CHAPTER III

RESEARCH METHODOLOGY

This chapter gives a brief explanation of the research methodology. It consists of research design, time and place of the study, population and sample, definition of operational variable, procedure of study, instrument and technique of collecting data, and technique of analyzing data.

A. Research Design

To do a research, many research designs can be used by researchers. One of research designs can be applied is experimental. Experimental research is a research that deals with quantitative research which elaborates the result of research by using numerical data. Ravid (2011:5) defines that quantitative research is a research which is mainly proposed to describe cause and effect relationship, studies a small number of variables and uses numerical data.

Experimental design is a research which is designed for testing an independent variable whether influences a dependent variable or not. It is a part of quantitative research procedures in which the investigator judges whether an activity or material effects the participants in results. Creswell (2012:21) argues that experimental design is a research design where the researcher decides whether treatments give a difference for participants in results. In addition, Cohen, Manion and Morrison (2007:272) say that experimental research is an experiment which observes whether the independent variable effects the dependent variable. Thus, it also can be defined as intervention studies or group comparison studies.

This current research, researcher chose a quasi-experimental that is a part of experimental design. It conducted research in which the investigator did not assign participants into groups at random. It was usually involving two groups as samples of investigation, namely the experimental class which got the treatment by teaching hot seat game and the control class which did not get the treatment.

Before applying the treatment “hot seat game activity” to experimental class, the researcher assigned the experimental and the control class through pre-test. Post-test was

purposely assigned after presenting the treatment to measure the outcome. Both tests are administered in order to know whether treatment influences the experimental class and to answer the statement of the study. Creswell (2012: 310) illustrates:

Table 3.1 Pre-Test and Post-Test of Quasi-Experimental Design

Group	Test	Treatment	Test
Experimental group	Pre-test	Experimental treatment	Post-test
Control group	Pre-test	No treatment	Post-test

Note:

Experimental Group = A group is placed as experiment which gets treatment (A)

Control Group = A group does not get treatment which is coded with (B)

Treatment = A teaching method is taught toward experimental group.

Pre-test = Tests are assigned before giving treatment.

Post-test = Tests are assigned after giving treatment.

B. Time and Place of The Study

1. Time

The research was conducted by researcher in SMP Islam Raden Paku Surabaya from the 01st of May 2018 to the 07th of June 2018.

2. Place

The researcher took the setting of the study in SMP Islam Raden Paku Surabaya at class of VII A and VII B on Jl. Klampis Ngasem No. 34 Klampis Ngasem Surabaya.

C. Population and Sample

1. Population

Population is large number of samples which may have same characteristic. Ravid (2011:24) defines that population is a whole group of people or elements that have the same characteristic. In this case, Butler (1985:1) also argues that population is a term that refers to a collection of human. The population of the study is seventh

grade of SMP Islam Raden Paku Surabaya. It consists of three classes that is categorized at class of VII A, class of VII B, and class of VII C. Each class accommodates 20 students.

Table 3.2 Total Population of Seventh Year Students of SMP Islam Raden Paku Klampis Ngasen 2017-2018

No	Class	Total
1	VII A	20
2	VII B	20
3	VII C	20
Total		60

2. Sample

Sample is a representative of population that researcher chooses to participate in the study. Likewise, it will facilitate the researcher to obtain information of the research from population. Ravid (2011:24) illustrates that the sample is a small group of the study that is taken from a number of populations. In addition, Creswell (2012:142) argues that sample is a small group of population that researcher selects to be studied. To facilitate observer gained information and measured the effects of this study, observer chose two classes, namely, class of VII A is placed as experimental class and class of VII B is placed as control class. Experimental class is a class which was taught by using hot seat game as the treatment. Both experimental class and control class obtained pretest and posttest.

The decision and reason of choosing class of VII A and VII B as the sample of research was referred to English teacher's statement of SMP Islam Raden Paku Surabaya that students' ability of both classes have equal ability while the students' ability of class of VII C is lower. Therefore, the researcher decided to choose class of VII A and class of VII B as sample of research. And it could also be proved from the result test of homogeneity of variances as reported in table 4.13 and the result of normal distribution test as described in table 4.11.

Table 3.3 Sample of The Research

Category	Class	Number of students
Experiment Class (Group A)	VII A	20
Control Class (Group B)	VII B	20

D. Definition of Operational Variable

Variable is an object of research which an observer emphasized the study on it. Creswell (2012:13) defines that an individuals' attribute or character that observer studies are variables. In this study, the observer conducted two variables which are classified into two categories, namely independent and dependent variable.

1. Independent Variable (X_1)

In this experimental research, researcher presented an independent variable that was adopted into teaching method. It was purposely adopted by investigator to study whether it effected on groups or individuals. Ravid (2011:18) states that independent variable is an intervention or study which is planned by researcher that it is purposely presented to know whether it effects on group or individuals. Creswell (2012:115) also argues that an attribute or characteristic influencing dependent variable is dependent variable. In this case, the investigator adopted an independent variable that was implemented into hot seat game as teaching method.

2. Dependent Variable (X_2)

Dependent variable is an outcome measure that was designed to measure the effect of independent variable (Ravid, 2011:18). It means to decide an existence of independent variable. Likewise, Creswell (2012:115) argues that dependent variable is an attribute or characteristic that is chosen by investigator to measure the influence of independent variable. In this matter, the investigator adopted students' speaking skills as dependent variable.

E. The Procedures of Study

The observer outlined the maps of doing observation. These were proposed by researcher to decide what would be carried out on observation processes. Ravid (2011:218) says that procedure is a description of how the research will be conducted. In this research, researcher proposed eight procedures of the study as follows:

1. The researcher observed the place and population of the study that located in Klampis Ngasem. The researcher chose two classes as sample of the research. Both of two

classes were classified into two groups that are termed ‘experimental class’ and ‘control class’.

2. After observing the place and deciding the sample of research, the researcher designed lesson plan and test.
3. Validated lesson plan and revised lesson plan. These were validated by expert validity. Then, the test that was validated by expert validity, it was tried out by researcher to another class which was aimed to find out the reliability and rate of test.
4. After instrument of test was validated by expert validation, researcher conducted the try out to another class exactly C class.
5. Before serving the experimental class the treatment “hot seat game”, researcher assigned pre-test involving two classes namely, experimental and control class. It was purposely assigned to measure whether the independent variable effected the dependent variable.
6. Afterward, researcher gave experimental class the treatment which was applied in teaching hot seat game.
7. After conducting the treatment, the investigator gave post-test using the same format and instrument of test for both classes, namely, experimental and control class.
8. Then, the researcher collected and analyzed all of data with normality test and reliability test, and t-test consisting of independent samples t-test and paired samples t-test.
9. Concluded the result of t-test calculation

The schedule of the research time is presented in the following table:

Table 3.4 Schedule of Research Time

No	Date	Material
1	The 1st of May 2018	Asking permission to headmaster
2	The 2nd of May 2018	Meeting with an English teacher
3	The 15th of May 2018	Holding try out to another class
4	The 15th of May 2018	Giving pre-test to experimental class
5	The 21st of May 2018	Giving pre-test to control class
6	The 6th of June 2018	Giving treatment to experimental class
7	The 6th of June 2018	Giving post-test to experimental class
8	The 7th of June 2018	Giving post-test to control class

F. Instrument and Technique of Collecting Data

1. Instruments of Collecting Data

Instrument is tool that was used for gaining the data. It facilitated the researcher to collect data of research. Creswell (2012:151) points out that instrument is a device that is used by researcher to measure, observe, or document quantitative data. In obtaining the data of research, the researcher has several instruments involving oral speaking test, and classroom observation sheet that facilitated the researcher to gain all the data of this research particularly outcome of pre and post-test of experimental and control class.

a) Speaking Oral Test

The researcher used oral speaking test that was served to measure the performance of students' speaking skill level after receiving the treatment which was implemented in hot seat game technique. Oral speaking test facilitated the researcher to test the hypothesis of research.

In this research, the researcher conducted oral speaking skill test that was administered in pre and post-test. These was purposely designed to measure students' oral proficiency that was focused on three aspects namely, pronunciation, grammar, fluency, vocabulary, and comprehension.

Pre-test and post-test were set in descriptive text as oral speaking skill test design. Ten minutes, before giving the test, the researcher revealed the topics related to test. In this case, students prepared and thought about the appropriate words related to the topics of descriptive text session.

Pre-test is a test that was performed at the beginning of the investigation which was aimed to assess how far students' speaking proficiency before receiving the treatment that was applied in hot seat game. Creswell (2012:297) says that pre-test is a measure that is provided on attribute or characteristic for participants which is assessed by investigator before receiving treatment. So, in an experimental research, both control group and experimental group received pre-test.

Post-test was carried out at the end of study which was aimed to measure the difference of speaking skill enhancement of control group and experimental group. Creswell (2012:297) argues that a measure on attribute or characteristic that is used

by investigator to assess participants after receiving treatment in an experiment was post-test. Therefore, from the result of post-test, the researcher wanted to find out the effectiveness of teaching speaking through hot seat game in enhancing students' speaking skills.

b) Classroom Observation Sheet

Observation sheet is a part of research instrument that researcher used to observe the teaching learning activity during applying the treatment. It was purposely aimed to observe whether the teacher and students did teaching-learning activity based on the lesson plan that was arranged.

c) Rubric of Assessment

Rubric of assessment is one of parts of criterion that researcher adapted from an English hand book of senior high school. It meant as a reference for raters to give score for examinee that was based on students' performance. O'malley and Pierce (1996:65) argue that rubric assessment refers to criterion levels that are purposely established to differ between lower and upper of the performance. To facilitate the raters in giving score to examine, it is important to use the rubric assessment that was adapted from *buku guru Bahasa Inggris* 2017. The rubric of assessment of oral speaking test that the raters use can be seen in table 3.5 as follows.

Table 3.5 Rubric of Assessment

Aspect	Score			
	1	2	3	4
Pronunciation	Pronunciation problems are severe so speech is hard to be understood.	It is difficult to be understood because of pronunciation problems and frequently repeat to make him/herself understand.	Pronunciation problems make listener must concentrate to understand and sometime misunderstand.	It is easy to be understood by listener although with inappropriate intonation.
Grammar	Error in grammar and word order is so severe so speech can be virtually understood.	Use error grammar and word order that make difficult comprehension.	Frequently makes error grammar and word order that make obscure meaning.	Occasionally uses error grammar and/or word order but

				do not obscure meaning.
Vocabulary	Vocabulary is limited so it is impossible to make conversation.	Misuse and has limited vocabulary so speech is difficult to be understood.	Frequently uses wrong words so conversation is limited because inadequate vocabulary.	Occasionally uses inappropriate words because of lexical inadequacies.
Fluency	Speech halts and fragment so the conversation is virtually existed.	Always hesitant and get voiceless because limitation language.	Fluently is frequently disrupted because of searching the correct manner of expression.	Speech is rather disrupted because of searching the correct manner of expression.
Comprehension	Cannot understand even simple conversation.	It is hard to follow what is said.	Comprehend most of what is said slowly and with repetition.	Comprehend nearly everything what is said, although need repetition.

2. Technique of Collecting Data

To know the treatment of hot seat game as teaching method was effective or not, the researcher used data collection that was administered in technique test. After stating the appropriate instrument to obtain data, the researcher applied the tests to collects data. Pre-test and post-test were assigned as test to both experimental class and control class.

Before serving the test to participants, the researcher asked expert validation to validate the instrument of test. It meant to ensure the relevancy and consistency of instrument of test that was used by researcher to obtain the accuracy data and it was purposefully attended to avoid the inconsistency of instrument of test. The examination of instrument of test was administered into validity and reliability test that were discussed as follows:

a) Validity

Validity is accuracy of an instrument of test that can work precisely. An instrument can be called as validated instrument if it can operate with its measure function. Cohen, Manion and Morrison (2007:134) defines that validity is a key that

has significant role toward effective research and it will be worthless if a piece of research is invalid.

To obtain validation of a test, researcher should conduct study empirically and the result of assessment can extend accuracy assessment purpose. Brown (2003:22) says that validity is the inference that is gained from assessment results are appropriate, meaningful, and useful in terms of assessment purpose. Furthermore, Creswell (2012:159) also argues that validity is equality between the test interpretation and its proposed used. Thus, the goal of validity was to examine how well the test determined and students were able to understand a set of goal or competence level that was established. In this case, researcher used content validity which involved the process of measure instrument.

In this research, the researcher adopted content validity which was arranged with the material or content of subject that was related to core and basic competence of curriculum 2013 that is used in SMP Islam Raden Paku. As Brown (2003:22) defines that content validity is a test that is taken from subject matter and requires the test-taker. In addition, the material that is used for test should be precise with material that English teacher teaches in school.

To reach the relevancy and consistency of instrument of test, researcher adapted the items of questions that was constructed based on basic competence of curriculum 2013 which is used by school as a guidance of learning and it was examined by expert validation before being tested to participants.

Researcher gave pre-test using oral speaking skill test as instrument. Before assigning pre-test to the experimental and control class students, researcher validated the contents of instrument to the expert validations namely, Sofi Yunianti, SS., M.Pd. as an English lecturer of Muhammadiyah University of Surabaya, and Aisyah, S.Pd. as an English teacher of SMP Islam Raden Paku of Surabaya. The following table is the result of instrument validation and.

The instrument test was validated by two raters. It meant to test the accuracy of an instrument test that was used in pre and post-test.

Table 3.6 Validity of Instrument Test

No	Name	Validity		Date
		Yes	No	
1	Sofi Yunianti, SS., M. Pd.	√		The 9th of May 2018
2	Aisyah, S. Pd.	√		The 11th of May 2018

Based on table 3.5 above that both expert validations assigned "yes". it indicates that instrument test was accurate and could work precisely. So, it can be chosen as instrument test to obtain the score of pre-test and post-test in experimental and control class.

b) Reliability

After validating the instrument of the test, researcher examined the reliability of an instrument of test that was purposely attended to measure the consistence and accuracy of test and scores that were obtained from result of test was accuracy. Ravid (2011:192) states that reliability is level of an instrument consistency that can obtain same results when the instrument is used in other times. In the same way, Brown (2003:20) points out that reliability is the consistence and dependable of a test that is assigned to same student on two different occasion obtains similar results.

In this research, inter-rater was conducted to calculate the result pre-and post-test. It meant that the process of scoring to the experimental and control class in pre and post-test was scored by two raters which was categorized into the first rater which was chosen from an English teacher and second rater which was chosen from researcher. As Ravid (2011:196) argues that inter-rater is two or more scorers that assigned, judged, or graded the same performance or behavior. In addition, it was also purposely used to test the rate and the similarity of perception in giving score. Then, the result that gained from pre and post-test were analyzed with IBM SPSS 2.5 version.

G. The Technique of Data Analysis

The are several processes that researcher did before analyzing the data. The first, researcher organized the data. The second, the researcher tabulated the data based on the class. The third, the researcher served the data. The fourth, the researcher calculated the data to answer research question and examine the hypothesis.

The data of pre and post-test result in experimental class and control class of this study were collected by using one of the instruments, namely oral speaking test. Ravid (2011:226) argues that after collecting data, the researcher had to determine the way of analyzing data. The purpose of constructing the plans of analyzing data was to answer the research questions and to test hypotheses that were predicted in chapter two. After collecting all of data, the investigator processed and analyzed the data that was taken from pre-test and post-test results. To facilitate the process of analyzing the data, the investigator used IBM SPSS software 2.5 version that includes the reliability test of instrument, the test of normal distribution, the variance test of homogeneity, and the t test to analyze the data.

1. The Reliability of Instrument Test

The researcher tested the reliability of instrument test. It was purposely examined to ensure the accuracy and the consistency of instrument test. Ravid (2011:192) states that reliability is the level of an instrument consistency that can obtain same results when the instrument is used in other times. In examining the reliability of pre and post-test, researcher used IBM SPSS 25 version that was analyzed with correlation.

2. The Test of Normal Distribution

To know and ensure that the data distribution is normal or not, the researcher used normality test. In finding the normality test, the researcher used IBM SPSS software 2.5 version that was based on One Sample Kolmogorov-Smirnov. The formula of normality test criteria:

a) H_A = The sample of data distribution is normal.
b) H_0 = The sample of data distribution is not normal.
c) The significance value (two tailed) > 0.05 indicates that the sample of data is normal distribution and the H_A is accepted.
d) The significance value (two tailed) < 0.05 indicates that the sample of data is not normal distribution and the H_0 is refused.

3. The Variance Test of Homogeneity

After finding and deciding the normality test that was analyzed with IBM SPSS software 2.5 version that was based on One Sample Kolmogorov-Smirnov, the researcher continued examining whether between experimental and control class as sample of research have the same ability. To know whether students of experimental and control class have the same ability, the researcher used Levene test of homogeneity of variances that was analyzed with IBM SPSS software 2.5 version. The data that was counted by using Levene test of homogeneity of variances was taken from pre-test score of experimental and control class. Here the criteria of testing homogeneity:

e) H_A = The sample of research is homogenous.
f) H_0 = The sample of research is not homogenous.
g) The significance value (2-tailed) > 0.05 means that the result of test is homogenous and the H_A is accepted.
h) The significance value (2-tailed) < 0.05 means that the result of test is not homogenous and the H_0 is accepted.

4. T-Test Calculation

To find and compare the mean score between experimental class and control class that were gained from pre and post-test, the researcher calculated the mean score of both classes used t-test that was calculated in independent sample t-test and paired samples t-test by using IBM SPSS 2.5. Ravid (2011:144) says that *t test* is statistics that is used to determine or to compare whether between two groups have significant improvement and difference statically. It was purposely done to answer the research questions of this research and also to know the differences between experimental class and control class before giving treatment. Here the steps to analyze the data.

1. Researcher formulated the hypotheses that were administered to H_A and $H_{0;}$
   a) H_A = Hot seat game method is effective for teaching speaking skills.
   b) H_0 = Hot seat game method is not effective for teaching speaking skills.
2. Researcher determined mean score of experimental and control class based on the group statistics

3. Researcher determined the significance value based on the output of IBM SPSS 2.5 version analysis that value should be lower than 5% level of significance (<0.05);
    a) If the significance value (2-tailed) < 0.05. So, the H_A is accepted and H_0 is rejected.
    b) If the significance value (2-tailed) > 0.05. So, the H_A is refused and H_0 accepted.