# CHAPTER III

# RESEARCH METHODS

## 3.1 Research Method

This research is quantitative research. The researcher used correlational research design. According to Creswell (2012, p 338), the correlational research is a type of research design in which investigators measure the degree of association (or relationship) between two or more variables or sets of scores. It means that, Correlational research used to assess the relationship and patterns of relationship among variables in a single group of subject. The researcher used correlational research design because the researcher wants to investigate whether or not there is a correlation between students' motivation and their reading comprehension without giving any treatment. Arikunto (2006, p. 116) says that variable is defined as something that varies from one case to other. The independent variable means that the variable which have ability to give the effect from result from the research. Meanwhile, dependent variable is the variable that the font as situation of the effect. In this research, there is two variable of the research that has been investigated. Independent variable in this research is students' motivation which is symbolized by (X) variable and dependent variable is reading comprehension which is symbolized by (Y) variable.

## 3.2 Population, Sample and Sampling Technique

### 3.2.1 Population

Population is one of the important aspects in a research. It consist all the subject of the research. According to Sugiyono (2008, p. 80), population is generalization of region that consists of the subject that have certain quantities and characteristics determined by the researcher. It can be concluded that population are group of individuals that have similar characteristics that involve in a research. Based on the statement above, the population of this research is all of the ninth grade students in SMPN 03 Kotabumi which consist of eight classes and the total of population consist 256 students. The details of the population are as follows:

**TABLE 3**
**RESEARCH POPULATION**

| No | Class | Total |
|---|---|---|
| 1 | IX A | 32 |
| 2 | IX B | 32 |
| 3 | IX C | 32 |
| 4 | IX D | 32 |
| 5 | IX E | 32 |
| 6 | IX F | 32 |
| 7 | IX G | 32 |
| 8 | IX H | 32 |
| **Total of the population** | | **256** |

*Source: Documentation data of SMPN 03 Kotabumi*

### 3.2.2 Sample

Sample is a basic part in a research. According to Arikunto (2010, p. 174), a sample is a small group that is observed. It means that sample is a part of population that is observed. According to Sugiyono (2008, p. 81), a sample is

partly or a representative of population that is researched. It is part of the total and characteristics of which is owned by the population. According to Arikunto (2006, p. 134), if the subjects is less than 100, it is better to take all the subjects, but if the subjects are more than 100 or big population, the researcher can get the sample between 10%-15%-20%-25% - or more. In line with Arikunto, in this research the researcher take 15% of students as the representatives of each class as the research sample because the total number of students in ninth grade at SMPN 03 Kotabumi is more than 100 or 256 students. In conclusion, from the result calculation of 15% students of each class, the total of the students who will be the research sample are 40 students.

### 3.2.3 Sampling Technique

Sampling is the process of selecting a number of individuals from a population. In this study, researchers will use proportional random sampling. Sugiyono (2010, p. 82) states that proportional random sampling technique is used if the population has a member or element that is not homogeneous and stratify proportionally. It means that proportional random sampling technique allows all the population have the same opportunity to be chosen as the research sample. Researcher will use this technique because all individuals in the population will have the same opportunity to be selected as research samples. The researcher will take 15% out of each class will be taken as the sample of the research. According to Sugiyono (2010, p. 64) taking the research sample by using proportional random sampling technique can be done by lottery. The

way to take the sample in this research by using lists the name of the students in every class into small pieces of paper and then those papers names are rolled and come into a glass. After that, the glass will be mixed, and the papers names drop out from the glass to become a sample. This procedure is applied in eight classes. The calculation of sampling in this research can be seen in the table below:

**TABLE 4**
**THE PROPORTION OF SAMPLE**

| No | Class | Sample Calculation | Total |
|---|---|---|---|
| 1 | IX A | $\frac{15}{100} x\ 32 = 4.8$ | 5 Students |
| 2 | IX B | $\frac{15}{100} x\ 32 = 4.8$ | 5 Students |
| 3 | IX C | $\frac{15}{100} x\ 32 = 4.8$ | 5 Students |
| 4 | IX D | $\frac{15}{100} x\ 32 = 4.8$ | 5 Students |
| 5 | IX E | $\frac{15}{100} x\ 32 = 4.8$ | 5 Students |
| 6 | IX F | $\frac{15}{100} x\ 32 = 4.8$ | 5 Students |
| 7 | IX G | $\frac{15}{100} x\ 32 = 4.8$ | 5 Students |
| 8 | IX H | $\frac{15}{100} x\ 32 = 4.8$ | 5 Students |
| **Total** | | | **40 Students** |

## 3.3 Research Instrument

Sugiyono (2018, p. 151) states that instrument in a research is used as a tool to measure the variable. It means that instrument plays important role in conducting a research that is to gather the data accurately. In this research, the instrument use questionnaire and a test. The questionnaire used to measure students' reading motivation and the test to measure the students' reading comprehension. The questionnaire consists of 45 statements and each statement consists of five

alternative answers and students only choose the answer based on their personality, the duration is 40 minutes. After the students finished to answer the questionnaire of reading motivation, then will be continued by reading comprehension test. The reading test in the form of a multiple choice test design by the researcher. Consist of 50 items with alternative choices (a, b, c and d).

### 3.3.1 Research Instrument of Reading Comprehension

#### a. Conceptual Definition of Reading Comprehension

Reading comprehension is the ability of constructing meaning by interacting with the text to find the stated or unstated idea from the text. Reading Comprehension is not only a process of identifying the word but also a process of constructing and understanding the meaning from a written material to get information related to the text. The essence of reading comprehension is to understand all information delivered by the writer and it is closely related to someone's background knowledge.

#### b. Operational Definition of Reading Comprehension

Operational definition of reading comprehension is the score obtained from a test of reading comprehension in the form multiple choice test which consist of 50 items that have been tried out with four options; a, b, c, and d. In this test, the students are asked to choose the correct answer of the question. However, in this research, the researcher only used 30 valid items and analyzed the result of the test by giving one (1) score for the correct answer and 0 (zero) for incorrect answer. Then, the number of correct

answer will be divided by the total number of question and multiplied by one hundred (100).

**c. Specification of Reading Comprehension**

Research instruments are the most important in conducting research. To measure the instrument that is used, it is very important to measure aspects of reading comprehension. In addition, based on the conceptual and operational definitions of the reading comprehension above, the specifications of the research instruments are explained in the following table:

**TABLE 5**
**THE SPECIFICATION OF READING COMPREHENSION**

| Task | Aspects | Indicators | Total Number of Questions | Question Number |
|---|---|---|---|---|
| Reading Comprehension | Main idea | Students are able for identifying main idea | 7 | 11,21,25,30, 33,36,43 |
| | Inference | Students are able for making inference | 8 | 2,10,16,29, 34,39,49 |
| | Grammatical Feature | Students are able for identifying grammatical feature | 6 | 3, 18, 23, 28, 42, 46 |
| | Detail | Students are able for identifying detail | 8 | 1,6,22,27,37, 44,45,48 |
| | Reference | Students are able for identifying Reference | 7 | 5,12,15,20, 31,38,47 |
| | Supporting Idea | Determining the supporting idea of the text | 6 | 7,8,19,24,41, 50 |
| | Vocabulary in content | Using correct vocabulary/diction | 8 | 4,13,14,17, 26,32,35,40 |
| | **Total** | | | 50 |

Source: Shapiro (2008)

### 3.3.2 Research Instrument of Students Motivation

#### a. Conceptual Definiton of Students' Motivation

Motivation is internal drive which pushes someone to do things in order to achieve something and it is appears when someone has a huge desire to achieve the goal. Motivation is responsible for why students decide to do something, how long they are willing to survive and how hard they are going to pursue it.

#### b. Operational Definition of Students' Motivation

Operational definition of students` motivation is the score of students' motivation obtained from a questionnaire. To know students' motivation, the researcher will use questionnaire, which consist 45 items. Questions in the questionnaire made based on the indicators of motivation in reading according to Watkins and Coffey (2004, p. 110 – 116). There are eight factors that can be inferred as indicators to measure students' motivation such as : grade-compliance, involvement, social, competition, work avoidance, curiosity, recognition, efficacy. individual interest and situational interest. Each item has a numerical value, for example:

1 = Strongly disagree

2 = Disagree

3 = Abstain

4 = Agree

5 = Strongly agree

The specification of students' motivation questionnaire can be summarized bellow:

**TABLE 6**
**THE SPECIFICATION OF STUDENTS' MOTIVATION**

| No. | Classification of Motivation | Indicators of Motivation | | Item number | |
|---|---|---|---|---|---|
| | | | | Positive Statement | Negative Statement |
| 1. | Extrinsic | Grade-compliance | Gain positive school-evaluation | 1,3,4,5,8,9 | 2,6,7 |
| | | Involvement | Enjoying reading activity | 10,11,13, 14 | 12,15,16, 17 |
| | | Social | Have desire to share with other people | 20,21,22, 24 | 18,19,23 |
| | | Work Avoidance | Desire to avoid reading activity | 29 | 30,31,32 |
| | | Recognition | Recognition related to the relationship with others | 37,38,40 | 39,41 |
| 2. | Intrinsic | Competition | Individual's attempt to outperform others | 25,27,28 | 26 |
| | | Curiosity | The desires to know a text | 33,36, | 34,35 |
| | | Efficacy | Readers believes about their ability and constancy | 43,44,45 | 42 |
| **Total** | | | | **45** | |

*Adapted : Watkins and Coffey (2004)*

## 3.4 Validity and Reliability Instrument

### 3.4.1 Validity of Instrument

Validity is a measurement which shows the grades of number of an instrument. To determine whether the instrument used is valid or not, the instrument should be measured. The researcher was conduct try out in SMPN 07 Kotabumi to determine the validity and reliability of the instruments are

used. According to Arikunto (2006, p. 168) a valid instrument must have high validity is said to be in valid instrument. Meanwhile, According to Sugiyono (2012, p. 121) valid means the instrument can be used to measure what should be measured. It means, a valid instrument is a measuring tool used to obtain the valid data.

**a. Reading Comprehension Instrument**

Validity is needed in the research in order to know that the instrument in this research is valid or not. Arikunto (2010, p. 211) states that validity is a measurement that shows the instrument level. Actually, validity shows the result of the using of instrument but not the instrument itself. Instrument can be said valid if it measures what suppose to be measured. In this case, the researcher asks for the judgment from lectures of Reading, Mrs. Rulik Setiani, S.Pd., M.Pd. and Mrs. Dewi Sartipa, S.Pd., M.Pd.B.I who have been teaching reading for many years. In this research, the researcher also used *Point Biserial* the formulation according to Arikunto (2006, p. 283) as follows:

$$r_{pbis} = \frac{M_p - M_t}{s_t}\sqrt{\frac{p}{q}}$$

Notes:

$r_{pbis}$ : Coefficient of point Biserial correlation

$M_p$ : Mean (Average) scores subject who answered correctly the correlated items

$M_p$ : Mean of total score (average score from the total number of students)

$S_t$ : Standard deviation of total score

P : The proportion of subjects who answered correctly the correlated items.

Q : 1- p

**b. Students Motivation Instrument**

To measure the validity of the instrument of reading motivation, the researcher used Product Moment Correlation technique to measure the validity of reading motivation instrument (Arikunto, 2010, p. 213) formula as follow:

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

Notes:

$r_{xy}$ : Correlation index of odd and even fissure

N : Total subject

X : Total score of subject which answer odd fissure correctly

Y : Total score of subject which answer even fissure correctly

$X^2$ : Square of X

$Y^2$ : Square of Y

### 3.4.2 Reliability of Instrument

After measuring validity, the researcher measuring the reliability of the instruments. Reliability refers to the consistency of the score obtained. According to Setiyadi (2006, p. 16) reliability is consistency in giving equal result to the same subject, although it is given in different time. It gives the indication how accurate the instruments can be measured the same subject at different times but show relatively similar result.

**a. Reading Comprehension Instrument**

After measuring validity, the researcher measuring the reliability of the instruments. Reliability refers to the consistency of the score obtained. According to Setiyadi (2006, p. 16), reliability is consistency in giving equal result to the same subject, although it is given in different time. It gives the indication how accurate the instruments can be measured the same subject at different times but show relatively similar result. According to Arikunto (2006, p. 275), alpha formula can be used to test learning achievement in easy form or questionnaire and ratting scale, to measure the reliability of the instrument. The Product Moment Correlation Formula based on Arikunto (2006, p. 275). The formula is:

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

Notes:

$r_{xy}$ : Correlation index of odd and even fissure

N : Total subject

X : Total score of subject which answer odd fissure correctly

Y : Total score of subject which answer even fissure correctly

$X^2$ : Square of X

Y2 : Square of Y

To calculate the reliability of instrument the researcher used the *Spearman-Brown* prophecy. The formula is as follow:

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

Notes:

$r_{11}$ : The coefficient of the reliability of the test

$r_{xy}$ : The coefficient correlation between x and y

Criteria of reliability test is a result of ( $r_{11}$ ) is getting, this score is then to r product moment table ($r_{table}$) with the score significant scale 5%. If $r_{11}(r_{observed}) > r_{table}$ so that the test instrument are reliable. To know how far the reliability the criteria of reliability interpretation, we can see from interpretation as follows:

a. A very high reliability ranges from 0.800 up 1.00
b. A high reliability range from 0.600 up 0.800
c. A medium reliability ranges from 0.400 up 0.600
d. A low reliability ranges from 0.200 up 0.400
e. A very low reliability ranges from 0.000 up 0.200

**b. Students Motivation Instrument**

In order to know reliability of test from students' reading motivation, the researcher used Cronbach's Alpha Formula (Arikunto, 2010, p. 239) as follows:

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

Notes:

$r_{11}$ : instrument reliability

k : number of items or number of questions

$\sum \sigma b^2$ : number of items about the variance

$\sigma t^2$ : total variance

## 3.5 Data Collecting Technique

Data collecting technique is a technique used to collect the data. In collecting the data, reading test and questionnaire used by the researcher. In the reading test, the students are asked to answer the question with multiple choice forms. The test consist of 50 items with four answer choices. The researcher gives a reading motivation questionnaire to students. The researcher adapted the questionnaire from Watkins and Coffey (2004, p. 110 – 116). The questionnaire consists of 45 statements and each statement consists of five alternative answers and students only choose the answer according to their personality, the duration is 40 minutes.

## 3.6 Data Analysis

Data analysis is used to determine the final result of the students after doing the test. It is used to draw the conclusion of the research data. In this research, the data are analyzed by using statistical technique. The technique are the normality test, homogeneity test, hypothesis test, and significant test. The details for the technique are as follows:

### 3.6.1 Normality Test

Normality test is conducted to know whether the data from experiment and control group have normal distribution or not. In testing data, the researcher used lilliefor's formula (Sudjana, 2005, p. 466).

Normality test by lilliefors need steps as follows :

a. Observation X1, X2,....Xn changed become standard number $Z_1, Z_2, ....Z_n$ used formula :

$$Z_i = \frac{x_i - \bar{x}}{S}$$

b. For each standard number and use normal distribution list, then calculated the opportunity

$F(Z_i) = P(Z \leq Z_i)$

c. Next calculated proportion $Z_1, Z_2, .....Z_n$ smaller or equal $Z_i$. Determining the proportion by using the following formula:

$$S(Z_i) = \frac{The\ numbers\ Z_1, Z_2 \ldots Z_n\ which\ is \leq Z_i}{n}$$

d. Calculate the difference **$F(Z_i)$—$S(Z_i)$** then determine the absolute price.

e. Calculate the biggest absolute price which called $L_{observed}$, then compare $L_{observed}$ with $L_{table}$. The normal criteria is : $H_o$ is accepted if $L_{observed} < L_{table}$ (the data has the normal distribution).

Notes:

$Z_i$ : Standard Number

Xi : Total Number

$\overline{X}$ : Average Score

S : Standard Deviation

### 3.6.2 Homogeneity Test

Homogeneity test is the second steps to analyze the data. It used to know whether the samples of the research are homogeneous or not. In this research, the researcher used Bartlett formula to measure the homogeneity of research data. According to Sudjana (2005, p. 263), there are some steps in Bartlett formula, the steps are as follows:

1. Determine the combination of variant from all the samples by using the formula:

$$s^2 = \frac{\sum(n_i - 1)s_i^2}{\sum(n_i - 1)}$$

Notes:

$n_i$ = number of students

$s_i$ = the variance score

2. Determine $B$ score by using the formula below:

   $B = (\log s^2) \sum( n_i - 1)$

3. Calculate $x^2$ by using the formula below:

   $x^2 = (In10) \{B - \sum(n-1) \log s_i^2\}$

   The testing criteria of homogeneity test by using Bartlett formula are as follows:

   - If $x^2{}_{count}$ is higher than $x^2{}_{table}$, it can be concluded that the variance of data are homogeneous.
   - If $x^2{}_{count}$ is smaller than $x^2{}_{table}$, it can be concluded that the variance of data are not homogeneous.

### 3.6.3 Hypothesis Test

In this research, the researcher used Pearson Product Moment Correlation to analyze the data of the research and measure the correlation between X variable or students' motivation and Y variable or reading comprehension. This test is used to determine the relationship between two variables and prove the research hypothesis. According to Arikunto (2006, p. 275), the formula of Pearson Product Moment Correlation are as follows:

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

Notes:

$r_{xy}$ = coefficient of correlation

$N$ = the total number of sample

$\sum xy$ = the total of multiple score of variable x and y

$\sum X$ = the score of students' motivation

$\sum Y$ = the score of students' reading comprehension

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

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

The hypothesis to be proved if:

- If $r_{xy} \leq r_{table}$, it means that $H_0$ is accepted and $H_a$ is rejected. It can be concluded that there is no between students' motivation and reading comprehension at the ninth grade students of SMPN 03 Kotabumi academic year 2020/2021.
- If $r_{xy} \geq r_{table}$, it means that $H_0$ is rejected and $H_a$ is accepted. It can be concluded that there is correlation between students' motivation and reading comprehension at the ninth grade students of SMPN 03 Kotabumi academic year 2020/2021.

**TABLE 7**
**INTERPRETATION OF COOFICIENT CORRELATION**

| Coefficient Interval | Correlation Level |
|---|---|
| 0.00 – 0.199 | Very Low |
| 0.20 – 0.399 | Low |
| 0.40 – 0.599 | Medium |
| 0.60 – 0.799 | Strong |
| 0.80 – 0.1000 | Very Strong |

### 3.6.4 Significant Test

After analyzing the data to know whether there is correlation between students' reading comprehension and students' reading motivation, the researcher used significance test (t-test). This test is used to find out the significant test. The formula test according to Sugiyono (2008, p. 184) as follows:

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

Notes:

t : significant of correlation

r : coefficient of correlation

n : total of sample

The testing criteria of significant test are if $t_{observed}$ is higher than $t_{table}$, it can be concluded that the correlation between X variable and Y variable is significant.