

CHAPTER III

RESEARCH METHODOLOGY

This chapter tells about the research design, population and sample, instruments, data collection and data analysis. Each of items is discussed separately in the following sections.

3.1 Research Design

The researcher uses quasi experimental design. Campbell (2002) stated that quasi experiment does not evaluate the intervention randomly. This is to find out the significant effect of using improvisational technique for listening recount text of eight grade at SMP Negeri1 Bungah.

Quasi experiment can use are pre test and post test as none randomly selected controlled groups. In this study, there two groups; they are control group and experimental group. Both of them are given pre test and post test, the treatment is given to the experimental group while the control group is without any treatment.

Here, the researcher as the practitioner who teaches the improvisational technique to the student. Firstly, the experimental group and the control group are defined by using score. The scores both of the groups are as the measurement of their listening ability before applying treatment. Then, next step is giving the treatment to the experimental group for about three times. The post test is

administered to measure their final result. From those processes, the effect of improvisational technique is examining.

The quasi experiment chart can be seen in figure below:

Group	Pre test	Treatment	Post test
Experiment	+	+	+
Control	+	-	+

Table 3.1 Non Randomized Subjects, pre test and post test Quasi-Experiment Design

Where:

+ : Conduct treatment

- : Do not conduct treatment

3.2 Research Variable

The independent variable in quasi experimental design is the variable that is controlled in order to affect the dependent variable. The independent variable classifying the variable into different levels. Classifying means grouping the classes into two groups which are Control and Experimental group. So, the independent variable in this research is Improvisational Technique as a method for teaching listening. While the dependent variable quasi experimental design is the variable which is measured or observed many times for any changes that may occurs. In this research, the dependent variable is

student's listening ability which is measured by post test after giving treatment by the researcher.

3.3 Population and Sample

The population of this research is students who are in eight grade. In eight grade, there are eight classes consist of VIII A to H class, the number of the students are 235 students. This study is applied at SMP Negeri 1 Bungah Gresik, which is located on Jln. Raya Bungah no.1 Bungah Gresik. The researcher chooses them because the teacher only uses writing skill and reading skill for learning a kind of text. They can improve their listening skill such as listening recount text using improvisational technique. The researcher hopes that it can be easier for them to develop their listening skill so they can pay attention and active in the learning process.

To determine the two classes, the researcher used purposive sampling technique. This research is taking two classes; class VIII-F and VIII-G as sample of this research. This technique was done by taking the subject/sample which is not based on strata, random or area but it is based on the consideration of a certain purpose. The consideration that the researcher tried to complete in preliminary research was the sample that will be chosen has to be homogeny, so that the research will have valid research. We know that something that can be compared is something that has the similar characteristic. These

two classes gained similar average achievements and considered as homogeneous class. One is the experimental class and the other is the control class. The experimental class was VIII-F with 28 students while the control class was VIII-G with 28 students, so the total number of sample is 56 students.

3.4 Data Collection

In this research, the data is collected by using test. The researcher gives pre test to the experimental group and control group does too. It is used to give information of the students' ability before giving treatment. The researcher chooses the subject and defined group who will be applied by using Improvisational Technique as the experimental group and the others subject or group who will be applied without using Improvisational Technique as the control group. In the control group, the researcher gives the test without any treatment. The treatment would be done for experimental group for three times.

If the treatment gave to the student for three times, the researcher would given post test to the experimental group and to the control group to give information the result of the Improvisational technique successes or not. The result of the pre test was assessed by the same procedure. The last is analyzing data from pre test and post test by using SPSS 15.0 program. Finally, from the result of the

statistical calculations, then the interpretation and conclusions was taken.

3.4.1 Research Instrument

The researcher herself is the key instrument of this research. It means, she has a crucial role for doing this research. In other words, the fluency and the success of the research depend on her. The researcher uses tests to observe and measure the students' ability before and after applying method, the researcher also wants to know what is going on while applying the method in their learning process. The instrument is English test by using recount text. The tests are multiple choices and fill in the blank. Both of them are objective tests. At the last meeting of the treatment, the researcher gives final test to know the effect of using Improvisational technique in students' learning of recount text.

Based on the standard competence, there are two kinds of texts as the centre learning in first semester, they are descriptive text and recount text. The researcher decides to use recount text for scoring pre test and post test. The students listen to the audio and follow the instruction from the researcher. The researcher defines criterion in scoring of their listening ability to know their understanding in the process itself.

No	Aspect	Score	Criterion
1	Multiple Choice A, B , C, D 10 Questions	Each item , the score is 1	The one correct answer based on the audio
2	Fill in the blank 25 Questions	3	True answer with true written
		2	True answer with wrong written
		1	Wrong answer with wrong written
		0	No answer

Table 3.3 The standard criterion in scoring listening test.

3.4.1.1 Test

Test is conducted to get the main data of students' listening score after they taught using Improvisational Technique. Based on Oxford Dictionary, a test defined as a method that aimed to improve the reliability of something before it applied into rife use.

Try out test used to determine what the students have learnt. In this research, the try out test is in the form of listening recount text. It was chosen in order to examine students' listening ability by

considering some criteria of listening. So that researcher could measure students' improvement in listening from the test.

3.4.1.2 Pre test

Pretest is given for measuring the different ability of the students in listening between experimental group and control group. The test is administered before giving treatment which use written test by listening to the audio. After doing the written test, the result was calculated as the criterion above.

3.4.1.3 Post test

Post test is given to the both of the groups to know the progress from the students in their listening ability. In this study, the criteria of the listening scoring are used to assess the result of the student score. The post test had the same procedure with the pre test. It administered after giving some treatment and exercises to the experimental group.

3.4.2 Validity and Reliability

The researcher tried out the instrument before applying the pre test and post test to get its validity and reliability. When the validity and reliability of the test, the researcher measure the content validity and the construct validity. The researcher measure the construct validity by using SPSS 15.00 program so could know whether the

items that were tested are good or not. The researcher used the validity formula as follow:

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

The symbols defined as follow:

r_{-xy} : the coefficient of correlation X and Y variable or validity of each item

N : the number of students/subject participating in the test

X : the sum of X scores

Y : the sum of X scores

$\sum Y$: the sum of total score for each student

$\sum X$: the sum of total score in each item

$\sum XY$: the sum of multiple score from each student with the total score in each item

$\sum X^2$: the sum of the square score in each item and,

$\sum Y$: the sum of the total score from each student each item square is determined

by using these following categorizations:

< 0,3 is difficult

0,7 – 1 is easy

0,3 – 0,7 is medium

The basic concept of reliability of a test is the consistency of the test score. Reliability measurement supplied an instrument of how

much variance might expect under different conditions. To see the consistency of the test score, the researcher tries the instrument out. The reliability of test is characteristically presented by means of reliability coefficient or the standard error of measurement.

Criterion:

0.0 \leq rkk < 0.20 is the lowest reliability

0.20 \leq rkk < 0.40 is the low reliability

0.40 \leq rkk < 0.60 is the quite reliability

0.60 \leq rkk < 0.80 is the high reliability

0.80 \leq rkk < 1.00 is the highest reliability

Then, the results of the test are:

- The item is 50 items. The Cronbach's Alpha 0.925. Then, the reliability test is the highest reliability ($0.80 \leq 0.925 < 1.00$).
- The validity of the test are 32 is valid items and 18 non valid items. That was according to: (< 0,3 is difficult) (0,7 – 1 is easy) (0, 3 – 0, 7 is medium). The result can be seen in the appendix.

3.5 Data Analysis

The data analysis in order to find out the result of the research with the data obtains through pre test and post test. The researcher analyzes data by using Independent sample t-test. It is used to compare the result between experimental group and control group. The

researcher used 15.0 to conduct the significant different for the listening skill by using improvisational technique on recount text.

The principle of Independent sample t-test is giving information whether there is significant different between two populations, and compare 2 means in the samples.

Assumptions for the independent sample t-test are:

1) Independence: Observations within each sample must be independent

(They do not influence each other)

2) Normal Distribution: The scores in each population must be normally distributed.

3) Homogeneity of Variance: The two populations must have equal variances

(The degree to which the distributions are spread out is approximately equal)

The steps of the analyzing result are:

3.5.1 Normality Distribution Test

It is aimed to find whether or not the distributions of pre test in the two groups are normally distributed. In this case, the result of the normality the distribution is also used to find out whether the hypothesis that has been determined is accepted or not.

The first step in Kolmogorov Smirnov normality test is used to compare the distribution of the data (which will be tested normality) with the standard normal distribution. Standard normal distribution is the data that has been transformed into the shape of the Z-Score and assumed normal. So the real test is the Kolmogorov Smirnov test of difference between the normality of data was tested with the normal data. As in ordinary differential test, if the significance is below 0.05 means there is a significant difference, and if significance above 0.05 then there is no significant difference. Application of the Kolmogorov Smirnov test is that if the significance is below 0.05 means that the data which is tested have significant differences with the standard normal data, meaning the data is not normal. Furthermore, if the significance above 0.05 it means that there is no significant difference between the data to be tested with a standard normal data, it means the data that we test normal, it is not different from the standard normal.

3.5.2 Homogeneity Test of Variance.

The analysis of variance, assume that variances are equal across groups or samples. Homogeneity test is used to determine whether some variance populations are the same or not. This test is performed as a prerequisite in the analysis of independent sample t-test. As the testing criteria, if the significance value is more than 0.05,

it can be said that the variance of two or more groups of data are the same. The researcher uses Levene's test, defined as follow:

$$P = \frac{(N-k) \sum_{i=1}^k N_i (Z_i - \bar{Z})^2}{(k-1) \sum_{i=1}^k \sum_{j=1}^{N_i} (Z_{ij} - Z_i)^2}$$

The symbols defined as follow:

P : the result of the test

K : the number of different groups to which the samples belong

N : the total number of samples

N_i : the number of samples in the i^{th} group

Y_{ij} : the value of the j^{th} sample from i^{th} group

The significance of P is tested against F ($\alpha, k - 1, N - k$) where F is a quintile of test distribution, with $k - 1$ and $N - k$ its degrees of freedom, and α is the chosen level significance (0.05). To analyze the homogeneity, the researcher uses SPSS 15.00 program. The homogeneity assumption was checked in SPSS by Levene's test with the following procedure:

- 1) Insert the pre test data of both experimental and control group using the data view.
- 2) Select the menu: Analyze, compare means, Independent sample t-test.
- 3) Interpreting the homogeneity test output.

In interpret the Levene test is, if the value of Levene statistic

> 0.05, it can be said that the variation in the data is homogeneous.

3.5.3 Hypothesis Testing

Independent sample t-test in SPSS version 15.0 program is used to find out the significant differences between the pre test mean for experimental and control group after the treatment. Here are the steps of t-test calculation:

The first step was stating the hypothesis and setting the alpha level at 0, 05 (two tailed test). In this research, the hypothesis used a null hypothesis that said, “There is significance result after using improvisational technique to improve listening recount text at SMP Negeri 1 Bungah”.

The hypothesis can be formulated as follow:

H1 (null hypothesis) is $\mu_1 - \mu_2 = 0$ ($\mu_1 = \mu_2$)

Alternative hypothesis is $\mu_1 - \mu_2 \neq 0$ ($\mu_1 \neq \mu_2$)

H1 : the achievement of student’s listening recount text through Improvisational Technique

H2 : the achievement of student’s listening recount text without Improvisational Technique

Hypothesis testing in this research is:

Ho : there is no significant difference on the use of Improvisational Technique in listening between experimental group and control group.

H1 : there is significant difference on the use of Improvisational Technique in listening between experimental group and control group.

The second step was finding t-value by using independent sample t-test formula and comparing the probability with the level of significance for testing the hypothesis. Determining t-critical in t-table (0,05) df, the researcher compared t-observed and t-critical. If t-obs > t-critical, the researcher should accept the null hypothesis and if t-obs < t-critical, it means the researcher can reject the null hypothesis. In other word, the researcher can accept the alternative hypothesis.

T-test was calculated to find out the comparison of two means between pre test and post test score of experimental group and control group. In analyzing the data, the researcher use independent sample t-test formula. The formula used in calculating t-test is:

$$t = \frac{(\bar{x}_1 - \bar{x}_2) - (\mu_1 - \mu_2)}{S_{\bar{x}_1 - \bar{x}_2}}$$

Where:

$$S_{\bar{x}_1 - \bar{x}_2} = \sqrt{\frac{S_{pooled}^2}{n_1} + \frac{S_{pooled}^2}{n_2}}$$

Pooled variance: the average of the two samples variances, allowing the larger sample to weight more heavily. So, when the average of the two samples variances, allowing the larger sample to weight more heavily, the formula is:

$$s_{pooled}^2 = \frac{(df_1)s^2_1 + (df_2)s^2_2}{df_1 + df_2} \quad \text{OR} \quad s_{pooled}^2 = \frac{SS_1 + SS_2}{df_1 + df_2}$$

df₁=df for 1st sample; n₁-1

df₂=df for 2nd sample; n₂-1

Formula:

Estimated Standard Error of the Difference

$$s_{\bar{x}_1 - \bar{x}_2} = \sqrt{\left(\frac{SS_1 + SS_2}{n_1 + n_2 - 2}\right)\left(\frac{1}{n_1} + \frac{1}{n_2}\right)}$$

Clearly, the results of the tests were subjected for the following statistical procedures. To calculate t-test, the researcher used SPSS 15.0 program. The post test score of experimental and control group were analyzed by using SPSS 15.0 program with the following procedure:

1. Click Analyze → Compare Means → Independent-Samples T Test to box dialogue appears
2. Enter the variable concentration in the Test Variable (s) and other in the box grouping variable.
3. Click the Define Group, enter the variable value in group 1 and 2
4. Click continue to return to the dialog box Independent-Sample T Test
5. Click the Options select the 95% level of belief and Exclude cases analysis by analysis selected
6. Click Continue and OK