

CHAPTER III

RESEARCH METHODOLOGY

This chapter will discuss about the method used by the researcher in conducting this research. The discussion will cover research design (a), population and sample (b), research variable (c), research instruments (d), validity and reliability testing (e), Normality Testing (f), data collecting methods (g), and data analysis (h).

A. Research Design

Research is a process of steps used to collect and analyze information to increase our understanding of a topic or issue (Creswell, 2012:3). Research design was a strategy or way to arrange the setting of the research in order to get valid data. In this research, the researcher used experimental design.

The type of experimental design in this research was pre-experimental classified into one-group pretest-posttest design with quantitative approach. It was because it only had one group as both the control and the experimental groups. Therefore, in one group pretest-posttest design, a single group was observed not only after being given by a treatment, but also before. The experimental group would be conducted by using pretest before treatment and posttest for the result of treatment as instrument to collecting data.

According to Ary *et al* (2010: 304), the test illustration of one-group pretest-posttest design can be seen at table 3.1.

Table 3.1 The Test Illustration of One Group Pretest and Posttest Design

Pre-test	Independent variable	Post-test
Y_1	X	Y_2

The procedures of the pre-experimental research with one-group pretest-posttest design in this research were described as follows:

1. Administering a pretest (Y_1) which proposed to measure students' grammar achievement before given a treatment.
2. Applying an experimental that was using matching game (X) to teach grammar focused on simple past tense.
3. Administering a posttest (Y_2) which proposed to measure students' grammar achievement after given a treatment.

In this research, the researcher wanted to know the effectiveness of matching game towards students' grammar achievement at the eighth grade of MTs Manba'ul 'Ulum Buntaran Rejotangan Tulungagung. The effectiveness was known after finding out significant difference between the student grammar scores before and after being taught by using matching game. The significant difference was found out by comparing pretest and posttest scores.

B. Population and Sample

A population is defined as all members off any well-defined class of people, event, or object (Ary *et al*, 2010: 148). It means that population is all subjects of the research. The population of this research was the eighth grade

at MTs Manba'ul 'Ulum Buntaran Rejotangan. The total students of eighth grade at MTs Manba'ul 'Ulum Buntaran Rejotangan was 25 students into 1 class. Because in this school only have one class of the eighth grade, so this all the population was taken as the subject of the research consisting of 25 students. In other words, the present research was a population research. Thus in this research, the researcher took the eighth grade as a sample consists of 25 students at MTs Manba'ul 'Ulum Buntaran Rejotangan. The group of sample was as the control and experimental group.

C. Research Variables

A variable is everything that will become that object of research or the influencing factors that will be studied. Variable is everything to which the researcher expects to find the answer (Arikunto, 2013:159). The variables examined in this experimental research were two classifications, they were:

1. Independent variable

Independent variable is called causing variable (Arikunto, 2013:162). In this research, the independent variable is the use of matching game.

2. Dependent variable

Dependent variable is affected variable (Arikunto, 2013:162). In this research, the dependent variable is students' grammar achievement in simple past tense.

D. Research Instrument

Research instrument is the tool of collecting data that should be valid and reliable. The instrument of this research was test. According to Ary, *et al*

(2010: 201), “test is a set of stimuli presented to individual in order to elicit responses on the basis of which a numerical score can be assigned”. The type of test used in this research was achievement test. “Achievement test is used to measure what individual students, group of students or the courses themselves have been in achieving objectives” (Ary *et al*, 2010: 201). It means that the test has to represent the structure or skill that will be tested and it appropriate to the grade of the students that will be tested.

In constructing the test to test the students in pretest and posttest, the researcher had looked at the module that was used by the eighth grade of MTs Manba’ul ‘Ulum Buntaran in the second semester and consulted the test to English teacher who handled the eighth grade. Not only consulted to the teacher, the researcher also consulted to the expert lecturer of IAIN Tulungagung who competent in grammar lesson. After getting the agreement of teacher and expert lecturer, the researcher tried out the test for 12 students at January, 14th 2016 in LBB ALBHA Rejotangan before conducting the real pretest and posttest to know the reliability of instruments.

As stated previously, there were two types of the test in this research, they were pretest and posttest. The test consisted of 25 questions in multiple choices and the researcher allocated time was 35 minutes for each test in this tryout. After conducting the tryout and getting the reliability of the tests, the researcher used these tests as appropriate instrument to measure student’s achievement in simple past tense in pretest and posttest.

E. Validity and Reliability Testing

Test is a process of measuring student's knowledge and abilities of the students, so the researcher should made a good test. A good test must fulfill and consider standardized of test itself. Measuring a good test, there were some aspects to make a good test, those were: validity and reliability.

1. Validity

Validity was defined as the extent to which an instrument measured what it claimed to measure. The focus of recent views of validity was not on the instrument itself but on the interpretation and meaning of the scores derived from the instrument (Ary *et al*, 2010:225). To measure whether the test has a good validity, the researcher analyzed the test from content validity and constructs validity.

a. Content validity

Content validity was about what actually goes into the test. The basic approach to determining content validity was to have teacher or subject matter expert examine the test and judge whether it was an adequate sample of the content and objectives to be measured (Ary *et al*, 2010: 235). It means that the test will have content validity if it include a proper sample of the structure or content which relevant with the purpose of the test. It was obvious that grammar test must be made up of items testing knowledge of grammar.

Thus, content validity was the correspondence between curriculum objectives and objectives being assessed. The instrument of

this research had a content validity because the test was designed based on Standard Competence – Basic Competence in KTSP 2006 arranged on test specification, which were:

Standard Competence:

11. Understand the meaning of simple short essay in the form of recount and narrative to interact with the surrounding environment.
12. Express the meaning of the functional written text and simple short essay in the form of recount and narrative to interact with the surrounding environment

Table 3.2 Test Specification of Pretest and Posttest

Basic Competence	Indicator	Test Description	No. items	
			Pretest	Posttest
11.3. Response the meaning and rhetorical stages of a simple short essay accurately, fluently, and appropriately to interact with the surrounding environment in the form of recount and narrative.	11.3.1. Identify the language features of functional text	a. Determine the verb of a sentence (nominal or verbal) appropriate the rule of simple past tense.	1, 2, 3, 4, 5, 6, 15, 16, 19, 20, 21, 22 and 23.	3, 4, 5, 6, 7, 8, 9, 10, 16, 17, 18, 19, 20, and 23.
		b. Complete a dialogue with an appropriate verb of simple past tense.	14, 17, 18, and 25	1, 22, 23, and 24
	11.3.3. Identify the rhetorical stages and characteristics of language features in recount text.	a. Complete a letter or a paragraph with an appropriate verb of simple past tense and the context.	8, 9, 10, 11, and 12.	11, 12, 13, 14, and 15.

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Basic Competence	Indicator	Test Description	No. items	
			Pretest	Posttest
12. 2. Express the meaning and rhetorical stages of a simple short essay using a variety of written language accurately, fluently, appropriately to interact with the surrounding environment in the form of recount and narrative.	1.2.1. Write a simple short recount text with the correct rhetorical stages.	a. Arrange random words to be a good sentence appropriate the rule of simple past tense.	7 and 13	2 and 21
		c. Arrange random sentences to be a good paragraph recount appropriate the context.	24	25

b. Construct Validity

Testing technique is said to have construct validity, if it can be demonstrated that it measures just the ability which it is supposed to measure (Hughes, 1989:26). Language testing used in this research was appropriate with the theory of testing grammar. In this research, testing grammar used multiple choices. It is the test-takers task to identify the correct or most appropriate option (Hughes, 1989:59), one of example:

1. *My Father a letter for me but I can't find it.*

a. *Writes*

c. *Writer*

b. *Wrote*

d. *Writing*

Multiple choice test technique has some advantages. The most obvious advantages was that scoring could be perfectly reliable it was possible to include more items than other form of tests since the test takers have only to make a mark on the paper. The multiple choice test consists of 25 questions for each test.

2. Reliability

Ary *et al* (2010:236) defined “the Reliability of a measuring instrument is the degree of consistency with which it measures whatever it is measuring”. Reliability was concerned with the extent to which the measured would yield consistent results each time it was used. To have the reliable test, the researcher was conducting the tryout of both tests: pre-test and post-test. After conducting the try out, the researcher got score to be analyzed to know the reliability of pretest, which were:

Table 3.3 List Scores of Tryout Pre-Test

No.	Students	Score of tryout pretest
1.	T1	36
2.	T2	56
3.	T3	44
4.	T4	44
5.	T5	40
6.	T6	80
7.	T7	88
8.	T8	48
9.	T9	52
10.	T10	16
11.	T11	52
12.	T12	28

Based on table 3.3, the researcher analyzed each item’s answer of pretest with give point 1 for correct answer, and point 0 for incorrect

answer, then used it to analyze the reliability by using Microsoft excel to computation Kuder Richardson Formula or KR-20, “it is based on the proportion of correct and incorrect responses to each of the items on a test and the variance of the total scores” (Ary *et al*, 2010:245). Then, the researcher got value of coefficient reliability was 0.8 for tryout pre-test instrument.

After conducting the try out, the researcher also got score to be analyzed to know the reliability of posttest, which were:

Table 3.4 List Scores of Tryout Post-Test

No.	Students	Score of tryout posttest
1.	T1	36
2.	T2	56
3.	T3	48
4.	T4	44
5.	T5	40
6.	T6	84
7.	T7	92
8.	T8	48
9.	T9	52
10.	T10	20
11.	T11	60
12.	T12	32

Based on table 3.4, the researcher analyzed each item’s answer of posttest with give point 1 for correct answer, and point 0 for incorrect answer, then used it to analyze the reliability by using Microsoft excel to computation Kuder Richardson Formula or KR-20. Then, the researcher got value of coefficient reliability was 0.85 for tryout post-test instrument.

Ary *et al* (2010: 241) said “if the reliability coefficient is near 1.00, the instrument has relatively little error and high reliability”. From this

statement, it showed that both instrument in pre-test and post-test was reliable, so it could be used as appropriate instrument to measure student's achievement in simple past tense without need any revising.

F. Normality Testing

Normality testing was needed to find out whether the data was in normal distribution or not. Priyatno (2011, 77) told that "the normality of data is important because the data can be considered to represent the population when it is in normal distribution". Therefore, the researcher intended to test the normality of the data by using SPSS 16.0 with *One Simple Kolmogorov-Smirnov* method. The normality testing was done towards the pretest and posttest scores.

The hypotheses for testing normality were:

- a. H_0 : Data is in normal distribution
- b. H_a : Data is not normal distribution

The hypotheses for normality testing explain that the data is normal distribution if H_0 is accepted and the data is not in normal distribution if H_a is accepted. The H_0 is accepted when the significance value is higher than 0.05 ($\alpha = 5\%$), while H_0 is rejected when the significance value is lower than 0.05 ($\alpha = 5\%$). The researcher calculated normality of test by using SPSS 16.0 and the result for normality testing can be seen as follows.

Table 3.5 the result of pretest and posttest in normality testing

One-Sample Kolmogorov-Smirnov Test		Unstandardize d Residual
N		25
Normal Parameters ^a	Mean	.0000000
	Std. Deviation	10.06572468
Most Extreme Differences	Absolute	.142
	Positive	.088
	Negative	-.142
Kolmogorov-Smirnov Z		.708
Asymp. Sig. (2-tailed)		.698
a. Test distribution is Normal.		

Based on the output of *One Sample Kolmogorov-Smirnov* test in SPSS 16.0 at table 3.5 above, it was known that the significance value was 0.7. As stated previously, the hypotheses for normality testing explained that the data is normal distribution if H_0 is accepted and the data is not in normal distribution if H_a is accepted. The H_0 is accepted when the significance value is higher than 0.05 ($\alpha = 5\%$), while H_0 is rejected when the significance value is lower than 0.05 ($\alpha = 5\%$). Based on the data above, the significance value was 0.7 and it was higher than 0.05 ($0.7 > 0.05$). It means that H_0 was accepted and H_a was rejected. It could be interpreted that the data was in normal distribution. From the interpretation above, it could be concluded that the instruments in this research were in normal distribution.

G. Data Collecting Method

Data collecting method was the method to obtain data. Data of this research was collected by administering test. The data was collected by using two grammar tests; pre-test and post-test. The technique of collecting the data was clarified as follows:

1. Pretest

“A pretest provides a measure on some attribute or characteristic that you assess for participants in an experiment before they receive a treatment” (Creswell, 2012: 297). At first meeting, the researcher gave pretest to the 25 students of experimental group to measure their ability before treatment process. This test was given to know how far the students’ ability in the simple past tense. It determined the readiness for instructional program, and to diagnosed individual’s specific strengths and weakness in the simple past tense. This test consists of 25 questions in multiple choices related with simple past tense. Time location of the test was 45 minutes. The pretest was conducted on Thursday, February 11st 2016.

2. Posttest

“A posttest is a measure on some attribute or characteristic that is assessed for participants in an experiment after a treatment” (Creswell, 2012: 297). Posttest was also given for 25 students of experimental group. The researcher conducted post-test after conducting the teaching grammar through matching game as the treatment in the eighth grade. It was done in

order to know the student's development in the simple past tense after having the treatment. The posttest was in multiple choices related with simple past tense that consists of 25 questions. Time allocation was 45 minutes. The post-test was held on Monday, February 29th 2016.

Since the data was in students' ability in the simple past tense, the data was collected by using two grammar tests: pre-test and post-test. In this research, the researcher used tests before and after being taught by using matching game to measure the students' grammar ability especially in simple past tense. The test was given through an activity in doing exercises related with simple past tense in multiple choices. The both student's score from pretest and posttest were analyzed to know their ability whether experimental class which was conducted a treatment has a significant score or not.

H. Data Analysis

In this research, the researcher used a quantitative data analysis technique using statistical method. This technique was used to find the significant difference on the students' scores before and after being taught by using matching game. To know the effectiveness of matching game in teaching grammar, the data was collected from students' scores in pretest and posttest. Then, the data which was gained from those two tests was analyzed by using *Paired Samples T-test* at SPSS 16.0. *Paired Samples T-test* was used when the samples are paired or correlated where each individual results in two data. In other words, the scores for pretest and posttest were correlated because those scores were got by one individual..

