

## CHAPTER III

### RESEARCH METHODOLOGY

This chapter discusses the methodology of the study related to research type, research design, time and place of the study, population and sample, research instruments, data collection, and data analysis.

#### A. Research Type

This study is classified into quantitative research where, according to Ary et al., it deals with question of relationship, cause and effect, or current status that writer can answer by gathering and statistically analyzing numeric data. It can be divided into experimental and non-experimental.<sup>1</sup> Meanwhile Aliaga and Gunderson in Muijs states that Quantitative research is a research which explains phenomena by collecting numerical data that are analyzed using mathematically based methods (in particular statistics).<sup>2</sup>

#### B. Research Design

The research design used in this research is correlational design which assesses the relationships among two or more variables in a single group.<sup>3</sup> According to Johnson the purpose of the correlational studies is to understand relationship of people or other quantities.<sup>4</sup> Correlational research is useful in a

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<sup>1</sup> Donald Ary, et al., *Introduction to*, p. 39.

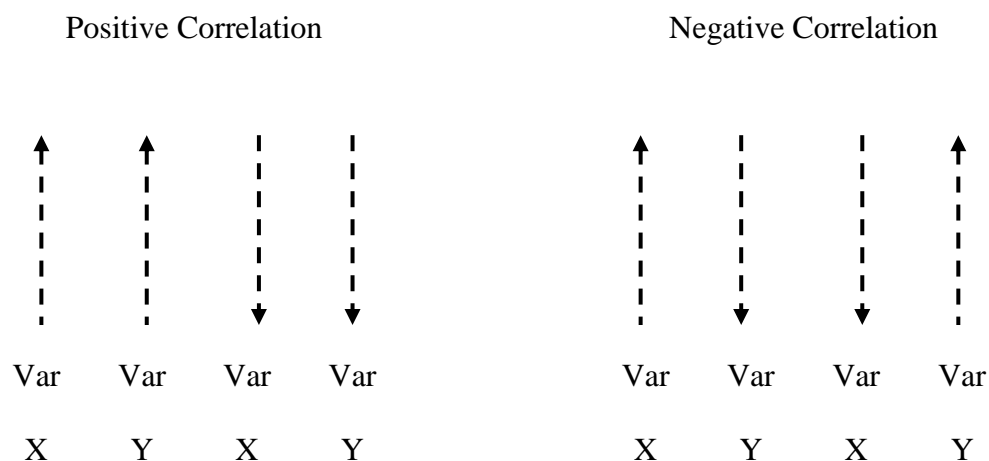
<sup>2</sup> Daniel Muijs, *Doing Quantitative Research in Education with SPSS*, London: SAGE Publications Ltd, 2004, p. 1.

<sup>3</sup> *Ibid.*, p. 349.

<sup>4</sup> Donna M. Johnson, *Approaches to Research in Second Language Learning*, New York: Longman, 1992, p. 49.

wide variety of studies. The most useful applications of correlation are assessing relationships, assessing consistency, and prediction.<sup>5</sup>

A correlational relationship is summarized by using a descriptive statistic called a correlation coefficient. A positive correlation coefficient means that as one variable increases, the other also increases. A negative correlation coefficient means that as one variable increases, the other decreases.<sup>6</sup> Kariadinata and Abdurrahman describe positive correlation and negative correlation as below<sup>7</sup>:



The size of the number (regardless of the sign) indicates how strong the relationship is between the variables. The number can range from a +1.00 to a -1.00 which represent perfect relationships between two variables. More often, the correlation is a decimal, and the size of the number shows how strongly related two measures is.<sup>8</sup>

<sup>5</sup> Donald Ary, et al., *Introduction to*, p. 351.

<sup>6</sup> Marguerite G. Lodico, et al., *Methods in Educational Research and Assessment: From Theory to Practice*, San Francisco: Jossey-Bass, 2006, p. 87.

<sup>7</sup> Rahayu Kariadinata and Maman Abdurrahman, *Dasar-Dasar Statistik Pendidikan*, Bandung: Pustaka Setia, 2012, p. 309.

<sup>8</sup> Marguerite G. Lodico, et al., *Methods in*, p. 87.

### **C. Time and Place of the Study**

The research of his study had been done from 21 October up to 21 December 2013 and it took place at English Education Study Program on the fifth semester students of STAIN Palangka Raya.

### **D. Population and Sample**

#### 1. Population

According to Ary population is all members of any well-defined class of people, events, or objects.<sup>9</sup> Population of this research is all students in fifth semester of English Department STAIN Palangka Raya. The population of the study is all of the fifth semester students at Islamic State College of Palangka Raya academic year 2013/2014. The number of population is 90 students. (observation at English department on Friday at 25 oktober 2013)

#### 2. Sample

According to Ary, et al., sample is a small group that is observed which is a portion of a population.<sup>10</sup>

The population of the study is all of the fifth semester students at Islamic State College of Palangka Raya academic year 2013/2014. The number of population is 90 students. It is classified into four classes. Since there were about 4 classes in this semester so the writer minimized the object that will be sample into 2 classes. The sample in this research was chosen by using cluster random sampling.

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<sup>9</sup> Donald Ary, et al., *Introduction to*, p. 148.

<sup>10</sup> *Ibid.*

Cluster sampling, according to Ary, et al., is where the unit chosen is not an individual but, rather, a group of individuals who are naturally together.<sup>11</sup>

## **E. Research Instruments**

### 1. Research Instruments

According to Ary, et al., instrument is a device for operationally defining a variable.<sup>12</sup> Selecting appropriate and useful measuring instruments is critical to the success of any research study. One must select or develop scales and instruments that can measure complex constructs such as intelligence, achievement, personality, motivation, attitudes, aptitudes, interests, and self-concept.<sup>13</sup>

There were two instruments used in this research, namely test and questionnaire.

#### a. Test

To measure students' spelling ability in this study, the writer used a test. According to Ary, et al., a test is a set of stimuli presented to an individual in order to elicit responses on the basis of which a numerical score can be assigned. This score, based on a representative sample of the individual's behavior, is an indicator of the extent to which the subject has the characteristic being measured.<sup>14</sup> The kind of test used to measure students' spelling ability in this study was

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<sup>11</sup> *Ibid.*,p. 154.

<sup>12</sup> *Ibid.*,p. 643.

<sup>13</sup> *Ibid.*,p. 200.

<sup>14</sup> *Ibid.*,p. 201.

dictation test. The dictation test used in this study will be adapted from commonly misspelled words in *Academic Studies English Support Materials and Exercises for Spelling Strategies* (see appendix I).<sup>15</sup> In doing the dictation test, the writer used American voice audio from English dictionary software *Cambridge Advanced Learner's Dictionary - 3rd Edition*.

b. Questionnaire

A questionnaire instruments was used in this study to measure the students' voluntary reading. According to Ary, et al., questionnaire is an instrument in which respondents provide written responses to questions or mark items that indicate their responses.<sup>16</sup>

The writer chose questionnaire to measure voluntary reading because voluntary reading is concerned with reading behavior or reading habit. Sangkaeo in Noor states that reading habit refers to the behaviour which expresses the likeness of reading of individual types of reading and tastes of reading.<sup>17</sup> Similarly, Shen in Noor identifies reading habits, as how often, how much, and what students read.<sup>18</sup> So, it would be appropriate to measure voluntary reading by using questionnaire (where the result was quantified as Krashen and Polak

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<sup>15</sup> Leslie Childs, et al., *Academic Studies English Support Materials and Exercises for Spelling Strategies: A 20 Weeks Programme*, National Literacy Secretariat of Human Resources Development Canada, 1998. Retrieved from <http://www.nald.ca/library/learning/academic/english/spelling/module3.pdf> on January 4<sup>th</sup>, 2013.

<sup>16</sup> Donald Ary, et al., *Introduction to*, p. 648.

<sup>17</sup> Noorizah Mohd. Noor, "Reading Habits and Preferences of EFL Post Graduates: A Case Study", *Conaplin Journal: Indonesian Journal of Applied Linguistics*, Vol. I No. 1, 2011, p. 1-8.

<sup>18</sup> *Ibid.*

did in measuring voluntary reading in their study<sup>19</sup>) since questionnaires, as Dörnyei notes, can yield three types of data about the respondent: factual, behavioral, and attitudinal<sup>20</sup>.

To measure behavioral data, the writer used likert scale type-questionnaire where the options are concerning with frequency, such as always, often, sometimes, seldom, and never (see appendix II).

## 2. Research Instruments Try Out

Try out is used to measure the suitable instrument for the students' voluntary reading and their ability in spelling. The try out was done to the students who did not become sample in this study. The procedures to do try out were:

- a. The writer gave try out the test item to the students who did not become research sample.
- b. The writer collected the answers and gave score to the respondents.
- c. The writer analyzed the respondents' score to find out instrument reliability.

## 3. Research Instruments Reliability

The good instrument in a study is not only the instrument valid but also reliable to measure what suppose to be measured.

To measure the reliability of the test, one of ways that used is through internal consistency. It can be done by testing the instrument once time and then the result is analyzed by using Split Half(Spearman Brown),

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<sup>19</sup> Jeanne Polak and Stephen Krashen, "Do We", p. 141-146.

<sup>20</sup> Zoltán Dörnyei, *Questionnaires in Second Language Research: Construction, Administration, and Processing*, New Jersey: Lawrence Erlbaum Associates, 2003, p. 8.

KR 20, KR 21 and Anova Hoyt.<sup>21</sup> In this research, the writer used formula KR-21 to measure reliability of valid items questionnaire by using *KR-21* where, according to Riduwan, it is applicable to tests whose items are scored dichotomously (0 or 1); so, it is useful with test items that are scored as true/false or right/wrong. The formula as below:

$$r_{11} = \left( \frac{k}{k-1} \right) \cdot \left( 1 - \frac{x(k-x)}{k \cdot s^2} \right)$$

where:

$r_{11}$  = reliability of the whole test

$k$  = number of items on the test

$x$  = Mean

$s$  = Standard Deviation<sup>22</sup>

After measuring reliability of the spelling test, the writer consulted the result with r table value with df=10 with the rule as follow:

If  $r_{11} > r$  table means reliable, but if  $r_{11} < r$  table means unreliabe<sup>23</sup>

To measure the reliability of the questionnaire, the writer used *Coefficient Alpha*. According to Ary, et al, researchers use Cronbach alpha when measures have items that are not scored simply as right or wrong, such as attitude scales or essay tests. The item score may take on a range of values; for example, on a Likert attitude scale the individual may

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<sup>21</sup> Sugiyono, *Statistika untuk Penelitian*, Bandung: Alfabeta, 2011, p. 359-360.

<sup>22</sup> Riduwan, *Metode dan Teknik Menyusun Tesis*, Alfabeta, Bandung, 2010, p. 120-121.

<sup>23</sup> *Ibid.*, p. 128.

receive a score from 1 to 5 depending on which option was chosen.<sup>24</sup> The formula for alpha is as follows:

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

where

$r_{11}$  =reliability value

$k$  =total of items on the test

$\sum s_i^2$ =total variances of each item score

$S_t$  =total variances<sup>25</sup>

#### 4. Research Instruments Validity

One of the requirements of a good instrument is the instrument must be valid. Validity provides information on the extent to which the instrument measured what is supposed to be measured. According to Heaton, the validity of a test is the extent to which it measures what it is supposed to measure and nothing else.<sup>26</sup>

##### a. Face Validity

Face validity is used in this study. According to Ary, et al., face validity is a term sometimes used in connection with a test's content. Face validity refers to the extent to which examinees believe the instrument is measuring what it is supposed to measure.<sup>27</sup> According to Heaton, a test can be described as having face validity if a test item

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<sup>24</sup> Donald Ary, et al., *Introduction to*, p. 246-247.

<sup>25</sup> Riduwan, *Metode dan Teknik*, p. 125-126.

<sup>26</sup> J.B. Heaton, *Language Testing*, 1987, p. 153.

<sup>27</sup> Donald Ary, et al., *Introduction to*, p. 228



looks right to other testers, teachers, moderators, and testees.<sup>28</sup> In order to measure students' spelling ability, the writer will use dictation test to test their spelling ability.

b. Content Validity

According to Mackey and Gass, content validity refers to the representativeness of our measurement regarding the phenomenon about which we want information. If we are interested in the acquisition of relative clauses in general and plan to present learners with an acceptability judgment task, we need to make sure that all relative clause types are included.<sup>29</sup> In the other word a test is supposed to be valid in terms of its content when it is developed as to contain adequately representative sample of the course, the objectives, and the items.

c. Construct Validity

According to Heaton construct validity assumes the existence of certain learning theories and constructs underlying the acquisition of abilities and skills. A test with construct validity is capable to measure certain specific characteristics in accordance with theories of language behavior or language learning.<sup>30</sup>

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<sup>28</sup> J.B. Heaton, *Language*, p. 153.

<sup>29</sup> Alison Mackey and Susan M. Gass, *Second Language Research: Methodology and Design*, London: Lawrence Erlbaum Associates, 2005, p. 107.

<sup>30</sup> J.B. Heaton, *Language*, p. 154.

To test the construct validity of the questionnaire, factor analysis was used by correlating score item of instrument by using pearson product moment formula as follow:<sup>31</sup>

$$r_{\text{observed}} = \frac{n(\sum XY) - (\sum X)(\sum Y)}{\sqrt{\{n \cdot \sum X^2 - (\sum X)^2\} \cdot \{n \cdot \sum Y^2 - (\sum Y)^2\}}}$$

where:

$r_{\text{observed}}$  : correlation coefficient

$\sum X$  : total score of an item

$\sum Y$  : total score of all items

$n$  : number of respondent

After gathering the results  $r_{\text{observed}}$ , the writer interpreted the result by using coefficient correlation interpretation table as below:<sup>32</sup>

**Table 3.1**  
**Interpretation Orientation**

Interval coefficient	Degree of Relationship
0,00-0,199	Very low
0,20-0,399	Low
0,40-0,599	Average
0,60-0,799	High
0,80-1,000	Very high

<sup>31</sup> Riduwan, *Metode dan Teknik*, p. 109-110.

<sup>32</sup> Sugiyono, *Statistika untuk*, p: 231.

In measuring the spelling test validity, the writer used Point Biserial Correlation, as follow:<sup>33</sup>

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

Where :

$r_{pbi}$ = coefficient of point biserial correlation

$M_p$ =mean right answer score from participants

$M_t$ = mean of total score

$p$ = proportion of participants with wrong answer

$q$ = proportion of participants with wrong answer

After gathering the results of point biserial correlation, the writer interpreted the result by using coefficient correlation interpretation table as below:<sup>34</sup>

**Table 3.2**  
**Interpretation Orientation**

Interval coefficient	Degree of Relationship
0,00-0,199	Very low
0,20-0,399	Low
0,40-0,599	Average
0,60-0,799	High
0,80-1,000	Very high

<sup>33</sup> Hartono, *Statistik untuk Penelitian*, Yogyakarta: Pustaka Pelajar, 2011, p. 123.

<sup>34</sup> Sugiyono, *Statistika untuk*, p: 231.

## F. Data Collection

First, the writer gave the test item of spelling to the students who did become sample in this study. After giving the test, he gave them a questionnaire proving their voluntary reading. After that, he collected result of the test and the questionnaire given to them after the students filled them.

## G. Data Analysis

After collecting the quantitative data on the two variables for each of the students in the sample, there were several steps done as follow:

- a. Calculating the students' score in dictation test by using formula:

$$S = \frac{n}{N} \times 100$$

Where:

S = student's score in dictation test

n = number of true answer

N= number of test items

- b. To quantify the student's score in the questionnaire, the writer summed the quantitative data of the questionnaire.
- c. To find out the correlation coefficient of the spelling ability and voluntary reading, the writer used serial correlation technique. According to Hartono, this technique is used when one of the data will be correlated is interval and the other is ordinal.<sup>35</sup> In this study, the interval data is spelling test and

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<sup>35</sup> Hartono, *Statistik untuk Penelitian*, p. 128.

the ordinal data is voluntary reading questionnaire. The serial correlation pattern used was:

$$r_{ser} = \frac{\sum \{(o_r - o_t) (M)\}}{SD_{tot} \sum \left\{ \frac{(o_r - o_t)^2}{p} \right\}}$$

where

$r_{ser}$  = serial correlation coefficient

$o_r$  = lower ordinate

$o_t$  = higher ordinate

$M$  = mean

$SD_{tot}$  = total standard deviation

$p$  = individual proportion in group<sup>36</sup>

After getting the score of coefficient correlation serial, the next step the writer did was to find the score of “r” chotomitation with formula as follow<sup>37</sup>:

$$r_{ch} = r_{ser} \sqrt{\sum \left[ \frac{(o_r - o_t)^2}{p} \right]}$$

The next step done was to find a value of  $r_{ch}$  at factor of correlation table where the result of  $r_{ch}$  compared to interpretation orientation table below:<sup>38</sup>

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<sup>36</sup> *Ibid.*, p. 129.

<sup>37</sup> Hartono, *Statistik untuk Penelitian*, p. 135.

<sup>38</sup> Sugiyono, *Statistika untuk*, p: 231.

**Table 3.3**  
**Interpretation Orientation**

Interval coefficient	Degree of Relationship
0,00-0,199	Very low
0,20-0,399	Low
0,40-0,599	Average
0,60-0,799	High
0,80-1,000	Very high

The last, according to Sugiyono, to know whether the value of " $r_{ch}$ " is significant or not, the writer compared " $r_{ch}$ " with r table at significant level 5 %