

CHAPTER III

RESEARCH METHOD

A. Research Design

This research is a quantitative correlational research, because it compares two variables and finds the relationship between them. The aim of correlational research is to investigate the existence and the degree of a relationship between two or more quantitative variables. If two variables are highly related, scores on one variable can be used to predict scores on the other variable.

There are many kinds of research design in conducting research. They are: quantitative and qualitative. Each of them is used depends on the objectives of the research. The method of the researcher's research is quantitative correlational method because the analysis stresses on the numerical data that processed with statistical data.

This research focused on listening to English songs to measure students' vocabulary power. This study used correlational research because this method showed the relationship and the influence. The researcher wanted to investigate the frequency of listening to English songs and students' vocabulary power. The researcher investigated the influence of frequencies of listening to English songs toward students' vocabulary power.

B. Research Setting

1. Subject and Place of the Research

This research was conducted at SMP NU 03 Islam Kaliwungu, Kendal. It is located on Jl. Ngaglik, Kutoharjo, Kaliwungu, Kendal. The subject of the study was the students of seventh grade of SMP NU 03 Islam Kaliwungu in academic year of 2016/2017.

2. Time of the Research

The research had been held about 3 weeks from October 20th, 2016 – November 9th, 2016.

C. Subject of the Research

1. Population

Population is all units or individual in the scope that will be analyzed. It is divided into target population and sampling population. Target population is all individual in the area/place/time that is suitable for the purpose of research. Sampling population is all individuals which will be unit of analysis in the population that is appropriate to be taken as the research sample with the sample framework.³⁶

Population is the most significant factor in conducting a research. Population is the generalization

³⁶Sugiarto, et. al, *Teknik Sampling*, (Jakarta: PT. Gramedia Pustaka Utama, 2001), p. 2-3.

region which consists of objects or subjects who have certain qualities and characteristics that set by researcher to learn and then draw a conclusion.³⁷ The population of this study was the seventh grade students of SMP NU 03 Islam Kaliwungu in the academic year of 2016/2017. The seventh grade students were divided into two classes. Each class consisted 26 students. So, the amount of the population was 52 students.

2. Sample

Sample is part of population which is supposed to represent the characteristics of the population.³⁸ Sample is taken from part population, but not all. The part of population is observed is called as a sample. The sample was the students of seventh grade of SMP NU 03 Islam Kaliwungu, Kendal.

3. Sampling Technique

Sampling technique is a technique used to take the sample.³⁹ The researcher used bored sampling for her research because this technique determining sample if all members of population are used as a sample. This technique is often conducted when the amount of

³⁷ Sugiyono, *Metode Penelitian Pendidikan Pendekatan Kuantitatif, Kualitatif, dan R&D*, (Bandung: Alfabeta, 2010), p.117.

³⁸ Sugiarto, et. al, *Teknik Sampling*, (Jakarta: PT. Gramedia Pustaka Utama, 2001), p. 2.

³⁹ Sugiyono, *Metode Penelitian Pendidikan Pendekatan Kuantitatif, Kualitatif, dan R&D*, (Bandung: Alfabeta, 2010), p.118.

population is relative small, or research which wishes to make generalizing with small mistake. Other term of this sample is census, where all the population members used as a sample.⁴⁰ The samples were VII A and VII B.

D. Research Variable

1. Variable

A variable is something that may vary or different.⁴¹ Variable is a characteristic that will be observed from the observation. The characteristic is varying or has different condition from one observation to others, or the same observation, the characteristic is changeable based on the time and place.⁴²

Variable is everything that is chosen by researcher to be learnt to get information about it, then drawn a conclusion. Variables are divided into two kinds, variable X and variable Y.⁴³

⁴⁰Sugiyono, *Statistika untuk Penelitian*, (Bandung: Alfabeta, 2007), p. 68.

⁴¹ James Dean Brown, *Understanding Research in Second Language Learning*, (New York: Cambridge University Press, 1988), p. 7.

⁴² Sambas Ali Muhidin and Maman Abdurrahman, *Analisis Korelasi, Regresi, dan Jalur dalam Penelitian*, (Bandung: CV. Pustaka Setia, 2007), p. 13.

⁴³ Sugiyono, *Metode Penelitian Pendidikan Pendekatan Kualitatif, Kuantitatif, dan R&D*, (Bandung: Alfabeta, 2010), p. 60-61.

The variable X of this research is the students' frequency of listening to English songs. The indicators are as follows.

a. Frequency

Frequency is how often the activity will be held in certain time. The students with high frequency of listening to English songs, they are good in their vocabulary power.

b. Activity

Activity has a best quality in teaching learning process. It gives good influence in learning and improves the students' potential and activeness.

Referring to the definition, the variable Y of this research is students' vocabulary power. The indicators are as follows.

- a. Students are able to memorize the vocabularies in the song.
- b. Students are able to use the vocabularies to express their thoughts in daily conversation.
- c. Students are able to match each word with a synonym, a dictionary-type definition or an equivalent word in their own language.

E. Technique of Collecting Data

1. Test

Test is a method of measuring a person's ability, knowledge, or performance in a given domain.⁴⁴ Test is constructed as a device to reinforce learning and to motivate students' performance in the language. Test is an instrument or procedure design to elicit performance from learners with the purpose of measuring their attainment of specified criteria.

Haris said that there are many goals of test generally, they are:⁴⁵

- a. To point out the readiness of learning process program
- b. To classify or place the students in language class.
- c. To analyze the advantages and disadvantages
- d. To measure the students' achievement
- e. To evaluate the effectiveness of learning process.

This research used an achievement test (achievement test are directly related to language courses, their purpose being to establish how successful individual students, group of students, or the courses achievement themselves have been in achieving objectives) to measure the students' vocabulary power based on their frequency

⁴⁴ H. Douglas Brown, *Language Assessment Principles and Classroom Practices*, (Longman,), p. 3.

⁴⁵ Iskandar Wassid and Dadang Sunendar, *Strategi Pembelajaran Bahasa*, (Bandung: PT. Remaja Rosdakarya, 2008), p. 180-183.

in listening to English songs. The forms of the test are multiple choice tests.

According to Sudjana, multiple choice tests are a test that has one correct answer. Views of the structure, the form of multiple choices consist of:⁴⁶

- a. Stem : questions or statements that contain issues that should be asked.
- b. Option : some options or alternative answer.
- c. Key : the correct answer
- d. Distractor : the other answer except the answer key.

In this test, the researcher has given 15 questions. The form of the test is multiple choice with four optional answers (A, B, C, or D). Each correct item has one score. So, the students will get 15 scores if all answer are correct. Then $\frac{15 \times 2}{3} \times 10 = 100$.

2. Questionnaire

A questionnaire is a number of written questions, which are used to gain information from the respondent directly and indirectly.⁴⁷ Questionnaire is divided into two parts. They are open question and closed question.

⁴⁶ Nana Sudjana, *Penelitian Hasil Proses Belajar Mengajar*, (Bandung: PT. Remaja Rosdakarya, 2010), p. 48.

⁴⁷ Suharsimi Arikunto, *Prosedur Penelitian Suatu Pendekatan Praktik*, (Jakarta: Rineka Cipta, 2006), p. 119.

a. Open Question

Open question is that enables the respondent to answer the question freely according to their interpretation and opinion.

b. Closed Question

Closed question is that enables the respondent not given any probability to give long answer in his way of explanation, because the researcher has determined the answer of the question and the respondent only has to choose the available options.⁴⁸

There are some scales of questionnaire. The researcher used closed questionnaire that consisted of five scales. To score the scale, the alternative responses are credited 1, 2, 3, 4, or 5 respectively. It consists of 10 questions.

In this case the researcher distributes the sheets of paper as questionnaire to get data on students' frequency of listening to English songs at SMP NU 03 Islam Kaliwungu Kendal. The questionnaire is in Indonesian language.

⁴⁸ Suharsimi Arikunto, *Prosedur Penelitian Suatu Pendekatan Praktek*, (Jakarta: Rineka Cipta, 2006), p. 338.

3. Documentation

Documentation method is intended to find data on manuscript, book, magazine, newspaper, epigraph and agenda.⁴⁹ In this study, the writer uses school report card to get the data about student's English learning achievement.

F. Technique of Data Analysis

Data analysis is the last step in the procedure of research. In the analyzing the data from the pre-test and post-test, the researcher used the statistical calculation of Pearson coefficient correlation. Pearson coefficient correlation is used in order to find out the correlation between the score of students' frequency of listening to English songs and their vocabulary power.

1. Validity

Validity is a measurement that shows the levels of validity of instrument. It is a condition in which a test can measure what is supposed to be measured. The valid instrument has the high level of validity. It means that an valid instrument can measure the object which is researched.

⁴⁹ Suharsimi Arikunto, *Prosedur Penelitian Suatu Pendekatan Praktek*, (Jakarta: Rineka Cipta, 2006), p.135.

The validity of an item can be known by doing item analysis. It is counted using product - moment correlation formula:⁵⁰

$$r_{pbi} : \frac{M_p - M_t}{SD_t} \sqrt{\frac{p}{q}}$$

Where:

r_{pbi} : point biserial correlation coefficient

M_p : the mean scores of subjects who correctly searched items correlation with the test.

M_t : the average score of the total score.

SD_t : standard deviation of the total score

p : the proportion of subjects who answered right against the grain of the item being tested for validity item.

q : the proportion of subjects who answered wrong of the items of the item being tested for validity item.

⁵⁰ Anas Sudijono, *Pengantar Evaluasi Pendidikan*, (Jakarta: RajaGrafindo Persada, 2012), p.185

Calculating result of r_{pbi} is compared with score r_{table} by 5% degree of significant. If $r_{count} > r_{table}$ test items of question is valid.

2. Reliability

Reliability refers to the stability or the consistency of the test scores. Reliability is an instrument called reliable to be used as a tool of collecting data because the instrument has been good. The reliable instrument can produce the reliable data too.⁵¹

To calculate the reliability of the test, the researcher used the formula of K - R 20 as follows:⁵²

$$r_{11} = \left(\frac{n}{n-1} \right) \left(\frac{s^2 - \sum pq}{s^2} \right)$$

Where:

- r_{11} : the reliability of the test
- n : the number of question of the test
- s^2 : the standard deviation of the test
- p : the proportion of students who give the right answer
- q : the proportion of students who give the wrong answer

⁵¹ Suharsimi Arikunto, *Prosedure Penelitian Suatu Pendekatan Praktik*, (Jakarta: Rineka Cipta, 2006), p.221.

⁵² Suharsimi Arikunto, *Dasar-dasar Evaluasi Pendidikan*, (Jakarta: PT, Bumi Aksara, 2006), p. 100-101.

after getting r_{11} , the interpretation of reliability coefficient is as follow:⁵³

$r_{11} \geq 0.70$ means high reliability (reliable)

$r_{11} \leq 0.70$ means low reliability (un-reliable).

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

3. Degree of Difficulty

A good question of the test is a question that is not really difficult and not really easy. The formula for degree of test difficulty is:⁵⁴

$$P = \frac{\sum x}{S_m N}$$

Where:

P : index of difficulty

$\sum x$: the number of students who answer correctly

S_m : maximum score

N : the number of the participants

⁵³ Anas Sudijono, *Pengantar Evaluasi Pendidikan*, p. 209.

⁵⁴ Suharsimi Arikunto, *Dasar-dasar Evaluasi Pendidikan*, (Jakarta: PT, Bumi Aksara, 2006), p. 208.

The degree of test difficulty level can be classified as follows:⁵⁵

$0,00 < P \leq 0,30$ (difficult)

$0,30 < P \leq 0,70$ (medium)

$0,70 < P \leq 1,00$ (easy)

4. Discriminating Power

The discriminating power is a measure of the effectiveness of a whole test. The higher and low values of discriminating power are the more effective test will be.

$$D = \frac{\sum A - \sum B}{n}$$

Where:

D : discrimination index

$\sum A$: number of students of the right answer on the high class

⁵⁵ Sumarna Supratna, *Analisis Validitas, Reliabilitas dan Interpretasi Hasil Tes*, p. 12.

ΣB : number of students of the right answer on the low class

n : number of students of the high class or low class ($27\% \times N$)

Distinguishing feature criteria (D) are as follows:⁵⁶

$D > 0.3$ (accepted)

$0.10 < D < 0.29$ (revised)

$D < 0.10$ (rejected)

Multiple choice items of various kinds, matching of words with synonym or definitions, supplying an L1 equivalent for each L2 target word, the checklist (or yes-no) test, in which test-takers simply indicate whether they know the word or no. In this research, the researcher used multiple choice items.

There are five scales of scoring students' vocabulary enrichment, they are as follows:⁵⁷

Excellent : 80-100

Good : 66-79

Fair : 56-65

⁵⁶ Sumarna Supratna, *Analisis Validitas, Reliabilitas dan Interpretasi Hasil Tes*, p. 31-47.

⁵⁷ Suharsimi Arikunto, *Dasar-dasar Evaluasi Pendidikan*, (Jakarta: Bumi Aksra, 2006), p. 245.

Poor : 40-55

Fail : 30-39

The second test instrument was questionnaire. The researcher analyzed data from questionnaire to find out inputs of the students. The students should answer the questionnaire by choosing five responses, they are; *strongly agree* has 5 points, *agree* has 4 points, *doubtful* has 3 points, *disagree* has 2 points, and *strongly disagree* has 1 point.

The data analysis started by summing up the item credits of questionnaire, which would be answered by the respondents. Their individual total scores is graded into five categories, they are as follows:

Very High : 85-100

High : 70-84

Fair : 55-69

Low : 40-54

Very Low : 25-39

5. Normality test

The researcher used normality test to know the normality distribution of the frequency of listening English songs and students' vocabulary power. The formula is as follow:⁵⁸

⁵⁸ Sudjana, *Metoda Statistika*, (Bandung: PT. Tarsito, 2005), p. 273.

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

Where:

x^2 : chi-square

O_i : frequency from observation

E_i : expected frequency

6. Homogeneity test

The researcher used homogeneity test to know the data has homogeneity variance. The researcher used the formula below:⁵⁹

$$x^2 = (n - 1) \left\{ B - \sum (n_i - 1) \log S_i^2 \right\}$$

With:

$$B = (\log s^2) \sum (n_i - 1) \text{ and } s^2 = \frac{\sum (n_i - 1) S_i^2}{\sum (n_i - 1)}$$

Where:

x^2 : chi square

S_i^2 : i-variance

n_i : number of participant

k : the sum of interval class

⁵⁹ Sudjana, *Metode Statistika*, (Bandung: Tarsito, 2002), p. 263.

If $\chi^2_{count} \geq \chi^2_{(1-\alpha)(k-1)}$ with significance 5% and $dk = k - 1$ so H_0 was refused, the data is not homogeneous. If the participant is homogeneous, the researcher uses the formula of homogeneity test below:⁶⁰

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

Where:

Vb : biggest variance

Vk : smallest variance

Hypothesis: $H_0: a_1^2 = a_2^2$

$H_0: a_1^2 \neq a_2^2$

H_0 is accepted if $F < F_{1/2\alpha}(nb-1) : (nk-1)$

7. Hypothesis analysis

The last analysis uses regression one predictor analysis; the steps will be explained as follow:

a. Looking for the regression similarity:

$$Y = Ax + K$$

Where:

Y = Criterion

X = Predictor

A = the numeral of predictor coefficient

⁶⁰ Sugiyono, *Statistika untuk Penelitian*, (Bandung: Alfabeta, 2007), p. 140.

K = the numeral of constant

To look for the value of a and K, the researcher uses deviation score method. The formula is as follows:

$$a = \frac{(\sum y)(\sum x^2) - (\sum x)(\sum xy)}{n\sum x^2 - (\sum x)^2}$$

$$b = \frac{n\sum xy - (\sum x)(\sum y)}{n\sum x^2 - (\sum x)^2}$$

b. Variant analysis of regression line:

$$F_{reg} = \frac{RK_{reg}}{RK_{res}}$$

$$RK_{reg} = \frac{JK_{reg}}{db_{reg}}$$

$$RK_{res} = \frac{JK_{res}}{db_{res}}$$

$$RK_{res} = \frac{(\sum xy)^2}{\sum x^2}$$

$$JK_{reg} = \sum y^2 - \frac{(\sum xy)^2}{\sum x^2}$$

Where:

F_{reg} = Price of F numeral for regression line

RK_{reg} = Mean of regression line quadrate

Rk_{res} = Mean of residue quadrate

dbreg = Degree or residue freedom⁶¹

The ranging of regression is as follow:⁶²

0, 00 - 0, 19 means very low correlation

0, 20 - 0, 39 means low correlation

0, 40 - 0, 69 means fair correlation

0, 70 - 0, 89 means high correlation

0, 90 - 1, 00 means very high correlation

After getting Freg, the next step is comparing the price of Freg with the value on the table value. The table value is 1% or 5%.

- a. It is significant if $F_{reg} > F_t$ 1% or 5%. There is significant influence of frequency of listening to English songs toward students' vocabulary power.
- b. It is not significant if $F_{reg} < F_t$ 1% or 5%. There is no significant influence of the frequency of listening to English songs toward students' vocabulary power.⁶³

⁶¹ Sugiyono, *Metode Penelitian Kuantitatif Kualitatif, dan R&D*, (Bandung: Alfa Beta, 2008), p. 257.

⁶² Ridwan and H. Sunarto, *Pengantar Statistika Pendidikan, Sosial, Ekonomi, Komunikasi, dan Bisnis*, (Bandung: Alfabeta, 2001), p. 81.

⁶³ Sutrisno Hadi, *Analisis Regresi*, (Yogyakarta: Andi Office, 2001), p. 5.