given to the control and the experimental groups on 9th December 2010. The data collected were the TOEIC scores of the two groups which range between 0 and 950.

III.6.2. Treatments

The treatments were conducted by implementing DynEd program as CALL for eight times. The treatments were conducted twice a week which

consisted of 60 minutes per meeting. The treatments were implemented from 14th December to 20th January 2010. At first, the treatments should be conducted continuously, but because of school schedule, the treatments were delayed for two weeks.

III.6.3. Posttests

The posttests were given to both of the control and the experimental groups in order to figure out whether there was a significant difference of English proficiencies between the control and the experimental groups after getting different treatments. The posttests were given to the experimental and the control groups on 27th January 2010. Similar to pretests, TOEIC was also used on posttests.

III.6.4. Questionnaire

Questionnaire was given to acquire students' responses toward the implementation of CALL by using DynEd program in improving their English proficiency and to gain further information. It was also done to answer the second research question of this study. Similar with posttests, questionnaire was given to the experimental groups after getting the treatments. It was administered on 27th January 2010. There fifteen questions that covered students' responses toward learning English, students' responses toward CALL, and students' responses toward the implementation of CALL by using DynEd program in improving their English proficiencies.

III.7. Data Analysis

The data in this study were calculated by parametric test. Hence, it had to be assured that the data collected in this study were compatible with parametric test. Conditions to be compatible with parametric test were the data should be normally distributed and homogenous.

III.7.1. Homogeneity of Variance Test

The homogeneity of variance test was conducted to find out whether or not the variances scores in the control and the experimental groups were equal. Levene's test for equality of variance in SPSS version 17.0 was used in analyzing variance homogeneity. The steps of testing homogeneity of variance were as follows:

1) Stating the hypothesis and setting the alpha level at 0.05 (two-tailed). The hypothesis (H_0) was "the scores of the control and the experimental groups are homogenous".

2) Analyzing the homogeneity of variance using Levene's test for equality of variance in SPSS version 17.0

3) Comparing the significance gained with the level of significance (0.05) for testing the hypothesis. If the significance gained more than the level of significance, then the null-Hypothesis (H_0) is accepted. In contrary, if the significance gained less than the level of significance, then the null-Hypothesis (H_0) is rejected (Hatch & Farhady, 1982: p.88).

III.7.2. Normality Distribution Test

Normal Distribution test was conducted to find out whether or not the data of both groups were normally distributed. The Kolmorgorov-Smirnov test in SPSS version 17.0 was used in analyzing normality distribution. The steps of testing normality distribution were also similar to homogeneity of variance:

1) Stating the hypothesis and setting the alpha level at 0.05 (two-tailed). The hypothesis (H_0) was "the scores of the control and the experimental groups are normally distributed"

2) Analyzing the homogeneity of variance using Kommogorov-Smirnov in SPSS version 17.0

3) Comparing the significance gained with the level of significance (0.05) for testing the hypothesis. If the significance gained more than the level of significance, then the null-Hypothesis (H_0) is accepted. In contrary, if the significance gained less than the level of significance, then the null-Hypothesis (H_0) is rejected (Hatch & Farhady, 1982: p.88).

III.7.3. Pretests and Posttests Data Analysis

When the data of this study were normally distributed and homogenous, then the assumptions of using parametric test were achieved. Therefore, the result of pretests and posttests of the two groups were calculated by using dependent t-test to figure out whether there is significant improvement of the two groups after

getting different treatments. To do statistical analysis of dependent t-test of pretest-posttest means, the steps are as follows:

1) Stating the hypothesis and setting the alpha level at 0.05 (two-tailed). The hypothesis (H_0) was "there is no significant difference between pretests and posttests means"

2) Analyzing the t value with dependent formula of variance using SPSS version 17.0

3) Comparing the t_{obt} and t_{crit} for testing the hypothesis. If the t_{obt} more than the t_{crit} then the null-Hypothesis (H_0) is rejected. In contrary, if the t_{obt} less than the t_{crit}, then the null-Hypothesis (H_0) is accepted (Sugiyono, 2010: p.258)

Moreover, the statistical analysis of independent t-test was also used to compare the means of the two groups. The steps were similar to analyzing dependent t-test as follows:

1) Stating the hypothesis and setting the alpha level at 0.05 (two-tailed). The hypothesis (H_0) was "there is no significant difference between the means of the control and the experimental groups"

2) Analyzing the t value with independent formula of variance using SPSS version 17.0

3) Comparing the t_{obt} and t_{crit} for testing the hypothesis. If the t_{obt} more than the t_{crit} then the null-Hypothesis (H_0) is rejected. In contrary, if the t_{obt} less than the t_{crit}, then the null-Hypothesis (H_0) is accepted (Sugiyono, 2010: p.258)

III.7.4. Effect Size Computation

Effect size is calculated in order to investigate how well the implementation of CALL by using DynEd program improves the students' English proficiencies. The formula used in calculating the effect size is as follows:

The Effect Size Formula

$$r = \sqrt{\frac{t^2}{t^2 + df}}$$

where:

r   = correlation coefficient of effect size

t   = independent t-test value

df   = degree of freedom

(Coolidge, 2002)

After the calculation result was gained, it was interpreted on the scale below to find out the magnitude of effect size:

Table 3.3
The Magnitude of Effect Size

Effect Size	r Value
Small	.00
Medium	.243
Large	.371

(Coolidge, 2002)

III.7.5. Questionnaire Data Analysis

The type of questionnaire used in this study was Likert scale response which consisted of fifteen items. Five categories were used to classify students' responses to each category: strongly disagree (STS: *sangat tidak setuju*), disagree (TS: *tidak setuju*), not sure (R: *ragu-ragu*), agree (S: *setuju*), and strongly agree (SS: *sangat setuju*).

After delivering the questionnaire, the data were calculated into percentage. Then, it was interpreted based on the frequency of the students' answers, moreover, it was concluded after be compared with the theories. To make the interpreting process easier, this study used percentage of respondent criteria as follows:

Table 3.4
Percentage of Respondent Criteria

Percentage of Respondent Criteria	Categories
0 %	None of the students
1 – 25 %	Small number of the students
26 – 49 %	Nearly half of the students
50 %	Half of the students
51 – 75 %	More than half of the students
76 – 99%	Almost all of the students
100 %	All of the students

(Kuntjaraningrat, cited in Savitri (2009))

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