

CHAPTER 3

METHODOLOGY

This chapter describes the procedures of the research in order to find out the answer to the research question previously stated in chapter one. The chapter covers Research Design, Hypothesis, Population and Sample, The Research Instruments, Data Collecting Procedure and, Data Analysis.

3.1. Research Design

Research question number one is answered quantitatively. This research was conducted to find out the significance of audio storytelling in developing students' listening comprehension. Since experimental method was chosen to test the hypothesis provided, this research tangled two groups; the first group was control group and the second group was experimental group.

This research used experimental method because in an experiment, investigators may also identify a sample and generalize to a population, this is inline with Cresswell (2003) stated that the basic intent of an experiment is to test the impact of a treatment (or an intervention) on an outcome, controlling for all other factors that might influence that outcome .

The research design for this experimental research is the quasi-experimental design. In this design, a popular approach to quasi-experiments, the experimental group A and the control group B are selected without random assignment. Both groups take a pretest and posttest. The experimental group

receives audio storytelling treatment, while the control group receives other technique. The other technique is direct oral story reading. According to Nunan (1992), there are times when, if we are to carry out an experiment at all, it will have to be with intact groups of subjects, that is, subjects who have been grouped together for reasons other than the carrying out of an experiment. In these situations, while the internal validity of the experiment is weakened, it may still be thought desirable to proceed with the research.

Furthermore as Hatch and Farhady (1982) mentioned that due to some limitations it is difficult to construct a true experimental design, however it does not mean that the researcher can abandon the research and let it invalid. That is the reason why, the researcher has to reach the goal as closely as possible to meet the standards of true experimental design. In cases like this, the research speaks of quasi-experimental design rather than another design.

The variables investigated are independent and dependent variables. Nunan (1995) states that the variable which the experimenter expects to influence the other is called the independent variable while the variable upon which the independent variable is acting is called the dependent variable. In this research, the dependent variable is students' achievement in listening comprehension, while, the independent variable is storytelling technique.

While the result of post-test was compared to seek the significant different between two groups or it is known as intact group design (Hatch and Farhady, 1982). The schematic representation of this design is

$$\frac{G1 \text{ (experimental)XT1}}{G2 \text{ (control)T 1}}$$

Where G1 is experimental group, G2 is control group, X is treatment and T1 is post-test

3.2 Hypothesis

This research is begun with Null Hypothesis (H_0) where experimental and control group are similar.

$$H_0 : \mu_{\text{experimental}} = \mu_{\text{control}}$$

It means that there is no difference between the experimental group and the control group in the *mean* adjustment level (Gerald Kranzler and Janet Moursund;1999). Hatch and Farhady (1982) stated that whenever we hope that some techniques have helped our sample so that they can perform better than the population from which they were selected, we use null hypothesis.

By using null hypothesis, every possibility of the research can be shown. If the hypothesis is rejected, it can be concluded that experiment works. While, if the hypothesis is accepted, the experiment doesn't work. So, the null hypothesis arouses in this research that storytelling technique is not effective in developing students' listening comprehension in learning English.

3.3 Population and Samples

The population of this research is the students of a private university in Bandung which is grouped into 5 classes. Each class consisted of 30 students, so the total population is 150 students.

The samples of this research are two classes (B1 and B2). The first class is the experimental group and the other is the control group. It assumed that both classes have the same range of ability based on the classification made by the college. Each class consisted of 30 students. So, the total number of the sample is 60 students. During the experiment, the experimental group was treated by using audio storytelling, and the control group was treated by using direct oral story reading.

3.4. Selection of Sites

I chose a private university in Bandung because I consider this research as challenging and the most possible site to conduct my research is in this private university. Convenience factor should be taken into consideration to support the researcher to carry out the research Alwasilah, (2009)

3.5 Research Instruments

There were 2 kinds of instruments in this research. First is tests, second is questionnaire.

The first was listening test as a pre-test and the second was listening test as a post-test. Listening test was conducted in order to measure students' comprehension in listening. Both pre-test and post-test comprises 7 items. The tests were applied to both experimental group and control group. The pretests were given in the beginning and posttest were then conducted at the end of the research after the treatment given to experimental group and control group.

Before applying the instrument to control and experimental group, the value of its validity and reliability is required. So that 10 items of question-answer items will be tested to another class in order to gain 7 questions items which are valid and reliable.

To answer research question number two, the questionnaires were administered after the treatments were done. The questionnaire was for students who got audio storytelling treatments. It was in the form of likert scale.

Alwasilah (2003) argues that questionnaire could be used to know respondents' opinion, attitude, and perceptions. In addition, it could be used to judge factual information and to know implemented standard and compare it with the condition in setting.

The close questions data from questionnaires were analyzed by calculating it in percentage using frequency base with the following formula:

$$\frac{\text{Number of students choosing certain option}}{\text{Total number of the students (25)}} \times 100\%$$

3.6 Data Collecting Procedure

In order to collect data, some procedures will be arranged during the research.

Those procedures are performed as follow:

3.6.1 Administering Try Out Test

Before the instruments are applied to the sample, they are tested to non-sample of research. It has aim to measure the validity and the reliability of the instruments before it is used in the research.

3.6.1.1 Validity Test

In analyzing the validity of the test, this research uses the correlation product moment formula which was represented by Pearson. The formula for correlation (r) is

$$r_{xy} = \frac{N \sum XY - (\sum X)(\sum Y)}{\sqrt{[N \sum X^2 - (\sum X)^2] [N \sum Y^2 - (\sum Y)^2]}}$$

Details:

r_{xy} = correlation coefficient between X and Y variables

X = the item tested

Y = total scores of the sample

N = number of sample

The result of the calculation is then interpreted. One way to interpret correlation coefficients based on Gay (2006) is this:

Coefficient	Relationship Between Variables
Lower than +.35 or -.35	Low or none
Between +.35 and +.65 or between -.35 and -.65	Moderate

Higher than +.65 or -.65	High
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3.6.1.2 Reliability Test

To see the reliability of the test, internal consistency methods by using Split half method, Kuder- Richardson-21 was used in this research. It is because in this research instruments, every single right answer is valued 1 and every wrong answer is 0.

The formula for KR-21 is described as follows:

$$KR - 21 = \frac{K}{K - 1} \left[\frac{1 - X (K - X)}{K s^2} \right]$$

Details:

K = number of items in the test

X = mean of the sample

S² = variance of the sample

3.7 Conducting the Pre-test

After the validity and reliability of the instruments had been measured, the pre-test was given to the students. The pre-test will be held in the beginning of the research.

In the pre-test, the students are having listening test which comprises 7 essay items. The post test is taken from LA Hill book, Intermediate Stories for Reproduction

The pre test was conducted on April 4 2014

3.8 Giving Treatment to the Experimental Group

In this research, audio storytelling was used as treatment for the experimental group. The treatment will be conducted in 5 meetings. The students were listened to audio story and then they were asked to answer some questions and their answer will be recorded. Their written answer will be homework for them.

For every meeting, students are listened to the audio story twice, the audio story was played twice for the reason that it will be easier to understand. This is in line with Barzaq (2009), stated that repeating the audio story will make the story easier to be understood by the students. After students have listened to audio story, they listen to the questions, they are asked to answer some questions orally and their answers will be recorded, then the written answer will be taken home as homework. The reason of why their answers are recorded is because for the nature

of listening and speaking (Richard, 2010). The treatment was conducted on April 7 2014 to April 12 2014

3.8.1 Teaching Listening in Laboratory

First of all, instructor in the laboratory asked how the students are. Then instructor told them whether they liked to listen to the story, what kind of story that they liked.

Then instructor told the students that she would play audio story and the students must listen carefully in order to understand what the speaker said. The story was played by using computer in laboratory and students listened to the story individually by using headset that was available in the laboratory.

Audio storytelling was listened during ten minutes. Then, after those students listened to the questions related to the story, students were expected to be able to catch and understand the meaning of the story. Students were then listened to the questions and then they answered it orally through microphone, those answers were then recorded. Written answers were then taken home as homework.

3.9 Giving treatment to control group

Control group were also given treatment, the treatment are direct oral reading by the teacher. The students are listened to direct oral reading of narrative texts that is read by the teacher in front of the class. Then they answer some questions related to the story. There are seven meetings, in every meeting direct oral reading is done by the teacher as a treatment.

The treatment was conducted on April 21 to April 26 2014

3.10 Selection of Stories

The stories which were used in this research are kind of narrative stories. The stories are adapted from L.A. Hill Intermediate Stories for Reproduction. I chose some stories that are suitable for students learning evidence, then I developed my own questions.

3.11 Conducting the Post-test

After the whole treatments had been conducted, post test will be administered to both experimental and control groups. The post tests were taken from LA Hill book, Intermediate Stories for Reproduction

3.12 Calculated the data using t-test

After the data were gained from the pre-test and post-test results, they were then calculated using t-test formula with the assistance of SPSS 20 systems.

3.13 Data Analysis on the Pretest and Posttest Scores

To verify the hypothesis of this research, t-test was chosen. The t-test has primary purpose to see whether the mean score of two groups differ to a statistically significant degree (Kranzlesr and Moursund, 1999: p. 89). This research works with t test for independent sample to compare both groups. It has aim to analyze the result significance of this research.

3.14 Data Analysis on the Pre-test Score

At the beginning of the research, a pre-test is administered to both the experimental and control group. The pre-test is aimed to find out whether or not the two groups are homogenous. To verify the hypothesis, t test was chosen. The t-test has primary purpose to see whether the mean score of two groups differ to a statistically significant degree (KranzlerandMoursund, 1999: p.89). At the beginning of the research, a pre-test was administered to both the experimental and control group. The pre-test is aimed to find out the initial equivalence between the two groups. Then, those scores are calculated by using t-test for two independent samples to seek the difference between the mean of both classes, so that the significance of the result is appeared. Formulas for the t-test for two independent samples are described as follow:

$$t_{obt} = \frac{M1 - M2}{SM1-M2}$$

$$SM1 - M2 = \frac{\sqrt{s^2_p + s^2_p}}{N1 + N2}$$

$$s^2_p = \frac{(N1 - 1)s^2_1 + (N2 - 1)s^2_2}{N1 + N2 - 2}$$

Where:

T_{obt} = the value of t obtained through your data

N_1, N_2 = the number of subjects in each of the two groups

s_1^2, s_2^2 = the estimates of the variances of the two populations

M_1, M_2 = the means of two groups

$S_2 p, s_{M_1-M_2}$ = values needed in order to arrive at t_{obt}

The steps are elaborated as follow:

1. Stating the Hypothesis

Null Hypothesis ($H_0 : \mu_1 = \mu_2$)

2. Select the significance level (α) The level of significance level chosen at 0,05.

3. Finding number of sample (N)

4. Finding mean (M)

The formula for the mean of variable X is:

$$M_X = \frac{N \sum X^2 - (\sum X)^2}{N(N - 1)}$$

5. Finding the variance (s^2) for each group.

The computational formula for the variance is:

$$s^2 = \frac{N \sum X^2 - (\sum X)^2}{N(N - 1)}$$

6. Doing the arithmetic indicated in the formula for $s_2 p$

$$S_2 p = \frac{(N_1 - 1)s_1^2 + (N_2 - 1)s_2^2}{N_1 + N_2 - 2}$$

7. Next comes to the middle formula using the value that have been acquired first ($s_2 p$)

$$S_{M_1 - M_2} = \frac{\sqrt{s_2 p + s_2 p}}{N_1 + N_2}$$

8. Finding the value of t_{obt} :

$$t_{obt} = \frac{M1 - M2}{SM1-M2}$$

9. Finding the critical value of t (t_{crit}) in the table.

10. Determining the degree of freedom of t -crit:

$$df = N - 1 \quad (N = \text{Number of sample})$$

11. Computing t_{obt} and t_{crit} to accept or reject the null hypothesis:

If the $t_{obt} < t_{crit}$, or if degree of probability (p) $< 0,05$, the null hypothesis is not rejected, the two groups were homogenous.

3.15 Data Analysis on the Posttest Score

After the treatment was given to the experimental group and control group, post test scores of both classes are taken. The post test scores of each group were analyzed by using t -test for independent samples to find out significance difference between the two groups under comparison (Kranzler&Moursund, 1999).

The analysis of the posttest score was done by taking the similar steps taken in the pretest score analysis. By the end of the calculation, t_{obt} were gained and compared to t_{crit} . If the t_{obt} is equal to or greater than t_{crit} , the results are statistically significant. Then, the null hypothesis is rejected. In other words, there is a significant difference between the experimental group and control group.

The calculation of both pretest scores and posttest scores were done with the assistance of Statistical Package for the Sosial Sciences (SPSS) 20 system.

Then, the conclusion of this research will be based on those results of calculation. The findings and discussion of the data would be presented and discussed in chapter IV.