

CHAPTER III

RESEARCH METHODOLOGY

A. Objective of The Study

The objectives of the research are as follows:

To find out the effectiveness of teaching English verb by using cartoon film “UP” with VIII E and VIII F grade students of SMP Negeri 18 Semarang in 2010/2011 academic year.

B. Setting of The Study

The researcher did the research in SMP N 18 Semarang. The researcher chose the school because the place is not far from her boarding house. It is easy to researcher to reach. Besides that, the consideration for choosing the school is that it has a English laboratory because the study was using cartoon film as medium. So, English laboratory play significant role in this study.

C. Variable of The Research

Variable is the object of research or something that become the concern of research.¹ In this study there are two variable. They are Independent Variable and Dependent Variable.

1. Independent Variable

It is a variable that influences or causes of change or emergence of the dependent variable.² Independent variable in this research is the use of cartoon films and those taught without cartoon films.

2. Dependent Variable

It is variable that is affected resulting, because of the existence of the independent variable.³ Dependent variable in this research is the students’ imagination.

¹Suharsimi Arikunto, *Prosedur Penelitian: Suatu Pendekatan Praktik*, (Jakarta: PT. Rineka Cipta, 2006), 13th ed, p.118

²Sugiyono, *Statistika Untuk Penelitian*, (Bandung : CV Alfabeta, 2005), p.3

³*Ibid.*

D. Research Design

Research design is arranged to explore the validity of the result, which can give a guarantee about scientific of the research. On the other hand, research design is always used the research more objectively and accurately.

Here, there are two variables: independent variable and dependent variable. An independent variable is the conditions influencing the appearance of an indication or called treatment variable. In this research the independent variable is called (X) variable. That is the use of cartoon films. While dependent variable is an indication appearing because of the implementation of an experiment and also called effect variable. In this research is called (Y) variable, which means without cartoon films or general study.

This experiment research is applied to the VIII E and VIII F grade students of SMP Negeri 18 Semarang to mastery the result of their English verb. After being taught using cartoon films the researcher conduct some experiment stage in several time meetings. In the first stage the research gave the students pre-test and then continued by the implementation of teaching English verb to the students using cartoon film. Finally for the last stage the student was given the post- test.

The writer used Pre test – Post test control group design was chosen as the design of this study. The scheme is as fellows:

<i>E</i>	: O_1 <i>X</i> O_2
<i>P</i>	: O_1 O_2

E : The symbol for experimental group

P : The symbol for control group

O_1 : *Pre- Test*

O_2 : *Post-Test*

X : Treatment⁴

Two classes were treated were as experimental and control group. These groups were equated as nearly as possible. The students of VIII E were chosen as the experimental group while those of VIII F were chosen as control group of this study. Pre test is given to the both control and experimental group to measure the condition before treatment (O_2). Next, the

⁴Sugiyono, *Metode Penelitian Kuantitatif, Kualitatif dan R & D*, (Bandung: Alfabeta, 2008), P. 76

treatment (X) is given to the experimental group. There is no given the control group. After finishing the treatment, the test is given to both as the Post test.

E. Subject of The Research

1. Population

Population is people or other things discussed in the research. Mention population is the entire aggregation of items from which samples can be drawn, a branch of applied mathematics concerned with the collection and interpretation of quantitative data and the use of probability theory to estimate population parameter.

In a word, population is a number of group interests to the research, a number of group, which se or he would like to find out result of the study be report.⁵

Table I

The population of research

Class	Number
VIII A	39
VIII B	39
VIII C	38
VIII D	40
VIII E	35
VIII F	35
VIII G	26
VIII H	40

In this case, the subject of the research was the second grade students of SMP Negeri 18 Semarang in the academic year 2010/2011. The total populations are 292 students.

2. Sample

Sample is the subject who must be researched by the researcher from the population which may be the number of population is very much. Sample is used to facilitate the researcher to process the data. According to Arikunto Sample is a part of the subject or population that should be researched.⁶

⁵Suharsini Arikunto, *op. cit.*, p.130.

⁶*Ibid.*, p.131.

In this research, the researcher uses total sampling. It is based on the certain goal which is made by the researcher and based on the characteristic of population which had known before. The procedure is the researcher chooses are two classes sample because this research is aimed it's the difference mean between the two groups after the treatment has been done. Two classes which are choosing as sample are class VIII E (35 students) and class VIII F (35 students). So the totals of sample are 70 students.

3. Sampling

Sampling is a technique to take a sample.⁷ In this study, the writer used cluster sampling technique. Finally, chosen class VIII E as the experiment class and VIII F as the control class.

F. Technique of Data Collection

In gaining the data, the researcher attempts to employ these following methods.

1. Documentation

It refers to the archival data that helps the researcher to collect the needed data. The researcher will function the document related to the object research such as; students name list and their English score in previous time. It will help the researcher in doing the experiment. Students' name list and score will be used in determining the team for the experiment. In this case, the data will be gained by the help of the English teacher.

2. Test

Test is a set of question and exercises used to measure the achievement or capability of the individual or group.⁸ This method is used to get data about score of the pre-test and post-test was given for both of groups. The experiment class and control class. The test in this study is a multiple choice. In multiple choice test of vocabulary, the student is given four chosen (a, b, c or d) to freedom chance to think as much as possible. They can freely choose their ideas as a correct answer.

⁷Sugiyono, *op. cit*, P. 83

⁸Suharsimi Arikunto, *Op. cit.*, p.150

a. Pre- test

Before the teacher taught new material by using cartoon film, the teacher gave a test to the students. Pre- test were given to the experiment class and the control class. This test is given before the experiment was run.

b. Post- test

Post- test was given to the experiment class and the control class. The test was given in order to know the improvement of students' ability in English verbs using cartoon film. The post- test was given to the experiment class and control class after received treatment. The experiment class taught in English verb by cartoon film. And the control class taught without using cartoon film.

3. Instrument test

An instrument plays an important role in a research in the sense that the reliability of the instrument will influence the reliability of data obtained.

Before the collecting the data the writer make instrument such as pre- test, and post test. In this thesis the writer in concerned with verb mastery of the second grade students of SMP N 18 Semarang. Multiple choice tests are chosen as the type of the test. The verbs items to be tested are taken from the film as entitle "UP" given to the students. The test consists of 30 items. The writer gave score 1 for right answer and score 0 for the wrong answer. The scoring formula:

$$S = \frac{R}{T} \times 10$$

Which:

S : Score

R : The right answers

T : The total maximum right answer

10 : The highest score

Measurement is said well if it has good validity, reliability, degree of test difficult, and degree of question distinctive.

a. Validity

According to Arikunto, a test will be called to be valid if there is sufficient evidence that test score correlated fairly highly with actual ability in the skills being tasted, and then we may feel reason ably safe in assuming that the test is valid for our purpose. The writer corrects all of the items to know whether each of them valid or not. Is measurement that shows the validity of instrument? It is counted using product moment formula.⁹

$$r_{xy} = \frac{N\Sigma_{xy} - \Sigma_x - \Sigma_y}{\sqrt{\{N\Sigma x^2 - (\Sigma x)^2\} \{N\Sigma y^2 - (\Sigma y)^2\}}}$$

Notice:

R_{xy} : question correlation coefficient

N : number of students

X : number of each item score

Y : number of total score

After getting the result, the wrier categorizes it into the standard validity as follows:

Table II

Value	Category
0, 80 - 1, 00	Very Valid
0, 60 - 0, 79	Valid
0, 40 - 0, 5	Valid Enough
0, 20 - 0, 39	Less Valid
0, 00 - 0, 19	Not Valid

A test in said valid when it actually what is intended to measure. Calculation result of r_{xy} is compared with r table of product moment by 5% degree of significance. If r_{xy} is higher than r table, the item of question is valid.

b. Reliability

The Instrument Is called reliable if it is enough to be believed. Then it can used to collect the data. Reliability is another important quantify in the preparations and use of achievement test. The reliability of the test refers to consistency. It is also said

⁹Suharsimi Arikunto, *Dasar-dasar Evaluasi Pendidikan*, (Jakarta: PT. Bumi Aksara, 2002), p.65

Arikunto instrument that has been believe of its reliability will result the data can be believe too.

The writer applied the split holy spearmin brown formula:

$$r_{xy} = \frac{N \sum xy - (\sum x)(\sum y)}{(N(x) - (x))(N(y) - (y))}$$

To have confidence instrument the writers uses the spearman- brown formula as follows:

$$r_{11} = \frac{2 \times r_{xy}}{1 + r_{xy}}$$

In which:

r_{11} = Index reliability

r_{xy} = Index validity ¹⁰

After getting the result, the researcher categories it in to standard of reliability as follow:

In which:

Table III

Value	Category
0, 80 - 1, 00	Very reliability
0, 60 - 0, 79	Reliability
0, 40 - 0, 5	Rarely reliable
0, 20 - 0, 39	Less reliable
0, 00 - 0, 19	Not reliable

c. Degree of test difficulty

The difficulty level an item is identified since it is necessary to know how easy of difficult a particular item of test.

The formula which is used to compute the level of difficulty as follow¹¹:

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

¹⁰*Ibid.*, p.180.

¹¹Sugiyono, *op. cit.* p. 208

Notice:

P : difficulty's index

B : number of students who has right answer

JS: number of students

Where the criterion of computation is:

Table IV

Level	Criteria
$0,00 < P \leq 0,03$	Difficult question
$0,00 < P \leq 0,70$	Medium question
$0,70 < P \leq 1,00$	Easy question

d. The Discriminating Power of The Item

The discriminating power is measure of the effectiveness on item undiscriminating between high and low scores of the whole test. The higher values of discriminating power are the more effective item.

The discriminating power of the item can be obtained by using this following formula:

$$D = \frac{BA}{JA} - \frac{BB}{JB}$$

Where:

D : discriminating power of each item of test

BA : The number of correct answer of upper group

BB : The number of correct answer of lower group

JA : The number of sample of upper group

JB : The number of sample of lower group

The criteria of discrimination index are classified into four levels as follows.

The table of criteria of discriminating power of data:

Table V

Discriminating Power	Category
$0,71 < D \leq 1,00$	Excellent
$0,41 < D \leq 0,70$	Good
$0,21 < D \leq 0,40$	Satisfactory
$0,00 < D \leq 0,20$	Poor
$D < 0$	Very poor

G. Technique of Data Analysis

1. Normality Test

It is used to know the normality of the data that is going to be analyzed whether both groups have normal distribution or not.

Chi square is used here¹²

$$\chi^2 = \sum \frac{(O_i - E_i)^2}{E_i}$$

Notice:

χ^2 : chi square

O_i : frequency from observation

E_i : expected frequency

Calculation result of χ^2 is compared with x table by 5% degree of significance. If χ^2 is lower than x table so the distribution list is normal.

2. Homogeneity Test

Is used to know whether experimental group and control group, that are decided, come from population that has relatively same variant or not. The formula is:¹³

$$F = \frac{Vb}{Vk}$$

Notice:

Vb : bigger varian

Vk : smaller varian

The hypotheses in homogeneity test are:

Ho : homogeny variant: $\sigma_1^2 = \sigma_2^2$

Ha : non homogeny variant: $\sigma_1^2 \neq \sigma_2^2$

If calculation result of F is lower than F table by 5% degree of significance so HO is accepted, it means both groups have same variant.

¹²Sudjana, *Metode Statistika*, (Bandung: Tarsito, 1996), p. 273.

¹³*Ibid.*, p. 250.

3. Test of the average

Is used to examine average whether experimental and control group that has been decided having significant different average from the mark English Verbs in previous time before the treatment.

$\sigma_1^2 = \sigma_2^2$ (Has same variant), the formula is¹⁴:

$$t = \frac{\overline{X}_1 - \overline{X}_2}{\sqrt{\frac{1}{n_1} + \frac{1}{n_2}}}$$

$$S^2 = \frac{(n_1 - 1)S_1^2 + (n_2 - 1)S_2^2}{n_1 + n_2 - 2}$$

$\overline{X}_1$: average of experimental group

$\overline{X}_2$: average of control group

N1 : number of experimental group

N2 : number of control group

S_1^2 : standard deviation of experimental group

S_2^2 : standard deviation of both groups

If $\sigma_1^2 \neq \sigma_2^2$ (has no same variant), the formula is:

$$t^1 = \frac{\overline{X} - \overline{X}_2}{\sqrt{\frac{S_1^2}{n_1} + \frac{S_2^2}{n_2}}}$$

The hypotheses are:

$H_0 : \mu_1 = \mu_2$

$H_a : \mu_1 > \mu_2$

μ_1 : average data of experimental group

μ_2 : average data of control group

¹⁴Sugiyono, *op. cit.*, p.134

Ho Criteria test is Ho is accepted if $-t_{1-\frac{1}{2}\alpha} < t < t_{1-\frac{1}{2}\alpha}$ where $t_{1-\frac{1}{2}\alpha}$ obtained from the distribution list t with $df = (n_1 + n_2 - 2)$ and opportunities $(1 - \frac{1}{2}\alpha)$. Values for other t Ho rejected.

4. Test of Research Result

To examine the hypothesis that have been stated, these following steps are used.

a. Normality test

The steps are same with the steps on data analysis technique.

b. Homogeneity test

The steps are same with the steps on data analysis technique.

c. Hypothesis test

Proposed hypothetical test in average similarity with the right test is as follows:

$$H_0 = \mu_1 = \mu_2$$

$$H_a = \mu_1 > \mu_2$$

μ_1 : average data of experiment group

μ_2 : average data of control group

The t-test formula is used.

$$t = \frac{\overline{X}_1 - \overline{X}_2}{\sqrt{\frac{1}{n_1} + \frac{1}{n_2}}}, \text{ with}$$

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

Where:

$\overline{X}_1$: average of experimental group

$\overline{X}_2$: average of control group

n_1 : number of experiment group

n_2 : number of control group

S_1^2 : standard deviation of experiment group

S_2^2 : standard deviation of control group

Testing criteria that apply H_0 is accepted if $t_{count} > t_{table}$ with determinate $df = (n_1 + n_2 - 2)$ and the significant $\alpha = 5\%$ ($1 - \alpha$).