

CHAPTER III

METHODOLOGY

In this chapter the researcher would like to give the description about the methodology. This chapter consists of research design, population and sample, research instrument, and procedure of collecting data.

3.1 Research Design

Based on the purpose of this study the researcher use Experimental design. Experimental design is the effect of process of manipulation of control group and experimental group (http://en.wikipedia.org/wiki/Design_of_experiments). According to Ary (1990:298), experiment is scientific investigation where the experimenter controls one or more independent variable. In this study, the researcher use Quasi – Experimental design, which is non randomized sample of pre–test and post–test because there is situation that is impossible for the researcher to conduct True Experiment.

She may not possible to random the students in the class. Since this school built they just have two classes in eight grade. So, the teacher forbid to random the students. The number of students is twenty students in each class. The researcher use Pre-test and Post-test because the researcher need to do two tests ; before the treatment and after the treatment to know the effect of DIGS technique to students' speaking ability in two group of subjects.

The Research Design

Group	Pre – test	Treatment	Pos – test
Experiment	√	√	√
Control	√	×	√

Table 3.1 Pre – test and Post – test Quasi – Experimental design

In this research, the researcher conduct six meeting, one meeting for pre-test both of experimental and control group to know the different speaking ability of two groups, and the researcher will conduct the treatment to experimental group there are four meeting use difference topic. The topic is the expression of inviting, accepting and refusing invitation, agreeing and disagreeing, congratulate someone and compliment someone. And for the control group teach by the teacher with same topic but only use drilling. So, the researcher will use one topic for one treatment. And the last meeting for giving post test both of group experimental and control group

Explanation:

√ : With treatment of DIGS technique.

× : Using Drilling technique

3.2 Population and Sample

The participant of this study was eight grade of MTs. Mathlabul Huda in first semester 2015/2016 academic year. The researcher used MTs. Mathlabul Huda because this school is suitable with the researcher need. Because the speaking ability of the students is not good enough so DIGS technique can apply

in this school. In the eight grade in thi school there are two classes that is VIII A and VIII B and the researcher choose both of the classes as the sample VIII A class as experimental group consist of twenty students and VIII B class as control group consist of twenty students so total number of population was forty students.

3.3 Data Collection

In this study, the data was collected from speaking test. The researcher collect the data by using speaking test; before treatment was pre – test to Control Group and Experimental Group to know the level of their speaking ability before the treatment. And test after the treatment;post – test to know the effect of DIGS to the students speaking ability. The result of the test presented the individual response to the treatment. After that the researcher analyzed the result of pre- test and post-test of two groups by using Independent sample t-test in SPSS 15.0 program.

3.3.1 Research Instrument

The data of this study take from eight grade of MTs.Mathlabul Huda. Each class consist of twenty students. In collecting the data instrment that the researcher use is speaking test. The speaking test use to measure students' speaking ability and know the result of the effect of DIGS technique to students' speaking ability.

To measure the test for the students speaking ability, the researcher use some criteras like; pronounciation, grammar, fluency and comprehension from some criterias above they have each score. And the name is rating scale and the reseacher use it to help give score for the students the scale of oral English is use 1-4 point. The way to calculate the score using score conversion. The example of rating scale showed in table below (<http://kerjaonline-aisah.blogspot.co.id>):

Table 3.2 Oral English rating scale

Aspect	Score	Item
Pronouncing	4	Understandable although with certain accent
	3	There is a problem in pronouncing that make listener should give full focus and sometimes there is misunderstanding
	2	Hard to understand because there is pronouncing problem, often to repeating
	1	There are often mistaken in pronouncing so it cannot be understood
Grammar	4	Sometime makes grammar mistake but it doesn't influence the meaning
	3	There are often make grammar mistake that influence the meaning
	2	A lot of grammar mistake that block the meaning and often re arrange the sentence
	1	Badly Grammar mistake so its become so hard to understand

Vocabulary	<p>4</p> <p>3</p> <p>2</p> <p>1</p>	<p>Sometimes pronoun the vocabulary in unappropriate way and should explain the idea because unequal vocabulary</p> <p>Often use unappropriate vocabulary so the dialogue become li mited because of limiter vocabulary</p> <p>Using vocabulary in wrong way and limited vocabulary so its cannot be understand</p> <p>Very limited Vocabulary so the dialogue is imposible to happen</p>
Fluency	<p>4</p> <p>3</p> <p>2</p> <p>1</p>	<p>Fluency is having a little distrubtion by language problem</p> <p>A lot of mistake in language problem</p> <p>Often doubt and stop because of limited language</p> <p>Often break off and stop while dialogue so the dialogue cannot be happen</p>
comprehension	<p>4</p> <p>3</p> <p>2</p> <p>1</p>	<p>Most Comprehend in all although there is repeating in certain part</p> <p>Most comprehend in what she/he said although there is some repeating</p> <p>Difficult to follow what they said, only comprehend in socialization dialogue with slow speaking dan a lot of repeating</p> <p>Cannot be comprehended although in simple dialogue</p>

Skor total jawaban benar siswa

Konversi Nilai = ----- X 100

Skor maksimum perangkat tes

3.3.1.1 Test

The researcher gives two tests (Pre – test and Post – test) to the Control Group and Experimental Group to know the significant influence on the use of DIGS techniques toward 8th grade students' speaking ability at MTs. Mathlabul Huda. Before giving the test, the researcher measure the validity of the tests to know the tests are proper to give to the students or not.

Pre-test given to get the first score of students' speaking ability between Experimental Group and Control Group. The test given before the treatment of DIGS techniques apply. The test that use is speaking test. And the researcher get the test from the course book of 8th grade of MTs. Mathlabul Huda.

After the post-test giving to the students the researcher give the treatment of DIGS to the Experimental Group to know the effect of using DIGS techniques it is influence or not. And to know the score the researcher invite two expert to correct the post test first is the English teacher of MTs.Mathlabul Huda and the researcher friend who teach speaking in English course, and also she her selves because this test is very objective so the researcher need two expert.

The speaking tests are 7 items. The selection test is adaptation from syllabus of SMP 8th grade in first semester were The expressions of giving invitation, accepting , and refusing,the expression of agreeing and disagreeing, the expression of giving praise, the expresion of giving congratulation.

SUB BASIC COMPETENCE	FOCUS ITEM	QUESTION NUMBER	
		PRE-TEST	POST-TEST
1.2.1 Understand Expression of giving, accepting, refusing invitation.	Expression of giving,	1 item	1 item
	Accepting,	1 item	1 item

	Refusing invitation.	1 item	1 item
1.2.2 Understand expression of agree and disagree	Expression of agreeing	1 item	1 item
	Expression of disagreeing	1 item	1 item
1.2.3 Understand expression of giving compliment	Expression of giving compliment	1 item	1 item
1.2.4 Understand expression of giving congratulation.	Expression of giving congratulation.	1 item	1 item
Total items		7 items	7 items

Table 3.3 Test items

3.3.1.2 Validity

Validity is measurement of the test item, before giving the pre- test and post –test validity is needed to know the item of the test is valid. Here the researcher measure it by analyzing the content validity. According to Ary (1990:258) content validity is not always in numeric form, but it can be shown by the test’s item reflect to the course and objective in curriculum guides, syllabus, and course books and worksheet. For testing the content validity the researcher compares the instrument content to the subject basic on English curriculum and English syllabus. If the test content appropriate with the curriculum guides, syllabus, and course books. The test have content validity and the test item can give to the students.

Basic Competence	Sub Basic Competence	Question	
		Pre- Test	Post -Test
1.2 Understanding and responding to	1.2.1 Understand Expression of	- If you will invite your	- What will you say if

<p>conversations transactional (to get things done) and interpersonal (social) simple by using a variety of oral language accurately, fluently , and thanks to interact with the surrounding environment that involves speech acts : to invite , accept and refuse the invitation , agree / disagree , compliment and congratulating</p>	<p>giving, accepting, refusing invitation.</p>	<p>friend to go to your birthday parti what will you say?</p> <ul style="list-style-type: none"> - If your friend invite you to her or his birthday and you can come what will you say? - If your friend invite you to her or his birthday and you can not come what will you say? 	<p>you invite your friend to fishing together?</p> <ul style="list-style-type: none"> - If you can join your friend what is your respon? - If you can not join fishing together what will you say ?
	<p>1.2.2 Understand expression of agree and disagree</p>	<ul style="list-style-type: none"> - What will you say if you agree to come together to your friend birthday party” how about come together with me”? - What will you say if you disagree? 	<ul style="list-style-type: none"> - Your friend say to you about the place to go fishing “ how about fishing in bengawan solo?” what will you say if you agree? - What will

			you say if you disagree?
	1.2.3 Understand expression of giving compliment	- What will you say if your friends have new hand phone?	- What will you say if your friend have a new motorcycle?
	1.2.4 Understand expression of giving congratulation.	- Your friend won running contest what will you say to give him congratulation?	- What will you say if your friend won swimming contest?

Table 3.4 Analyzing Content Validity

3.3.2 Procedure of Collecting Data

Here there are three procedures of collecting the data. First, the researcher chooses the subject that will be divide into experimental and control group, and experimental group is the group who get the treatment of DIGS techniques. And pre - test given to both of two group and the result is the first data. Second, the researcher will give the treatment of DIGS tecniques to the experiment group for one month in six meetings. The last after giving the pre- test and treatment for about one month to know the result of the treatment the researcher give post- test. The score in post- test will record and analyze by using statistical calculation of The test of Lavene's for data analysis. After that the researcher can know there is the influence of DIGS technique to the students speaking ability.

3.4 Technique of Analyzing Data

When the researcher have already got the data from the process of collecting the data; pre-test and post-test after that the researcher should analyze the data for getting the answer from the problem. The researcher analyze the data by using Independent sample t-test in SPSS 15.0. because the sample is small and the groups are independent. So that's why, the researcher uses independent sample t-test. The data analysis to know the significant difference between experimental group and control group after one month treatment.

In this research, the researcher does not use normality distribution because the research design is Quasi – Experimental design because the students can not randomize and the researcher only use the appropriate classes.

3.4.1 Homogeneity Test of Variance

From homogeneity test, the researcher use one Levene's test of homogeneity test in SPSS 15.0 version. The purpose of this test is to analysis the variences of the observation in Control group

The test of Lavene's , W , is defined as follows:

$$W = \frac{(N - k) \sum_{i=1}^k N_i (Z_{i.} - Z_{..})^2}{(k - 1) \sum_{i=1}^k \sum_{j=1}^{N_i} (Z_{ij} - Z_{i.})^2}$$

Where:

- W is the result of the test,
- k is the number of different groups to which the sampled cases belong,

- N is the total number of cases in all groups,
- N_i is the number of cases in the i th group,
- Y_{ij} the value of the measured variable for the j th case from the i th group,
- $Z_{ij} = \begin{cases} |Y_{ij} - \bar{Y}_i|, & \bar{Y}_i \text{ is a mean of } i\text{-th group} \\ |Y_{ij} - \tilde{Y}_i|, & \tilde{Y}_i \text{ is a median of } i\text{-th group} \end{cases}$

The significance of W is tested against $F(\alpha, k - 1, N - k)$ where F is a quantile of the F-test distribution, with $k - 1$ and $N - k$ its degrees of freedom, and α is the chosen level of significance (0.05 or 0.01).

The procedures in analyzing the homogeneity by using SPSS version 15.0. After the pre- test data of both experimental and control group input then click → analyze → Compare means → Independent Sample T-test, in Independent Sample T-test then, input the score variables into Test Variable column and the group variable into Grouping Variables then defined groups, put code 1 for experimental group in group 1 and code 2 for control group in group 2 Continue the click OK.

3.4.2 Hypothesis Testing using an Independent Sample T-test

The use of Independent t-test is to find out the significant differences between experimental group and control group. The steps of t-test calculation is:

1. The test hypothesis of the research and setting the α (alpha) level at 0.05 (two tailed test) the hypothesis can be formulate as:

H_0 : there is no significant influence on the use of DIGS techniques between experimental group and control group.

H₁: there is significant influence on the use of DIGS techniques between experimental group and control group .

Finding t- value using Independent- Sample t-Test and compare the probability with the level of significant for testing the hypothesis. After the score compute in SPSS 15.0 version, and see the output of Independent-Sample t-Test and intreprete the ouput that if sig. (2-tailed) > α (0.05), the researcher should accept the H₀ but if sig. (2-tailed) < α (0.05) so the researcher can reject H₀, it means H₁ is accepted T-test is calculate to find the comparison of two means between Control group and Experimental group pre-test and post-test. To analyze the data the reseacher use independent t-test formula. Calculating t-test the formula is :

$$t = \frac{(x_1 - x_2) - (\mu_1 - \mu_2)}{S_{x_1-x_2}}$$

Where :

t is t value

*x*₁ is average group 1

*x*₂ is average group 2

S is standart error of the two groups

*μ*₁ - *μ*₂ is average group 1

Where:

$$S_{x_1-x_2} = \sqrt{\frac{S^2_{pooled}}{n_1} + \frac{S^2_{pooled}}{n_2}}$$

$S_{x_1-x_2}$ is standart error of two groups

S_{pooled}^2 is variants of the two groups

n_1 Number of sample group 1

n_2 Number of sample group 2

Pooled variance : the average of two sample variances, allowing the large sample to weight more heavy.

Formula:

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

$$df_1 = df \text{ for } 1^{st} \text{ sample; } n_1 + 1$$

$$df_2 = df \text{ for } 2^{nd} \text{ sample; } n_2 + 1$$

Estimated standard error of the difference :

$$S_{x_1-x_2} = \sqrt{\left(\frac{SS_1 + SS_1}{n_1 + n_2 - 2}\right) \left(\frac{1}{n_1} + \frac{1}{n_2}\right)}$$

In the end , the result of the tests is subject for the following statistical procedures.

For calculate the t-test, the reseracher uses SPSS 15.0 version. The steps for analyzing the data of post-test both of experimental and control group as follow : first, input the data of post-test in SPSS program between experimental and control group, then click Analyze→Compare Means→ Independent Sample T Test. In Independent Sample T Test, input the score variable into Test Variable column, and group variable into Grouping Variable column, then click Define Group, choose group 1(for experimental) and group 2(for control) then click OK.