CHAPTER III

RESEARCH METHOD

In this chapter, the researcher discusses about how the researcher conducted clearly. There are some steps that arranged to present this chapter. They are research method, research design, population and sample research variable, research instrument, technique of data collection, research procedure, and technique of data analysis.

3.1 Research Method

"Basically, research method is a scientific way to get the data with the purpose and particular function" (Sugiyono, 2011:2). Related to the objective of the research has described by researcher in first chapter, the researcher used the quantitative method. "Quantitative research method is frequently called as a positivistic due to because based on the philosophy of positivism. This method as a scientific method because quantitative method has satisfy with the scientific principles there are concrete, objective, measurable, and systematic" (Sugiyono, 2011:7).

3.2 Research Design

Research design that is used in this research is experimental design. Sugiyono (2011:73) said that "experimental design has many types, there are Pre-experimental design, True-experimental design, Factorial design, and quasi-experimental design". True- experimental is a type of experimental design that researcher used in this research. The schematic depiction of experimental is arranged bellow.

Table 3.1 Experimental design

R	**O_1**	**X**	**O_2**
R	**O_3**	**O_4**	

R: indicate of random assessment.

O: represent an observation or measurement observation recorded on an instrument (Pre-test and post-test).

X: represent and exposure of a group to an experimental variable or event. The effect of which are to be measured.

3.3 Place and Time in Research

3.3.1 Time for Research

This research was held in two weeks from 10^{th} May- 18^{th} May 2017 with some descriptions that were on May 10^{th} 2017. The researcher held the pre-test for both classes VII A and VII B, on 12^{nd}, 15^{th}, 17^{th} May 2017 are observations in the class and on 18^{th} May 2017 that the researcher held post-test.

3.3.2 Location of the Research

The researcher did this research at the seventh grade students of SMP Muhammadiyah17 Surabaya where was located on Jl. Gogor No VI/6-8 Jajar Tunggal Wiyung of Surabaya.

3.4 Population and Sample

3.4.1 Population

"Population is as a generalization region that consist on: object/ subject that has quality and certain characteristic which assigned by researcher to learn and then draw a conclusion" Sugiyono (2011:215). The population of this research is SMP Muhammadiyah 17 Surabaya. Researcher took the seventh grade student as population. The population research consisted of two class of students that were in, begin with VII A-VII B. The reason of researcher choose the VII grade student is, the first main lesson because in elementary school it is only extracurricular. Therefore, they did not often to speak English and uncomfortable to speak English.

Table 3.2 Numbers of Both Population

No	Class		Number of student
1	Control class	VII A	24
2	Experimental class	VII B	23

3.4.2 Sample

(Sugiyono, 2011:215) said that "Sample is a part of population". More over Umrotun in (Pratiwi, 2016: 59) concluded that "a sample is a sub group of population you are interested in. she also described, sample is a selected group taken from a bigger group (the population) to become the basis of predicting the prevalence of a piece of information, situation or outcome regarding the bigger group".

The sample of this research are seventh grade students from SMP Muhammadiyah Surabaya, which the class consist of 47 students in classes VII A and VII B. By giving systematical sampling researcher took both classes there are VII A consisted In 24 students as a control class and VII B consisted of 23 student as experimental class. To determine the numerous of sample of research, the researcher used snowball sampling to determine experimental and control class. The class which has more student, the researcher reduce it but, the student still follow the treatment and test.

Class A or control is a group which is not given treatment(X) and group B or experimental class is a group which gave the treatment (X). The treatment that used in experimental class (VII B) is Total Physical Response and in control group (VII A) still used Direct Method, the method where English teacher applied before. To support the method the researcher used picture and video as a media.

Table3.3 Pre-test and post -test design

Class	Pre-test	Treatment	Post-test
Control	Y1		Y2
Experimental	Y1	X	Y2

y_1 = pre-test

y_2= post-test

X: treatment.

3.5 Research Procedure

Table 3.4 Research Procedure

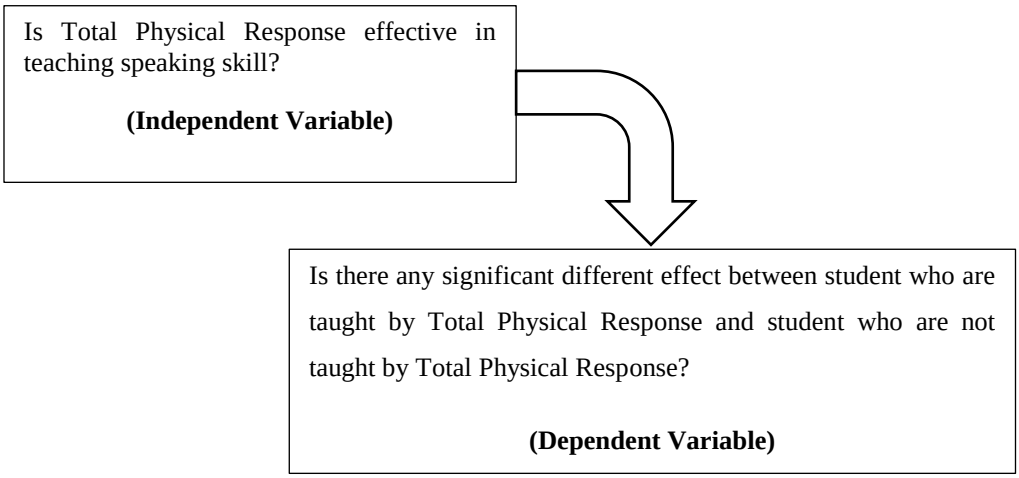
		Experimental class	**Control Class**
Planning		➢ Identification school that used be research ➢ Identification the issue that exist in that school ➢ Identification the tittle of the research ➢ Revision about the tittle ➢ Make lesson plan ➢ Revision lesson plan ➢ Validation lesson plan ➢ Validation instrument ➢ Identification the control and experimental class.	➢ Identification school that used to research ➢ Identification the issue that exist in that school ➢ Identification the tittle of the research ➢ Revision about the tittle ➢ Make lesson plan ➢ Revision lesson plan ➢ Validation lesson plan ➢ Validation instrument ➢ Identification the control and experimental class.
Implementation	**opening**	➢ Giving pre-test to the experimental class, at 10^{th} May- 2017.	➢ Giving pre-test to the control and experimental class, at 10^{th} May- 2017.
	Main activity	➢ First Observation in experimental class (treatment), at 12^{nd} May-2017. ➢ Second observation in experimental class (treatment), at 17^{th} May 2017. ➢ Giving questioner to the experimental class, at 17^{th} May 2017.	➢ First observation in control (treatment),15^{th} May-2017. ➢ Second observation in control class (treatment), at 17^{th} May 2017
	Closing	➢ Giving post-test in experimental class, at 18^{th} May 2017	➢ Giving post-test control class, at 18^{th} May 2017.

Discussion		➢ Accumulating the data of experimental class. ➢ Analysing the data of experimental class.	➢ Accumulating the data of control class. ➢ Analysing the data of control class.

3.6 Variable

Variable is the form of anything that is chosen by researcher for analysing in order to obtain information. Then, make the conclusion, "variable is like someone attribute, or object that has "variant" between one person and another person or an object and another object" (Sugiyono, 2011:38). Based on the topic where researcher discussed in this research the researcher used independent and dependent variable. Independent variable is also called with *stimulus, predictor, and antecedent.* " An independent variable is a variable that influences or can be cause the alteration or incidence due to the dependent variable" (Sugiyono, 2011:39). A dependent variable is sometimes called with output, Criteria, consequence. "In Indonesia language dependent variable is called by *variabl Teterkait. Variable terkait* is variable which influenced or which being consequence, because of independent variable" (Sugiyono, 2011:39).

Table 3.5 Independent and Dependent Variables



3.7 Instrument

The research instrument that was used to assess the capability of student before and after treatment is oral test. To assess the student performance that the researcher used oral proficiency scoring categories by brown (2001:406-407) "that consist on six categories there are grammar, vocabulary, comprehension, fluency, pronunciation and task". The material of the test (pre-test and post-test) for both class (control and experimental class) are same. To assess the student that the researcher requires students to describe about their mother for pre-test and describe their father for post-test.

3.8 Technique of Data Collection

The data that is obtained of researcher to complete this researcher is taken from pre-test and post-test. Pre-test is held before treatment. The objective of pre-test are to measure student capability in speaking before treatment. Creswell (2002:297) concludes that "a pre-test is used to measure the participant's ability in experiment before they receive the treatment". In this part, the researcher requires student to describe their mother by their own words. After treatment the researcher held a post-test. The same test are given, but the researcher required student to describe about their father. To get the accurate in scoring researcher used the oral proficiency scoring categories by brown (2001, pg.406-407)" that

consist on six categories there are grammar, vocabulary, comprehension, fluency, pronunciation and task".

3.9 Test of Homogeneity of Variance

Before treatment and post-test are implemented the researcher did the test of homogeneity of variance by using SPSS 21.0.the purpose of test homogeneity is to know the variant of both class are homogenous or similar. According to Mann and Lacke (2017:517) "a test of homogeneity involves testing the null hypothesis that the proportions of element with certain characteristics in two or more different population are equal against the alternative hypothesis that these proportions are different". This test used Ho. If Ho is accepted the P value is higher than α(0.05). It means that data from both classes are homogenous and if HO is refused, P value is lower α(0.05) it means that the data from both classes are not homogenous.

Hypothesis of the homogeneity test are bellow

Ho:$p\ value > \alpha\ 0{,}05$ (the data from experimental and control class are homogenous)

H_1: $p\ value < \alpha\ 0{,}05$ (the data experimental and control class are not homogenous)

The formula of statistic homogeneity taken from Mann and Lacke (2017:518-519).

The test statistic as follow x^2 distribution with $df = (r-1)(C-1)$

$df = degree\ of\ freedom$

$$r\ and\ C = total\ number\ of\ row\ and\ collmuns$$

The number in parentheses in this table are expected frequencies which are calculated with the formula:

$$E = \frac{(row\ total)(collumn\ total\ )}{total\ of\ both\ samples}$$

The value of test statistic x^2 is computed as follow

$$x^2 = \sum \frac{(o-E)^2}{E}$$

$$\sum = the\ sum$$

$$E = expected\ frequency\ in\ the\ cell$$

$$O = observer\ frequency$$

$$x^2 = Value\ of\ test\ statistics$$

3.10 Validity and Reliability Test

3.10.1 Validity

"The most complex criterion of the good test is validity, the degree to which the test actually measure what it is intended to measure" (Brown, 2001-387). "Valid means that the instruments is can be used to measure what it is should be measured" (Sugiyono, 2011:121). According to (Brown, 2001-388) "there are three kind of validity, content validity, face validity and construct validity" the researcher used the content validity to measure the instrument. Content validity can be done with compering between the instrument content and learning material that was taught (Sugiyono, 2011:129). Therefore, the researcher matches the instrument with the standard competency and basic competency in curriculum 2013.

Table 3.6 The Result of Analyzing Validity

Standard Competency	**Basic competency**	**Indicator**
KI 1: Menghargai dan menghayati ajaran agama yang dianutnya KI 2: Menghargai dan	4.5. Menyusun teks interaksi transaksional lisan dan tulis sangat	4.5.1. Please describe your mother by your own

menghayati perilaku jujur, disiplin, tanggung jawab, peduli (toleransi, gotong royong), santun, percaya diri, dalam berinteraksi secara efektif dengan lingkungan social dan alam dalam jangkauan pergaulan dan keberadaannya. KI 3: Memahami pengetahuan (faktual, konseptual, dan prosedural) berdasarkan rasa ingin tahunya tentang ilmu pengetahuan, teknologi, seni, budaya terkait fenomena dan kejadian tampak mata. KI 4: Mencoba, mengolah, dan menyaji (menggunakan, mengurai, merangkai, memodifikasi, dan membuat) dan ranah abstrak (menulis, membaca, menghitung, menggambar, dan mengarang) sesuai dengan yang dipelajari di sekolah	pendek dansederhana yang melibatkan tindakan memberi dan meminta informasi terkait **sifat orang** binatang, dan benda, dengan memperhatikan fungsi social struktur teks dan unsur kebahasaan yang benar dan sesuai konteks.	word orally? (Pre-test). 4.5.2. Please describe your father by your own word orally?(Post-test).

dan sumber lain yang sama dalam sudut pandang/teori. (keterampian)		

3.10.2 Reliability

After researcher did validity test where measuring with standard competency and basic competency in curriculum 13, researcher continued with reliability test where used to measure the instrument. Reliability test is a way to testing, which is taken from researcher to ensure that, the instrument which researcher used is really consistent specifically, "the instrument can be used and still consistent if the instrument is used repeatedly Priyanto (2009:25). Hendra in Cohen (2000:27) conclude that "reliability is basically synonym for consistency and explicability over time, over instrument and over group of respondent. He also said that a test which has good reliability can be used for all student in junior high school.

The researcher used the interrreter design. "Interreter design is an assessment that did by two observer. Creswell (2012:161) stated that "the observer record their score of the behaviour and then compare both scores to see if the scores are equal or not". To assessment the student scores, the researcher as ratter one (X) and the English teacher as ratter two (Y). Bartz (1976:195) stated that, person product-moment correlation is common use in measuring reliability. The researcher calculate the data to get the reliability test use SPSS 21.0 version.

This formula taken from Sugiyono (2011: 183)

$$r\mathbf{XY}=\frac{N\Sigma xy-(\Sigma x)(\Sigma y)}{\sqrt{\{N\sum x^2-(\sum x)^2\}\{N\sum y^2-(\sum y)^2\}}}$$

rXY = correlation coefficient between variable x and y

ΣXY = the result of multiplication every original score from X and Y

ΣX = total score X (ratter 1)

ΣY = total score Y (ratter 2)

$\sum X^2$ = total quadrate score X

$\sum Y^2$ = total quadrate score Y

N = number of subject

From the formula above, here are the Guidelines for providing the interpretation of correlation coefficient from Sugiyono (2011: 184).

Table 3.7 Guidelines for providing the Interpretation of Correlation Coefficient

Interval coefficient	**Level of relationship**
0,00-0.199	Very low
0,20-0,399	Low
0,40-0,599	Moderate
0,60-0,799	Strong
0,80-1,000	Very strong

3.11 Test of Normality Distribution

Test for normal calculate the probability that the sample was drawn from a normal population that are control and experimental classes. "When testing for normality, we are not looking for differences. In effect, we want our data set to be no difference than normal" Sudijono (2013: 168). The test used software SPSS version 21.0 a binary of the hypothesis that was tasted below.

Ho = the sample data are not significantly different than a normal population.

H_1 = the sample data are significantly different than a normal population.

The criteria of the test based on $P(value)$as follow.

Ho = P $(value) > \alpha$ 0.05 mean that data are normal.

H_1 = P $(value) < \alpha$ 0.05 mean that data are not normal

3.12 Technique of Data Analysis

3.12.1 T-Test

To find the differences between two class there are control and experimental class, the researcher used t-test. This test is "statistic test that used to test the differences or similarity two class which different with the principal of compering the average of that class" Sudijono (2013: 168). To count the significant different or not, accordingly, the *t count* need to compared with *t table*. If *t count* is higher than *t table* that mean the differences is significant (Sugiyono, 2011:128). The researcher count t-test used SPSS 21.0 version. Based on the research statement that was researcher wrote in chapter one, there are has two research question that will be researcher find in this research. The introduction of hypothesis are arranged with the criteria of hypothesis test below.

Hypothesis: 1

Ho: Total physical response is effective in teaching speaking skill.

H_1 : Total physical response is not effective in teaching speaking skill.

The criteria of the test based on P value.

Ho = $\mu_1 = \mu_2$ = TPR method is effective in teaching speaking skill.

H_1 = $\mu_1 \neq \mu_2$= TPR method is not effective in teaching speaking skill.

Hypothesis: 2

Ho: there is any significant different on student speaking skill between students who taught by TPR and students who are not taught by TPR.

H_1: there is no significant different on student speaking skill between students who taught by TPR and students who are not taught by TPR.

The criteria of the test based on P value.

Ho= $\mu_1 = \mu_2$ = there is no significant different on student speaking skill.

H_1 = $\mu_1 \neq \mu_2$= there is any significant different on student speaking skill.

The formula to measure the (t) is taken from (Sugiyono, 2011:128)

$$t = \frac{\overline{x}_1 + \overline{x}_2}{Sgab\sqrt{\frac{1}{n_1}+\frac{1}{n_2}}}$$

$\overline{X}^1$ = average mean of experimental class

$\overline{X}^2$ = average pre-test of controlled group

n_1 = number of experimental group

n_2 = number of controlled group

Formula of $Sgab$

$$Sgab = \sqrt{\frac{(n^1 - 1){s_1}^2 + ({n_1}^2 - 1){s_2}^2}{n^1 + n^2 - 2}}$$

n_1 = number of experimental group

n_2 = number of controlled group

s_1 = average of experimental group

s_2 = average of controlled group

$Sgab$ = composite of variant

3.12.2 Determine Degree of Freedom (Urdan, 2005:92)

$$Df = N_1 + N_2 - 2$$

Df = degree of freedom

N_1 = the size of the first receptive sample

N_2 = the size of the second receptive sample

3.12.3 Computing Mean

Formula for calculating the mean of a distribution the researcher used the arithmetic average of distribution of score of by Urdan (2005:8)

$$\overline{x} = \frac{\sum x}{n}$$

$\overline{x}$ = sample mean

$\sum x$ = means "the sum of"

N = the number of score in the sample

3.12.4 Computing Standard Deviation

Formula for calculating the standard deviation for pre-test and post-test the researcher used the deviation score formula by Urdan (2005:16)

$$S = \sqrt{\frac{\sum(X - \overline{X}^2)}{n-1}}$$

S = standard Deviation

$\sum$ = to sum

X = a score in the distribution

$\overline{X}^2$ = the sample mean

N= the number of cases (student) in the sample

3.12.5 Computing Standard error of the Differences

Determine standard error of differences by parametric test of significance (Urdan 2005-92)

$$S_{\overline{X}}1\text{-}\overline{x}2 = \sqrt{S_{\overline{x}}1^2 + S_{\overline{x}}2^2}$$

$S_{\bar{X}}1\text{-}\bar{x}2$ = standard error of the Difference between the means

$S_{\bar{x}}1^2$ = standard Error of Difference of the mean for the first Sample.

$S_{\bar{x}}2^2$ = standard Error of Difference of the mean for the second Sample

3.12.6 Eta Square

Eta square is used to know the effect size of TPR method in teaching speaking, whether TPR method is effective in teaching English or no. According to Pallant (2010:243) there are three criteria to count the effect scale, 0.01 is small effect, 0.06 is moderate, and more than 0.14 is large effect. The formula of eta square is seen as follow.

$$eta\ squatre = \frac{t^2}{t^2 + (N^1 + N^2 - 2}$$

t^2 = t -value

$\boldsymbol{N^1}$ = number of experimental group

N^2 = number of control group