

### **III. METHOD**

This chapter elaborates the method used in generating data of the research covering design, population and sample, instrument, validity and reliability of the instrument, research procedure, data analysis, and hypothesis testing.

#### **3.1. Design**

The researcher used quantitative design in conducting the research. Ex post facto design was selected as this design seemed suitable to analyse the attitude towards language learning of the students and how it interacted with the reading comprehension achievement, which was the objective of this research. In carrying out the study, there was neither experiment nor treatment, nevertheless the data were collected after the relationship of cause and effect between the variables in the research occurred.

There was only one group of the students to be analysed in the research. A questionnaire to assess the students' attitude towards language learning was distributed and also a reading comprehension test was administered. Hereafter, the data was analysed to find the correlation of attitude to language learning and reading comprehension.

The design explained above is represented as follows:

$$X \quad Y$$

Where:

X : Attitude to Language Learning

Y : Reading Comprehension

### **3.2. Population and Sample**

The population of this research was the second year students of SMA N 1 Sumberejo in Tanggamus Regency. There were six classes of the second year students in the academic year 2014/2015. Each class consisted of approximately 29-32 students. This research involved two classes; the first one was as try-out class where questionnaire was given to ensure the feasibility of the questionnaire after being modified and translated into Bahasa Indonesia and the reading comprehension try-out test was tested, and the second one stood as the sample class. The researcher selected the classes by applying random sampling in order to make all classes of the second year students have the same opportunity to be chosen.

### **3.3. Variables**

In this research, to investigate the role of attitude towards language learning on students' reading comprehension, variables can be divided as dependent and independent variables. Setiyadi (2006: 106-107) notes that (a) dependent variable is the main variable of a research which is assessed after all treatment in the research is accomplished; and (b) independent variable is a variable which is

recognised as the cause or functions to influence the dependent one. The variables in this research were the students' attitude towards language learning (X) as independent variable and their reading comprehension (Y) as dependent variable.

### 3.4. Instrument

The instruments of this research were questionnaire and reading comprehension test. The researcher distributed a questionnaire and administered the reading comprehension test. Then, the data were analyzed from the result of those two, which can be described as follows:

#### 1. Questionnaire

There was only one questionnaire to measure the students' attitude towards language learning. The researcher took the questionnaire from Soleimani and Hanafi (2013), modified, and translated it into Bahasa Indonesia, afterwards. The questionnaire has five options covering the positive and negative statements and consists of 30 items. The scoring system of this questionnaire is displayed in the following table.

Table 3.1 Table of Scoring System of Questionnaire

No.	Degree of Agreement	Positive Statement	Negative Statement
1.	Strongly Disagree	1	5
2.	Disagree	2	4
3.	Neutral	3	3
4.	Agree	4	2
5.	Strongly Agree	5	1

The specification of the questionnaire is in the table below.

Table 3.2 Table of Specification of the Questionnaire

No.	Component	Statement		Total
		Positive (+)	Negative (-)	
1.	Behavioural	2, 3, 4, 5, 7	1, 6, 8, 9, 10	10
2.	Cognitive	11, 12, 13, 16, 17, 18	14, 15, 19, 20	10
3.	Affective	21, 22, 23, 24, 25, 27, 28, 30	26, 29	10
Total		19	11	30

## 2. Reading comprehension test

Reading comprehension test was administered after the questionnaire was given. The test was composed by considering the materials in the syllabus of Curriculum 2013. This was intended to ensure that the test contained types of text that the students had already been taught and that it would not be extremely difficult for the students. The types of text given in the reading comprehension test were formal invitation, informal letter, and procedure text. There were 40 items in the test which was tried out first to find out the validity as well as the reliability of the test. After finding out the validity and reliability, the researcher used the instrument to the sample class.

### 3.5. Validity and Reliability

In relation to this research, there are two aspects, that is, validity and reliability which should exist in each test to ensure that the test is already good or well-established. In the following section, there is elaborated the validity and reliability of the instruments that were used in this study.

## **1. Validity**

Validity is a matter of relevance. It means that the test measures what is supposed to be measured. To measure whether the test has a good validity or not, the researcher analyzed the test from content validity and construct validity.

### **a. Content validity**

Content validity is concerned with whether the test is sufficiently representative and comprehensive for the test. In the content validity the material given in the reading comprehension test was suitable with the table of specification constructed based on the Curriculum 2013. Table of specification contains what has to be taught and criteria to create a certain test. If the table of specification represents the material the researcher intends to test, it can be assumed then that the test is valid from this perspective.

### **b. Construct validity**

Construct validity refers to the extent to which a test is accurately in line with the theory of the nature of attitude towards language learning and reading comprehension. Construct validity is necessary for measurement instrument which has several indicators in measuring one aspect or construct (Setiyadi, 2006: 25). In order to find out whether the construct validity was good, the researcher examined the relevance of the questions both in the questionnaire and the reading comprehension test with the concepts of attitude and reading comprehension. The construction of the reading comprehension test itself was based on the theory that reading comprehension involves five aspects proposed

by Nuttall (1985) which has been described in chapter two. The following table displays the specification of the reading comprehension test.

Table 3.3 Table of Specification of the Reading Comprehension Test

No.	Aspect of Reading	Number of the Question
1.	Identifying Main Idea	1, 6, 11, 16, 21, 26, 31
2.	Identifying Details	2, 7, 12, 17, 22, 27, 32
3.	Determining Inference	3, 8, 13, 18, 23, 28, 33
4.	Understanding Vocabulary	4, 9, 14, 19, 24, 29, 34
5.	Reference	5, 10, 15, 20, 25, 30, 35

The questionnaire, besides, was constructed according to the concept that attitude towards language learning include affective, cognitive, and behavioural components proposed by Wenden (1991).

In addition to the validities explained above, the researcher carried out the analysis of validity by comparing the  $r$  value and  $r$  table of each item in both instruments (if  $r$  value is higher than  $r$  table, the item is valid and vice versa). Also, item analysis in order to strengthen the validity of the reading comprehension test was done. The analysis covered the analysis of the level of difficulty, the discrimination power, and also the scoring system of the test.

#### a. Level of difficulty

Level of difficulty deals with how easy or difficult the test items by considering the achievement of the students taking the test. The researcher used the following formula to measure the level of difficulty of the test.

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

Explanation:

$LD$  = level of difficulty

$R$  = the number of the students who answer correctly

$N$  = the total number of the students

The criteria are:

$< 0.30$  = difficult

$0.30 - 0.70$  = average

$> 0.70$  = easy

(Heaton, 1975: 182)

#### b. Discrimination Power

Discrimination power refers to the ability of the test items to distinguish the students who have high capability from those who have low capability. A good item, based on that criterion, is an item which is correctly answered by high level students and is incorrectly answered by low level students.

The calculation of the discrimination power is as follows:

$$D = \frac{U - L}{\frac{1}{2}N}$$

Explanation:

$D$  = discrimination power

$U$  = number of upper-group students who answer correctly

$L$  = number of lower-group students who answer correctly

$N$  = total number of the students

The criteria of the discrimination power are:

0.00 – 0.19 = poor

0.20 – 0.39 = satisfactory

0.40 – 0.69 = good

0.70 – 1.00 = excellent

- (negative) = bad items (should be omitted)

(Heaton, 1975: 182)

### c. Scoring system

In the research, the researcher scores the students' result of the test by employing the formula by Lyman (1971: 95). The calculation, which can be seen below, is by dividing the right answer by total items times 100.

$$X\%c = 100 \frac{R}{T}$$

Explanation:

X%c = percentage of the score

$R$  = the right answers

$T$  = the total items

## 2. Reliability

Reliability is a matter of exactness, consistency, or fairness of scores resulting from the administration of particular examination. In relation to this study, the reliability of the instruments is distinguished into two different scoring.



### 1. Reliability of the questionnaire

The questionnaire was scored according to Likert scale whereas the reliability of the questionnaire was measured by using Cronbach Alpha Coefficient. The researcher used this because it is the most common scoring to assess the consistency of the indicators in the questionnaire. The alpha ranges between 0 and 1. The alpha 1 shows the perfect reliability of the test items. This means that the higher the alpha, the more reliable the questionnaire will be (Setiyadi, 2006: 167).

The formula to examine the reliability of the questionnaire is depicted below:

$$r = \left[ \frac{n}{n-1} \right] \left[ \frac{1 - \sum \sigma i^2}{\sigma i^2} \right]$$

Explanation:

$r$  = reliability

$n$  = the number of item

$\sum \sigma i^2$  = total variance of all items

$\sigma i^2$  = the total variance

To find out the variance, the following formula is used.

$$\sigma = \frac{\sum X^2 - \frac{(\sum X)^2}{N}}{N}$$

Explanation:

$\sigma$  = variance

$\sum X^2$  = the total square of the number of data

$(\sum X)^2$  = square of the total number of data

$N$  = the number of data

The classification of reliability is as follows:

- a. Between 0.80 to 1.00 = very high reliability
- b. Between 0.60 to 0.79 = high reliability
- c. Between 0.40 to 0.59 = moderate reliability
- d. Between 0.20 to 0.39 = low reliability
- e. Between 0.00 to 0.19 = very low reliability

## 2. Reliability of the Reading Comprehension Test

The reliability of the reading comprehension test was measured based on Pearson Product Moment which examines the correlation coefficient of reliability between odd and even number (reliability of the half test).

The formula can be seen as follows:

$$r_{xy} = \frac{\sum xy}{\sqrt{(\sum x^2)(\sum y^2)}}$$

Explanation:

$r_{xy}$  = coefficient reliability between odd and even number

$x$  = odd number

$y$  = even number

$\sum x^2$  = total score of odd number

$\sum y^2$  = total score of even number

$\sum xy$  = total score of odd and even number

After the reliability of the half test was calculated, the researcher used Spearman Brown's Prophecy formula to measure the reliability of the test as a whole as follows:

$$r_k = \frac{2r_{xy}}{1 + r_{xy}}$$

Explanation:

$r_k$  = the reliability of the whole test

$r_{xy}$  = the reliability of half test

(Hatch and Farhady, 1982: 247)

The criteria of the reliability are:

0.90 – 1.00 = high

0.50 – 0.89 = moderate

0.00 – 0.49 = low

### **3.6. Research Procedure**

Below is the procedure in conducting the research:

#### **1. Determining research problem**

The problem of this research was determined based on the researcher's experience in SMA N 1 Sumberejo. The research problem can be seen in chapter one.

#### **2. Determining the research instrument**

The researcher examined the students' attitude to language learning and their reading comprehension by giving a questionnaire and a reading comprehension test. The questionnaire consisted of 30 items and the reading comprehension test was comprised of 40 items and was administered for

about 2 x 35 minutes. The questionnaire had five options whereas the reading test, which is multiple-choice, had five alternative answers i.e. a, b, c, d, and e. For the reading test, there was only one correct answer and four distracters.

3. Selecting and determining the materials

The materials of the reading comprehension test in this research were based on the Curriculum 2013 for the second year students. Materials from the internet were also modified and added.

4. Trying out the instruments

There were only one try-out class in the research. The instruments – the questionnaire and the reading test – were distributed and tested to that class.

5. Analysing the result of the try-out test

After both the questionnaire and the reading comprehension test are answered, the researcher analyzed the validity and the reliability of the instruments.

6. Distributing the questionnaire

The researcher distributed the questionnaire measuring the attitude to language learning to the students in the sample class after its reliability and validity had been found out.

7. Administering the reading comprehension test

The next step the researcher took was conducting the reading comprehension test to the sample class which was intended to assess the students' achievement.

8. Tabulating the data

When the data from the questionnaire and the reading test had been collected, they were tabulated to then be analyzed.

9. Analyzing the data

The researcher in this step analyzed the tabulated data. The analysis, which was done by using SPSS (Statistical Package for Social Science) 16.0 computer program, was on the correlation between the students' attitude to language learning and their reading comprehension achievement by means of *Pearson product-moment*.

10. Drawing conclusion

As the last step, conclusion was drawn up by carefully considering the result of the data analysis.

### **3.7. Data Analysis**

In the effort of finding out the role of attitude towards language learning on the students' reading comprehension, the researcher passed the following steps in analyzing the data.

1. Tabulating the score of the questionnaire and the reading comprehension test

The students' answers were tabulated and thereafter scored by the researcher himself.

2. Analyzing the data

In this research, there were some analyses done by the researcher involving the analysis of (a) the reliability and validity of the questionnaire and the reading comprehension test, (b) level of difficulty and discrimination power of the reading comprehension test, (c) the correlation between attitude

towards language learning and students' reading comprehension achievement, (d) regression analysis, (e) correlation between components of attitude to language learning and reading comprehension achievement, and (f) correlation between attitude to language learning and reading skills.

### 3. Making inference

The researcher inferred the correlation between attitude to language learning and students' reading comprehension by referring to the result of the *Pearson product-moment* analysis.

### 3.8. Hypothesis Testing

To test the hypothesis, *Pearson product-moment* of SPSS 16.0 was used considering that the data came from the same sample. The following was the hypothesis taken by the researcher.

H0 is accepted if the correlation of attitude to language learning and reading comprehension is not significant ( $H0 = r_{\text{value}} < r_{\text{table}}$  or  $p > \alpha$ ).

H1 is accepted if the correlation of attitude to language learning and reading comprehension is significant ( $H1 = r_{\text{value}} > r_{\text{table}}$  or  $p < \alpha$ ).

In this chapter, the researcher has casted light on the method used in generating data of the research involving design, population and sample, instrument, validity and reliability of the instrument, research procedure, data analysis, and hypothesis testing.