CHAPTER III

RESEARCH METHODOLOGY

A. Research Design

The research design employs in this study is the descriptive quantitative study which is in accordance with the objectives and needs of researcher to be achieved in the future. Ary, *et.al.* (2010; 426) stated research design is a strategy for achieving understanding of a phenomenon or group that is appropriate to the context used by the researcher. Creswell, (2014) explains "the specific steps in the research process that make up the research design are as follows: data collection, data analysis, and report writing".

So, the researcher investigated the profile of EFL teachers' creative thinking in Kayong Utara Regency. In this concept, the researcher needed design analysis to hold the research. Moreover, the researcher focused on analyzing, describing the data and the results from this study.

B. Population and Sample

An important characteristic of one of the fundamental research principles and terminology includes is the process of going from the part to the whole or the distinction between population and samples.

a. Population

A population is a group of individuals who have the same characteristic. Population can be small or large (Creswell, 2012:142). So, population is a representative sample of a larger group of people (or even things) with one or more characteristics in common.

b. Sampling Technique

The researcher used homogenous sampling to select the participants. A homogeneous sample is one that has units that have the same (or extremely similar) qualities or traits. Homogeneous sampling is a purposive sampling approach that seeks to achieve this. (Lund, 2012) A homogeneous sample is often chosen when the research question being addressed is specific to the

characteristics of a particular group of interest, which is then examined in detail. In this case, the researcher only selected civil servants or PNS teacher.

c. Sample

A sample is a subgroup of the target population that the researcher plans to study for generalizing about the target population. In an ideal situation, you can select a sample of individuals who are representative of the entire population (Creswell, 2012:142). A sample should represent the population as a whole and not reflect any bias toward a specific attribute. All the participants in the sample should share the same characteristics and qualities

The participants of the study consist of 6 EFL teachers from 5 senior high schools. The target schools that conducted in this study are:

Table 3.1 Schools in Kayong Utara Regency

No.	Name of the School	Participant	District
1.	SMA Negeri 1 Sukadana	1	Sukadana
2.	SMA Negeri 2 Sukadana	1	Sukadana
3.	SMA Negeri 3 Sukadana	2	Sukadana
4.	SMA Negeri 2 Simpang Hilir	1	Simpang Hilir
5.	SMA Negeri 3 Simpang Hilir	1	Simpang Hilir

Researchers have criteria in selecting participants, that is focusing on civil servants or PNS who have a background in English Education. And researchers chose these 5 schools to represent schools in Kayong Utara Regency.

C. Techniques and Tools of Data Collection

a. Technique of Data Collection

This study used measurement technique to collect the data. According to Hills (1981) and Kane, (2001), Measurement is the process by which a variable is operationalized for the purpose of describing that variable in a quantitative

manner serves as the link between questions and answers. While the process of measurement bridges the gap between research objectives/questions and the data that is collected, measurement techniques (bridge the gap between data and conclusions. Without measurement, forward progress would not be possible in educational or other research contexts.

b. Tool of Data Collection

The data of this study collected from the result of a test. Based on Arikunto, (2010) when researchers use a technique that uses tools to collect data, this is called an instrument. The researcher used a test to achieve the purpose of this study. The researcher will use Alternative Uses Test (AUT) that is one of divergent thinking test that is a way to evaluating divergent thinking ability that is created by J.P. Guilfold in 1967. The purpose of the AUT is to measuring creativity of divergent thinking tests as the main instrument. Once the test is completed, the scores divided into four components of creative thinking; fluency, flexibility, originality and elaboration. After that, it started calculating the descriptive quantitative with mean, median, and standard deviation of each group within the 4 AUT components. This test given to each participant and the researcher explained how to complete this creative test. Participants asked to try to fill in 1 sample problem first, then the researcher explained again to the participants about the problem to make it clearer. To do this test, participants are given time to complete this creative thinking test. So every 1 question participants are given 3 minutes to fill in the answers to each question. So for 10 questions participants have 30 minutes to complete it. However, during the process the researcher provided a break so that participants are not fixated or too stressed in completing the test. The researcher directly see the test work carried out by the participants.

D. Technique of Data Analysis

Data analysis involves reviewing the data collected and synthesized, and making sense of what is tested (Syakur, 2020). In this study, the researcher used Descriptive Quantitative analysis. The data analysed by using descriptive statistics analysis (central tendency, variability and relative standing) by using SPSS 25.

The creative thinking ability test that developed is based on the Alternative Uses Test creative thinking with four components there are fluency, flexibility, originality and elaboration.

Firstly, the researcher looked for normality of the data by using Kolmogorov-Smirnov test and the individual score by using this formula:

1) Mean Score

$$\text{Teacher's score} = \frac{\Sigma \text{ number of total items}}{\Sigma \text{ number of scoring items}} \times 100\%$$

Adapted from Timothy C. Urdan (2017:15)

After getting the individual score, the researcher continued to look for the group score by using this formula:

$$\overline{X} = \frac{\Sigma X}{n}$$

Where:

$\overline{X}$ is the sample mean

X = is an individual score in the distribution

n = is the n umber of scores in the sample

Adapted from Urdan (2005:8)

Furthermore, the researcher also looked for the percentage of teachers' ability on each four aspects, which are fluency, flexibility, originality and elaboration by using this formula:

$$\text{Four Aspects} = \frac{\Sigma \text{ number of total items}}{\Sigma \text{ number of scoring items}} \times 100\%$$

Adapted from Timothy C. Urdan (2017:15)

After that, the researcher continued to look for the group score from each four aspects by using this formula:

$$\overline{X} = \frac{\Sigma X}{n} \times 100\%$$

Where:

$\overline{X}$ = the sample mean

Σ = to sum

X = a score in the distribution

n = the number of cases in the sample

Adapted by Aisyah, 2014

To find out the mean results of the previous calculation results can be seen from the following classification below;

Table 3. 2 Mean Score the Level of Creativity Based on Three Categories

Marks	The Level of Creativity
68-100	Very Creative
34-67	Creative
0-33	Less Creative

Adapted from Kumari et al (2014)

The table shows the meaning of median scores to determine the level of creativity the teachers. The score of 0 to 33 shows the lowest level of creativity. The scores of 34 to 67 indicate a moderate level of creativity. Whereas, the score of 68 to 100 shows the highest level of creativity. The data was analyzed by using frequency, percentage and median due to the ordinal data obtained.

2) Median

To find median in the distribution, the researcher arranged the scores in order from smallest to largest and find the middle score.

3) Mode

The researcher looked for the score that appears most frequently in a list of scores.

4) Range

The researcher wants to know the range by simply calculating the difference between the largest score (the maximum value) and the smallest score (the minimum value) of a distribution.

5) Variance

This tool provides a statistical average of the amount of dispersion in a distribution of scores.

Here is the formula:

$$s^2 = \frac{\Sigma(X-\overline{X})2}{n-1}$$

where

Σ = to sum

X = a score in the distribution

$\overline{X}$ = the sample mean

n = the number of cases in the sample

Adapted from Urdan (2005:16)

6) Standard Deviation

This tool it be useful for this research because it provides a handy measure of how spread out the scores in the distribution. Urdan, 2005 articulates that the standard deviation is a very useful statistic that researchers constantly examine to provide the most easily interpretable and meaningful measure of the average dispersion of scores in a distribution. Here is the formula:

$$s = \sqrt{\frac{\Sigma(X-\overline{X})2}{n-1}}$$

Where:

Σ = to sum

X = a score in the distribution

$\overline{X}$ = the sample mean

n = the number of cases in the sample

Adapted from Urdan (2005:16)

7) Z Scores

  In order to describe the individual scores within a distribution, the researcher used standard score or a Z score to help the researcher understand where an individual score falls in relation to other scores in the distribution. Here is the formula to calculate a Z score:

$$z = \frac{X - \overline{X}}{s}$$

Where:

z = standard deviation

X = raw score

$\overline{X}$ = sample mean

s = sample standard deviation

Adapted from Urdan (2005:34)

Table 3.3 Assessment Rubric of Creative Thinking adapted by Torrance, 2006

Creativy Indicator	Score	Description
Fluency	0	Teachers cannot provide ideas/answers
	2	Teachers can come up with one to two ideas/answers.
	4	Teachers can come up with three or more ideas/answers.
Flexibility	0	Teachers are not able to provide ideas/methods
	2	Teachers can come up with one to two ideas/methods
	4	Teachers can come up with three or more ideas/methods
Originality	0	Teachers do not answer / general ideas / common ideas and no originality
	2	Teachers come up with moderate unique ideas
	4	Teachers come up with very unique ideas
Elaboration	0	There is no addition of ideas from teachers.
	2	A simple addition of ideas from teachers
	4	Extraordinary ideas from teachers

The data that had been collected before categorized based on the mean score classification and would be matched to each indicators of the creative thinking rubric assessment with score 4 for very creative, 2 for creative, 0 for less creative.