CHAPTER III

RESEARCH METHODS

This chapter discusses about research design, subject of the research, and location of the research, the data collection technique, and data analysis.

3.1Research Design

The research is defined as the application if the scientific is approaching to the study of problem (Arikunto, 2010:20). The research uses quantitative research and the design is experimental research. Quantitative is a research which uses data collection technique and uses T Test to check the effect (Arifin, 2010:14). Based on the function, this research of experimental is to know the effectiveness of the use of flannel board on vocabulary achievement of the sixth grade students of SDN Geger III Turi Lamongan in the academic year 2011/2012 and to know the effect of the use of flannel board on vocabulary achievement of the sixth grade students of SDN Geger III Turi Lamongan in the academic year 2011/2012.

Based on the explanation above, the research chooses one design of that is quasi experiment, because the research just takes one class and there is no other class to compare (Emzir, 2008:97).

The researcher uses quasi experiment because in a school setting, it is not possible to assign subjects randomly to group in the other word the researcher is forbidden to change class arrangement. The design chart can be seen in figure below:

Group	Pretest	Treatment	Posttest
Experiment	+	+	+
Control	+	-	+

Table 1. Non Randomized Subjects, Pre-test post-test Quasi-Experiment Design

Where:

+ : With treatment

- : Without treatment

The procedures of the research design are as follows:

1. Giving pre-test to the respondents (subject) to measure vocabulary achievement before the treatments.
2. Giving treatment to the respondents that is teaching vocabulary by using the flannel board.
3. Giving post-test to measure the student's vocabulary achievement after being given the treatment.
4. Finding the mean different between the results of the pre-test and post-test.
5. Analyzing the data using t-test formula to prove the hypothesis.
6. Ho is received if t statistic > t table.
7. Ho is failed if t statistic < t table.

3.2Population and Sample

Subject in this research is population. Ary (1985:138) stated that population is all members of well defined class of people, events or object. If the number of the respondents is less than a hundred, it is better to take all the subjects. On the other hand, if the number of the respondent is more than a hundred, it is allowed to take 10%-15% or 20%-25% or more of population as the respondents. Based on the idea, the population method was chosen in this research because the number of the respondents was less than one hundred. The number of the sixth grade students of SDN Geger III Turi Lamongan in the academic year 2011/2012 was 30 students they are from A class 15 students and B class 15.

A research population is generally a large collection of individuals or objects that is the main focus of a scientific query. It is for the benefit of the population that researches are done. However, due to the large sizes of populations, researchers often cannot test every individual in the population because it is too expensive and time-consuming. This is the reason why researchers rely on sampling techniques.

A research population is also known as a well-defined collection of individuals or objects known to have similar characteristics. All individuals or objects within a certain population usually have a common, binding characteristic or trait. Usually, the description of the population and the common binding characteristic of its members are the same. "Government officials" is a well-defined group of individuals which can be considered as a population and all the members of this population are indeed officials of the government.

3.2.1 Relationship of Sample and Population in Research

A sample is simply a subset of the population. The concept of sample arises from the inability of the researchers to test all the individuals in a given population. The sample must be representative of the population from which it was drawn and it must have good size to warrant statistical analysis.

The main function of the sample is to allow the researchers to conduct the study to individuals from the population so that the results of their study can be used to derive conclusions that will apply to the entire population. It is much like a give-and-take process. The population "gives" the sample, and then it "takes" conclusions from the results obtained from the sample

The research area is the location where all of the research activities to be getting the data are conducted (Arifin, 2010:61). This area takes purposively. Purposive method is a based on the certain purpose and reason.

This research is conducted at SDN Geger III Turi Lamongan. It is chooses as the research area because at the school, the flannel board has never been used by the teacher as media in the teaching learning process of English vocabulary.

It also was chosen based on the consideration of technical reason, such as: time, fund, the location of that school is in the researcher's home town, and it is easy for the researcher to get the permission from headmaster of that school to conduct the research.

3.3 Research instrument

The researcher used tests in order to enable him to observe and gather any information on what was going on in the class when the "FLANNEL BOARD" arrived by the student. The instrument was English test in order to measure the student's ability in vocabulary and however it is very important to measure the validity and reliability of the test to make sure that the test is valid.

3.3.1Test

Test was applied to obtain the primary data about the student's achievement of vocabulary after they got the materials given during the experimental treatment. Test is a method of collecting data by giving test items to the respondents. Arikunto (2010:96) explains that test is a set of question, exercises or other means which are used to measure skill, knowledge, intelligence, ability, or talent of individuals or groups.

He divides test into seven categories. Based on the objective that will be evaluated, test can be divided into personality test, aptitude test, intelligence test, attitude test, projective test, interest test and achievement test. The achievement test applied in this research was a teacher made test given in the form of objective type. Objective test can be defined as a kind of test in which the test taken answer the questions based on the choice provided. The objectives test in this research was in the form of multiple choice and completion. It was chosen because it was used to measure the student's vocabulary achievement with consideration that it can be scored easily and quickly.

3.3.1.1. Pre test

Pre test is carried out to find out the initial different between experimental and control groups as they had similar level in vocabulary ability. Before receiving the treatment, the test was in form of written test or in the other hand the students must finish the tests which consist of 20 items before the student submitted their work to the teacher. Then their work was assessed by the teacher based on the criteria given.

The reason why the researcher gave 20 item in pretest is the researcher will be easier to score the test and the second reason is the item must be appropriate with time allotment

3.3.1.2 Post test

Post test is distributed to both groups to find out whether or not the students make progress in their vocabulary ability. In this study, the criteria of test scoring system proposed by Jacobs are used to assess the result of students score. The post test had the same procedure with the pre test. It was administered in the last program of this research, after giving some treatment and exercise to the experimental group in a period of time. The researcher gives the post test to experiment group and control group which has the same number of item with pre test number of item that consist of 20 item, 15 are multiple choices and 5 are essay.

3.3.1.3 Schedule of research implementation

NO	DATE/TIME	ACTIVITY
1	MARCH 25TH 2012	SENDING PERMISSION LATTER TO SCHOOL
2	MARCH 28TH 2012	ASK PERMISSION TO SCHOOL PRINCIPLE IN ORDER TO MAKE APPOINTMENT TO COLLECT DATA
3	JUNE 1ST2012	GIVING PRE TEST TO EXPERIMENT AND CONTROL GROUP
4	JUNE 4TH 2012	GIVING FIRST TREATEMENT
5	JUNE 5TH 2012	GIVING SECOND TREATEMENT
6	JUNE 6TH 2012	GIVING THIRD TREATEMENT
7	JUNE 7TH 2012	GIVING POST TEST TO EXPERIMENT AND CONTROL GROUP

3.3.2 The validity of the test

Before conducting post test and pretest as instrument of the research, the test should be tried out in terms of its validity and reliability in order to check the validity of the test; the researcher did it into two steps. Those were checking content validity

and construct validity. To determine the content validity, the researcher asked the English teacher helps to check the instrument validity whereas to define the construct validity, the researcher used the assistance of SPSS version 14.0 to compute descriptive statistics the instrument validity was examined by analyzing item was good or not. The researcher used the formula to test the validity of the test in:

$$\text{r-xy} = \frac{N(\sum Xy)-(\sum X)(\sum Y)}{\sqrt{\{N\sum X^2-(\sum X)^2\}(\sum Y^2-(\sum y)^2\}}}$$

Where:

rxy : the coefficient of correlation X and Y variable or validity of each item.

N : the number of students/subject participating in the test

X : the sum of X scores

Y : the sum of X scores

∑Y : the sum of total score for each student.

∑X : the sum of total score in each item.

∑XY : the sum of multiple score from each student with the total score in each item

∑X2 : the sum of the square score in each item and,

∑Y : the sum of the total score from each student each item square is determined by using these following categorizations:

<0,3	is difficult	0,7-1	is easy
03-07	is medium		

Based on the result of validity (see appendix2 & 3) of instrument, the researcher determines the validity of item into two steps as follow. First, the researcher see *correlation item-total correlation* column. The item which had the value under 0,3 was considering as bad item, it meant that it had to be rejected. Second, the researcher conducted in *cronbach's alpha* value, the item had to be rejected.

Based on those consideration and interpretation of the in pre test item try out, the researcher found that 11 items were valid whereas 4 item were invalid. It meant that 11 items could be used as a research instrument whereas 4 items had to be rejected as research instrument for pre-test (see appendix 2 table 3). In the same case in post-test a researcher found that 13 items were valid and 2 items were invalid in the other hand 13 items could be used as a research instrument whereas 2 items had to be rejected (see appendix 3 table3).

Actually the test are 20 items in both test, pre-test or post-test but the researcher divided into two parts first part consider as multiple choice and part two matching test that categorized as subjective test not objective test like multiple choice because the researcher cannot predict the respondent's answer.

3.3.3 The reliability of the test

The basic concept of reliability of a test is consistency of the test score. Reliability measurement supplied an instrument of how much a variance might expect under different condition. To see the consistency of the test score, the researcher tried the instrument out twice. The reliability of the test is characteristically presented by

means of reliability coefficient or the standard error of measurement. To define the reliability of the test in order to find out the stability of the test, the researcher used SPSS 14.0 with formula

$$r_{kk} = \frac{K.Sx^2 - \tilde{x}(x - \tilde{x})}{Sx^2 - (k-1)}$$

Where: $S = \frac{\sqrt{\sum F_{\chi}}}{n-1}$

$$\chi = X - \tilde{x}$$

K: total item that accepted

n: total students followed the test

χ:total of correct answer a student

F : total of student who got the particular score in x

Criterion;

$0.0 \leq rkk < 0.20$ is the lowest reliability

$0.0 \leq rkk < 0.40$ is the low reliability

$0.0 \leq rkk < 0.60$ is the quite reliability

$0.0 \leq rkk < 0.80$ is the high reliability

$0.0 \leq rkk < 1.00$ is the highest reliability

3.4Data Collection Technique

The data of this research consisted of primary and supporting data. The primary data were taken from the vocabulary test. In this research, the data collected from the tests. The researcher made pre test and to the experiment group and control group. It is used to give information about students' ability to write narrative texts before the treatment. The researcher chose the subjects and divined group who are taught by using FLANNEL BOARD method as an experimental group and group who are taught without FLANNEL BOARD method as a control group. Here in the control group ask to write narrative texts without traditional method. The treatment will do for six times for experimental which suitable on head master permission.

When the target 5 meetings conducted by researchers, researchers give post test to the control group and experimental groups to determine the outcome of the FLANNEL BOARD strategies It succeeded or not. Finally, from the results of statistical calculations, interpretations and conclusions are made. The teacher collects the result of pretest. The last is analyzing the data from pre-test and post-test by using SPSS 14.0 program.

3.5 Data Analysis

Data analysis method is very important in a research. In conducting a research, it is a requirement to analyze the data in order to be able to interpret the data obtained from the field.The data analysis is carried out in order to answer the research problems with the data obtain through pre-test and post-test. The researcher analyzes the data by using Independent sample t-test.Since the samples are small and the

groups were independent, the t-test for independent samples are carried out to determine whether the differences between experiment group and control group. The researcher used SPSS version 14 to compute descriptive statistics, descriptive statistics are conducted in order to find the effect of the treatment whether there is positive effect by using FLANNEL BOARD.

Assumptions for the Independent t-test were: (1) Independence: Observations within each sample must be independent (they don't influence each other), (2) Normal Distribution: The scores in each population must be normally distributed and (3) Homogeneity of Variance: The two populations must have equal variances (the degree to which the distributions are spread out is approximately equal).The steps of analysing the result are:

Arikunto (2010:278) classified the data analysis method into three part :

1. Preparation
2. Tabulation
3. Making conclusion

The data analysis method used in this research is t-test. T-test is used to analyze the data and to compare the mean difference of the pre-test and post-test and this research wants to know the effectiveness of the use of flannel board on vocabulary achievement of the sixth grade students of SDN Geger III TuriLamongan in the academic year 2011/2012

The formula was as follows:

$$t = \frac{Md}{\sqrt{\frac{\sum x^2 d}{N\,(N-1)}}}$$

Notes:

t : The Coefficient of the formula

Md : Mean of deviation (pre-test and pos-test)

X^d : Deviation of each subject (d – Md)

$\sum x^2 d$: The sum of squared of deviation

N : The total number of subject

Db : N-1 (degree of freedom)

(Adapted from Arikunto, 2010:125)

T-test is used to check the effect of using flannel board on vocabulary achievement of the sixth grade students of SDN Geger III TuriLamongan in the academic year 2011/2012. Then, to know the degree of effectiveness of the treatments, the researcher apply the formula of DRE (Degree of Relative Effectiveness) as follow:

$$DRE = \frac{MX2 - MX1}{MX1} \text{ X } 100\%$$

Notes:

DRE = The Degree of Relative Effectiveness

M_{X1} = Mean of Pre-Test

M_{X2} = Mean of Post-Test

(Adapted from Irwani, 2010: 12)

3.5.1Normality Distribution Test

In this study, Kolmogorov Smirnov Sample Test in SPSS version 14.0 is used to analyze the normal distribution. It is aimed to find whether or not the distributions of pre test score in the two groups are normally distributed. In this case, the result of the normality the distribution is also used to find out whether or not the hypothesis that had been determined is accepted.

The first step in calculating the normality distribution test state that the hypothesis: H0: the score of the experimental and the control group are normally distributed. The second step in calculating the normality distribution test tried to compare the Asymp. Sign.(probability) with the level of significance for testing the hypothesis. If the Asymp is more than the level of significance (0,05) the null hypothesis is accepted; the score are normally distributed.

3.5.2Homogeneity Test of Variance

The analysis of variance, assume that variances are equal across groups or samples. For homogeneity test, the researcher uses Levene's*test* of *homogeneity in SPSS 14.0 version. The test of Levane's test, or P, defines as follow:*

$$P = \frac{(N-k)}{(k-1)} \frac{\sum_{i=1}^{k} N_i (Z_i - Z_{..})^2}{\sum_{i=1}^{k} \sum_{j=1}^{N_i} (Z_{ij} - Z_i)^2}$$

Where:

P is the result of the test,

$k$is the number of different groups to which the samples belong,

$N$is the total number of samples,

N_i is the number of samples in the i^{th} group,

Y_{ij} is the value of the j^{th} sample from the i^{th} group,

$$Z_{ij} = \begin{Bmatrix} |Y_{ij} - \bar{Y}_{i.}|, \bar{Y}_{i.} \text{is a mean of } i^{th} \text{ group} \\ |Y_{ij} - \tilde{Y}_{i.}|, \tilde{Y}_{i.} \text{is median of } i^{th} \text{ group} \end{Bmatrix}$$

The significance of P is tested against $F(\alpha, k-1, N-k)$ where F is a quintile of the F test distribution, with $k-1$ and $N-k$ its degrees of freedom, and α is the chosen level of significance (0.05).

3.5.3.**Hypothesis Testing**

Hypothesis testing procedures that use separate samples for each treatment condition (between subject designs). In hypothesis testing had three steps to analysis the data, are:

Step1: state the hypothesis

H0: $\mu1-\mu2=0$ ($\mu1=\mu2$)

H1: $\mu1-\mu2\neq0$ ($\mu1\neq\mu2$)

Step 2: set the criterion

The researcher used independent sample t-test with significant $a = 0.05$ to interpret t-test and degree of freedom (DF) for the independent statistic is n1+n2 or df1+df2.

Step 3: compute the t statistic

$$t = \frac{(\bar{x}_1 - \bar{x}_2) - (\mu_1 - \mu_2)}{s_{\bar{x}_1 - \bar{x}_2}}$$

Where

$$s_{\bar{x}_1 - \bar{x}_2} = \sqrt{\frac{S^2 pooled}{n_1} + \frac{S^2 pooled}{n_2}}$$

Pooled variance: the average of the twosample variances,allowing the larger sampleto weight more heavily.

Formula:

$$s^2_{pooled} = \frac{(df_1)s^2{}_1 + (df_2)s^2{}_2}{df_1 + df_2} \quad \textbf{OR} \quad s^2_{pooled} = \frac{SS_1 + SS_2}{df_1 + df_2}$$

df_1=df for 1st sample; n_1-1

df_2=df for 2nd sample; n_2-1

Estimated Standard Error of theDifference

$$s_{\bar{x}_1 - \bar{x}_2} = \sqrt{\left(\frac{SS_1 + SS_2}{n_1 + n_2 - 2}\right)\left(\frac{1}{n_1} + \frac{1}{n_2}\right)}$$

3.5 The Implementation of flannel board

In this research, pre-test as an instrument to get the primary data was administered on June 1st, 2012 before the researcher gave treatments to the respondents. Then, the post-test was given on June 7th, 2011 after giving treatments which were conducted three times on September 4th, 5th, 6th, 2012. Post-test was conducted in order to get the data about the student's vocabulary achievement after they had been given the treatment that is teaching vocabulary using the flannel board as media and paper out cuts as strategy. Then, the results of the pre-test and post-test were realized by using t-test and were consulted to t-table to test the hypothesis. Further information about the results of pre-test and post-test and the data analysis could be seen in Appendix 8 Table 1, 2 and 3.

The general schedule of research implementation

NO	EXPERIMENT GROUP		NO	CONTROL GROUP	
	DATE	THEME		DATE	THEME
1	JUNE 4TH 2012	Hobbies	1	JUNE 4TH 2012	Hobbies
2	JUNE 5TH 2012	Games	2	JUNE 5TH 2012	Games
3	JUNE 6TH 2012	Recreation	3	JUNE 6TH 2012	Recreation

The general schedule of research implementation In the present study, Flannel Board were applied only to the experimental group in order to compare it to the other group without Flannel Board. The students used materials provided by the researcher in reparation. During the teaching learning process, the researcher were accompanied by the teacher partner as guarantor that the researcher truly applied flannel board in class. The teacher Partner in this study was English teacher himself. The first treatment was held on the 4th of June 2012. The theme was "Hobbies". In the experimental class, the researcher gave each student an old magazine. The researcher told the students that they would have Flannel board to learn and give the instruction about flannel board learning procedure. As the researcher assumed, the students were excited to hear about it because learning by using Flannel board was something new for them.

During the activity, the students seemed enthusiastic to hear teacher instruction. It was shown when they always paid attention to teacher who gave example study used flannel board in 6th grade class. In the first treatment, some of the students were still ashamed when the researcher asked them to come in Front of class. At that time, the researcher took the figure on flannel board and gave random letter bellow than the teacher asked to the students to arrange the letter into correct word base on the figure of picture, they was interesting and one of them come to forward then do the researcher order. It was shown by using a Board which covered by flannel fabric then the researcher asks the students paste figure and name of figure on flannel Board. The students seemed enthusiastic to complete the Letter

arrangement even though not fully they used English. The last activity in the first treatment was doing exercise. Every group got a magazine than they must look for the figure based on the theme. They were asked to think of figure that must be finding. Generally, at first, the researcher was very pleased because positive result was shown. The students seemed much appreciated to learn by using Flannel Board. They also had enthusiasm to ask when they did not understand. In the last activity of the first meeting, every group was very confident to show their group assignment in front of class. They did not find many difficulties in finding figure and give the name of figure and determine certain word position in part of speech. They could finish it on time.

The second treatment was held on June 5Th 2012. The theme was" Games". The first activity in the second treatment understanding and Finding figures in Flannel Board that the researcher provided. The students and the Researcher discussed some difficult words, simple structure and pronunciation that related with the theme. The second activity was the researcher put random figure with random letter then the students should match figures with the word correctly then students grouping the word or name of figures on flannel board and determine which is noun, verb, adjective and verb, it is still use paper cut outs as strategies to explore student`s respond, reaction and their understanding in other word the researcher try to persuade the students to active in learning process.

For The exercise in last activity teacher distribute many figures to the students that consist of noun, verb, adjective and adverb with the same number of each categorize. The students' task was figure out t. They gave appreciation to do this kind Activity

in-group. They were in competition to finish it. The last activity in the second meeting was the researcher gave exercise to the students. It had to be finished with his/her partner. Over all in the second treatment was great.

The third treatment was held on 6th of June 2012. The theme was "Recreation". The first activity in the third treatment was like the treatment before. Those were reading and discussing some difficult words, simple structure and Pronunciation that related to the theme from Flannel board but there is additional activity that conducting by paper out cuts in flannel board it is Things in picture. After the students discussed a Flannel Board, the researcher asked them to cut the figure in magazine and they should ask to the teacher if they do not understand the meaning of word or the name of words in English before paste certain picture on flannel board. For the last activity, the students were asked to do exercise. They must collect the figures which consist of more than 4 things inside of the figure then the groups of students create a list of word it can be noun, verb, adjective and adverb based on the picture after that the group of students arrange those words into simple sentences. After that, they were asked to think of speech. Even though this treatment was not as great as treatment before, everything was well done. The students could pay attention to the researcher Explanation. The situation in class was rather crowded but learning by using Flannel board was fun activities for them.