

CHAPTER III

RESEARCH METHODOLOGY

A. Research Design

There are many kinds of research design in conducting a research. Quantitative research is the research which based on positivism philosophy in which is used for observed certain populations or sampling. This work is based on quantitative research. Correlation research aims at investigating the existence and the degree of relationship between two or more quantitative variables.⁴⁰ If two variables are highly related, score on one variable could be used to predict scores on the other variable.

In a correlation design, two different methods can be applied. The most commonly known is seen in relationship studies. In these studies, score obtained from two variables are correlated to determine the relationship. The second method applied in the prediction studies; however, use the score of one variable to predict the outcome of the other variable.

In this research, the researcher carried out the observation at SMA N 1 Mayong Jepara, and gave questionnaire and listening test, and then it calculated. After scoring of test and questionnaire, the researcher calculated Coefficient Correlation.

⁴⁰Sugiyono, *Statistik Untuk Penelitian*, (Bandung: Alfa beta, 2011), p.224.

Then the researcher will have some concerning with the students' listening score and questionnaire score. The researcher tried to determine that are there any correlation between the frequency of watching English film and students' listening skill? These scores used the formula of Pearson Product Moment Correlation Coefficient.⁴¹

The purpose of this research is to get empirical data about the correlation between the frequency of watching English film and students' listening skills, at the second grade students of SMA N 1 Mayong Jepara.

B. Research Setting

The research was conducted at SMA N 1 Mayong Jepara that is located on Jalan Raya Kudus - Jepara Telp (029) 1754093 Jepara Kode Pos 59465.

The research was carried out from March 26th up to April 1st, 2013. Before doing the research, the researcher prepared test and questionnaire that will be used to measure students' listening skills and frequency of watching English film. After getting an agreement of the school principal and then consult to an English teacher who taught at XI IA 2 of SMA N 1 Mayong.

The researcher chooses SMA N 1 Mayong because this is one of developing school in Jepara district that can reach easily.

⁴¹Anas Sudijono, *Pengantar Statistik Pendidikan* (Jakarta: PT Raja Grafindo Persada, 2004) p.188.

The researcher also wants to investigate the students' interest of English in this school.

C. Population and Sample

1. Population

Population is all cases, situations or individuals who share one or more characteristic.⁴² According to Sugiyono, Population is generalization that composed of the subject / object that has certain qualities and characteristics of the applied researcher to learn and then be concluded.⁴³ Population of this research is the second grade students of SMA N 1 Mayong Jepara in the academic year of 2012/2013. That have 6 classes and each class is about 35-36 students.

Table III. 1
List of Population

No	Class	Number
1.	XI S 1	36
2.	XI S 2	36
3.	XI S 3	35
4.	XI A 1	36
5.	XI A 2	35
6.	XI A 3	35
Total		213

⁴²David Nunan, *Research Methods in Language Learning*, (Cambridge: Cambridge University Press, 1992), p. 231.

⁴³Sugiyono, *Metode Penelitian Pendidikan: Pendekatan Kuantitatif, Kualitatif dan R&D*, p. 117.

2. Sample

Sample is a subset of individuals from a given population.⁴⁴ According to Suharsimi Arikunto, Sample is a part of population which has same characteristics. There are two ways in selecting a sample. First, if the population is less 100, all population can be sampled. Second, if the population is over 100, the researcher can take 10%-15% or 20%-25% from all population as a sample.⁴⁵ Based on Gay cited by Aprin, the total of sample which could be accepted was depend on the kind research. For descriptive study the minimum of sample was 10% from the large population and for simple population 20% of sample was needed, whereas the number of sample for correlation was 30.⁴⁶ In this research, the writer took XI IA II class of SMA N 1 Mayong Jepara in the academic year of 2012/2013 as a sample. This class has 35 students. It is 16,35 % of all population.

D. Variables and Indicator

A variable is a defined characteristic that varies.⁴⁷ According to Fred D Kerlinger as cited by Suharsimi Arikunto

⁴⁴ David Nunan, *Research Methods in Language Learning*, p. 27.

⁴⁵ Suharsimi Arikunto, *Prosedur Penelitian suatu pendekatan Praktik*, p.134.

⁴⁶ Aprin Wahyu, *The Influence of Students' Self Efficacy to Their Learning Participation in Speaking Class 2012/2013*, *Thesis* (Semarang: Tarbiyah Faculty IAIN Walisongo 2013)

⁴⁷ Suharsimi Arikunto, *Prosedur Penelitian Suatu Pendekatan Praktik*, p.116.

stated that: “All experiments have one fundamental idea behind them; to test the effect of one or more independent variables on a dependent variable (it is possible to have more than one dependent variable in experiments)”.⁴⁸ Correlation analysis does not distinguish between dependent and independent variable. As the purpose of correlation analysis is to measure association.⁴⁹To answer the research problems, there are some variables that the researcher wants to investigate. The variables are as follow:

1. Independent Variable (X)

It is a variable that influences or causes of change or emergence of the dependent variable.⁵⁰. The independent variable of this study, according to the definition above is students’ frequency of watching English film.

This variable is indicated by frequency of watching English film.

2. Dependent Variable (Y)

Dependent variables are the conditions or characteristics that appear, disappear, or change as the researcher introduces, removes, or changes independent variables⁵¹. Referring to the

⁴⁸Suharsimi Arikunto, *Prosedur Penelitian Suatu Pendekatan Praktik*, p.119.

⁴⁹Mudjarad Kuncoro, *Metode Kuantitatif: Teori dan Aplikasi untuk Bisnis dan Ekonomi*, (Yogyakarta: UPP AMP YKPN, 2004), p. 77.

⁵⁰ Sugiyono, *Statistika Untuk Penelitian*, (Bandung: CV. Alfabeta, 2005), p. 3.

⁵¹J. W. Best, *Research in Education 4th Edition*,(New Jersey: Pretince-Hall Inc, 1981), p.60

definition, the dependent variable of the research is students' listening skill.

The indicator of this variable is indicated by the following indicators:

No	Indicators
1	Phoneme discrimination
2	Identifying the stressing and intonation
3	Identifying the meaning of word and sentence
4	Identifying the meaning of short conversation

E. **TECHNIQUE OF DATA COLLECTION**

The technique of data collection in this research includes observation; documentation and test are employed in this research.

1. Documentation

It means that the researcher collects data from English teacher, such as students 'name list, students' evaluation score from the first semester. "Documentation research may refer to the technique of collecting data by gathering and analyzing documents. While document is any communicative material

(such as text, video, audio, etc.) used to explain some attribute of an object, system or procedure.”⁵²

Documentation may be examined to investigate patterns and trends of the past as is commonly done by historians. Documentations are also examined by researchers who are investigating subjects who are available.

2. Questionnaire

Questionnaire is a list of questions provided to others who are willing to respond (respondents) as requested by the researchers.⁵³ There are two kinds of questionnaire, they are open and enclosed questionnaire. In this case, the writer using the questionnaire enclosed is questionnaire that presented in a form such that the respondents were asked to choose one answer that suits the characteristics of him by giving the sign (x) or a checklist (√). The writer used questionnaire to get the data about students’ frequency of watching English film.

The questionnaire consists of 30 items, involving the positive and negative statements. All of questions concerning to the students’ frequency of watching English film. Each item has four scales. The scoring technique of the questionnaire is the Likert Scale type.

⁵²Diana Hacker and Barbara Fister, *Researching in the Social Sciences*. Retrieved from http://www.bcs.bedfordstnmartins.com/resdoc5e/RES5e_ch06_o.html, Monday, July 23, 2012.

⁵³Riduwan, *Skala Pengukuran Variable-Variable Penelitian*, (Bandung: Alfabeta, 2009),p.25.

The Likert Scale type presents a number of positive and negative statements regarding the attitude of the respondents. In responding to the items on these scales, the respondents indicate whether they Always, Often, Sometimes, Seldom, or Never to respond each statement.

The outline of the scoring of the questionnaires can be seen as follows.⁵⁴

Table III. 3

Positive Statement	Score	Negative Statement
Always/ Strongly Agree	4	Always/ Strongly Agree
Often /S Agree	3	Often / Agree
i Seldom / Disagree	2	Seldom / Disagree
n Never / Strongly Disagree	1	Never / Strongly Disagree

c

the highest score of each item in the questionnaires is four, then 115 is the highest total score (that is 23x5) and the lowest score is 1, so the lowest score is 23 (that is 23x1).

3. Listening Test

Test is a series of questions or exercises that are used to measure the skills of knowledge, intelligence, ability or aptitude of the individual or group.⁵⁵ There are several kinds of

⁵⁴J. W. Best, *Research in Education 4th Edition*, p.181

⁵⁵Riduwan, *Skala Pengukuran Variable-Variable Penelitian*, p. 30.

test instruments in data collection, include: personality tests, aptitude tests, achievement tests, intelligence tests, and test attitude. In this study, the achievement test is used to measure student's listening skills. This test is in the form of multiple choice tests that consist of alternative answers. 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:

- a. Stem : Questions or statements that contain issues that should be asked.
- b. Option : Some option or alternative answer.
- c. Key : The correct answer.
- d. Distractor : The other answer except the answer key.⁵⁶

In this test, the writer gives 10 questions. The form of the test is multiple choices with 5 optional answers (A, B, C, D or E). Each correct item has one score. So, the students will get 10 scores if all answer are correct. Then $\frac{10}{10} \times 100 = 100$.

F. Data Analysis Technique

1. Analyzing the first Data

After collect the students mid test score, data analysis was carried out to find out the data normality and the

⁵⁶ Nana Sudjana, *Penelitian Hasil Proses Belajar Mengajar*, (Bandung: PT. Remaja Rosdakarya, 2010), p. 48.

homogeneity of sample. It meant to check if the research result met the requirement of good research or not. Data analysis discussed two main things:

a. Test of data normality

The first step that had to be done before doing the research was to test the data normality. It was aimed to know whether the data came from normal distribution or not. The researcher used Chi-Kuadrat formula, as follows:

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

Cited from Sudjana.⁵⁷

Where:

X^2 = Chi-quadrat

O_i = Frequency that was obtained from data

E_i = Frequency that was hoped

k = the sum of interval class

If the obtained score was lower than t-table score by using 5% alpha of significance, H_0 was accepted. It was meant that H_a was rejected. So, the data is normal.

b. Test of homogeneity

⁵⁷Sudjana, *Metoda Statistika*, (Bandung: Tarsito, 2002), p.273.

It was meant to get the assumption that sample of research came from a same condition or homogenous. The researcher used the formula below:

With this formula:⁵⁸

$$\chi^2 = (\ln 10) \left\{ B - \sum (n_i - 1) \log s_i^2 \right\}$$

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:

$$\chi^2 = \text{chi kuadrat}$$

$$s_i^2 = \text{i-variance}$$

$$n_i = \text{number of participant}$$

$$k = \text{the sum of interval class}$$

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 homogenous, the writer uses the formula below to measure the hypothesis:

$$F = \frac{\text{Biggest Variance}}{\text{Smallest Variance}}$$

Cited from Sugiyono.⁵⁹

⁵⁸Sudjana, *Metode Statistika*, p.263

⁵⁹Sugiyono, *Statistika Untuk Penelitian*, (Bandung: Alfabeta, 2007), p. 140.

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

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

Ho is accepted if $F < F_{1/2a}(nb-1):(nk-1)$

2. The Validity of the Instrument

Arikunto states that to get a valid instrument, a researcher should take a careful effort in arranging it from the beginning he or she has to follow a right procedure carefully, it can be assumed that he or he has acquired the validity.

The questionnaire and listening test said to be valid when the result r_{xy} are greater than r_{table} . To measure the validity of the instrument, the researcher using the formula:⁶⁰

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

Where:

r_{xy} : The correlation coefficient between X variable and Y variable

N : The number of students

X : The number of each item score

Y : The number of total score

⁶⁰Suharsimi Arikunto, *Prosedur Penelitian Suatu Pendekatan Praktik*. Jakarta, p.168

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.⁶¹

3. The Reliability of the Instrument

Reliability of the questionnaire indicates the stability of the questionnaire score when it is used to collect the data. In other words, the questionnaire measures respondents' responses consistently. Harris mentions that to have confidence in measuring instrument, the researcher needs to make sure the reliability of the scoring of the test.⁶²

The questionnaire said to be reliable when approximately the same result are obtained on different occasions. To measure the validity of the instrument used in this research, the writer applied an internal reliability of questionnaire test using the formula of Alpha:

$$r_{11} = \left(\frac{k}{k-1} \right) \left(1 - \frac{\sum \sigma^2 b}{\sigma^2 t} \right)$$

Where

r_{11} = index reliability

k = number of item

⁶¹Suharsimi Arikunto., *Prosedur penelitian Suatu Pendekatan Praktik*, p. 170.

⁶²David P Harris, *Testing English as A Second Language*. (USA: McGraw Hill-Inc, 1969), p14.

σ_b^2 = item variance

σ_t^2 = total variance⁶³

Then the reliability of listening test was computed using the K-R 20 as follows:

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

r_{11} = index reliability

k = the number of item

p = proportion of the subject answering the item correctly

q = proportion of the subject answering the item correctly

v_i^2 = total variance

4. Distinguishing Power

Distinguishing matter is something about the ability to distinguish between high-ability learners with low-ability participants.

Figures show the amount of distinguishing features is called the index of discrimination (D), where there is a negative sign on the discrimination index. Negative sign on the discrimination index is used when something about the

⁶³Suharsimi Arikunto., *Prosedur penelitian Suatu Pendekatan Praktik*, p. 196.

"inverse" indicates the quality of the test.⁶⁴The formula for determining the discrimination index is:

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

Where:

D = Discrimination index

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

$\sum B$ = number of students of the right answer on
the low class

n = number of students of the high class or
low class (27% x N)

Distinguishing feature criteria (D) is as follows:

$D > 0.3$ (Accepted)

$0.10 < D < 0.29$ (Revised)

$D < 0.10$ (Rejected)⁶⁵

5. Difficulty level analysis

In terms of difficulty, a good question is a question that is not too easy and not too difficult. A question that is too hard will cause students to be desperate and do not have the spirit

⁶⁴Sumarna Surapranata, *Analisis Validitas, Reliabilitas dan Interpretasi Hasil Tes*, (Bandung: Remaja Rosdakarya, 2005), p.23.

⁶⁵Sumarna Surapranata, *Analisis Validitas, Reliabilitas dan Interpretasi Hasil Tes*, p.31-47.

to try again because beyond the reach of his ability.⁶⁶Difficulty level of a question is determined by the formula:

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

Where,

P : Difficulty level

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

S_m : Maximum score

N : The number of participants

Criteria

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

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

$0,70 < P \leq 1,00$ (easy)⁶⁷

6. Hypothesis analysis

To analyze the data of the frequency of watching English film (X) and the students' listening skill (Y), first, the

⁶⁶Sumarna Surapranata, *Analisis Validitas, Reliabilitas dan Interpretasi Hasil Tes*, p.20.

⁶⁷Sumarna Surapranata, *Analisis Validitas, Reliabilitas dan Interpretasi Hasil Tes*, p.12.

writer summed the scores. There are two kinds of scores; students' frequency of watching English film ($\sum X$) and the students' listening skill ($\sum Y$). Then the writer accounted the coefficient correlation of the two variables by using the Product moment correlation formula. This formula is used to find out whether there is a correlation between the frequency of watching English film and students' listening skill:

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

Where:

r_{xy} = correlation coefficient

$\sum X$ = sum of variable X

$\sum Y$ = sum of variable Y

$\sum X^2$ = the sum of square X

$\sum Y^2$ = the sum of square Y

N = the amount of subjects⁶⁸

Other objective of her research is to find out whether there is significant correlation between the students' Frequency of watching English film and their listening. The researcher examined the opinion by computing the data by applying the formula:

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⁶⁸Suharsimi Arikunto., *Prosedur penelitian Suatu Pendekatan Praktik*, p.

$$t = \frac{r\sqrt{n-2}}{\sqrt{1-r^2}}$$

In which:

t : the significant correlation

r : the correlation between two variables

n : the amount of subject⁶⁹

By using the equation, it can be found the significant correlation coefficient between the frequency of watching English film and students listening skills at XI IA II of SMA N 1 Mayong, Jepara.

Then the writer used the distribution t and its table, t distribution with dk denominator 5 % significant level, if t is in Ho area, that is $-t_{(1-1/2\alpha)(n-2)} < t < t_{(1-1/2\alpha)(n-2)}$, it means not significant.

The writer uses the 5% significant level because her field of research is language subject not an exact subject. In the language study, it is better to use 5% significant level. On the other hand, for exact study it is better to use the 1% significant level.

⁶⁹Sudjana, *Metoda Statistik*. (Bandung: Tarsito, 2002), p.380