

CHAPTER III

RESEARCH METHOD

This chapter presents about the research method that used in conducting the research. It covers research design, population and sample, research instrument, validity and realibility, data collection method, and data analysis.

A. Research Design

This research uses a quantitative research, where the strategy that is used in this research is experimental design. According to Ary et al (2010:26) experimental study is scientific investigation in which the researcher manipulates and constructs one or more independent variables and observes the dependent variable or variables. Experimental research is classified into pre-experimental design, true experimental, and quasi-experimental.

According to Ary et al. (2010:303-305), there are two kinds of pre-experimental design, they are one-group pretest-posttest design and static group comparison. In this research, the researcher uses one-group pretest-posttest design because of the feasibility to conduct the research in two classes. The design is illustrated as follow:

Table 3.1 The design One-Group Pretest–Posttest Design adapted from Ary et al. (2010).

Pretest	Treatment (Independent variable)	Posttest
Y ₁	X	Y ₂

Notes:

Y₁ :students' achievement on writing recount text before being taught by using project based learning.

X :project based learning treatment

Y₂ :students' achievement on writing recount text after being taught by using project based learning.

The procedures of experimental research that use one group of pre-test and post-test design are:

1. Administering a pre-test before applying PjBL with a purpose of measuring writing achievement of tenth grade at MA Ma'arif Udanawu.
2. Applying the experimental treatment teaching writing by using PjBL to the subjects.
3. Administering a post-test after applying PjBL with purpose of measuring writing achievement of the tenth grade at MA Ma'arif Udanawu.

In this research, the researcher wants to see whether the project based learning is effective in teaching writing for tenth grade students of senior high school by comparing the pre-test and post-test scores.

B. Population, Sample, and Sampling

1. Population

Before conducting the research, the researcher decided the population. According to Ary at al (2010:148) a population is defined as all members of any well-defined class of people, events, or objects. It can be concluded that population is a group subjects or objects, it can be person or things where the research to be applied. The population in this research was all of students at the tenth grade students of MA Ma'arif Udanawu in academic year 2017/2018. The tenth grade belongs of fifteen classes. The quantity of students in each class of the population as follow:

Table 3.2 Population of the Research

No.	Class	Number of students
1.	X MIA 1	39
2.	X MIA 2	40
3.	X MIA 3	40
4.	X MIA 4	40
5.	X MIA 5	40
6.	X IIS 1	38
7.	X IIS 2	37
8.	X IIS 3	38
9.	X IIS 4	37
10.	X IIS 5	36
11.	X IIS 6	39
12.	X IIS 7	40
13.	X IIS 8	40
14.	X IIS 9	39

15.	X IIS 10	39
Total		582

1. Sample

The important step in conducting the research is selecting the sample. Sample is a part of population which is used to generalize the finding due to the researchers' limitation of time, capability, etc to take all members of population. Ary et al. (2010:148) state that sample is the small group that is observed. It means that several students who become the subject of the research. In this research, the researcher takes one class. It is X IIS 4 that consist of 37 students. But, because of some students didn't follow the post-test, the sample in this research became 33 students.

2. Sampling

Sampling is a technique to take sample from population. Sampling technique is needed as representative sample of the whole population. In this research, the researcher uses purposive sampling. In purposive sampling, sample has been chosen for a specific purpose (Cohen et al, 2005:103).

In purposive sampling, the researcher uses expert judgement to take some representatives or typical cases from populatuion. According to the English teacher, X IIS 4 has similar characteristics, their mastery is average which means not too good and not too bad. The class also cooperative enough and and project based learning has never been used in

teaching writing. Based on this condition, the researcher chooses X IIS 4 as sample of the research.

C. Research Variable

A variable is a construct or a characteristic that can take on different values or scores (Ary et al., 2010:37). There are two kinds of variable in this research. They are independent variable and dependent variable.

1. Independent variable

Ary et al. (2010:266) state that the independent variable is manipulated (changed) by the experimenter. It means that the independent variable can give effect to dependent variable. The independent variable in this research is Project Based Learning which is symbolized by “X”.

2. Dependent variable

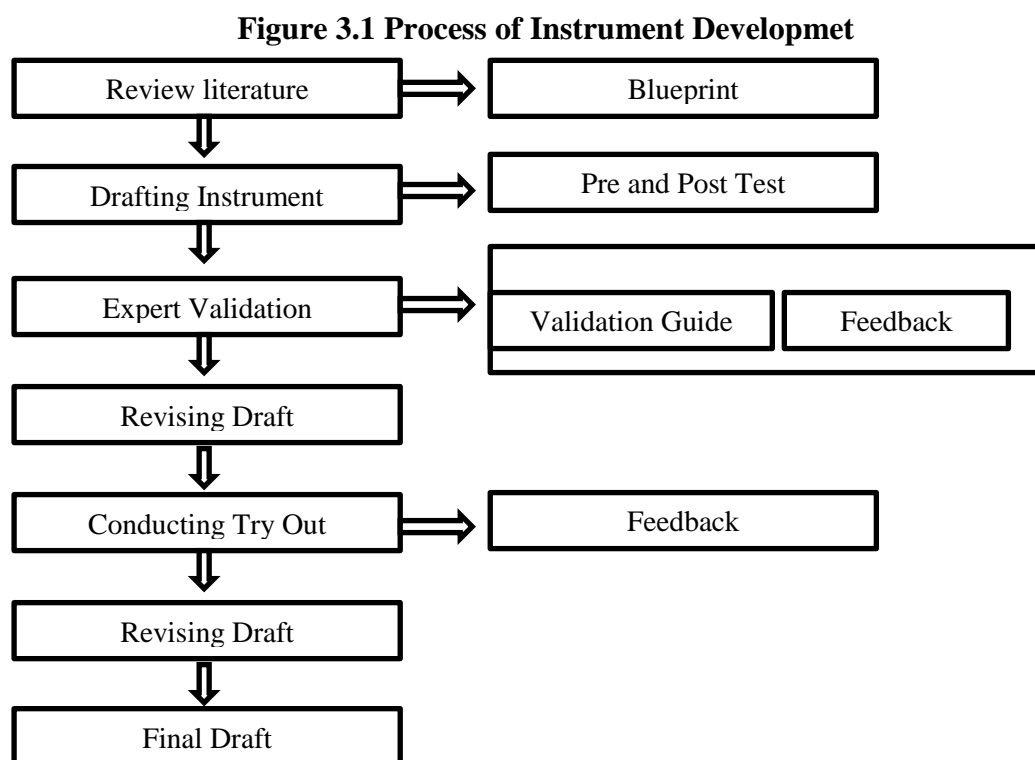
According to Ary et al. (2010:266), the variable on which the effects of the changes are observed is called the dependent variable, which is observed but not manipulated by the experimenter. So, the dependent variable is an outcome from the effect of the independent variable. The dependent variable in this research is writing recount text which is symbolized by “Y”.

D. Research Instrument

Instrument of the research is a tools which be used by the researcher in collecting data. It means any research needs instrument for gathering data. The

instrument that is used in this research is a test. According to Ary et al (2010:201) test is a set of stimuli presented to an individual in order to elicit responses on the basis of which a numerical score can be assigned.

In collecting the required data, there were two kinds of tests in this study, they were pre-test and post-test. Pre-test was intended to measure students' writing achievement in recount text before the treatment given. While, post-test was to measure students' writing achievement in recount text after treatment given. The tests were in the form of subjective test of writing recount text. The way to make an instrument will be described as the Figure 3.1 below:



Furthermore, the students' work will be assessed based on the scoring rubric of writing. Then, the scoring rubric of students' writing test in the following formula below:

Table 3.3 Scoring Rubric of Writing

Component of Writing	Score	Criteria
Content	4	Relevant to the topic and easy to understand
	3	Mostly relevant to topics, but lacks detail
	2	Relevant to the topic but not quite easy to understand
	1	Quite relevant to the topic but not quite easy to understand
Organization	4	Most of the sentences are related to main idea
	3	Some sentences are related to the main idea
	2	Few sentences related to the main idea
	1	The sentences are unrelated to each other
Language Use	4	There is almost no error in the use of sentence
	3	There are a few errors in the use of sentence
	2	There are many errors in the use of sentence
	1	Almost all sentences contain errors
Vocabulary	4	Effective word choice, word form mastery, and many vocabulary variations
	3	Occasional errors of word form, few vocabulary variations, but meaning not obscured
	2	Limited range, frequent errors of word form, almost no vocabulary variations, meaning confused or obscured
	1	Little knowledge of English vocabulary, word form, not enough to evaluate
Mechanic	4	Few errors of spelling, capitalization and punctuation
	3	Occasional errors of spelling, capitalization and punctuation

	2	Frequent errors of spelling, capitalization and punctuation
	1	Dominated by errors of spelling, capitalization and punctuation

(Adapted from Jacobs et al. (1981) in Weigle (2002:116))

Score: $\frac{\text{The number gotten}}{\text{The maximal score}} \times 100 =$

Table 3.4 Criteria Students' Score

No.	Grade	Level	Range of Score
1.	A	Excellent	81-100
2.	B	Good	61-80
3.	C	Fair	41-60
4.	D	Poor	0-40

E. Validity and Reliability

There are two important characteristics that every measuring instrument should go through a process of validity and reliability check.

1. Validity

Validity is an important key to effective research. Ary et al. (2010: 162) defines validity as the extent to which an instrument measures what it is designed to measure. Validity is a measurement which shows the grade of an instrument. There are four types of validity; 1) content validity, 2) criterion validity, 3) construct validity, and 4) face validity. In this research, to measure whether the test has a good validity, the researcher analyzed the test from content, validity, construct validity, and face validity.

a. Content validity

Content validity refers to whether or not the content of the manifest variables (e.g. items of a test or questions of a questionnaire) is right to

measure (Muijs, 2004:66). It means, the content of instrument has to relevant with the purpose of the test. The test is appropriate with the lesson material which be taught. In this study, the content validity refers to the Curriculum of 2013 as the school has implemented when the researcher conducted this research. The test was designed based on main competence and basic competence in the Curriculum of 2013.

Table 3.5 Main Competence and Basic Competence in Curriculum 2013

Core Competence	Basic Competence
3. Memahami, menerapkan, menganalisis pengetahuan faktual, konseptual, prosedural berdasarkan rasa ingin tahunya tentang ilmu pengetahuan, teknologi, seni, budaya, dan humaniora dengan wawasan kemanusiaan, kebangsaan, kenegaraan, dan peradaban terkait penyebab fenomena dan kejadian, serta menerapkan pengetahuan prosedural pada bidang kajian yang spesifik sesuai dengan bakat dan minatnya untuk memecahkan masalah.	a. Menganalisis fungsi sosial, struktur teks, dan unsur kebahasaan dari teks <i>recount</i> tentang pengalaman, kejadian, dan peristiwa, sederhana, sesuai dengan konteks penggunaannya.
3. Mengolah, menalar, dan menyaji dalam ranah konkret dan ranah abstrak terkait dengan pengembangan dari yang dipelajari di sekolah secara mandiri, dan mampu menggunakan metoda sesuai	4.14 Menyusun teks <i>recount</i> lisan dan tulis, sederhana, tentang kegiatan, kejadian, peristiwa, dengan memperhatikan fungsi sosial, struktur teks, dan unsur kebahasaan yang

kaidah keilmuan.	benar dan sesuai konteks.
------------------	---------------------------

Table 3.6 Content Validity of Test

Competence Indicators	Test Items	
	Pre-test	Post-test
4.14.1 Siswa dapat menulis teks recount sederhana tentang kegiatan, kejadian, peristiwa dengan baik dan benar sesuai dengan topik yang ditentukan.	Writing test	Writing test

b. Construct validity

Construct validity shows how far the tests are suitable with the theory in composing those tests. According to Muijs (2004: 68) construct validity is a slightly more complex issue relating to the internal. The instrument is constructed concerning aspects that will be measured. In this research, the researcher administered a writing test and the technique of scoring the students writing is based on the five aspects of writing; they are content, organization, grammar, vocabulary, and mechanic. To measure the construct validity, the researcher made a blueprint that can be seen in appendix 3.

c. Face validity

Face validity is a term sometimes used in connection with a test's content (Ary, 2010:228). Face validity refers to a test can looks measure what is supposed to measure. It means that the test should

look clear or the instruction must be understandable for the students. The test in this research was designed to measure students' writing skill. Thus, to achieve face validity, the researcher provides the instructions on the paper test to ask students to write. In this study, the face validity was done through validator by the expert. The purpose of face validity which is used in this research is to check some aspects that are consideration in the test, they are:

- a. To check that the instruction must be clear and understandable for the students.
- b. The test is suitable with syllabus and their level.
- c. Time allocation must be given clearly.

2. Reliability

Reliability is the stability of the test score. Muijs (2004:71) says reliability is a second element that determines the quality of measurement instruments. Ary et al (2010:236) defines reliability as the degree of consistency with which an instrument measures whatever it is measuring. Thus, it can be said that a reliable test is consistent and dependable.

To know how far the reliability of the instrument, the researcher made test to be tried out to students before giving pretest and posttest. In this research, the writer uses inter rater reliability where the result of the test was scored by two scorers or two raters to get reliability coefficient. Then, the two sets of scores gotten from the two raters are calculated to get the correlation coefficient. Finally,

SPSS 16.0 for windows program is used to compute the reliability of instruments.

Here the result of try out test:

Table 3.5 and 3.6 The Statistical Correlation of *Person Product Moment* from IBM SPSS Statistical 16.0

Table 3.7 Reliability of Pretest

		Correlations	
		rater1	rater2
rater1	Pearson Correlation	1	.854**
	Sig. (2-tailed)		.000
	N	36	36
rater2	Pearson Correlation	.854**	1
	Sig. (2-tailed)	.000	
	N	36	36

** . Correlation is significant at the 0.01 level (2-tailed).

Table 3.8 Reliability of Posttest

		Correlations	
		rater1	rater2
rater1	Pearson Correlation	1	.821**
	Sig. (2-tailed)		.000
	N	36	36
rater2	Pearson Correlation	.821**	1
	Sig. (2-tailed)	.000	
	N	36	36

** . Correlation is significant at the 0.01 level (2-tailed).

Table 3.5 shows that Pearson Correlation of both rater 1 and 2 were 0.854. Meanwhile, table 3.6 shows that Pearson Correlation of both rater 1 and 2 were 0.821. In this case, if the Pearson Correlation was closer to +1, it can be said has

strong correlation. Based on the both of table above, the result is closer to +1, so the data has strong reliability. It can be concluded that it is reliable.

F. Normality and Homogeneity Testing

1. Normality

Normality test uses to know whether that the data is in normal distribution or not. The main reason of conducting normality testing in a research is to know that the population or data involved in the research is in normal distribution. The normality test can be found by using *One-Sample Kolmogorov-Smirnov* formula and computed using SPSS 16.0. The distribution of data is normal if $\text{Asymp.Sig} > 0.05$. But if $\text{Asymp.Sig} < 0.05$, the distribution of data is not normal.

2. Homogeneity

Homogeneity testing is conducted to know whether the sample data has a homogeneous variance or not. The computation of homogeneity testing by using *SPSS Statistics 16.00* is *Test of homogeneity of Variance* by the value of significance = 0.05. There is also certainty in taking decision or homogeneity testing, as follow:

The value of significance is higher than 0.05, it means that the data of sample has same variance.

G. Data Collection Method

Collecting data means identifying and selecting individuals for a study, obtaining their permission on the study them and gathering information by asking

people questions or observing their behavior (Creswell, 2012:9). The data collection method in this research was done in three steps:

1. Pre-test

Pre-test refers to a measure or test given to the subject prior to the experimental treatment. This aims to know the basic competence and their earlier knowledge before they get the treatment in writing recount text. At the first meeting, the researcher gave pre-test to the students. It was done on Friday, March 5th 2018. The pre-test is writing in form of recount text with the theme “First Day in Senior High School” that decided by the researcher. It was conducted to know the students’ score in writing.

2. Treatment

After administering pre-test, the researcher gave the treatment to the students. The treatment was done in 4 times exactly on March 9th until 19^h 2018. The researcher applied the treatment by using project based learning in writing recount text. Firstly, the researcher introduced about project based learning and how to apply it on the writing project as the task. Then, the students do the task using project based learning as the teacher’s explanation. Here the steps of the treatment.

Table 3.9 Steps the Treatment of PjBL

First treatment on March, 9th 2018

Aspect	Teachers’ activity	Students’ activity
Pre-activity	<ul style="list-style-type: none"> • Greeting • Check the attendance 	<ul style="list-style-type: none"> • Give response of greeting

	<ul style="list-style-type: none"> • Give the stimulation for students with the questions 	<ul style="list-style-type: none"> • Answer the questions
Whilst-activity	<ul style="list-style-type: none"> • Give the example and explain of recount text, generic structure, language feature of recount text to the students. • Introduce PjBL and give the example of project they will do that is scrapbook. • Divide the students into 6 groups that each group consists of 5-6 students. • Explain the topic of project about best moment which students have. • Ask students to write a draft of recount text about that topic. 	<ul style="list-style-type: none"> • The students discuss together about the generic structure, grammar, and language feature of recount text. • Pay attention and give the response of the explanation. • The students divided into 6 groups. • Agree with the project and design a plan for scrapbook project. • Start to write a recount text about their best moment.
Post-activity	<ul style="list-style-type: none"> • Give the conclusion about the lesson. • Closing. 	<ul style="list-style-type: none"> • Concluded the lesson. • Give response of closing.

Second treatment on March, 12th 2018

Aspect	Teachers' activity	Students' activity
Pre-activity	<ul style="list-style-type: none"> • Greeting • Check the attendance • Ask students to sit with their group. • Ask students to prepare the materials and tools that use to do the project 	<ul style="list-style-type: none"> • Give response of greeting • Gather with the group. • Prepare all the materials and tools.
Whilst-activity	<ul style="list-style-type: none"> • Ask the students to finish their project. • Guide and monitor the students during the project. 	<ul style="list-style-type: none"> • Students with their group freely design the project based on their interest and put

		their recount text on scrapbook.
Post-activity	<ul style="list-style-type: none"> • Ask the students to submit their project and give feedback. • Inform and explain the next project. • Closing. 	<ul style="list-style-type: none"> • Submit the project. • Listen the explanation.

Third treatment on March, 16th 2018

Aspect	Teachers' activity	Students' activity
Pre-activity	<ul style="list-style-type: none"> • Greeting • Check the attendance • Ask students to sit with their group • Question and answer about the previous project 	<ul style="list-style-type: none"> • Give response of greeting • Students sit with their group • Answer the questions
Whilst-activity	<ul style="list-style-type: none"> • Ask the students to identify the generic structure of recount text in scrapbook. • Guide the students to write a recount text again with new topic about their last weekend. • Inform the students that they will make a new project, it is still scrapbook with different topic. 	<ul style="list-style-type: none"> • The students identify the generic structure of recount text that showed by teacher. • Write recount text about last weekend. • Design a plan for second scrapbook project with their group.
Post-activity	<ul style="list-style-type: none"> • Give the conclusion about the lesson. • Closing. 	<ul style="list-style-type: none"> • Concluded the lesson. • Give response of closing.

Fourth treatment on March 19th 2018

Aspect	Teachers' activity	Students' activity
Pre-activity	<ul style="list-style-type: none"> • Greeting • Check the attendance 	<ul style="list-style-type: none"> • Give response of greeting

	<ul style="list-style-type: none"> • Ask students to sit with their group. • Ask students to prepare the materials and tools that use to do the project 	<ul style="list-style-type: none"> • Gather with the group. • Prepare all the materials and tools.
Whilst-activity	<ul style="list-style-type: none"> • Ask the students to finish their project. • Guide and monitor the students during the project. 	<ul style="list-style-type: none"> • Students with their group freely design the project based on their interest and put their recount text on scrapbook.
Post-activity	<ul style="list-style-type: none"> • Ask the students to submit their project and give feedback. • Inform and explain the next project. • Closing. 	<ul style="list-style-type: none"> • Submit the project. • Listen the explanation. • Give the response of closing.

The complete steps of Project Based Learning can be seen in lesson plan in appendix 5.

3. Post-test

The last method used to collect the data was administering post-test. The post test was doing to the group after the treatment. It was done on March 26th 2018. The purpose of administering post-test in this study is to observe and measure any changes of the students writing ability after being taught by using Project Based Learning. In the post-test, the researcher asked the students to write a recount text about “Unforgettable Experience”. The post-test has done to get writing score of students after they got the treatment.

H. Data Analysis

Data analysis is the way data analyzed by the researcher. In managing and analyzing the data collected, the researcher use quantitative data analysis by using statistical technique. Analyzing data is a process of analyzing the acquired from the result of the research. The data which is needed in this research have been collected in writing recount form. To analyze the data, the researcher used Paired Samples Test in IBM Statistics 16.0.

I. Hypothesis Testing

The hypothesis of this study is as follows:

- a. If the significant value is smaller than significance level (0.05), the alternative hypothesis (H_a) is accepted and the Null Hypothesis (H_o) is rejected. It means that there is no different score between use Project Based Learning and do not use Project Based Learning towards students' achievement in writing.
- b. If the significance value is bigger than significance level (0.05), null hypothesis (H_o) is accepted and the alternative hypothesis (H_a) is rejected. It means that there is different score between use Project Based Learning and do not use Project Based Learning towards students' achievement in writing.