

CHAPTER III

RESEARCH METHODOLOGY

Research is a study which is done by researcher through careful observation of a problem until found the problem solving.⁶⁶ Thus, a research has close relation with methodology. Methodology is a process, principle and procedure which is used to find the answer of the problem.⁶⁷ Generally, research method is scientific way to get data with specific purpose. Research method is also decipherable as scientific way to get valid data with purpose which can be gotten, developed, and proved from specific knowledge until it can be used to solve the problem.⁶⁸ In this study, here are the research methods:

A. RESEARCH DESIGN

In this research, the researcher wants to get information about the implementation of timeline as media to improve students' grammar ability in simple past tense at the first year students of eight grade students of MTs Negeri 2 Surabaya. In this research, the researcher used the experimental.

This study is quantitative research. Quantitative research can be interpreted as research method which is based on positivism and philosophy, used in certain population and sample, uses data collection and research instrument, in data analysis uses quantitative/statistic characteristic, in purpose to testing the hypothesis that had been settle.⁶⁹ This research aims to know the implementation of timeline as media to improve students' grammar ability in simple past tense and the quantitative appropriate for the purpose of this research. Experimental design applied in this research.

⁶⁶ Zainal Arifin, *Penelitian Pendidikan Metode dan Paradigma Baru*, (Bandung: PT Remaja Rosdakarya, 2012), 2.

⁶⁷ Deddy Mulyana, *Metodologi Penelitian Kualitatif Paradigma Baru Ilmu Komunikasi dan Ilmu Sosial Lainnya*, (Bandung: PT Remaja Rosdakarya, 2008), 145

⁶⁸ Sugiyono, *Metode Penelitian Pendidikan Pendekatan Kuantitatif, Kualitatif, dan R&D*, (Bandung: alfabeta, 2016), 3.

⁶⁹ Sugiyono, *Statistika untuk Penelitian* (Bandung: Alfabeta Bandung, 2010)8

Experimental research is the way to find a causal relationship between two factors that are deliberately caused by the researcher by reducing or setting aside other factors that interfere. Experimental are always done with the intent to see a treatment.⁷⁰ In this research, quasi-experimental design is considered because they allowed researcher to reach reasonable conclusions although not fully control. It means that the researcher have limitation to control the population because of the teacher of English course suggested two classes to conduct this research. Quasi-experimental design involves an independent variable manipulation but the subject or the control group and the experimental group cannot be taken randomly. The control class in quasi experimental design does not fully control the external variables that affect the implementation of the experiment.⁷¹ It involves some steps, as follows:

- 1.The researcher have done pre-test
- 2.The researcher divided the class into two group, group A and group B. This steps is applying the experimental treatment to group A
- 3.The researcher have done post-test
- 4.The researcher compared between group A result and group B result by using t-test to know the result between before doing the treatment and after doing the treatment.

The following chart was represented the design:

Table 3.1: Design of experimental research

Groups	Pre-Test	Treatment	Post-Test
Experimental group	O1	X	O2
Control group	O3	-	O4

⁷⁰ Suharismi Arikunto, *Prosedur Penelitian Pendekatan Suatu Praktek* (Jakarta: Bina AKsara,1987),3

⁷¹ Ary, D, Jacobs, C. L. & Sorensen, C. *Introduction to Research In Education: Eight Edition*. Canada: Wadsworth, Cengage Learning. 2006., p. 316

In which:

- O1 : Pre-Test of experimental group
- O2 : Post-Test of experimental group
- O3 : Pre-Test of Control group
- O4 : Post Test of control group
- X : Treatment that given by the researcher to the experimental group by using Timeline

The research is intended to investigate the implementation of timeline as media to improve students' grammar ability in simple past tense at eight grade students of MTs Negeri 2 Surabaya in academic year 2016/2017. By applying the treatment, it expected to know whether the differences of students' grammar ability before and after being taught by using timeline as media.

B. RESEARCH VARIABLE

In the experiment research, there are two variables; they are independent variable (X) and dependent variable (Y). Independent variable is a factor which is manipulated by the writer to determine the relationship between the phenomena observed. While dependent variable is a factor which is observed and measured to determine the effect of independent variable.

1. Independent Variable

The independent variable is (X) is Timeline as media that used to improve the students' grammar ability.

2. Dependent Variable

The dependent variable is (Y) is the simple past tense achievement score of students at the eleventh grade of MTs Negeri 2 Surabaya.

C. RESEARCH SETTING

The setting of this study was in eighth grade students of MTs Negeri 2 Surabaya. In eighth grade, there were 9 classes, 8A until 8I. The researcher chosen 8F and 8G classes by the suggestion of

English course teacher. The researcher chosen 8F to be the experimental group which was taught using Timeline and 8G as the control group which was taught using the conventional teaching strategy.

MTs Negeri 2 Surabaya is located on street Jl. Citra Raya Lakarsantri no.27 Surabaya. 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 three times meeting. Each meeting had 2x40 duration time. Day and time was adjusted with the schedule of English subject in each class.

D. POPULATION AND SAMPLE

Population is defined as the whole of the study.⁷² It is a set (or collection) of all elements possessing one or more attributes of interest. The population of study was the eighth grade at MTs Negeri 2 Surabaya.

The researcher took two classes for this study. The sample of this study is 70 students from 8F and 8G, there are 35 students for 8F and 35 students for 8G. The researcher takes two classes which have an equal English score as the sample, and then being divided into two groups (control group and experimental group) to examine the treatment effects. 8F class as experimental group and 8G as control group.

E. RESEARCH PROCEDURE

The researcher asked for permission to the head of MTs Negeri 2 Surabaya to conduct a research study at the school. After getting the permission from the headmaster of the school to conduct the research, the researcher discussed the purpose of the research, the research schedule, and the choice of the class which would be the sample of the research. Then, the test was developed. The explanation of steps explained below:

⁷²Suharsimi Arikunto, *Prosedur Penelitian: Suatu Pendekatan Praktik*, (Jakarta: PT Rineka Cipta, 2006), 13th Ed., p.130.

1. Pre-test

Before conducted the research, firstly researcher made research plan. Secondly the researcher made pre-test. The pre-test also already validity by the expert judgmental with the lecturer of grammar course. After getting two classes, it was divided into two classes, one class as an experimental group was taught by using Timeline in teaching grammar and one class as control group was taught by using conventional teaching strategy. Then, the researchers gave pre-test to control group and experimental group. The purpose of this test was to know students' grammar ability and the result of pre-test between control group and experimental group used to identify the students grammar of simple past tense score before the treatment. In Pre-test, the teacher gives them a test. Each test consists of twenty items, include ten items for multiple choice and ten items for essay test. The topic that used same between experimental group and control group, it's about simple past tense.

2. Treatment

After giving the pre-test for both control group and experimental group, experiment implementation was held by giving treatment through Timeline as media. Timeline was given to experimental group and control group was taught using conventional teaching strategy.

2.1 Experimental Class

- *Meeting 1*

In the first meeting at experimental class, the researcher introduce about the material. The material that used was simple past tense. In the first meeting, the researcher wants to introduce timeline as media that used to understand simple past tense. The researcher use recount text to help the students understand about simple past tense and the tittle of the text is Borobudur Temple. First, the researcher gave them text about Borobudur Temple. Then, researcher

divided the students into several group. Every group consists of some students. They work together to mention verb that used in simple past tense. They can find on verb that served in the text. Then, the researcher explains and corrects the answer together with the students.

Second, the researcher explained verb that used in simple past tense. They are two kinds of verb in simple past tense, regular verb and irregular verb. After researcher explained about the difference about both of verb, researcher asked the students to mention the other verb that they know and they write it in their book. They can find and understand if simple past tense use verb 2. Then, researcher asked some of students to read them work in front of class and the other students listen and correct their friend's answer.

In the end of the meeting, the researcher gave the explanation about Timeline as media, explain the definition of timeline itself, how to draw timeline and use timeline to help them understand about tenses easily, especially for simple past tense and support the learning process.

- Meeting 2

In the second meeting, before the classes start the researcher review the last material. The researcher asked some of the students to mention example of regular verb and irregular verb that used in simple past tense. They still memorize it. In the second meeting, the researcher wants to explain about how to use simple past tense, when and how to use simple past tense and make sentence use simple past tense. The teaching and learning process were mostly same with the first meeting, the researchers gave them text, and then researcher divided the students into several group. Every group consist five until six students. The researcher asked the students to analyze some sentence in the text, the sentence that include in simple past tense. They work together. Then, the researcher

explains and corrects the answer together with the students.

After correct the students' answer, researcher draw timeline and give example how to use timeline. The researcher writes simple past tense and explains it by using timeline. After the students understand, researcher invited five people to come in front of class, the researcher asked them to make simple sentence that using simple past tense and draw it by using timeline then the other friend listen and attention about their friend explanation. Five students come in front of one by one.

Second, after the students try to draw timeline, the researcher asked the students to find the pattern of simple past tense and explain about time signal that used in simple past tense by using timeline. In the end of meeting, the researcher gave the students assignment to write or make ten simple sentence that use simple past tense correctly and two of students come in front of to mention one sentence and explain by using timeline for their friend.

- Meeting 3

In the third meeting, the researcher wants to explain about the form of simple past tense. First, researcher asked the students to read the story in their book and divided the students into several group. The group was always changed in every meeting. They work together to analyze the form of simple past tense in the text, affirmative, negative and interrogative form. After the students finished their work, they presented their work in front of the class. Then the researcher explains and corrects the answer together with the students. The researcher explains simple past tense by using timeline. In the end of meeting researcher gave the students assignment. The assignment gave to know the students' understand about simple past tense.

2.2 Control Class

- Meeting 1

In the first meeting at the control class the researcher introduce about the topic that used for the teaching and learning process. The material that used was simple past tense. First, the researcher gave the text about Borobudur Temple. Then, the researcher divided the students into several groups. The researcher asked them to read and answer the following question. After the student finished their work, the researcher explains and corrects the answer together with the students.

Second, the researcher asked students to find on verb that served in the text. After the students finished their work, the researcher explains and corrects the answer together with the students. The researcher explained verb that used in simple past tense. They are two kinds of verb in simple past tense, regular verb and irregular verb. In the end of meeting, the researcher gave the students assignment to write the regular and irregular verb in their book.

- Meeting 2

In the second meeting, before the classes start the researcher review the last material. The researcher asked some of the students to mention example of regular verb and irregular verb that used in simple past tense. In the second meeting, the researcher wants to explain about how to use simple past tense, when and how to use simple past tense and make sentence use simple past tense. The researcher gave the text and divided the students into several groups. Every group consist five until six students. The students work together to analyze the sentence in the text that including in simple past tense.

After it, some of them come in front of the class then presentation their work. Then, the researcher explained the pattern and time signal of

simple past tense. In the end of meeting, the researcher gave the students assignment to write or make ten simple sentence that use simple past tense correctly and two of students come in front of the class to presentation their work.

- Meeting 3

In the third meeting, the researcher wants to explain about the form of simple past tense. First, researcher asked the students to read the story in their book and divided the students into several group. The group was always changed in every meeting. They work together to analyze the form of simple past tense in the text, affirmative, negative and interrogative form. After the students finished their work, they presented their work in front of the class. Then the researcher explains and corrects the answer together with the students. In the end of meeting researcher gave the students assignment in question form.

3. Post-test

Before conducted the research, firstly researcher made research plan. Secondly the researcher made post-test. The post-test also already validity by the expert judgmental with the lecturer of writing course. After getting two classes, it was divided into two groups, one class as an experimental group was taught using Timeline in teaching simple past tense and one class as control group was taught using conventional. Then, the researcher gave post-test to control group and experimental group. The purpose of this test was to know students score for their ability in simple past tense. The result of *post-test* between control group and experimental group used to identify the students ability in simple past tense after the treatment.

In Pre-test, the researcher gives them a test. Each test consists of twenty items, include ten items for multiple choice and ten items for essay test. The topic that used same between experimental group and control group, it's about simple past tense.

4. Questionnaire

After conducted the test, the researcher gave questionnaire. It is about the students' responses on using Timeline as media in teaching simple past tense. Thus, the respondents was experimental group which the process of learning use Timeline media. The researcher gave questionnaire after the students done the post-test. The questionnaire consist 18 items of question with four alternative answers.

The research schedule is figured out in the text following table:

Table 3.2: Research Schedule

Experimental Group		Control Group	
Date	Activities / Material	Date	Activities/ Material
10 May 2017	Pre-test	10 May 2017	Pre-test
15 May 2017	Treatment I (introduce and explanation how to use timeline as media in learning simple past tense)	12 May 2017	Introduce and explanation simple past tense by using conventional technique.
30 May 2017	Treatment II (ask students to draw timeline and use timeline in learning simple past tense)	30 May 2017	Learning simple past tense by using conventional technique.
31 May 2017	Treatment III (ask students to draw timeline and use timeline in learning simple past tense)	31 May 2017	Learning simple past tense by using conventional technique
21 June 2017	Post-test Give questionnaire	21 June 2017	Post-test

F. DATA COLLECTION TECHNIQUE

In this research, test and questionnaire used to collect the data.

1. Test

Test is a set of questions and exercises used to measure the achievement or capacity of the individual or group.⁷³ The participants of this research are students of eight grades in MTs Negeri 2 Surabaya. The research used Timeline as the media in teaching simple past tense. There are two kinds of test, pre-test and post-test gave for the students as participants, either the experimental or the control group. Before carrying out the teaching, the pre- test given to both groups to make sure that two groups have similar and equal level proficiencies. The post test gave to the experimental group after being taught using the timeline and gave to the control group being taught using the traditional technique.

2. Questionnaire

Questionnaire is a research instrument which consists of numbers of questions to sort out the data or information which need to be answered by the objects of study freely based on their opinion.⁷⁴ The questionnaire in this study consists of check list questions which used to know the students' responses on using timeline media in teaching simple past tense. The researcher also carried out the questioner in one session, after the implementation of timeline. The researcher used scale likert as the design of the questioner.

The researchers will do pre-test and post-test was taken to collect the data.

1. Pre-test

The data collected through the pretest in class in order to know is the experimental group and control group having similar ability or not before the implementation of Timeline as media. Pretest

⁷³ Douglas Brown, *Teaching by Principles: An Interactive Approach to Language Pedagogy*. (New York: A Person Education Company, 2001), 2nd Ed., p. 384.

⁷⁴ Ine Amirman dan Zainal Arifin, *Penelitian dan Statistik Pendidikan*, (Jakarta: Bumi Aksara, 1993), 226-228.

administered in class to measure the students' grammar ability before the treatment.

2. Post-test

After Timeline implemented, then the post-test was given. Post-test was given to know students ability result after the treatment. The result of the test was scored and calculated.

G. RESEARCH INSTRUMENTS

In this study, the researcher used test and questionnaire as instrumentation.

1. Test

In this research, test used to gain information about students' grammar ability in simple past tense. In order to gain the information, the researcher used to kinds of test, namely pre-test and post-test. Each test consists of twenty items, include tent items for multiple choice and ten items for essay test. The researcher took the test adapted from Thesis of Indah Safitri.⁷⁵

2. Questionnaire

The researcher used yes/no response as the design of the questioner. The questionnaire consists of 18 questions which have four alternative answers. The questionnaire developed based on John Keller's ARCS Model of Motivational Design. Each question has four alternative options, served scoring standard as:

- a. Alternative option "*Strongly agree*" has 4 score
- b. Alternative option "*Agree*" has 3 score
- c. Alternative option "*Disagree*" has 2 score
- d. Alternative option "*Strongly disagree*" has 1 score

⁷⁵ Indah Safitri, Thesis of Bachelor: "*The Use of Climbing Grammar Mountain to Improve Students' Skill in Past Tense (An Experimental Study of the Eight Grade Students of MTs Yaspita Ngroto Gubug Grobongan in the Academic Year of 2015/2016*" (Salahtiga: IAIN Salahtiga)

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 will be taken from the eighth grade students of MTs Negeri 2 Surabaya. There are some data that used to answer the research question of this study. The data of this study was taken from the score of both experiment and control group in implementing of timeline to teach grammar in classroom and from another several supporting data sources such as students' attendance list from both control group and experimental group at MTs Negeri 2 Surabaya and the result of questionnaire in one session, after the implementation of timeline in experimental group.

I. DATA ANALYSIS TECHNIQUE

Data analysis is a simplification process of data into easier to read and to be presented. Early approach is to explain with data simplification.⁷⁶ In this research, there were two questions. The data of the question about the significant different of improvement grammar in simple past tense achievement between students taught using timeline and students was taught using conventional techniques and the students' responses. The data was collected from students' test and questionnaire. After collecting the data of pre-test and pots-test from the experimental group and control group, the researcher tried to find out the difference between the achievement of the experimental group and the control group. Then, the data was analyzed using statistical calculation of t-test to find out whether the differences of the score between the experiment class and the control class are significant or not. T-test is used to measure and compare the differences of means score between experimental group and control group.⁷⁷

To know is there any advantages in use of Timeline media or not in teaching simple past tense , t-test was applied in this research

⁷⁶ Masri Singarimbun, *Metode Penelitian Survei*, (Jakarta: LP3ES, 1995), 263.

⁷⁷ A E.Bartz, *Basic Statistical Concepts in Education and the Behavior Sciences* (Minneapolis: Burgess Pub.Co, 1976), p.293

with significance value is less than $\alpha = 0.05$. Before that, the researcher was did normality test and homogeneities test. The normality test was used to check whether the posttest score of experimental group and control group were normally distribution or not. While homogeneity test was used to calculate the homogeneity of variance of both experimental and control group posttest

1. Analysis of T-test

The data analyzed applying t-test formula to find out the influence of timeline on improving students' grammar skill in simple past tense.

$$t = \frac{\bar{X}_e - \bar{X}_c}{\sqrt{\left\{ \frac{(N_e - 1) S_e^2 + (N_c - 1) S_c^2}{N_e + N_c - 2} \right\} \left\{ \frac{1}{N_e} + \frac{1}{N_c} \right\}}}$$

Where:

\bar{X}_c = the mean of the control group

\bar{X}_e = the mean of the experimental group

S_e: sum of quadrate deviation of the experimental group

S_c: sum of quadrate deviation of the control group

N_e: the number of experimental group

N_c: the number of control group

Before calculating the t-test the researcher calculates mean, variance, and standard deviation:

a. Mean

Mean is computed by using the formula:

$$\bar{X} = \frac{\sum_{i=1}^n X_i}{n}$$

Where:

x = mean

Σx = sum of scores

N = number of scores

b. Variance

The variance of a group of scores is computed by using the following formula:

$$S_e^2 = \frac{\Sigma(Xe - \bar{X})^2}{(Ne - 1)}$$

Where:

S^2 : variance

X: individual score

N: number of scores in the group

c. Standard Deviation

The standard deviation of a group of scores was computed by using the following formula:

$$S_D = \sqrt{S^2}$$

Where:

S: standard deviation

Xe: individual score

After calculating the t-test, it shows the difference mean and standard deviation scores between students who are taught with timeline media and without timeline media. After that, comparing t-test with t-table

- a. If the value of t-test > from the t table it shows there is significance effect of timeline on improving students' grammar skill.
- b. If the value of t-test < from the t table it shows there is no significance effect of timeline on improving students grammar skill.

2. Testing Hypothesis

This research has two hypothesis, null hypothesis (Ho) and alternative hypothesis (Ha) that should be proved. The

conclusion based on the significant value and t-test calculated based on hypotheses as follows:

- a. Since significant value (t_o) > from the critical value (t), then null hypothesis (H_o) rejected and alternative hypothesis (H_a) accepted.
- b. Since significance value (t_o) < from the critical value (t), then null hypothesis (H_o) accepted and alternative hypothesis (H_a) rejected.

In research question number two, the researcher tried to find out the students responses on using timeline media in teaching simple past tense. In this data analysis technique, the researcher analyzed the result of questionnaire about the students' responses after implementation of timeline media. After the researcher got the result, the researcher calculated the data in percentage form. To know response of students after implementation of Timeline media in simple past tense learning, the researcher used pattern below:

$$P = \frac{F}{N} \times 100\%$$

Explanation:

P = Questionnaire Percentage

F = Frequency which is looked for its percentage (number of all questionnaire score)

N = Number of frequency (number of overall ideal score)

Through the result of counting above, the researcher finds out the percentage of questionnaire. The result of percentage needs to be stated in quantitative statements according to Anas Sudijono, as this way:

75% - 100% = Very good

50% - 75% = Good

25% - 49% = Good enough

≤ 24% = Bad

From the interval above, the researcher knows how the response of students after implementation of Timeline media in simple past tense learning.

