Chapter III

Methodology of Research

This chapter described the methodology of research which consists of research design, population and sample, variable of research, time the collecting data, technique of collecting data, technique of analyzing data, data normality test, and correlation and regression analysis.

A. Research Design

The research design of this research is used quantitative correlation research. According to Arikunto (2010, p. 313) “Correlation research is a study to observe two variables have related or not.” The purpose of this research is to know whether students’ motivation and reading comprehension in reading text have correlation or not, and to analyzing the data used statistical analysis.

B. Population and Sample

Population

According to Sugiyono (2011, p. 80) “Population is the area of generalization which consists of object that has qualities and characteristics are determined by the researcher”. The population of this research is the seventh grade students of Junior High School 1 Batudaa in academic year 2012/2013 which consists of 152 students that has 7 classes.
Sample

“Sample is some of population.” Arikunto (2010, p. 174). This research used simple random sampling because all of students in Junior High School 1 Batudaa especially seventh grade have the same levels (low, middle and high level). The way to take this sample used lottery’s style. It is supported by Sugiyono (2012, p. 64). Therefore, from 152 students in Junior High School the researcher used 52 samples to try out instrument of reading test and from 100 samples the researcher used 22 samples. To take 22 samples, the researcher used Yamane’s formula (as cited Mansa’ research, 2010, p. 19), as follow:

\[ n = \frac{N}{N \cdot d^2 + 1} \]

Description:

n = total of respondent  
N = total of population  
d^2 = determination of precision (5%)  

Based on the formula, the researcher puts:

\[ n = \frac{100}{100 \times 0.05^2 + 1} \]

\[ n = \frac{100}{100 \times (2.5)^2 + 1} \]
\[
\begin{align*}
\frac{n}{1.00 + 3.5} &= 100 \\
\frac{n}{4.5} &= 100 \\
\frac{n}{4.5} &= 22.22 = 22 \\
\end{align*}
\]

Based on the result of sample above, the name of samples can see at appendices 1.

C. Variable of Research

There are two variables in this research, namely:

a. X variable = (independent Variable). X variable is students’ motivation score which taken from their opinion based on questionnaire.

The indicators of this variable are:

**Achievement**

- Has willingness to achieve goals
- Doing feedback on their progress
- Takes risk to accomplish their goals
- Has responsibility to achieve goals
- Giving reward

**Affiliation**

- Wants to belong to the group.
- Doing something effectively if wants work to group
Power

- Has pleasure or interest to achieve the goals
- Likes to win arguments.
- Giving response or power to achieve the goals
- Enthusiastic to do something

b. Y variable = (Dependent Variable). Y variable of this research is reading test which consist of questions that using by their teacher in class based on procedure and descriptive material.

D. Design of Research

\[ X \rightarrow Y \]

X = the students’ motivation

Y = the students’ reading comprehension

E. Technique of Collecting Data

This research using two instruments to collecting the data, namely: Questionnaire and reading test.

Questionnaire

Sugiyono (2011, p. 142) argues “Questionnaire is instrument which contain questions that will give to respondents.” The researcher distributes the questionnaire to students to observe students’ opinion about motivation toward their comprehension in reading English text. This questionnaire has positive question which consist of four indicators that are: A= always, B= often, C=sometimes, and D= never with scoring
(A=5), (B=4), (C=3), and (D=1) used Likert scale (Sugiyono, 2011, p. 94). This questionnaire contains 30 items based on indicators’ motivation of McClelland’s theories (1960) (as cited Siagian, 2004, pp. 167-171). The indicators of questionnaire before try out can see at appendices 2 and instrument questionnaire of motivation before try out can see at appendices 3. Thus, after the questionnaire did validity and reliability the questionnaire contains 25 items. The indicators of questionnaire after did try out can see at appendices 5 and instrument questionnaire of motivation can see at appendices 6.

**Reading Test**

The reading test of this research is test that used by their teacher in seventh grade of Junior High School 1 Batudaa based on descriptive and procedure’s material. The test has 50 items with multiple choice (A, B, C, and D) and the score’s question is if right got 1 score and wrong got 0 score. The instrument reading test before did try out can see at appendices 4 and the instrument of reading test after try out can see at appendices 7.

**F. Time of Collecting Data**

Based on explanation previously in population and sample, this research would be explained about the time for collecting data.

On May 21st, 2013, the researcher distributed the questionnaire to some students at seventh grade of Junior High School 1 Batudaa by the helped of Abdullah Oto Yunus S.Pd as a English teacher of Junior High School 1 Batudaa to try out of questionnaire before using in this research and it is took about fourth minutes. Then,
on May 23rd and 24th, 2013, the researcher did try out with distributed reading test to 52 students at seventh grade of Junior High School 1 Batudaa. In this case, to observe item of number’s questions that can use in this research or not and it is took about two hours.

Therefore, the researcher did data collection on May, 29th, 2013 the researcher distributed the questionnaire and reading test to 22 students at the seventh grade of Junior High School 1 Batudaa and it is took about two hours.

G. Technique of Analyzing Data

This research is using descriptive and inferential analysis. “Descriptive analysis is to describe data which consists of following steps: mean, median, modus, deviation standard in form frequency table distribution and use correlation and regression analysis.” (Sugiyono, 2011, p. 148). While, inferential analysis is used to testing hypothesis’s research. Therefore, before the questionnaire and reading test are used the researcher did try out instruments.

The Analyzing Instrument of Try Out Questionnaire

To try out questionnaire, the researcher used validity and reliability.

Validity

Validity is an instrument that used to measure the level of validity of instrument (Sugiyono, 2011, p. 121). The validity of this questionnaire included internal validity non-test because instrument of this questionnaire based on theory of some experts and the material based on this research. Therefore, to measure validity in instrument non-test uses construct validity (Sugiyono, 2012, p. 349). In construct
validity, the researcher used opinion’s lecture about questionnaire of this research (Sugiyono, 2012, p. 352).

**Reliability**

To testing reliability of questionnaire use formula *Alpha Crombach*:

\[
 r_{11} = \frac{K}{K-1} - \frac{\sum s_{i}^{2}}{s_{t}^{2}}
\]

Description:

\[
 r_{11} = \text{Reliability of instrument}
\]

\[
 k = \text{The sum items of instrument}
\]

\[
 \sum s_{i}^{2} = \text{The sum variant items of instrument}
\]

\[
 s_{t}^{2} = \text{The total variant of instrument}
\]

(Nurgiyantoro, 2009, p 132)

Classified realibilitas coefficient can see based in the table 3.1
Table 3.1

<table>
<thead>
<tr>
<th>Value of Interval</th>
<th>Correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.00 – 0.19</td>
<td>Very low</td>
</tr>
<tr>
<td>0.20 – 0.39</td>
<td>Low</td>
</tr>
<tr>
<td>0.40 – 0.59</td>
<td>Enough</td>
</tr>
<tr>
<td>0.60 – 0.79</td>
<td>High</td>
</tr>
<tr>
<td>0.80 – 1.00</td>
<td>Very high</td>
</tr>
</tbody>
</table>

(Sugiyono, 2011, p. 184)

The result score’s questionnaire of students’ motivation can see at appendices 8 in the table 3.5 and the calculation reliability’s questionnaire of students’ motivation can see at appendices 9. Based on the calculation’ reliability questionnaire of motivation can concluded that questionnaire of this researcher has reliability with score 0.895. Although, this questionnaire has reliability but number 4, 9, 17, 20 and 30 are not use in this research because the result of analyzing item got 0. Therefore, only 25 items are using in this research.

The Analyzing Instrument of Try Out Reading Test

Before reading test is used in this research, the researcher did analyzing item to observe facilitating index and discriminating power with using formula Oller, 1979, p. 247 (as cited Nurgiyantoro, 2009, pp139-140). “The level of facilitating index is an item can be valid if facilitating index got between 0.15 – 0.85.” Oller,
To measure item difficulty can using formula:

\[ F = \frac{FH + FL}{2N} \]

Description:

\[ F = (\text{Facilitating Index}) \]

\[ FH = (\text{Frequency High}) \]

\[ FL = (\text{Frequency Low}) \]

\[ 2N = \text{the sum of upper and lower’s students} \]

According to Oller, 1979, p.245 (as cited Nurgiyantoro, 2009, p.141) “The level of discriminating index is an item can be valid if discriminating power got 0.25 or more over 0.35.” To measure item discrimination can using formula:

\[ D = \frac{FH - FL}{N} \]

Description:

\[ D = (\text{discriminating power}) \]

\[ FH = (\text{Frequency High}) \]

\[ FL = (\text{Frequency Low}) \]
N = the number of respondent each group (High or Low)

Therefore, the score’s reading test of frequency high and frequency low can see at appendices 10 and the result analyzing of facilitating index (F) and discriminating index (D) can see at appendices 11. Based on the result of facilitating index (F) and discriminating index (D), the number of items 1, 6, 9, 10, 11, 12, 16, 17, 20, 21, 22, 23, 24, 26, 29, 31, 34, 35, 37, 38, 39, 40, 42, 43, 44, 45, 46, 48 and 49 are valid. Therefore, from 29 items the researcher only used 25 items that are 9, 10, 11, 12, 16, 17, 20, 21, 22, 23, 24, 26, 29, 34, 35, 37, 38, 39, 40, 42, 43, 44, 46, 48, and 49.

H. Data Normality Testing

To testing normality data in this research using Chi Quadrate ($\chi^2$) (Sugiyono, 2012, pp 79-82)

For both X variable and Y variable testing hypothesis as follows:

$H_0$: variable data normally distributed

$H_1$: variable data is not normally distributed

Criteria testing of data normality test is $H_0$ (acceptable) if $\chi_{\text{count}}^2 \leq \chi_{\text{list}}^2$ and $H_0$ (rejected) if $\chi_{\text{count}}^2 > \chi_{\text{list}}^2$, $\alpha = 5\%$, and $dk = k - 1$.

I. Correlation and Regress Analysis

Simple Coefficient of Correlation
“Coefficient of correlation is using to measure correlation of two variables.”

Hasan (2008, p. 45). This research using formula by Pearson Product Moment to measure variable of X and Y (Sugiyono, 2012. p 228):

\[ r_{xy} = \frac{\sum XY}{\sqrt{\sum X^2 \sum Y^2}} \]

Description:

\[ r_{xy} \quad = \text{Coefficient correlation between variable X and Y} \]
\[ x = (x_i - \bar{x}) \]
\[ y = (y_i - \bar{y}) \]

“\( R \) is symbolized of correlation and the level of correlation stated number between -1 and +1. If \( r = -1 \), the both of variables have correlation but negative. If \( r = +1 \), the both of variables have correlation but positive and if \( r = 0 \), the both of variables have not correlation.” (Latief, 2010, p. 111). To determine correlation the both of variables can see in the table 3.2

<table>
<thead>
<tr>
<th>Value of Interval</th>
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</tr>
</thead>
<tbody>
<tr>
<td>0.00 – 0.199</td>
<td>Very low</td>
</tr>
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</tr>
<tr>
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<td>Enough</td>
</tr>
<tr>
<td>0.60 – 0.799</td>
<td>High</td>
</tr>
<tr>
<td>0.80 – 1.000</td>
<td>Very high</td>
</tr>
</tbody>
</table>

(Sugiyono, 2011, p. 184)
**Coefficient of Determination**

To measure coefficient of determination ($r^2$) using formula: \[ KD = r^2 \times 100\% \]. (Hasan, 2008, p.63)

**Testing of Coefficient in Simple correlation**

To test the significance of variables using formula \( t \) test:

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

Description:

- \( t \) = Value of statistic.
- \( r \) = Value of coefficient correlation between variable X and Y
- \( n \) = The number of respondent.

(Hasan, 2008, p.63)

**Simple of Regression Linier**

Simple of regresi linier using to see similarity of regresi is \( Y = a + bX \). To measure variable \( a \) and \( b \) can using formula:

\[
a = \frac{\sum Y - b \sum X}{n}
\]

\[
b = \frac{n \sum XY - (\sum X)(\sum Y)}{\sum X^2 - (\sum X)^2}
\]
Description:

\[ a = \text{Constantan} \]

\[ b = \text{Coefficient of regression} \]

\[ \sum X = \text{The total score of variable } X \]

\[ \sum Y = \text{The total score of variable } Y \]

\[ \sum X^2 = \text{The total score quadrate of variable } X \]

\[ \sum XY = \text{The total score of variable } X \text{ and } Y \]

(Hasan, 2008, p. 64)

\textbf{Testing Statistic of Regression in Simple Linier}

Testing statistic of regression simple linier is to testing significance correlation of two variables through coefficient regression and using formula \( F \) testing:

\[
F = \frac{b^2 X \sum (x-x) \sum} {Se^2}
\]

(Hasan, 2008, p. 105)

\textbf{Testing Hyphothesis:}

\[ H_0 = \text{No correlation between variable students’ motivation and reading comprehension} \]
H₁ = Have correlation between variable students’ motivation and reading comprehension

Testing of Criteria:

\[
H₀ \text{ (rejected) if } t_{count} ≥ t_{list}, \alpha = 0.05 \text{ and } dk = n - 2.
\]