

CHAPTER III

RESEARCH METHODOLOGY

A. Research Design

Research is the scientific activities that are based on a problem that requires a solution. According to Wayne Goddard and Stuart Melville (2006, p. 1), research “is not just a process of gathering information, as is sometimes suggested”. In this research, researcher did a correlation research whether or not to find the answer of correlation between students’ self-concept and students’ English achievement because, Research is about answering unanswered questions or creating that which does not currently exist (Wayne Goddard and Stuart Melville, 2006:1). This research that use students’ self-concept and students’ English achievement as the variables. The point is the researcher tried to find out whether or not the correlation in the population of SMAN 3 Singkawang. And majority data analyzed by correlational research analysis.

The correlation study will help the researcher in showing the relationship between variables. According to Cresswell (2012:21), Correlational designs “are procedures in quantitative research in which investigators measure the degree of association (or relation) between two or more variables using the statistical procedure of correlational analysis”. Another statement comes from Kohtari (2004:130), “Correlation analysis studies the joint variation of two or more variables for determining the amount of correlation between two or more variables”. Researcher conclude that, correlation is a study about measuring

correlation between two or more variables. As stated by Cresswell again (2012:338), Correlational designs “provide an opportunity for you to predict scores and explain the relationship among variables”. The researcher used a correlation statistical technique to describe and measure the relationship between variables. This kind of technique is simply to test strength of the two variables.

Hence, correlational design is very useful to provide a new information about the strength of relationship between two or more variables which the data will be collected and analyzed by the individual in the population properly so that the researcher got a correct result in procedure of doing this correlational research.

B. Population and Sample

1. Population

In conducting this research, researcher need a region which consists of object or subject that can be investigate. According to Goddard and Melville (2006:34), Population “is any group that is the subject of research interest”. And as stated by Ary et al (2010:148), population “is defined as all members of any well-defined class of people, events, or objects”. The population of this study is the tenth grade students of SMAN 3 Singkawang in the academic year of 2014/2015. The reason why researcher used Senior high school students as the population is because it is very important to know about senior high school students’ self-concept. According to Achana and Chamundeswari in Adom and Josephin (2014:25), “it is very imperative

to investigate other factors such as motivation and self-concept which have positive relationship with academic performance of high school students”. And also there is no researcher conducted this research before in SMAN 3 Singkawang. In the purpose of finding the answer of is there any correlation between motivation and students English score.

2. Sample

In conducting the study, researchers probably not chose all the subjects or objects that exist in the population of research. Researchers randomly selected or specified the part of the population that selected for each and are expected to represent the population in the study. As Mentioned by Ary et al (2010:148), sample “is a portion of a population”. Sample is just a piece of population and they are all represented all population for research necessity. In doing a research sample is very important. As stated by Morrison in Cohen et al (2007:100), “The quality of a piece of research stands or falls not only by the appropriateness of methodology and instrumentation but also by the suitability of the sampling strategy”. Sample play in important role in research, especially in correlational research.

As explained above in the first paragraph, researcher have done a sampling. Sampling defined as “the process of selection of sampling units from the population to estimate population parameters in such a way that the sample truly represents the population” (Singh, 2007:89). In this research, researcher used random sampling, random means “that every member of a population has an equal chance of being selected into a sample”

(Urdan, 2005:3). Simple random sampling can also interpreted as “one in which each element of the population has an equal and independent chance of being included in the sample” (Singh Y. K., 2006:86). So that, researcher got easier in choosing the sample. And also research got a benefit of using random sampling. As stated by Urdan (2005:3), “The major benefit of random sampling is that any differences between the sample and the population from which the sample was selected will not be systematic”. It means that everyone on the population has the same opportunity to be chose by researcher.

There are 138 students of tenth grade students in SMAN 3 Singkawang and they are divided into 4 classes. Researcher chose 30 students as the sample. According to Goddard and Melville (2006:67), “The large-sample method can be reliably applied if there are at least 30 data values”. The 30 samples chose randomly as written at paragraph 2.

C. Data Collection Instrument

Instrument is important part of collecting data. According to Goddard and Melville (2006:46), “The most common instruments they use for this purpose are tests, interviews and questionnaires”. In this research, researcher used a questionnaire for collecting the data.

1. Students’ Self-Concept Questionnaire

In conducting this research, researcher used questionnaire. Researcher adopted a questionnaire by Piers-Harris (Appendix 1), Piers-Harris children’s self-concept scale is a questionnaire that used to measure

students' self-concept level in several scales. This questionnaire consist of 80 items which contains six cluster scales, Behavioral adjustment (BEH), Intellectual and school status (INT), Anxiety (ANX), Happiness and Satisfaction (HAP), Physical appearance and attributes (PHY), and Popularity (POP).

2. Students' English Achievement

Students' English score considered in terms of students' English final result in report card. Report card presents a measurement of students' achievement in learning English and the result accumulate from some scores while learning is in process. Researcher used the English score in the report card to represent English achievement.

D. Procedure of Data Collection

1. Students' Self-Concept Questionnaire

The purpose of this research was explained to the teacher. Afterward, the questionnaire administered to the students. Before the students start to fill the questionnaire, researcher guaranteed the students that the information is confidential and the result of this research not affecting their scores. To ask questions related to the questionnaire are allowed by the researcher if they get confuse about the meaning of the questions, they can raise their hand and simply ask the researcher. Then, researcher answered and explained it.

2. Students' English Achievement

English achievement that used by researcher is students' English score data in term of Students' final result that is already reported in report card of first semester. It was collecting through report card records managed by class teacher of SMAN 3 Singkawang. Researcher simply asked the score to the teacher for all samples' scores that was being the samples in this research.

E. Technique of Data Analysis

1. Normality Test

Conducting a correlational research, it is necessary to do a test to measure whether the obtained data has a normal distribution or not. According to Singh (2007:94), "The normal distribution is important, not only because it symbolizes the most observed phenomenon, but also because in most cases, it approximates the other prevalent functions". It is not only to know that the sample represented to population but, data which is normal distributed also can be used in parametric statistics (inferential statistics).

Normality of the variable in this research is important. There are kinds of test that researcher can use for test the normality of the data (Cohen & Cohen, 2008:223), one-sample Kolmogorov-Smirnov (K-S) test, the Anderson-Darling test and the Shapiro-Wilk normality test. Researcher will use Kolmogorov-Smirnov (K-S) test to test the normality of variables in this research. According to Urdan (2005:25), a normal population will be shown with three characteristics,

“First, it is symmetrical, meaning that the upper half and the lower half of the distribution are mirror images of each other. Second, the mean, median, and mode are all in the same place, in the center of the distribution. Because of this second feature, the normal distribution is highest in the middle, it is unimodal, and it curves downward toward the top and bottom of the distribution”.

If the data found not normally distributed, the data cannot be used in parametric statistic which means researcher will use non-parametric statistic. In non-parametric statistic, researcher do not need to make any assumption about how normal the data is (Cohen, Manion, & Keith, 2007:415). Mostly, non-normal data caused by small number of sample. Urdan (2005:161) mentioned in his book that there are a number of nonparametric tests available, which are The Mann-Whitney U test, The Kruskal-Wallis analysis, and chi-square. If the data founded not normally distributed, researcher will use Mann-Whitney U test or often call Wilcoxon test.

SPSS was used in data analysis of this research for the effectiveness, the efficiency, and the accuracy of the calculation.

2. Students' Individual Self-Concept

Self-concept is disseminated into some aspects. The self-concept spread into six clusters scale. The researcher accumulated the total of positive answers each scales. Then, researcher will figure out and accumulate the t score of each scales like the example below:

Table 3.1 Example of Self-Concept Result

Scale	Raw	T	Range	T-Score
Validity Scales				
Inconsistent Responding Index (INC)	1	53	Normal	
Response Bias Index (RES)	34	61	Normal	
Self-Concept Scales				
Total Score (TOT)	33	39	Low	
Domain Scales				
Behavioral Adjustment (BEH)	3	<30	Very Low	
Intellectual and School Status (INT)	5	34	Low	
Physical Appearance and Attributes (PHY)	7	45	Average	
Freedom From Anxiety (FRE)	12	54	Average	
Popularity (POP)	7	44	Low Average	
Happiness and Satisfaction (HAP)	10	59	Above Average	

Adopted by Piers-Harris (2002:1)

And the formula of t-score as follow:

$$z = \frac{x}{\sigma} = \frac{X - \bar{X}}{\sigma}$$

$$T = 10(z) + 50 = 10 \left(\frac{X - \bar{X}}{\sigma} \right) + 50$$

X = raw score

\bar{X} = mean of the distribution

σ = standard deviation of the distribution

x = deviation score ($X - \bar{X}$)

Adopted by Ary (2010:119)

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3. Pearson Product Moment

Using the right correlation analysis is required in analyzing the data.

According to Howitt and Cramer (2000:96), Pearson's correlation "is the ratio of the variance shared between two variables over the square root of

the product of the variances of the two variables”. It is also strengthened by a measures relationship as follow:

Table 3.2 Common Measures of Relationship

Common measures of relationship

Measure	Nature of variables	Comment
Spearman's rho	Two ordinal variables	Relationship linear
Pearson product moment r	Two continuous variables; interval or ratio scale	Relationship linear
Rank order or Kendall's tau	Two continuous variables; ordinal scale	
Correlation ratio η (eta)	One variable continuous; other either continuous or discrete	Relationship nonlinear
Intraclass	One variable continuous other discrete; interval or ratio scale	Purpose: to determine within-group similarity
Biserial r_{bis} Point biserial $r_{pt\ bis}$	One variable continuous; other continuous but dichotomized, r_{bis} or true dichotomy $r_{pt\ bis}$	Index of item discrimination (used in item analysis)
Phi coefficient φ	Two true dichotomies; nominal or ordinal series	
Partial correlation $r_{12.3}$	Three or more continuous variables	Purpose: to determine relationship between two variables, with effect of third held constant
Multiple correlation $r_{1.234}$	Three or more continuous variables	Purpose: to predict one variable from a linear weighted combination of two or more independent variables
Kendall's coefficient of concordance (W)	Three or more continuous variables; ordinal series	Purpose: to determine the degree of (say, inter-rater) agreement

Adopted by Cohen (2007:529)

Students' self-concept and students' English achievement categorized as interval or ration variables because they are in form of interval (e.g. A, B, C, low, Average, Normal).

To analyze the correlation between self-concept and English achievement researcher used Pearson's Product Moment or. The formula as follow:

$$r = \frac{\sum(z_x z_y)}{N}$$

where r = Pearson product moment correlation coefficient;

z_x = a z score for variable X

z_y = a paired z score for variable Y

N = the number of pairs of X and Y scores.

Adopted by Urdan (2005:78)

As explain in the formula above, clearly showed the formula of Pearson's Product Moment. Z means the standardize score of the variables which variable X (Predictor Variable) and variable Y (Criterion Variable).

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