

Chapter III

RESEARCH METHOD

A. Research Approach

This is quantitative research. This research focused on identifying the effectiveness of using songs to teach parts of speech. The researcher focused on giving test to the student in order to know the effectiveness of using songs to teach parts of speech. Some statistical measurement, to calculate percentage had been applied to support the data analysis. In this study, researcher able to find out the effectiveness of using songs to teach parts of speech.

B. Setting and time

The researcher conducted the research at the seventh grade of SMPN 1 BANSARI, TEMANGGUNG in the second semester of the academic year of 2009/2010. She conducted this research from 10th of February 2010 to 25th of February 2010.

Table 1
List of time of the study

Number	Activity	February						
		10 th	12 th	13 th	18 th	19 th	20 th	25 th
1.	Try out							
2.	Pre test							
3.	Treatment 1							
4.	Treatment 2							
5.	Treatment 3							
6.	Post test							

For the table above, it can be concluded that this research administrated six steps, first, gave a tryout test for tryout class. Second, gave pre test for both classes (experimental and control classes). Third step, the researcher gave treatment both classes by difference treatment, it was conducted three times treatment in each class. And the last, to get the result of treatment, the researcher gave a post test to both classes.

C. Research Design

The method of the research was experimental. An experimental is “defined as a situation in which one observes the relationship between two variables by deliberately producing a change in one and looking to see whether this alteration produces a change in the other (Anderson 1969)”.¹ In other words, the researcher look at significant different between first variable (use of song in teaching parts of speech) and second variable (students’ score in parts of speech).

The researcher chose the method because she wants to know the effectiveness of using songs in student’s parts of speech achievement. The approach used is quantitative. It means the method and instrument involve numerical measurement and then statistical quantification was conducted. In experimental design, a pre-test was administered and then followed by separate methodological treatments to a number of different groups of pupils. After a fixed period of time a post test was given.

Based on the explanation above, the design of the research can be described in the pattern below:

Experimental Group	Pre-test (O1)	Treatment	Post-test (O2)
Control Group	Pre-test (O3)	Treatment	Post-test (O4)

¹ Rodgers and Brown, *Doing Second Language Research*, (Cambridge: Oxford Press 2002), p. 211.

This research focused on identifying the effectiveness of using songs to teach parts of speech. So that to measure the effectiveness of song as media to teach parts of speech, the researcher identified some result they are:

1. The score of students before treatment.
2. The score of students after treatment.
3. The differences between pre test and post test score of students.
4. The differences of students' atmosphere between the students who are taught by using song and the students who are not taught by using song in teaching and learning process

D. Variable research

Variable is a variation object of the study. From the design of experiment 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.² So, the variables in this study are:

1. Independent Variable (x).

Independent variable in this research is the use of song in teaching parts of speech.

2. Dependent Variable (y).

Dependent variable in this study is the parts of speech achievement score of students at the seventh grade of SMP NEGERI 1 BANSARI, TEMANGGUNG.

² Suharsimi Arikunto, *Prosedur Penelitian: Suatu Pendekatan Praktik* (Jakarta: PT Rineka Cipta, 2006), 13th Ed., p. 118-119.

E. Population, Sample and Sampling Technique

1. Population

According Arikunto, population is all of the subject of research.³ In other word, population is the big research group chosen to representing all members of group. The population of this research was the students of seventh grade of SMPN I Bansari Temanggung in the academic year of 2009/2010. The seventh grade Students of SMPN 1 Bansari is divided into six classes. There are class VII A, VII B, VII C, VII D, VII E and VII F. There are 30-41 students in each class. The total number of the population is 240 students.

Table 2
List of population

Class	Male	Female	Total
VII A	15	24	39
VII B	14	25	39
VII C	22	18	40
VII D	19	21	40
VII E	23	18	41
VII F	23	18	41
Total	116	124	240

2. Sample

Sample is representative of population that will be observed.⁴ Sampling is the process of selecting number of individuals for the study in such a way that the individuals represent the larger group from which they are selected.

The researcher took sample in this research because the respondents are more than 100 persons. The important thing in this study is the aim of sampling is to construct a sample that can represent the entire population. It means that sample must be able to represent the whole data of population.

³ Suharsimi Arikunto, *op. cit.*, 13th Ed., p. 130.

⁴ *Ibid.*, p. 131.

Sample in this research is class VII C is as control class, VII D is as experimental class and VII E is as tryout class.

3. Sampling technique

In this research, the researcher used random sampling technique. It was used because it was easy to carry out and did not need to follow difficult procedure. In this case, the classes were randomly chosen as the sample of the research in which each of them as a number of populations had an equal chance to be included in. the sample the sample.⁵

The numbers of seventh year students of SMPN 1 Bansari Temanggung were 240 students divided into six classes. Then the researcher asked permission to the English teacher to take three classes as sample in this research, they are as try out, control and experimental class. The three chosen classes as samples created by lottery that determined the tryout, experimental and control group.

And the last we got class VII C, VII D and VII E as a sample. The class VII D is as experimental class, VII C is as control class and VII E is as tryout class.

F. Technique of Data Collection

To get the accurate data in this study, the researcher selects the instruments that will be appropriate for the problem statement, there are:

1. Test

Arikunto said that test is questions or exercises and other tools which used to measure skill, intelligence knowledge, and ability that had by individual or group. In this research, the test was given to tryout class, control class and experimental class.

The instrument of the test in this research is objective test. There are many kinds of objective test; they are true-false test, multiple choice tests, matching test and completion test. The researcher used multiple choice forms since it was easy to score and administer.

⁵ Sugiarto, *Teknik Sampling*, (Jakarta: PT Gramedia Pustaka Utama, 2003), p. 90

The researcher used multiple choice forms and matching items form. The choice of the test type is based on the consideration that multiple choice test are:

- a. Easier to be scored and it does not take much time to score
- b. More objective to score because it just has one correct answer.
- c. Not subjectivities to score

In this research, the researcher used pre test and post test, they are:

1) Pre-test.

Before the researcher teaches new material by using song, the researcher gave a test to the students. Pre-test was given to the experimental group and control group with same test. This test was given before the experiment was run.

2) Post-test.

To get the data, the researcher gave a post-test to experiment group and control group in order to know the ability of the students after they were taught by using song and the students who were taught without song as media to teach parts of speech. The score of students' achievement can be calculated by using this following formula:⁶

$$\text{Score} = \frac{\text{The number of righth answer}}{\text{The number of questions}} \times 100 \%$$

G. Technique of Data Analysis

1. Tryout Instrument of the Test

To find out the effectiveness of song to teach parts of speech, the researcher provided any test, one of them tryout test. Tryout test is conducted before the pre test is administered. The tryout was given to VII E of the students of SMP N 1 Bansari Temanggung. The researcher prepared 20 items as the instrument of the test. The quality of data, whether it is good or bad is based on the instrument used. So, before the

⁶ Suharsimi Arikunto, *Dasar- Dasar Evaluasi Pendidikan*, (Jakarta: Bumi Aksara, 2007) 7th Ed, p. 235-236

test was used an instrument to collect the data, it had been tried out first to the students in tryout class. From 20 test items of tryout, some items were chosen as the instrument of the test. The choosing of the instrument had been done by considering many categories as follows:

a. The Validity.

Validity is a measurement which shows validity of the instrument.⁷ An instrument is said to be valid when it really measures what is supposed to be measured/tested. Validity is the most important variable in judging the quality of a measurement of an instrument before we use. Validity is counted by using product moment correlation formula:⁸

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

R_{xy} = The correlation coefficient between X variable and Y variable.

N = The number of the students.

X = The number of each item score.

Y = The number of total score.

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.

Reliability refers to the consistency of test score, if it measured twice or more because each research can be possibly wrong.⁹ A measurement is said to be reliable or consistent if the measurement can produce similar results if used again in similar circumstance. To get the coefficient of correlation, the writer applied the *product-moment*

⁷ Suharsimi Arikunto, *op. cit.*, 13th Ed., p. 168.

⁸ Karnadi Hasan, *modul Dasar-Dasar Statistika Terapan*, (Fakultas Tarbiyah IAIN Walisongo: Semarang), p.5.

⁹ Suharsimi Arikunto, *op. cit.* 7th Ed., p.86.

formula and then continued to the *spearman-brown* formula. The formula of product moment as follow:

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

In which,

r_{XY} : Coefficient of correlation between the scores of the first and last part of the items.

N : The number of students / subject participating in the test/ testee.

Σ_x : The score of first part

Σ_y : The score of last part

After finding r_{XY} the computation is continued to the *spearman-brown* formula as follow:¹⁰

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

In which,

r_{11} : The reliability of the instrument.

r_{xy} : Coefficient of the correlation between the first and last part.

Calculation result of r_{11} is compared with r_{table} of product moment by 5% degree of significance. If r_{11} is higher than t_{table} , the item of question is reliable.

c. Degree of Test Difficulty.

An item is considered to have a good difficulty level if it is not too easy or too difficult for the students, so they can answer the items. If a test contains many items, which are too difficult or too easy, it can not function as a good means of evaluation. Therefore, every item

¹⁰ Suharsimi Arikunto, *op. cit.*, 13th Ed., p.180.

should be analyzed first before it is used in a test. Each item was classified in the difficulty level by using this formula:¹¹

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

In which,

FV : The index of difficulty

R : Number of students who answered the item correctly

N : Number of students

Or:

$$FV = \frac{\text{Correct } U + \text{Correct } L}{2n}$$

In which:

D : The discrimination index

U : The number of the students in the upper group who answered item correctly

L : The number of the students in the lower group who answered item correctly

n : The number of the students in one group.

The criteria are:

$P = 0.00 \leq P \leq 0.30$ Difficult question.

$P = 0.30 \leq P \leq 0.70$ Sufficient.

$P = 0.70 \leq P \leq 1.00$ Easy.

¹¹ J.B Heaton, *Writing English Language Test*, (London: Longman Group Limited, 1976), p. 172.

d. Discriminating Power.

The discriminating power measures how well the test items arranged to identify the differences in the students' competence. The formula is:¹²

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

In which,

D : The discrimination index

U : The number of the students in the upper group who answered item correctly

L : The number of the students in the lower group who answered item correctly

n : The number of the students in one group.

The criteria of discriminating power:

$0.00 \leq p \leq 0.20$ Less

$0.20 \leq p \leq 0.40$ Enough

$0.40 \leq p \leq 0.70$ Good

$0.70 \leq p \leq 1.00$ Excellent

2. Pre-request Test

Before the writer determines the statistical analysis technique used, He examined the normality and homogeneity test of the data.

a. Normality Test

It is used to certain normality of the data that is going to be analyzed whether both groups have normal distribution or not. The normality test with Chi-square is done to find out the distribution data. Step by step Chi-square test is as follows:

- 1) Determine the range (R); the largest data reduced the smallest.
- 2) Determine the many class interval (K) with formula:

$$K = 1 + (3.3) \log n$$

¹² *Ibid*, p. 174.

- 3) Determine the length of the class, using the formula:

$$P = \frac{\text{range}}{\text{number of class}}$$

- 4) Make a frequency distribution table.
 5) Determines the class boundaries (bc) of each class interval.
 6) Calculating the average \bar{X} (\bar{X}), with the formula:

$$\bar{X} = \frac{\sum f_i x_i}{\sum f_i}$$

- 7) Calculate variants, with the formula:

$$S = \sqrt{\frac{\sum f_i (x_i - \bar{x})^2}{n-1}}$$

- 8) Calculate the value of Z, with the formula:

$$Z = \frac{x - \bar{x}}{s}$$

x = limit class.

\bar{x} = Average.

S = Standard deviation.

- 9) Define the wide area of each interval.
 10) Calculate the frequency expository (Ei), with formula:
 $E_i = n \times \text{wide area}$ with the n number of sample.

- 11) Make a list of the frequency of observation (Oi), with the frequency expository as follows:

class	Bc	Z	P	L	Ei	$\frac{O_i - E_i}{E_i}$

- 12) Calculate the chi-square (X^2), with the formula:

$$X^2 = \sum_{i=1}^k \frac{(O_i - E_i)^2}{E_i}$$

- 13) Determine $dk = k-3$, where k is the number of class intervals and $\alpha = 5\%$.

14) Determining the value of X^2 table.

15) Determining the distribution normality with test criteria:

If $X^2_{count} > X^2_{table}$, the data is not normal distribution and the other way if the $X^2_{count} < X^2_{table}$, the data is normal distribution.¹³

b. Homogeneity Test

Homogeneity test should be given to both classes; they are control and experimental class before the experiment just to make sure that the both classes really are the same.

The steps as follows:

1) Calculate variants both classes (experimental and control classes), with the formula:

$$S_1^2 = \frac{\sum (x - \bar{x})^2}{n_1 - 1} \text{ And } S_2^2 = \frac{\sum (x - \bar{x})^2}{n_2 - 1}$$

2) Determine $F = \frac{Vb}{Vk}$

Where:

Vb : Bigger Varian.

Vk : Smaller Varian.

Determine dk = $(n_1 - 1) : (n_2 - 1)$

3) Determine F_{table} with $\alpha = 5\%$

4) Determining the distribution homogeneity with test criteria:

If $F_{count} > F_{table}$, the data is not homogeneous and the other way if the $F_{count} < F_{table}$, the data is homogeneous.¹⁴

¹³ Sudjana, *Metode Statistika*, (Bandung: Tarsito, 1996), p. 273.

¹⁴ *Ibid*, p. 250.

c. Test of the Average

It is used to examine average whether experiment group and control group have been decided having different average.¹⁵

T-test is used to analyze the data of this research. A t-test would be the measure you would use to compare the mean scores of the two groups.¹⁶

If $\sigma_1^2 = \sigma_2^2$ (has same variant), the formula is:

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

With

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

Where:

\bar{X}_1 : The mean score of the experimental group

\bar{X}_2 : The mean of the control group

n_1 : The number of experiment group

n_2 : The number of control group

S_1^2 : The standard deviation of experiment group

S_2^2 : The standard deviation of both groups

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

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

¹⁵ Anas Sudijono, *Pengantar Statistik Pendidikan* (Jakarta: PT. Raja Grafindo Persada, 1995) 6th Ed, p. 264.

¹⁶ Rodgers and Brown, *op cit*, p. 205.

The hypotheses are:

$$H_0 = \mu_1 = \mu_2$$

$$H_a = \mu_1 \neq \mu_2$$

μ_1 : average data of experiment group

μ_2 : average data of control group

Criteria test is: H_0 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 $dk = (n_1 + n_2 - 2)$ and opportunities $(1 - \frac{1}{2}\alpha)$. Values for other t H_0 rejected.¹⁷

H. Hypothesis Test

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

$$H_0 = \mu_1 = \mu_2$$

$$H_a = \mu_1 > \mu_2$$

If $\sigma_1^2 = \sigma_2^2$ (has same variant), the formula is:

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

With

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

Where:

\bar{X}_1 : The mean score of the experimental group

\bar{X}_2 : The mean of the control group

n_1 : The number of experiment group

n_2 : The number of control group

S_1^2 : The standard deviation of experiment group

S_2^2 : The standard deviation of both groups

¹⁷ Sudjana., *op.cit* p. 239.

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

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

Testing criteria that apply H_0 is accepted if $t_{count} > t_{table}$ with determine $dk = (n_1 + n_2 - 2)$ and $\alpha = 5\%$ with opportunities $(1 - \alpha)$. Values for other t H_0 rejected.¹⁸ This Analysis used to interprets more complete of the result of hypothesis. In this Analysis the researcher interprets from the results of the data which already proceed. Then, compare t-test or t_0 with t table in the value 5%.

1. If the result of t value $<$ t table, it means there are no differences result between students who are taught by using song and those are taught by using conventional method.
2. If the result of t value $>$ t table, it means there are differences result between students who are taught by using song and those are taught by using conventional method.

I. Research Procedures

There are three stages in doing this experiment: pre-test, experiment, and post-test.

1. Pre-test

The pre-test was administered before the treatment session. The researcher gave them multiple choice tests. This was done to both groups, the experimental and controlled groups.

¹⁸ Sudjana, *op cit*, p. 243.

2. Giving a treatment

The two groups were given a different treatment. In this research, there were three times treatments of each group. It can be explained as follows:

a) Experimental Group

- 1) In the first meeting, first, the teacher introduced students about parts of speech and the kinds of eight parts of speech.. Then gave lyric song in a paper (noun and adjective), taught how to pronounce each of the words in song lyric, gave example one or more how to sing a song and asked students sing together repeatedly until they can memorize and understand the song lyric. Then asked the students to analyze song lyric based on their understanding in a group, asked each group explain it in front of the class. After that teacher explain more the song lyric in order to make students correct their mistakes.
- 2) In the end of teaching learning process in the classroom, the teacher asked students found some example of noun and adjective in word and sentence (minimal 10 words and 10 sentences) as their homework.
- 3) In the second meeting, the teacher corrected the students' work and gives feedback. After that asked students memorize song by singing it one by one in front of the class 1 up to 5 students and to be continued with other material (verb and adverb) with same procedures.
- 4) In the third meeting, the teacher reviewed the material (noun, adjective, verb and adverb) by using songs and be continued by gave them post test.

b) Control Group

- 1) In the classroom, teacher only introduced and explained about parts of speech with conventional method and also gave them assignment.

2) The first meeting teacher taught about noun and adjective. The second meeting about verb and adverb and the last meeting the teacher reviewed the material to be continued with gave them post test.

3. Administering a post-test

After different treatment was given, the students both experimental and control group were given a post-test on writing test. This test was aimed to measure the students' achievement on parts of speech. The teacher gave them multiple choice tests. From this test, the researcher scored the result of the test, determined the means of the result of the two groups, compared the means of both experimental and control group by applying the *t-test* formula and the last consulted the t-test with critical t-value of the 5% (0.05) alpha level of significance.