

## **CHAPTER III**

### **RESEARCH METHODS**

In this chapter, the researcher describes the research methodology applied in the present. It covers research design, population, sampling and sample, variable, research instrument, validity, reliability, data collection method, data analysis, hypothesis, criteria of hypotheses testing.

#### **A. Research Design**

This research was a correlational research. According to Creswell (2008), this research is a quantitative method of research in which investigators measure the degree of association or relation between two or more variables using the statistical procedure of correlational analysis. The type of correlational design is the explanatory design.

Explanatory design consists of a simple association between two variables or more than two Creswell (2005) shows that the characteristics of this design are that the researchers correlate two or more variables, collect data at one point in time, analyze all participants as a single group, obtain at least two scores for each individual in the group one for each variable, report the use of the correlation statistical test (or an extension of it) in the data analysis, and make interpretations or draw conclusions from the statistical test results.

## **B. Population, Sampling and Sample**

### **1. Population**

Population data is a set of all members of a specified group or the entire list of possible data values. According to Ross (2010), population is the total collection of the whole element that we are interested in. Ary *et.al* (2010) defines a population as all members of any well-defined class of people, events, or objects. Arikunto (2010) said the overall population is the subject of research. Agreeing with this notion, Sugiyono (2010) states that population is a generalization region involves an object or a subject that has quality and special characteristics in which chosen by the researcher to investigate and make conclusion. It means that population refers to large group. In this research the population is all students of the first grade about 80 students' of SMK PGRI KRAS in academic year 2020/2021.

### **2. Sampling**

Sampling is process selecting unit from population. According to Sugiyono (2013), sampling is technique to take sample. The number of sample taken should appropriate to collect the data. The purpose of sampling is to gain the information about a population. So, sampling is a way that the researcher used to select number of individuals for a study in such as a way that the individuals represent the large group from which they were selected.

The researcher used purposive sampling technique. Purposive sampling technique is a type of nonprobability sampling where the researcher consciously selects particular elements of subjects for addition in a study to make sure that the element will have certain characteristic pertinent to the research. According to Cohen et al., (2007) in purposive sampling technique, sample is satisfactory to specific needs. In purposive sampling, the researcher believes that the subject could give sufficient information that the researcher want to search. Another reason is researcher requires active class to do the research.

### **3. Sample**

Sample is a portion of a population. Researcher is unable to take data or information from all of the population, since the limitation of time, energy, and accessibility. The researcher takes smaller one called sample that can reflect the whole population. According to Fraenkel, et. al (2012) the minimum acceptable sample size for correlational study is considered by most researchers to be no less than 30. According to Fraenkel, et. al (2012), a sample should be as large as the researcher can obtain with a reasonable expenditure of time and energy. Therefore the researcher often need to be able to obtain data from a smaller group or subset of the total population in such a way that the information gained is representative of the total population under the study. Cohen et al (2007) called this smaller group or subset as sample. According to

Lodico et al (2006), “A sample is a smaller group selected from a larger population. Data is take from students among the population, which was then considered as sample. Moreover Arikunto, (2010) says sample is a part of the population which is investigated. It means that sample was a representative part of population that taken to represent the research.

In this case the researcher investigates around 67 students from two classes. The classes are X AK and X TKJ as a group. It is because the English teacher has recommended the researcher to take the class to be the sample. The researcher and teacher believe that the subject could give sufficient information that the researcher want to search. Another reason is researcher requires active class to do the research. Besides that, the researcher has a bond between teacher and students about that class because sometimes he teaches in this class.

### **C. Variable**

Variable is everything to which the researcher expects to find the answer. It can be some factors that may become object of the study. In addition, Variable is divided into three groups, they are explanatory variable ( $X_1$ ), predictor variable ( $X_2$ ) and criterion variable (Y). The explanation above of them as the experts have presented.

In quantitative research Ary (2002) said that “a variable is a construct or characteristics that can take on different values or scores”. The variables of the study are stated below:

### **1. Explanatory Variable**

An explanatory variable is a type of independent variable. Explanatory variable is variable that needs explanation to measure other variable. The explanatory variable in this research is learning style.

$X_1$  : Learning Style

### **2. Predictor Variable**

Predictor variable is a variable used in regression to predict another variable. It is sometimes referred to as an independent variable if it is manipulated rather than just measured. The predictor variable in this research is students' anxiety.

$X_2$  : Students' Anxiety

### **3. Criterion Variable**

Criterion variable is in regression such as linear regression. The criterion variable is the variable being predicted. In general, the criterion variable is the dependent variable. The dependent variable in this research is student's English achievement.

$Y$  : Students' achievement

### **D. Research Instrument**

The successful of research is much decided by instrument used, because data which is need to answer research questions. In this research there are two instruments.

## **1. Questionnaire**

Instrument used in this research was questionnaire. The questionnaire used was close test or directly which is respondent just choose the options. In arranged questionnaire the researcher passed through a long time.

1. Reviewing literature on familiarity of the topic; the researcher started reviewed literature.
2. Researcher the first pick and choose some reverences ready - made from the expert containing questions related to topic. There are 33 items questionnaire of Learning style and 33 items questionnaire of anxiety.
3. Validating; after choosing ready – made question, the next is validating. Validating the instruments of questionnaire to the advisor.
4. Try out; after validating the questionnaire then trying out them. Try out the instrument focused on wording to check whether the students understood the items of questions or not. Besides that it also focused on validation of the questions each items.
5. After trying out the questionnaire, it is ready to give to the students.

### **a. Learning Style Questionnaire**

In this research, the questionnaire was adapted from Perceptual Learning Style Preference Survey by Joy Reid

(1999). This questionnaire is used to identify learning style of the students. The items on the questionnaire made by Joy Reid (1999) were selected based on the indicators of students' learning style made by the researcher. The questionnaire was distributed to the sample about the students' learning style characteristics in statement form. The purpose of questionnaire was to find out in which type of learning styles the students.

The questionnaire was based on the characteristics of each learning style (visual, auditory, and kinesthetic). The items were divided into two forms, positive and negative items. Each item had five choices which represented each type of learning styles. Those options were based on agreement level of Likert Type Scale Anchors. Each option had its own score as in Table 3.1. The indicators of students' learning style can be seen in Table 3.2.

**Table 3.1**

**The Questionnaire Item Scoring**

<b>Item/Option</b>	<b>Stongly Agree</b>	<b>Agree</b>	<b>Neither Agree/Disagree</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
<b>Positive</b>	5	4	3	2	1
<b>Negative</b>	1	2	3	4	5

**Table 3.2**  
**Learning Style Prediction**

Dimension	Indicators	Item No.	
		(+)	(-)
<b>Visual Learning Style</b>	a. Neat and disciplinary	1,2	3
	b. Hard to receive verbal instruction	4	5
	c. Understand well about position, shape numeral, and color	8	6,7
	d. Learning by visual association	9,11	10
<b>Auditory Learning Style</b>	a. Weak in visual activity	12, 13	14
	b. Good in oral activity	16,17	15,18
	c. Having sensitivity through music	19	20
	d. Learning by hearing/listening	21,22	-
<b>Kinesthetic Learning Style</b>	a. Having orientation to do trial-error activity	24,25	23
	b. Learning through physical activity	26,27	-
	c. Physical-oriented and always moving	28,30	29
	d. Having sensitivity through expression and gesture	31,33	32
Total		21	12
Total Item		33	

**b. Students' Anxiety Questionnaire**

In order to get data of the students' anxiety, the researcher used a set of questionnaire. The form of the questionnaire was the Foreign Language Classroom Anxiety Scale (FLCAS) adopted from Horwitz (1986) consists of 33 items. This scale was chosen for this research because of its effectiveness in identifying respondents'



perception of foreign language anxiety. The questionnaire dealt with respondent's opinions in responding to following options based on the Likert' - scale:

**Table 3.3**  
**Likert Scale**

Scale				
Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree

**Table 3.4**  
**Matrix of Students' Anxiety**

Variable	Sub-scale	Items
Students' Anxiety (X <sub>2</sub> )	1. Communication Apprehension	1, 4, 9, 14, 15, 18, 24, 27, 29, 30 and 32
	2. Test Anxiety	3, 5, 6, 8, 10, 11, 12, 16, 17, 20, 21, 22, 25, 26 and 28
	3. The Fear of Negative Evaluation	2, 7, 13, 19, 23, 31 and 33

The answer indicating the highest degree of anxiety received five points, whereas the answer indicating the least anxiety received one point. The total point is a range of 33 to 165. A higher score indicated a higher degree of foreign language anxiety, however, a lower score indicated a lower degree of foreign language anxiety. The scores higher than 144 are categorized as high anxiety, score between 108-144 is moderate anxiety, and score lower than 108 is low or no anxiety. The interval score of foreign language anxiety is presented in table 3.5.

**Table 3.5**

**Foreign Language Anxiety Scale Score**

<b>NO.</b>	<b>Score Interval</b>	<b>Level of Foreign Language Anxiety</b>
<b>1.</b>	$\geq 144$	High Anxiety
<b>2.</b>	108 – 144	Moderate Anxiety
<b>3.</b>	$\leq 108$	Low or no Anxiety

*Source: Yaikhong, K., & Usaha, S., 2012, Page 25*

**2. Documents**

The researcher needs another data to support this research. Arikunto (2010) says documentation aims to find out data about something in the form of notes, transcript, newspaper, magazine, etc. Researcher obtained the data from English teacher, students and any courses during this research including list of students' names, list of students' score acquired from test, etc.

The researcher took the score from final semester of the second semester, the score is to know the students' achievement. It is because the time is limited and the researcher believed to the teacher that made the final test. Final test from teacher consisted of many aspects and teacher has taught material that tested in final test to the students. Besides that, the teacher experienced to make a questions or test in every years of the semester. There is no doubt about test or aspect that has been given to the students. Of course it makes the validity and reliability of the test becomes valid. So, the

researcher takes the final score of the test from teacher without doubt.

## **E. Validity Testing**

Validity refers to the accuracy of the inferences or interpretations made from the test scores. Fraenkel, et al. (2012) stated that validity refers to the appropriateness, meaningfulness, correctness, and usefulness of the inferences a researcher makes.

### **1. Students' Learning Style and Students' Anxiety**

The validity of the instruments used in research is very important. Fraenkel, et al. (2012) states that validity is the development of sound evidence to demonstrate that the test interpretation of scores is valid. In this research, the researcher used ready - made from Joy Reid (1999) for students' Learning style and foreign language classroom anxiety scale (FLCAS) by Horwitz, Horwitz and Cope (1986) for Student's anxiety.

To make sure the questionnaire is valid, the researcher asked students some questions whether the question in the questionnaire was clear or understandable. Based on the results of the questionnaire, the researcher found that all the questions of the questionnaire were understandable and the participants could fill them out based on their learning styles and their anxiety.

In addition, the researcher also do the try out before distribute it to the students. The researcher used SPSS 22 and found that all of the questionnaire valid (see appendix 1 and 2).

## 2. Students' English Achievement

The students' report card is really valid and reliable to measure of students' ability. The teacher gives the students' report card to the researcher as a proven. To make sure that students report card is valid, the researcher also provide one of teacher's, teacher's test specification and English test for final semester, or documents that the researcher needs (see in appendix 3 and 4).

### F. Reliability Testing

Reliability refers to the consistency of scores or answers from one administration of an instrument to another and from one set of items to another. The researcher used SPSS computation to check the reliability.

#### 1. Students' Learning style and Students' Anxiety

Reliability is a consistency of an instrument. It means that an instrument can be called reliable if it has a consistency in the result of measurement. The reliability of an instrument is needed to support the validity of an instrument. Alpha Cronbach formula was used to test the reliability of the instrument. The calculation used SPSS 22. The reliability criterion according to Arikunto (2010) is presented on the as Table 3.6.

**Table 3.6**

#### **Reliability Coefficient Correlation (r) Interpretation**

<b>Coefficient Correlation (r)</b>	<b>Interpretation</b>
0.000 – 0.200	Very Low Correlation
0.200 - 0.400	Low

0.400 – 0.600	Moderate
0.600 – 0.800	High
0.800 – 1.000	Very High

If  $\alpha > 0.80$  then reliability is perfect. If  $\alpha$  is between 0.60 - 0.80 then reliability is high. If  $\alpha$  is 0.40 - 0.60, the reliability is moderate. If  $\alpha < 0.40$  then reliability is low. If  $\alpha$  is low, chances are one or more items are not reliable.

**Table 3.7**  
**Reliability Statistics of Learning Style**

Cronbach's Alpha	N of item
.942	33

**Table 3.8**  
**Reliability Statistics of Students' Anxiety**

Cronbach's Alpha	N of item
.945	33

Based on the table 3.7 and 3.8, the cronbach's alpha of the instrument is 0.942. It is higher than  $r_{table}$ , 0.339. It can be concluded that the first instrument (students' learning style) is very reliable. And based on the table 3.9, the cronbach's alpha of the instrument is 0.945. It is higher than  $r_{table}$ , 0.339. It can be concluded that the second instrument (students' anxiety) is very reliable.

The value results from the reliability coefficient, the researcher surely concluded that the instrument used in this study

was very reliable based on the Cronbach Alpha's value interpretation from Arikuto in table 3.7

### **G. Data Collecting Method**

The ways of collecting data are as follow:

1. The first step, the researcher chooses the participants to collect the data. In this research, the participants of the research is 10<sup>th</sup> grade students of SMK PGRI KRAS.
2. The next step is distributing the questionnaires. There are 2 questionnaires used in this research; students learning style questionnaire and students' anxiety questionnaire.
3. The researcher shares the link to the students by *WhatsApp* and asked them to fill the questionnaires.
4. After students answered those questionnaires, the researcher analyzes data using SPSS 22.0

The researcher collected the data from the students of SMK PGRI KRAS by giving the questionnaire for obtaining the students' learning style and students' anxiety.

For the collecting the data of students' achievement, the researcher chooses documentation as the technique. This technique helped the researcher to study the achievement score of the students.

1. First, the researcher comes to SMK PGRI KRAS.
2. The researcher meets the teacher and discusses what he wants to do.

3. The teacher understands and she wants to give sufficient data to support the research.
4. The teacher lets the researcher to access data from school include students' report cards, lists of the students, and other documents needed.
5. After researcher collected a data that he needs, the researcher begins to analyse it using SPSS 22.

## **H. Data Analysis**

Based on the objective of the research which deals with the correlational research, so it correlates between three variables and the data which would be obtained is ordinal. Thus, to know whether or not there is the correlation between learning style, students' anxiety and students' achievement of SMK PGRI KRAS, the researcher used SPSS 22.

SPSS statistics is a software package used for statistical analysis. It is a widely used program for statistical analysis in social sciences. It is also used by market researchers, health researchers, survey companies, government, education researchers and others. The researcher chooses used SPSS 22 to make the computing effective and it will accurate. After the research data has been collected, the next step is analyzing the data. This activity is a data processing process that has been collected to answer the hypotheses that have been proposed:

### **1. Descriptive Analysis**

In the descriptive analysis, it is provided a general description of the distribution data obtained from the scores of the students' Learning Style and students' Anxiety questionnaires. Besides that, the researcher also describes students' achievement. Then, SPSS was used to get the result of the analysis of descriptive statistics.

## **2. Pre-requisite Analysis**

### **a. Normality Test**

Normality test is used to see if the distribution of all data were normal. The data are from questionnaires and test(from teacher). The data can be classified into normal when the p-output was higher than 0.05. Kolmogorov-Smirnov formula was applied to see the normality. The researcher used SPSS 22 to see the normality test.

### **b. Linearity Test**

In measuring the data linearity, Test for Linearity was applied. It measured whether students' learning style and students' anxiety questionnaire score datas were linear or not. The researcher also checks students' achievement score with linearity test. The linearity of data found whenever the p-output was higher than 0.05, and F-value was lower than F-table.

## **3. Hypotheses Testing**



According to Fraenkel, Wallen and Hyun (2012) a hypothesis is simply put, a prediction of possible outcomes of study. The Pearson Product Moment formula was used. This is in line with the statement of Ary et. al., (2002:146) that such formula is the most commonly used correlation index. When the correlation coefficient had been obtained, the hypothesis was tested.

The hypotheses of this study are formulated into the following statements.

1. **H<sub>0</sub>** : There is no significant correlation between Students' Learning Style and students' English achievement in SMK PGRI KRAS

**H<sub>a</sub>** : There is significant correlation between Students' Learning Style and Students' English achievement in SMK PGRI KRAS

2. **H<sub>0</sub>** : There is no significant correlation between Students' anxiety and Students' English achievement at SMK PGRI KRAS.

**H<sub>a</sub>** : There is a significant correlation between Students' anxiety and Students' English achievement at SMK PGRI KRAS.

3. **H<sub>0</sub>** : There is no significant correlation between students' learning style and students' anxiety toward students' English achievements at SMK PGRI KRAS

**H<sub>a</sub>** : There is significant correlation between students' learning style and students' anxiety toward students' English achievements at SMK PGRI KRAS

4. **Criteria of Hypotheses Testing**

In testing hypotheses, there are some criteria. Those are in the following (Cresswell, 2012), (Fraenkel, Wallen and Hyun, 2012), (Cohen, Manion, and Marrison, 2007).

1. If p-value is higher than 0.05 ( $p > 0.05$ ), the level of significance is 5%,  $H_0$  is accepted and  $H_a$  is rejected.
2. If p-value is less than 0.05 ( $p < 0.05$ ), the level of significance is 5%,  $H_0$  is rejected and  $H_a$  is accepted.