

CHAPTER III

RESEARCH METHOD

This chapter discussed sources of data, subject and setting of research, variable of research, research design, instruments, and procedures of experimentation, scoring technique, and method of data analysis.

A. SUBJECT OF THE STUDY

This study was conducted in SMP Negeri 01 Mlonggo Jepara located at Jalan Jepara-Bangsri Km. 7 Kode Pos 59453. The subjects of this study were the eighth grade students of SMP Negeri 01 Mlonggo Jepara in the academic year of 2010/2011. This study was conducted in first semester. Due to limitation of time, the writer did not take all students as the subjects of the study, but drew a sample.

1. Population

“Population is the entire research subject”.¹ The population of the research was the eighth grade students of SMP Negeri 01 Mlonggo Jepara in the academic year of 2010/2011 which consisting of seven class. Each class consists of thirty nine and forty students. The total population was 275 students.

2. Sample

“Sample is a part of population to be researched”.² “Sample is a subset of individuals from a given population”.³ Sample must be reflective with the true example in the field. Because the population of the study is very big, the researcher did not take all the subject of the population. The researcher took some subjects from the population. The research is an experimental research, so the researcher needs to take two classes that will be an experimental and control class as the sample from seven classes of

¹Suharsimi Arikunto, *Prosedur Penelitian: Suatu Pendekatan Praktek*, (Jakarta: Rineka Cipta, 2006), p. 130.

²*Ibid.*, p. 131.

³David Nunan, *Research Methods in Language Learning*, (New York: Cambridge University Press, 1992), p. 27.

the population. To determine the two classes, the researcher used purposive sampling technique. According to Suharsimi Arikunto “sample was done by taking the subject/sample which is not based on strata, random or area but it is based on the consideration of a certain purpose”.⁴ The consideration that the researcher tried to complete in preliminary research was the sample that will be chosen has to be homogeny, so that the research will be a good and valid research. Because we know that something that can be compared is something that has the similar characteristic. The researcher took class VIII A and VIII B, because based on the result of the pre test, these two classes gained similar average achievements and considered as homogeneous class. Each class consisted of 40 students. Students in class VIII A was taught by using matching game and considered as experimental group. While students in class VIII B was taught without using matching game and considered as control group.

B. SETTING OF THE STUDY

This research was conducted on the first semester in the academic year of 2010/2011 for about 21 month began from November 03rd up to November 24th 2010. It was conducted in SMP Negeri 01 Mlonggo Jepara located at Jalan Jepara-Bangsri Km. 7 Kode Pos 59453.

C. VARIABLE OF RESEARCH

Variable refers to the object of the research that becomes the research focus. According to Suharsimi Arikunto “variable is a variation object of the study. There are two types of variables: dependent variable (y) and independent variable (x). The dependent variable is the variable of focus or the central variable on which other variables will act if there is any relationship. The independent variable is selected by researcher to determine the relationship with the dependent variable”.⁵ So, the variables in this study are:

⁴Suharsimi Arikunto, *op.cit.*, p. 139

⁵Suharsimi Arikunto, *op.cit.*, p. 118-119.

1. Independent Variable (x).

According to David Nunan “independent variable is variable that the experimenter expects to influence the other”.⁶ Independent variable in this research is the use of matching game in teaching irregular simple past tense.

2. Dependent Variable (y).

“Dependent variable is the variable upon which the independent variable is acting”.⁷ Dependent variable in this study is the irregular simple past tense achievement score of students at the eight grade of SMP Negeri 01 Mlonggo Jepara.

D. RESEARCH DESIGN

The research in this study used quantitative method that is a numerical method of describing observations of materials or characteristics. Research design played an important role in a research because the quality of research greatly depended on the design. According to David Nunan, “quantitative research is obtrusive and controlled, objective, generalisable, outcome oriented, and assumes the existence of ‘facts’ which are some how external to and independent of the observer or researcher”.⁸

In this term of quantitative data, the statistical analysis was used to calculate the numeral data that was gathered and to analyze them by use of correlation analysis.

1. Experimental Research

According to Brown as quoted by Nunan “experimental research should exhibit several key characteristics”.⁹ It should be systematic, logical, tangible, replicable, and reductive. “Experiment is designed to collect data in such a way that threats to the reliability and validity of the research are minimized”.¹⁰ An experimental research involved two groups:

⁶David Nunan, *op. cit.*, p. 25.

⁷*Ibid.*

⁸*Ibid.*, 3.

⁹*Ibid.*, p. 9.

¹⁰*Ibid.*, p. 47.

experimental group and control group. The experimental and control group are consisting of eight grade students of SMP Negeri 01 Mlonggo Jepara. An experimental group received a new treatment while control group received a usual treatment. This study used pre-test and post-test.

The design of the experiment could be described as follows:

$$\begin{array}{c} E\ 01\ X\ 02 \\ \hline C\ 03\ Y\ 04 \end{array}$$

Adopted from Arikunto.¹¹

Where:

E = experimental group

C = control group

01 = pre-test for experimental group

02 = post test for experimental group

03 = pre-test for control group

04 = post test for control group

X = treatment by using role play

Y = treatment without using role play

From the design above, subjects of research were grouped into an experimental group (top line) and a control group (bottom line). The quality of subjects was first checked by pre-testing them (01 and 03). Then, the experimental treatment (taught by using matching game) was applied to the experimental group, while the control group was taught without matching game. The test was held in the form of conversation. The results of post-test (02 and 04) were then computed statistically.

Activities should be conducted in experimental and control class as follows:

¹¹Suharsimi Arikunto, *op, cit.*, p. 86.

a. The Activities of Experimental Group

1) Pre-test

Pre-test was given before the treatments. First, the writer came to the class. Then, he explained to the students what they had to do. Finally, she distributed the instruments and asked them to do the test.

2) Activities in Experimental Group

There were some activities in experimental group (Class VIII B) as follows:

No	Activities	Time Allotment
1	1) Teacher warms up students' mind by asking question related with the material, for example: Did you have an interesting experience in your live? Can you tell me? 2) Teacher shows an example of about simple past tense (verbal sentences, irregular form). 3) Teacher and students discuss together. 4) Teacher gives explanation about irregular simple past tense (verbal sentence) 5) Teacher shows a recount text. 6) Teacher divides students in pair. 7) Teacher asks the students to write their interesting experience (under teacher controlled). 8) Teacher chooses two students to tell about their experience in front of class.	2x40'

2	<ol style="list-style-type: none"> 1) Teacher divides students to be eight groups and every group consists of five students 2) Teacher introduces making a match game to the students. 3) Teacher explains what making a match game is? and how to play?. 4) Teacher distributes the cards to the students. 5) Teacher asks the students perform the mathing game in front of the class in turn. 	2x40'
3	<ol style="list-style-type: none"> 1) Teacher divides students to be eight 2) groups and every group consists of five students 3) Teacher introduces making a match game to the students. 4) Teacher explains what making a match game is? and how to play?. 5) Teacher distributes the cards to the students. 6) Teacher asks the students perform the mathing game in front of the class in turn. 	2x40'

3) Post-test

Post-test was held after all treatments were conducted. This test was used to measure students' achievement after they were given treatments. The result of test was analyzed statistically.

b. The Activities of Control Group

1) Pre-test

Pre-test was given before the treatment. First, the writer came to the class. Then, he/she explained to the students what they had to do. Finally, he distributed the instruments and asked them to do the test.

2) Activities for control group

There were some activities in control group (class VIII B) as follows:

No	Activities	Time Allotment
1	1) Teacher explains about irregular simple past tense to the students 2) Teacher explains how to make sentences of irregular simple past tense. 3) Teacher invites students to make sentences of irregular simple past tense.	2x40'
2	1) Teacher gives explanation about irregular simple past tense (verbal sentences). 2) Teacher asks the students to write their unforgettable experience in their book. 3) Teacher chooses one of the students to be volunteer read their experience in front of class. 4) Teacher asks the students to listen and identify the irregular verbs based on their friends' experience correctly. 5) Teacher gives assignment about irregular simple past.	2x40'

3	<ol style="list-style-type: none"> 1) Teacher gives explanation about irregular simple past tense (verbal sentences). 2) Teacher asks the students to write their unforgettable experience in their book. 3) Teacher chooses one of the students to be volunteer read their experience in front of class. 4) Teacher asks the students to listen and identify the irregular verbs based on their friends' experience correctly. 5) Teacher gives assignment about irregular simple past. 	2x40'
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3) Post-test

Post-test was held after all treatments were conducted. This test was used to measure students' ability after they were given treatments. The result of test was analyzed statistically

E. METHODS OF DATA COLLECTION AND ANALYSIS

1. Source of Data

The data of this research were gathered from the written test of students' in pre-test and post-test through matching game to improve students' understanding on irregular simple past tense and the documentation of students' previous summative test score.

2. Methods of collecting data

a. Test

“Test is an instrument to collect the data that gives response about the question in the instrument, and the students have to show their ability”.¹² The participants of this research are students of grade

¹²Purwanto, *Evaluasi Hasil Belajar*, (Yogyakarta: Pustaka Belajar, 2009), p. 65.

eight of SMP Negeri 01 Mlonggo Jepara. The research used matching game technique with flash card as the media in teaching irregular past tense. The purposes of the test were to know students' achievement in grammar. There are two kinds of test, pre test and post test that were given to the students as participants, either the experimental or the control group. Before carrying out the teaching, the pre test was given to both groups to make sure that two groups had similar and equal level proficiencies. The post test was given to the experimental group after being taught using the matching game and was given to the control group being taught using the conventional technique.

b. Documentation

Another data is needed to help the researcher run the research. In addition to do that, data will be collected through documentation of the students' previous examination score from the school. It will be used to validate the sample. "Documentation is anything printed, written, etc., upon to record or prove something".¹³

The researcher function the document related to the object research such as students' name list and the English subject schedule. The instruments here are documents. Documents are used to get the information about the students' achievement there.

3. Scoring Technique

To score the test paper, the writer used analytic scale which categorized by some categories. O'Malley and Pierce stated that "analytic scale separates the features of a composition into components that are each scored separately".¹⁴ This analytic score has five items and each item scores five. So, the maximum score is 25. The items are:

¹³David B. Guralnik, *Webster's New World Dictionary of The American Language*, (New York: Warner Books, 1983), p, 182.

¹⁴J. Michael O'Malley and Lorraine Valdez Pierce, *Authentic Assessment for English Language Learners*, (London: Longman, 1996), p.144.

a. Grammar

Scott Thornbury said that “grammar is a description of the rules for forming sentences, including an account of the the meanings that these forms convey”.¹⁵

b. Vocabulary

Vocabulary plays important role in writing; it is the basic thing that should be owned by students. The lack of vocabulary means the failure in the communication. Students cannot make a communication especially in writing if they master little vocabulary.

c. Mechanics

Mechanic is connecting with the appropriate punctuation or spelling that is used in writing. Mechanic will make students’ writing well and reasonable to be read. The examples of mechanic are capital letter, quotation, comma, semicolon, and others.

d. Relevance

It contains reasonable sentences (supporting sentences) that support to the main idea. If students write paragraph without state the main idea, the reader will confuse to decide the main topic of the text.

e. Fluency (style and ease of communication)

Fluency refers to the sentences that flow easily and not too hard to understand by audiences (readers). If the writer uses strange vocabulary, the readers will confuse what the purpose of writing.

Analytic scoring of writing could be seen on the following figures:

Writing Component	Score	Description
Grammar	5	Mastery of grammar taught on course – only 1 or 2 minor mistake.
	4	A few mistakes only (prepositions, articles, etc.)

¹⁵Scott Thornbury *How to Teach Grammar*, (England: Pearson Education Limited, 1999), p. 13.

	3	Only 1 or 2 major mistakes but a few ones.
	2	Major mistakes, which lead to difficulty in understanding, lack of mastery of sentence construction.
	1	Numerous serious mistakes – no mastery of sentence construction – almost unintelligible.
Vocabulary	5	Use of wide range of vocabulary taught previously.
	4	Good use of new word acquired – fairly appropriate synonyms, circumlocution.
	3	Attempts to use word acquired – fairly appropriate vocabulary on the whole but sometimes restricted – has to resort to use of synonyms, circumlocution, etc., on few occasions.
	2	Restricted vocabulary – use of synonyms [but not always appropriate] imprecise and vague-affect meaning.
	1	Very restricted vocabulary-inappropriate use of synonyms seriously hinders communication.
Mechanic	5	No errors.
	4	1 or 2 minor errors only [e.g. ei or ie].
	3	Several errors – do not interfere significantly with communication – not too hard to understand.
	2	Several errors – some interfere with communication – some words very hard to recognize.
	1	Numerous errors – hard to recognize several words – communication made very difficult.

Relevance	5	All sentences support the topic – highly organized – clear progression of ideas well linked educated native speaker.
	4	Ideas well organized – links could occasionally be clearer but communication not impaired.
	3	Some lacks of organization – rereading required for clarification ideas.
	2	Little or no attempts at connectivity – though reader deduces some organization – individual ideas may be clear but very difficult to deduce connections between them.
	1	Lack of organization so severe that communication is seriously impaired.
Fluency	5	Flowing style – very easy to understand – both complex and simple sentences – very effective.
	4	Quite flowing style – mostly easy to understand a few complex sentences – very effective.
	3	Style reasonably smooth – not too hard to understand mostly [but not all] simple sentences – fairly effective.
	2	Jerky style – an effort needed to understand and enjoy – complex sentences confusing – mostly simple sentences or compound sentences.
	1	Very jerky – hard to understand can not enjoy reading – almost all simple – complex sentences confusing – excessive use of “and”.

Based on Heaton’s grid as cited by Rahmawati.¹⁶

¹⁶Rahmawati, *Using Animatd Film (Fairy Tale) as Means of teaching Narratives (Case Study: Year Eleven Students of SMAN 8 Semarang in the Academic Year 2006/2007)*, (Semarang: UNNES, 2006), p. 73.

4. Methods of Data Analysis

There are three kinds of test that will be held in experimental research, they are pre-requisite test, try-out test, and hypothesis test. So there must be three process of analyzing the data collected from test.

1. Pre-requisite Test

Before the writer determines the sample, the writer should conduct a homogeneity test by choosing 2 classes with cluster random sampling. This test conducted to determine whether the data are homogenous or not. After conducted the test, data analysis was carried out to find out the homogeneity of the sample. It was meant to check if the research result met the requirement of good research or not.

It was meant to get the assumption that sample of research came from a same condition or homogenous. The writer used the formula as follows:

$$F = \frac{\textit{Biggest Variance}}{\textit{Smallest Variance}}$$

Cited from Sugiono.¹⁷

2. Try out Test

Before doing the experiment, the researcher did a try out. This is aimed at reassuring that the writing test is valid in measuring student's writing ability, in addition to trying out the assessments of the students gain the cooperation of grade-level teachers in trying them out of the same grade level.¹⁸ The instrument to be tried out was the composition test. The result of test was used to find out the validity and reliability.

¹⁷Sugiyono, *Statistika Untuk Penelitian*, (Bandung: Alfabeta, 2007), p. 140.

¹⁸Michael O'malley and Pierce, *op, cit.*, p. 19.

3. Validity

Arthur Hughes states that “a test is said to have validity if it looks as if it measures what it is supposed to measure ”.¹⁹ The result was consulted to critical score for r-product moment. If the obtained coefficient of correlation was higher than the critical score for r-product moment, it meant that a paragraph was valid at 5% alpha level significance.

To calculate the validity, the writer used the formula as follows:

$$r_{xy} = \frac{N \sum XY - (\sum X)(\sum Y)}{\sqrt{\{N \sum X^2 - (\sum X)^2\} \{N \sum Y^2 - (\sum Y)^2\}}}$$

Cited from Arikunto.²⁰

Where:

r_{xy} = the correlation of the scores on two halves of the test

N = the number of the students in each group

X = the score of each component of writing scoring

Y = the sum of all dialogue's score

$\sum X$ = the sum of total X score in each group

$\sum Y$ = the sum of total score from each student

$\sum XY$ = the sum of multiple score from each student with the total score

$\sum X^2$ = the sum of the square score in each component of writing

$\sum Y^2$ = the sum of all dialogue's score square

¹⁹Arthur Hughes, *Testing for Language Teacher*, (Usa: Cambridge University Press, 2003), p. 33.

²⁰Suharsimi Arikunto, *op.cit.*, p. 170.

4. Reliability

Reliability refers to the stability or the consistency of the test scores. Michael O'malley and Pierce states that "reliability is the consistency of the assessment in producing the same score on different testing occasions or with different raters".²¹ In this study, the reliability of the test was measured by comparing the obtained score with r-score product moment. Thus, if the obtained score was higher than the table r-score, it could be said that the test was reliable.

To calculate the reliability of the test, the writer used the formula as follows:

$$r_{11} = \left(\frac{k}{k-1} \right) \left(1 - \frac{\sum \sigma_b^2}{\sigma_t^2} \right)$$

Cited from Arikunto.²²

Where:

r_{11} = index reliability

k = number of items

$\sum \sigma_b^2$ = items variance

σ_t = total variance

To find out the variance of each item, the formula was:

$$\sigma_b^2 = \frac{\sum X^2 - \frac{(\sum X)^2}{N}}{N}$$

To find out the total variance, the formula was:

$$\sigma_t^2 = \frac{\sum Y^2 - \frac{(Y)^2}{N}}{N}$$

²¹Michael O'malley and Pierce, *loc. cit.*

²²Suharsimi Arikunto, *op.cit.*, p. 196.

5. Item Analysis

After scoring the try-out test, item analysis was carried out to find out the effectiveness of the items. It was meant to check whether each item met the requirement of good test item or not. Item analysis discussed two main things:

a. Difficulty Level

Heaton states that “the index of difficulty of an item simply shows how easy or difficult the particular item proved in the test”.²³ If a teacher knows deeply about item difficulty in making a test, he can make his test easy, medium, or difficult.

To know the item difficulty, the writer used the formula:

$$P = \frac{B}{JS}$$

Where:

P = index of difficulty

B = the number of students who answer an item correctly

JS = the total number of students

The index of difficulty level can be classified as follows:

0.00 ≤ P < 0.30 is difficult

0.30 ≤ P < 0.70 is medium

0.70 ≤ P < 1.00 is easy

Cited from Sukestiyarno and Wardono.²⁴

b. Discriminating Power

Item of discrimination power tells how well the item performs in separating the better students from the poorer students. If the good students tend to do well on an item and the poor students do badly on the same item, then the item is a good one because it distinguishes the good students from the bad students.

²³J. B. Heaton, *Writing English Language Test*, (London: Longman, 1975), p.172.

²⁴Sukestiyarno and Wardono, *Statistika*, (Semarang: UNNES Press, 2009), p. 63..

The discrimination index of an item indicated the extent to which the item discriminated between the testee, separating the more able testee from the less able. The index of discriminating power told us if students who perform well on the whole test tended to do well or badly on each item in the test.²⁵

To calculate the index of discriminating power, the writer used the formula:

$$D = \frac{B_A}{J_A} - \frac{B_B}{J_B} = P_A - P_B$$

Taken from Arikunto.²⁶

Where:

J_A = Number of all students in the upper group

J_B = Number of all students in the lower group

B_A = Number of students in the upper group who answered the item correctly

B_B = Number of students in the lower group who answered the item correctly

P_A = The proportion of the upper group who answered the item correctly

P_B = The proportion of the lower group who answered the item correctly

The criteria of determining the index of discriminating are below:

D = 0.00 – 0.20 : Poor

D = 0.21 – 0.40 : Satisfactory

D = 0.41 – 0.70 : Good

D = 0.71 – 1.00 : Excellent

²⁵J. B. Heaton, *op.cit.*, p.173.

²⁶Suharsimi Arikunto, *Dasar-dasar Evaluasi Pendidikan*, (Jakarta: PT. Bumi Aksara, 2002), p. 213.

6. Hypothesis Test

Firstly, the test was done in both groups, experimental and control group. Secondly, the result of the test was scored by using analytic scale. Thirdly, the means score of the two groups were determined. Finally, the two means were compared by applying t-test formula. T-test was used to differentiate if the students' result of students' understanding irregular simple past tense by matching game and without using matching game was significant or not.

$$t = \frac{\bar{x}_1 - \bar{x}_2}{s \sqrt{\frac{1}{n_1} + \frac{1}{n_2}}}$$

Where:

$$s = \sqrt{\frac{(n_1 - 1)s_1^2 + (n_2 - 1)s_2^2}{n_1 + n_2 - 2}}$$

Cited from Sudjana.²⁷

Where:

\bar{x}_1 = the mean score of the experimental group

\bar{x}_2 = the mean score of control group

n_1 = the number of the experimental group

n_2 = the number of the control group

s = standard deviation

s^2 = variance

If the obtained score was higher than t-table score by using 5% alpha of significance, H_0 was rejected. It meant that H_a was accepted: "There was a significant difference in writing achievement between the experimental and control group."

²⁷Sudjana, *Metode Statistika*, (Bandung: Alfabeta, 2007), p. 239.

F. Procedures and Timeline

1. The researcher asks permission the headmaster and English teacher at school (first week)
2. The researcher collects documentation such as list of participants' name and the previous writing score of the participant. (first week)
3. The researcher chooses two classes that will be the control and experimental class (first week)
4. The researcher conducts the try out for validating the instrument (second week)
5. The researcher conducts pre test for control and experimental class. (second week)
6. The researcher gives treatment two times a week in two weeks for experimental class. (second week)
7. The researcher conducts post test to give evaluation in control and experimental class. (third week)
8. The researcher analyzes the data collected from documentation, pre-test, and post-test. (third week)
9. The researcher concludes the research from the result of the data analysis. (third week)