CHAPTER III

METHOD OF THE RESEARCH

The aim of this study is to find out the effectiveness of mnemonic technique as teaching model to improve the students' mastery in tenses in this case past tense. To get the purpose of the study, the writer will apply experimental research as the research method. The quasi-experimental research with cluster random sampling will be carried out to be the design of the research method. In this case the writer will decide two classes and take one class as the control group and the other as the experimental group.

3.1. Research Method

In this research as previously mentioned, the writer chooses an experimental study, as it is appropriate with the title of the research. It means that the writer carries out some treatments to gain result of the research.

More over Leedy, P.D (1997) stated that experimental research is an attempt by the researcher to maintain control over all factors that may affect the result of an experiment. In doing this, the researcher attempts to determine or predict what may occur.

This research will be conducted based on quasi-experimental research. One of the most commonly used quasi-experimental designs in educational research is represented as:

X1e	T	X2e
X1c	O	X2c

X1e : students' score of experimental group in pre-test

X1c : students' score of control group in pre test

X2e : students' scoreof experimental group in post-test

X2c : students' score of control group in post-test

T : treatments using *mnemonic* technique

Two classes are taken as the investigated classes. One class is for the experimental class (EG) that will have some treatments in writing class by using *mnemonic* as teaching model, and another class is for the control class (CG) that will have some treatments in writing class by using conventional teaching model.

Both the experimental and control class are given the pre-test before treatment, it is used to find out the initial ability of the students of experimental and control group before treatment. In experimental group, mnemonic technique is given as a treatment to the student in the teaching learning process. While in control group, conventional technique (non-mnemonic technique) is given as treatment in teaching learning process. Next, after treatments in the experimental group are finished, both experimental and control group are given the post-test in order to find out the result of using mnemonic technique that could achieve a higher score than conventional teaching (non-mnemonic technique).

3.2. Research Variables

There are mainly two types of variables involved in this research, namely:

1. Dependent variable, that is the students' achievement on doing test.
2. Independent variable, that is the use of mnemonic technique of mastering tenses.

3.3 Research Hypothesis

Basically this research is begun with null hypothesis (ho) where both groups conducted; experimental and control group are similar:

Ho : $m\ experimental = m\ control$

It means that there is no difference between the experimental group and the control group in the mean adjustment level (Gerald kranzer and janet Moursund; 1999). Hatch and Farhady (1982) stated that whenever we hope that some techniques helped our simple so that they can perform better than the population from which they are selected, we use null hypothesis.

3.4 Data Collection

3.4.1 Population

Fraenkel and Wallen (1990:66) state that, "population is the group to which the results of the study are intended to apply". In other words, population is the group of interest to the researcher, the group to whom the researcher would like to generalize the result of the study. Irianto (1989:18) says that a population consists of

every number of group that researcher would like to study. The objects in a population are investigated, analyzed, concluded in such away and then the conclusion made is valid to the whole population.

The populations of this research are all the second year students of SMP N 19 Bandung enrolled in academic year 2010/2011 that spread into seven classes from VIII A – VIII G.

3.4.2 Sample

A sample is a group in research study on which information is obtained (Fraenkel and Wallen; 1990:66). They add that the sample is smaller than the population. A sample is a portion of a population that is selected for observation (Irianto, 1989:18). Representativeness of a sample determines the validity of the generalization of the result. This sample must have the characteristics that represent the whole population. A research according to Arikunto (1996; 120) may take 10-15% or 20-25% or more out of population. In this study, there were seven classes of the eeighth class of SMP N 19 Bandung. Each class consists of 40 students.

The researcher than decided to take eighty (60) students spread in to two classes consist of 30 students for each class, which are considered to be able to represent the population. Through randomly assigned, the sample of the research is VIII A which then becomes a control group and VIII B becomes an experimental group.

3.4.3 Research Instrument

According to Arikunto (2002 : 136) research instrument is a device used by the researcher while collecting data to make his work become easier and get a better result, complete and systematic in order to make the data easy to be processed. Thus, to gain the data related to the problem of the study, there are two kinds of instrument used to gather the data; (1) instrument for conducting the data, (2) questionnaire to find out the students' perception toward mnemonic. Each of them will be further elaborated in the following sections.

3.4.3.1 Instrument for Conducting the Data

In this research the writer used the test method as the instrument. Suryanto Ampri (2007) stated that test is a set of questions or other practices or devices used to measure the skill, intelligence, ability and talent of an individual or a group. The type of test used here was achievement test. Achievement test attempt to measure what individual has learned – his or her present level performance (Best, 1981 : 193). To get the empirical data of the students mastery of past tense, the writer administered Grammar Test. The tests were in written form. In Grammar Test, the writer used Multiple Choice test. The reason for using multiple choice tests were; the technique of scoring was easy and it was more practical for the students to answer. The multiple choices item consists of premise and a set of alternative answers. Premise known as the stem is presented as incomplete statement, which the students asked to select only

one true answer. The writer gave 30 questions and 60 minutes for students to do. In this study, the researcher administered the test as follow:

a. Pre-test

Pre-test was conducted to find out the initial differences between experimental and control groups as they have similar level in grammar skill before receiving treatment.

b. Post-test

Besides pre-test, post-test is conducted to both groups to find out the progress of students in mastering past tense. The procedure was similar with the pre-test.

c. Questionnaire

In gaining the data about the students' perception toward mnemonic, the writer used the questionnaire. It is a set of questions which is used to find out the perception of the students. The questions are about 15 items and the type of questions is close ended.

3.5 Research Procedure

The procedure that the writer used in doing this research are preparing the material used for teaching process, administering try out test, conducting treatment, administering pre-test, post-test and questionnaires.

a. Material

The material that is used for teaching and learning process during period of the experiment was taken from English in focus VIII grade, also material was taken

from several book and from the internet. The writer select, improve and adapt the material for the experiment.

b. Organizing teaching procedure

In organizing teaching procedure, the teacher took role as teacher and facilitator in both experiment and control groups. In preparing the teaching process, the researcher implemented two steps. The first step was preparing the appropriate materials for teaching and learning process during the experiment. The second step was organizing teaching procedures in the control and experiment groups.

c. Instrument try out

There are some several steps in conducting this research, first of all the writer administered instrument try out. The purpose of administered try out is to measure the validity and reliability of the instrument. The try out was administered in other class which were not involved in the research as the control group and the experimental group. The try out was conducted on January, 18 2011. The try out test was administered to class VIII F of SMP N 19 Bandung.

The quality of the data, whether it is good or bad, is based on the instrument to collect the data. A good instrument must fulfill two important qualifications. Those are valid and reliable. So, before the test was used as an instrument to collect the data, it had been tried out first to the students in other class. Students were given 60 minutes in doing each test. After scoring the result of the try out, the writers made an analysis to find out the validity and reliability of the item of the try out. All of them were used to decide which items should be used in making instrument.

Table 3.1

The Specification Table of Past Tense Test used in Try Out

NO	Past Tense Type	Items
1.	Simple Past Tense Regular Verb	9
2.	Simple Past Tense Irregular Verb	6
3.	Past Continuous	5
4.	Past Perfect	5
5.	Past Perfect Continuous	5
		30

d. Pre-test

The next steps after administering try out test, the writer conduct pre-test to find out the students' ability. The pre-test was taken on February 7 2011. The pre-test instrument was similar with the instrument in try out test, since the items of the test were considered statistically satisfactory. This test was intended to gain the data on the students' past tense mastery. The test was administered to both experimental and control group in their classroom during school hours.

e. Treatment

Definition of treatment

The treatment of this research is mnemonic technique to increase students' past tense mastery. The experimental group was given mnemonic technique and the control group was given the conventional technique in mastering past tense. The lesson plan used in two type, which were one for experimental group and second one for control group.

a. Teaching procedure in experimental group

The teacher (researcher) implemented mnemonic technique in mastering past tense in experimental group. First, the students sit in a group, one group consists of 5 or 6 students. Next each group was given the recount text and than in group the students analyze the past tense on that recount text. After that the students classified the words that were assumed as past tense words. Then, the teacher explained the past tense form and also gave the students the mnemonic technique in remembering the words changing. Finally to measure the students' comprehension the teacher asked the word that they have remember with mnemonic technique on the next meeting.

b. Teaching procedure in control group

Basically the teacher implemented the same procedure as in experimental group. However, in remembering the word changing of past tense form the teacher didn't give the technique of mnemonic. The teachers just explained the past tense and gave some words of past tense form. On the next meeting the teacher checked the students' comprehension of past tense.

The treatment schedule comprises six meetings to the experimental group from February to March 2011.

Table 3.2

Schedule of the Research

No.	Experimental Group (VIII-B)		Control Group (VIII-A)	
	Date	**Materials**	**Date**	**Materials**
1.	**February 10, 2011**	**Pre-test**	**February 10, 2011**	**Pre-test**
2.	**February 14, 2011**	**Treatment 1:** **Recount text** • **Bus was flowing right behind me** ***(by using mnemonic)***	**February 14, 2011**	**Treatment 1:** **Recount text** • **Bus was flowing right behind me** ***(by using conventional teaching)***
3.	**February 21, 2011**	**Treatment 2:** **Recount text** • **Children's day** ***(by using mnemonic)***	**February 21, 2011**	**Treatment 2:** **Recount text** • **Children's day** ***(by using***

				conventional teaching)
4.	**February 28, 2011**	**Treatment 3: Narrative** • **Sangkuriang *(by using mnemonic)***	**February 28, 2011**	**Treatment 3: Narrative** • **Sangkuriang *(by using conventional teaching)***
5.	**March 07, 2011**	**Treatment 4: Narrative** • **Cinderella story *(by using mnemonic)***	**March 07, 2011**	**Treatment 4: Narrative** • **Cinderella story *(by using conventional teaching)***
6.	**March 10, 2011**	**Post-test Questionnaires**	**March 10, 2011**	**Post-test**

Conventional teaching is the teaching technique that is commonly used in Indonesia.

Mnemonic technique is the students are given the formula of memorizing something.

f. Post-test

At the end of the treatment, the writer administered the post test. This test is given to both group (control and experimental group) to find out the students' ability in past tense mastery after experimental group received the treatment. The test item was similar with the item of pre test. The test was administered to both classes on March, first 2011.

3.6 Data Analysis

The next step after collecting the data is analyzing the data. There are some several steps were taken in the data analysis:

3.6.1 Scoring

According to Arikunto (2003) there are two types of formulas that can be used in the process of scoring and data previously obtained. The formulas are formula with punishment and formula with no punishment. In this research, the writer used the formula with no punishment.

S = R

In which:

S : Score

R : Right

3.6.2 Data Analysis on Instrument Try out

These are the steps taken in analyzing the items:

3.6.2.1 Validity

Brown (1988) stated that before conducting pre-test and post-test, the test items should be tried out in terms of its validity and reliability. The writer test the instrument uses the pearson product moment formula. Therefore, the process of calculation follows SPSS 17 for Windows. The criteria of validity is shown in the table 3.3 :

Table 3.3

r Coefficient Correlation (Validity)

Raw score	Interpretation
0.8 – 1.0	Very high
0.6 – 0.8	High
0.4 – 0.6	Moderate
0.2 – 0.4	Low
0.0 – 0.2	Very Low

(Arikunto, 2002)

3.6.2.2 Difficulty item

According to Heaton (1955:p.178) as cited in Sumiarti (2005) stated that in order to find out how easy or difficult the certain item established in the test, it can be analyze by using item difficulty index or facility value . In addition, to gain the student's ability the difficulty level of the item should not be too easy or too difficult either. Difficulty level test was used to measure whether the item is relevant with the students' ability level or not. Therefore, items with facility value around 0.500 were considered to be ideal, with an acceptable range being from around 0.3 to 0.7 (Heming, fulcher and Davidson:2007). The following formula is used to calculated the index of difficulty of an item.

$$FV = \frac{R}{U}$$

Where:

FV = Facility/ Index of difficulty

R = The number of correct answer

N = The number of students taking the test

Heaton (1955:p.178)

Table 3.4

Criteria of Difficulty Index

Index of Difficulty	Interpretation
0.00 – 0.30	Difficulty Item
0.30 – 0.70	Moderate Item
0.70 – 1.00	Easy Item

3.6.2.3 Discrimination

The discrimination index of an item indicates the extent to which the item distinguishes between the testes, separating the more able testes from the less able (Heaton:1995 p. 179).

We are able to find the discrimination index by following the procedures:

1. Arranging students' total score and dividing the score into two groups of equal size (the top half and the bottom half)
2. Counting the number of the students in the upper group who answer each item correctly, then counting the number of lower group students who answer the item correctly

3. Subtracting the number of correct answer in the upper group to find the difference in the proportion passing in the upper group and the proportion passing the lower group, and
4. Dividing the difference by the total number of students in one group

The following formula is used to calculate the discrimination index of an item:

$$D = \frac{\text{Correct U} - \text{Correct L}}{n}$$

where:

D = Discrimination Index

U = Upper half

L = Lower half

n = Number of students in one group; n= ½ N

(Heaton:1995 p. 179)

Table 3.5

Criteria of Discrimination Index

Discrimination Index	interpretation
00.00 – 0.20	Poor
0.20 – 0.40	Moderate
0.40 – 0.70	Good
0.70 – 1.00	Excellent

3.6.2.4 Reliability test

Reliability refers to a consistency of the measurement result. The unreliable measurement will produce score that cannot be trusted and this will cause the inconsistency. (Azwar, 2003)

In computing the all items in estimating the reliability of the test, the writer used the formula of alpha. The process will be compute by using SPSS 17.0. To find out the reliability of the test items, the writer usd internal consistency method which is facilitated with Cronbach's Alpha formula.

3.6.3 Data Analysis on Pre-test and Post-test

Pre-test is administered at the beginning of the steps in this research after try out test in order to obtain the initial equivalence between the groups. To determine the equivalence of experimental and control group, the writer used T-test.

Post-test is given at the end of the process of gaining data. In analyzing the data, the writer use T-test to find out the hypothesis (null hypothesis) is rejected or accepted. If the null hypothesis is accepted, it means that there are no differences between experimental group and control group after implementing mnemonic technique.

3.6.3.1 Testing the normal distribution

In this research, the writer used Kolmogorov-smirnov formula to analyze the normal distribution. The table data out put from SPSS 17.0 for Windows. These are the steps taken to test the normal distribution:

1. Looking at the hypothesis

   Ho = the distribution of the scores are normally distributed

   H1 = the distribution of the scores are not normally distributed
2. Analyze the normal distribution using kolmogrov-smirnov formula in SPSS 17.0 for windows
3. Comparing level of significance to test hypothesis. If the result is more than the level of significance (0.05), the null hypothesis is accepted, the score are normally distributed.

3.6.3.2 Variance homogeneity

To analyze the variance homogeneity, the researcher used variance formula in SPSS 17.0. these are the steps taken to test variance homogeneity:

1. Stating the hypothesis

   Ho = the variance of the experimental and control group are homogenous

   H1

   = the variance of the experimental and control group are not homogenous
2. Analyze the variance homogeneity using SPSS 17.0 for windows

3. Comparing the level of significance value to test hypothesis. If levene's test is significance at $p \leq .05$, it means that the null hypothesis is incorrect and the variances are significantly difference. But if levene's is non significance at $p > .05$. it means that the variance are approximately equal. (Field, 2005)

3.6.3.3 The Independent t-test

According to Kranzel and Moursound (1999, p.89) as cited in Nurmilah N (2010) stated that the primary purpose of t – test is to determine whether the means of two groups of scores differ to a statistically significance degree. There are some requirements of the data must be considered before conducting t-test. First, the data should be measured in form of interval or ratio. Second, the data should be homogenous or formed in the same type. Third, the data should have a normal distribution. (Coolidge,2000, p.143)

The procedures of t-test computation were as follows:

1. Stating the hypothesis

   Ho = there is no difference between the pre – test /post – test mean for the experimental group and control group

   H1 = there is significance difference between the pre – tes and post – test mean for the experimental group and for the control group.

2. Finding the t value with independent sample test computation in SPSS 17.0 for windows.

3. Comparing the significance value with the level of significance for testing hypothesis. If the significance value is less than the level of significance (0.05), the null hypothesis is accepted. It means that the two groups are equivalent.

3.6.3.4 The dependent t-test

According to Hatch & farhady (1982,p.114) the pre test and post test score were analyzed by using dependent t-test in order to investigate whether or no differences of the pre-test and post-test of experimental groups' score is significant. These are the procedure taken in dependent t-test:

1. Stating the hypothesis

   Ho

   = there is no significant differences between the pre test and post test score

   H1 = there is significant difference between the pre test and post test score
2. Finding the value with dependent sample test computation in SPSS 17.0 for windows.
3. Comparing the level of significance from the calculation of dependent t test with the level of significance for testing the hypothesis. If the probability more is more than or equal than the level of significance, the null hypothesis is accepted. In other word, if the probability is less than the level of significance, the null hypothesis is rejected.

3.6.3.5 The calculation of effect size

In this research, to verify the influence of independent variable on the dependent variable and to know how well the treatment works, the calculation of size effect was performed. In order to determine the effect size in the independent t test, a correlation coefficient of effect size can be derived as presented below:

$$r = \frac{\sqrt{t^2}}{t^2 + df}$$

Where:

r = effect size

t = tobt or t value from the calculation of independent t test

$df = N1 + N2 - 2$

(from Rosenthal, 1991, p.19)

After obtaining the value of r, the score was matched with the following scale to interpret the effect size.

Table 3.6

Effect size value

Effect Size	R value
Small	.100
Medium	.243
Large	.371

(Coolidge,2000;p151) as cited in Apriliani (2011)

3.6.4 Data analyses of questionnaire

In answering the research question number 2, the writer uses questionnaire in order to collect the data. These data revealed use mnemonic technique in improving student mastery of past tense. The result of questionnaires put in percentage below:

$$P = \frac{fo}{n} \times 100\%$$

In which:

$P = percentage$

$Fo = frequency\ of\ observed$

$n = number\ of\ samples$

In analyzing the questionnaires, the number of sample or respondents answering “yess” and “no” were counted. The answer yes is counted one and the answer no counted zero. After that, the results were determined in order to find out the students response toward the use of mnemonic technique in improving student past tense mastery by using the percentage as follows.

Table 3.7

Criterion on Students Response

No	Percentage (%)	Criterion
1	0	None
2	1 – 25	Small number of
3	26 – 49	Nearly half of
4	50	Half of
5	51 – 75	More than half of
6	76 – 99	Almost all of
7	100	All of

(Kunjaraningrat in Indah Rahmawati2008)

The data from the questionnaires above revealed the students response of mnemonic technique in improving past tense mastery. The primary data were collected by means of pre test and post test. Then questionnaires were obtained which served as an additional input to find out the effectiveness of mnemonic technique in improving students' mastery of past tense.