CHAPTER III

RESEARCH METHODS

In this chapter, researcher explains about the methodology of the research and data collection. The research also explain about the instrument while observing the object.

A. Research Design

Qualitative and quantitative are the most popular approaches in research. According to James Dean Brown and Rodgers, they stated that qualitative research approach is typically the label for non-numerical research and quantitative research approach is a numerical research, a data conversion is needed for this approach. In another analysis by Grotjahn, he stated that experimental or non-experimental is data collection method, qualitative or quantitative is type of data the resulted, and statistical or interpretative is type of analysis conducted on the data¹. The researcher took an experimental research to design the study which analysis about what is the effect of flipped classroom in students' reading comprehension in narrative text. In conducting this research, the researcher applied an experimental research.

Experimental research is a scientific method. It is oriented to the future in the sense that the researcher is seeking to evaluate something new². According

¹ Brown, J. D., and Rodgers, T. S. *Doing Second Language Research*. New York: Oxford University Press. 2003, p. 15s

² Singh, Y.K. *Fundamental of Research and Methodology and Statistic*. New Age International. 2006, p. 134

to Donald Ary, an experimental design is the general plan for carrying out a study with an active independent variable. The design is important because it determines the study's internal validity, which is the ability to reach valid conclusions about the effect of the experimental treatment on the dependent variable³. In this research, quasi-experimental designs were considered because they allowed researcher to reach reasonable conclusions although not fully control. This meant that the researcher had the limit to control the population because of the teacher of English course suggested two classes to conduct this research. Quasi-experimental design involved an independent variable manipulation but the subject or the control group and the experimental group cannot be taken randomly. The classes were chosen by the teacher of English course, those were 9A and 9B. The control group in quasi-experimental design does not fully control the external variables that affect the implementation of the experiment⁴. In order to know whether flipped classroom is effective to teach English especially reading comprehension in narrative text, the researcher compared two groups, the control group and the experimental group. Those groups were given pre-test and post-test tests for each group. The following chart was represented the design:

 ³ Ary, D, Jacobs, C. L. & Sorensen, C. *Introduction to Research In Education: Eight Edition*. Canada: Wadsworth, Cengage Learning. 2006., p. 301
⁴ Ibid. 316

Table 3.1: Research Design

Group	Pre-Test	Treatment	Post-Test
E	T ₁	X	T ₂
С	T_1	-	T ₂

Note:

- E : Experimental Group
- C : Control Group
- T_1 : Pre-Test
- T₂ : Post-Test
- X : Teaching reading comprehension through Flipped Classroom

B. Variables of the Research

A variable in research is refers to a person, place, thing or phenomenon that the researcher trying to measure⁵. There were two variables in this research. Those were:

- Independent variable means the variable that is stable and unaffected by the other variables that the researcher trying to measure. The independent variable in this study is "the implementation of Flipped Classroom" to improve students reading comprehension to the third grade students of MTs Unggulan Al-Jadid, Waru, Sidoarjo.
- 2. Dependent variable means the variable that depends on other factors that are measured. These variables are expected to change as a result of an experimental manipulation of the independent variable. The dependent

⁵ Organizing Your Social Science Research Paper: Independent Variable and Dependent Variable. University of Southern California. Retrieved from <u>http://libguides.usc.edu/writingguide/variables</u> accessed on January 31st 2017.

variable of this study is "students' reading comprehension" in narrative text to the third grade student of MTs Unggulan Al-Jadid, Waru, Sidoarjo.

C. Setting of the Research

The setting of this study was in third grade student of MTs Unggulan Al-Jadid, Waru, Sidoarjo. In third grade, there were 2 classes, 9A and 9B. The amount students from both classes were 26 for 9A consisted of 10 female students and 16 male students, and 24 for 9B consisted of 9 female students and 15 male students. The researcher chose those classes by the suggestion of English course teacher. The researcher chose 9A to be the experimental group which was taught using flipped classroom and 9B as the control group which was taught using the conventional teaching strategy.

MTs Unggulan Al-Jadid, Waru, Sidoarjo is located on street Jend. S. Parman V, Waru, Sidoarjo. In addition, the time setting consisted of time allocation for pretest, treatment that was given to examine the treatment effect and post-test. This study was held in four times meeting. Each meeting had 2x40 duration time. Day and time was adjusted with the schedule of English subject in each class.

D. Subject of the Research

1. Population

The population of this study was the third grade at MTs Unggulan Al-Jadid, Waru Sidoarjo. The third grade was consisted of 50 students (two classes, 9A and 9B).

2. Sample

The researcher took two classes for this study. The sample of this study was 50 students from 9A and 9B, there were 26 students for 9A and 24 students for 9B. The researcher took two classes which had an equal English score as the sample, and then being divided into two groups (control group and experimental group) to examine the treatment effects. A class would be an experimental group and the other was controlled group. Researcher hoped that the chosen sample could be representative sample for all second year students in MTs Unggulan Al-Jadid, Waru, Sidoarjo in the use of flipped classroom to know the effect of flipped classroom in students' reading comprehension.

E. Research Procedure

The data was analyzed using quantitative method. Meanwhile, the quantitative data was obtained from pre-test and post-test result of student score in 9A and 9B, between the students who were taught using flipped classroom strategy and the students who were taught using conventional teaching strategy.

Before conducted the research, firstly researcher made research plan. Secondly the researcher made pre-test and post-test that were adapted students' book and developed using *Taxonomy Barret*. After created pre-test and post-test, the researcher was conducted a validity test to make sure that the tests were meaningful, useful and proper with conclusion of the test. This was done by the expert judgmental in reading course, Mr.Salik. Thirdly, the research asked for permission to the head of MTs Unggulan Al-Jadid Waru Sidoajoto to conduct a research study at the school. After got the permission from the head of the school, the researcher was discussed the purpose of the researcher research, the research schedule, the chosen of the class which would be the sample of the research. After got the deal with the teacher for the plan of research, researcher was conduct three steps of the quantitative method. Those steps were:

1. Pre-test

After getting two classes, it was divided into two groups; one class as an experimental group was taught using flipped classroom strategy in teaching reading comprehension and one class as control group was taught using silent reading. Then, the researcher gave pre-test to control group and experimental group. The purpose of this test was to know students ability for their reading comprehension in narrative text. The result of *pre-test* between control group and experimental group was used to identify the students reading comprehension before the treatment.

2. Treatment Implementation

After giving the pre-test for both control group and experimental group, experiment implementation was held by giving treatment through flipped classroom strategy. Flipped classroom strategy was given to A class or experimental group and B class or the control group was taught using silent reading. During the experiment session, the experimental group was given video learning and PowerPoint presentation through online classroom through online media such as Facebook page and WhatsApp group class, and the control group was taught using conventional reading. The researcher was given three times treatments to experimental group. This action had a purpose to get an accurate result of the flipped classroom strategy. This research was taken a five times class meeting for both control group and experimental group. During the treatment, the English teacher's role was as an observer.

a. Experimental Class

The steps of flipped classroom strategy in teaching reading narrative text were:

Outside the classroom.

- Researcher shared a video teaching about narrative text explanation through the researcher Facebook page and WhatsApp group that the researcher has been made. Students were able to download the video through their laptop, smartphone or computer.
- Students watched the video at home or wherever place that the students comfort to study in. They can also study individually or peers.
- During watching the video, students took some notes from the video and wrote a problem that they faced when they learn from the video
- 4) Students gave some exercise through the video.

Note: to make sure that the students watched the video by themselves, teacher gave the students task that could be fulfilled by watching the video that have been shared. When in the class, teacher asked the students with some questions about the video that have been shared.

Inside the classroom

- Teacher asked what they had learned from the video and corrected the answer that the student had to answer in the video with the class.
- Teacher asked them whether there was something that they did not understand by the video.
- 3) Teacher gave students a narrative text
- 4) Teacher divided the students into 4 groups contain of 5 students.
- 5) In group, students identified and explored the narrative text of the paragraph to get the main idea from the first paragraph.
- Using their own words, students wrote important information from the text
- 7) This activity continued till the end of paragraph
- 8) Teacher and students discussed the content of the text. Teacher can point one of the groups to share their notes about the text. Teacher controlled and provided the right answer while checking the answer.

- 9) Teacher evaluated the learning process
- b. Control Class

This control class did not receive any treatment and the learning process was done using a conventional learning style. The learning plans for control group were:

- Teacher explained the lesson in front the class in form of conventional learning style
- 2) Teacher gave a narrative text to students
- 3) Teacher asked the students to read the learning material using silent reading and pointed some important information from the text
- 4) Students collected the work
- 3. Post-test

After the treatment process, researcher continued to deliver a post-test that would be given to the controlled group and the experimental group. The purpose of this test was to know the achievement of both groups after getting the treatment.

After the researcher got the pre-test and post-test from both experimental and controlled class, the researcher did the data analysis to found out whether there was an improvement in students' reading comprehension between both experimental and controlled class.

F. Data Collection Technique

The technique of collecting the data was by conducting the test before (pretest) and after (post-test) the treatment. The test was given before and after the treatment to measure the effectiveness of flipped classroom to improve students' reading comprehension. During the treatment, the researcher was done a class observation of experimental class. The aim of this observation was to observe the implementation of flipped classroom.

G. Instrument of the Research

Instrument is a tool which change a physical variable of measurement to a form of recording that is suitable. In order to measure the data, to have consistent meaning, it is general to employ a standard system of units by which measurement to be compared⁶. According to Ibnu Hadjar, instrument is measurer to get quantitative information about variant of variable characteristic objectively⁷. In this research, the researcher used pre-test and post-test as the instruments prepared to get the data.

This study, researcher used two types of test, those were pre-test and posttest. The pre-test was given before the treatment and the post-test was given after the treatment. Pre-test was given to measure students' understanding about narrative text and past tense. Additionally, the post-test was given to measure

⁶ Hasman, R. J. *Characteristic of Instrument*. Massachusets Institute of Technology: CRC Press. 2000, p.1

⁷ Hadjar, I. Dasar-dasar Metodologi Penelitian Kwantitatif dalam Pendidikan (Basics of Quantitative Research Methodology in Education). Jakarta: Raja Grafindo Persada, 1996, p. 60

students understanding about narrative text and the use of past tense. In case, the researcher held the post-test to find out the validity and reliability. Both were discussed below:

1. The validity of test

According to Gronlund, cited by Brown, validity is a goal of assessment which is meaningful, useful and proper with the conclusion of the test. In this part, the researcher was use two validity; those were: a) content validity is a test where the test-taker perform the behavior which is measured by using the samples as a subject in inferences, b) construct validity is a large scale in validating standardized test of proficiency⁸. In this research, validity test was done by the expert judgmental in reading comprehension course, Dr. Salik, M.Ag.

2. The reliability of test

The reliability of the test is a test which is dependable and consistent in fluctuation in scoring, in the students, in the test itself and test administration⁹.

In the use of pre-test and post-test was multiple choices which were arranged based on Barret Taxonomy. There are five steps in Barret Taxonomy, those are:

 ⁸ Brown, H. D. Language Assessment; Principles and Classroom. California: Longman. 2003, p.22
⁹ Ibid., p. 21

- 1. Literal comprehension; a recall skill about written fact pieces in the text
- 2. Reorganization; a skill in analyzing, synthesizing, get and arrange the ideas which explored explicitly in the text
- 3. Inferential Comprehension; a skill to share ideas in intuition and personal experiences for the basic solve the problems
- 4. Evaluation; a skill to ensure and evaluate the equality, carefulness or advantages in the text
- 5. Appreciation; reward to some elements of writer's purpose emotionally, sensitively in aesthetics and giving reactions to the text moral value.

Taxonomy Barret is a reading taxonomy contains of cognitive and affective dimension that developed by Thomas C. Barret on 1968. The table below shows the development of Barret reading taxonomy.

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Table 3.2 Reading Skill Test Rubrics ¹⁰	
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No	Understanding level	Indicator
1.	Literal	Student can find written information in the text
2.	Reorganization	Student can find the main idea of the paragraph

¹⁰ Supriyono. Membimbing Siswa Membaca Cerdas dengan Taksonomi Barret (Guiding Students to Read Intelligent with Barret Taxonomy). 2010

		Students can conclude contain
		of paragraph
		Students find contain of
		paragraph
		Students can understand
3.	Inferential	implicit meaning in the text
		Student can understand the
		glossaries in the text
4.	Evaluation	Students can determine a view appropriate with the text
5.	Appreciation	Sharing ideas

H. Data and Source of Data

The data of this study was the students' the pre-test and post-test score from both group experimental group and control group. The source of data for this study was taken from the third grade students of MTs Al-Jadid Unggulan Waru Sidoarjo. There were two types of data that had been used to answer the research question of this study. Those were primary and secondary data.

1. Primary data

The primary data of this study was taken from the score of both experiment and control group in implementing the flipped classroom to improve reading comprehension of second grade student at MTs Unggulan Al-Jadid, Waru, Sidoarjo.

2. Secondary data

The secondary data was taken from another several supporting data sources such as students' attendance list from both control group and experimental group at MTs Unggulan Al-Jadid, and researcher observation during the treatment process. Those primary and secondary data were from teacher, students and the researcher presence at MTs Unggulan Al-Jadid, Waru, Sidoarjo.

I. Data Analysis Technique

In this study, data was obtained from research subject score to show whether teaching reading comprehension using flipped classroom was effective than teaching reading comprehension using conventional strategy.

1. Finding the Mean Score

To analyse the data, the researcher compared the score of both experimental and controlled group. It was useful to prove statistically whether there was any difference between the students' scores of the control group and the scores of the experimental group. In counting pre-test and post-test score result, the beginning step was arranging the score into a table

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for both control group and experimental group and counting each average score or *mean* from each classes.¹¹

2. Normality test

Data that had been taken by the researcher was tested first to determine the characteristic of the data. A type of data testing that was carried for this research was normality test. This test was used to find out whether the data had a normal distribution or not.

If the data had normal distribution, it meant that the data ben representative of the population and the data can be calculated using parametric statistic which usually using *Independent Sample T-test*. If the data had no normal distribution, the data can be calculated using nonparametric statistics which usually using *Mann Whitney U* test.

In this study, researcher used SPSS 16.0 to calculate the normality test of the data. The researcher used *Shapiro-Wilk* test because the amount sample was less or equal with 50 samples. *Shapiro-Wilk* test assessed whether the data were normally distributed or not. If the significance value is less than $\alpha = 0.05$, the data was not normally distributed, otherwise if the significance value is more than $\alpha = 0.05$, then the data is normally distributed¹².

¹¹ Subana, Rahadi, M, & Sudrajat. *Statistik Pendidikan (Statistic in Education)*. Bandung: Pustaka Setia. 2000, p. 131

¹² Carver, R. H & Nash, J.G. *Doing Data Analysis with SPSS Version 18*. Boston: Brooks/Cole Cengage Learning. 2012. p. 140

3. Homogeneity test

The test was used to test whether the distribution of the data is homogeneous of not by comparing the two variances. The homogeneity was intended to test the equality of variance of dependent variable of this study. In this study, the researcher used *Levene's Test*, which is simply one-way analysis of variance on the absolute deviation of each score from the mean for the group¹³. If the significance value on the *Levene's* Test is more than α = 0.05, then the variance of the variables are homogeneous.

4. Test of Hypothesis

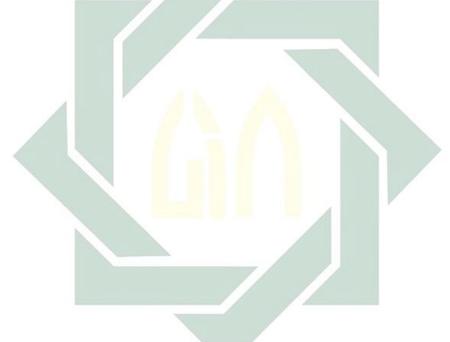
After found out the result of normality test and homogeneity test, the researcher calculated the data to test the hypothesis. When the data has normal distribution and homogeneous, the data calculates using *Independent Sample T-test*, but when the data has nor normal distribution although it is homogeneous, the *Independent Sample T-test* cannot be continued. For alternative calculation, the researcher was using it with *Mann Whitney U* test to find out the significance different of the data that has been collected for the research. *Mann Whitney U* test is a non-parametric statistical technique. It can be used in place of a t-test for independent samples in cases where the values within the sample do not follow the normal or t-distribution but also when the distribution of values is unknown. The *Mann-Whitney U* is also

¹³ Cramer, Duncan. Advanced Quantitative Data Analysis. Philadelphia: Open University Press.2003.p. 149

used to test the null hypothesis, subject to both samples coming from the same basic set or having the same median value¹⁴.

In doing the analysis of those tests above, such as finding the mean score, normality test, homogeneity test and hypothesis test, the researcher used SPSS 16.0 for Windows.

5. The last step is drawing the conclusion.



¹⁴ Milenovic, Zivorad M. Application of Mann-Whitney U in Research of Professional Training of Primary School Teacher. Metodicki obzori: Original Scientific Article vol. 6(1). 2010. p. 73