

## **CHAPTER III**

### **RESEARCH METHODS**

#### **A. Type of the Research**

Type of the research used in this research is inferential quantitative research. Quantitative research is research that data are explained in numbers and analyzed by statistical techniques (Sangadji & Sopiah, 2010). Inferential statistics is part of statistics that discusses how to analyze data, assess, predict, and draw conclusions on data, phenomena, wider issues, or populations based on some data (samples) which are taken randomly from the population. Inferential statistics makes inferences based on estimations from the data sample and hypothesis testing. Therefore, there are three activities in inferential statistics comprising hypothesis testing, estimation, and decision-making (Susetyo, 2012). The Inferential research aims at expressing a problem, state, or event by giving comprehensive, broad, and profound judgments from the point of view of relevant science (Wasito, 1995).

#### **B. Identification of the Research Variables**

The research variable is everything at any forms of matters that are determined by a researcher to be studied in order to obtain information about the problem being investigated and subsequently drawn conclusions after investigating it. Theoretically, a variable can be defined as an

attribute of a person or an object that has variations when being compared from one person and others or one object with other objects (Sugiyono, 2013).

Independent variable is a variable affecting or causing the change or the occurrence of dependent variable, whereas dependent variable is variable that is influenced by or is the result of the existence of independent variable (Sugiyono, 2013). The variables investigated in this research are:

1. The dependent variable (Y) : Test Anxiety.
2. The independent variable (X1) : Neuroticism.
3. The independent variable (X2) : Academic Self-Efficacy.

### **C. Operational Definitions of the Research Variables**

Operational definitions of the dependent and the independent variables in this research refer to the explanations of the variables that have been discussed in the second chapter, as follows:

#### **1. Test Anxiety**

Test Anxiety is an excessive worry against the impacts of failure in a test that hinders abilities and eventually may evoke difficulty on recalling and grasping simple instructions on a test which is accompanied by the physiological system, i.e., faster palpitation or the sweat glands that generates more perspiration, tension, and apprehension during a testing situation. Students' test anxiety is

measured by test anxiety scale based on cognitive, affective and behavioral facets. The higher the score of test anxiety scale, the higher the students' test anxiety, and vice versa.

## **2. Neuroticism**

Neuroticism is a trait which is prone to easily undergo negative feelings such as anxiety, irritability, nervousness, tension, sadness, having vulnerability towards psychological distress and difficulty to face pressure in daily life. Students' neuroticism is measured by neuroticism scale which is taken from the instrument of the Big Five Inventory (BFI) that has been adapted by Sulastri (2014) into Indonesian. The higher the score of neuroticism scale, the higher the students' neuroticism, and vice versa.

## **3. Academic Self-Efficacy**

Academic self-efficacy is the belief towards personal abilities that can predispose an action and performance in achieving academic goals. Students' academic self-efficacy is measured by academic self-efficacy scale based on dimensions of level, generality, strength. The higher the score of academic self-efficacy scale, the higher the students' academic self-efficacy, and vice versa.

### **D. Subject of the Research**

#### **1. Population**

Population is the entire subjects of research (Arikunto, 2002). Population in this research is all the ninth-grade students at MTs "X" in the academic year of 2018/2019. The ninth grade consists of six

classes, and total of the ninth-grade students is as many as 219 students.

## **2. Sampling Technique**

Sample is a representation of population that is being investigated (Arikunto, 2002). Sampling technique is a way of obtaining sample that can represent population of research (Winarsunu, 2002). Sampling technique used in this research is cluster random sampling, which is done by randomizing the groups, and not on subjects individually (Azwar, 1998).

### **E. The method of Data Collection**

Method of data collection is used to test hypotheses that have been formulated (Nazir, 2013). The method of data collection used in this research is by employing psychological scale. The psychological scale is an instrument that its stimulus constitutes questions or statements which indirectly reveal the attributes that will be measured. The psychological scale is responded by selecting an alternative answer that has been provided in accordance with one's condition (Azwar, 2004). The scale used in this research comprises of three scales, namely: test anxiety scale, neuroticism scale, and academic self-efficacy scale. The scales are composed in Likert scale consisting of items with favorable and unfavorable statements.

## 1. Test Anxiety Scale

This scale is an instrument to measure test anxiety among students. Test anxiety scale is based on facets of test anxiety, namely: cognitive, affective and behavioral facets. Test anxiety scale is arranged in the following blue-print :

**Table 1.**  
**Blue-Print of An Arrangement of Test Anxiety Scale**

No.	Facets of Test Anxiety	Favorable Items	Unfavorable Items	Total of Items
1.	Cognitive Facet:			
	- Worry	2	2	4
	- Self-Preoccupation	2	2	4
	- Cognitive Interference	2	2	4
2.	Affective Facet:			
	- Physical Reactions	2	2	4
	- Emotionality	2	2	4
3.	Behavioral Facet:			
	- Deficient Study and Test-Taking Skills.	2	2	4
	- Procrastination, Avoidance, Escape behaviours.	2	2	4
	<b>Total</b>	<b>14</b>	<b>14</b>	<b>28</b>

Score of response options on each item of test anxiety scale is Very Often (VO) = 4, Often (O) = 3, Sometimes (S) = 2, Rarely (R) = 1, and Never (N) = 0 for favorable items. Score for unfavorable items is Very Often (VO) = 0, Often (O) = 1, Sometimes (S) = 2, Rarely (R) = 3, and Never (N) = 4. The high score indicates the high test anxiety, and vice versa.

## 2. Neuroticism Scale

This scale is an instrument to measure neuroticism among students. Neuroticism scale in this research is taken from instrument of the Big Five Inventory (BFI) that has been adapted by Sulastrri (2014) into Indonesian with neuroticism reliability of 0,80. This scale has 8 items of neuroticism based on Costa and McCrae's theory. Neuroticism scale on the BFI can be seen in the following blue-print :

**Table 2.**  
**Blue-Print of Neuroticism on the Big Five Inventory (BFI)**

Personality Trait	Favorable Items	Unfavorable Items	Total of Items
Neuroticism	4, 14, 19, 29, 39	9, 24, 34	8
Total	5	3	8

Score neuroticism on the BFI refers to the likert model with five response options, as follows: Strongly Agree (SA) = 5, Agree (A) = 4, Neither Agree nor disagree (NAD) = 3, Disagree (D) = 2, and Strongly Disagree (SD) = 1 for favorable items. Score for unfavorable items is Strongly Agree (SA) = 1, Agree (A) = 2, Neither Agree nor disagree (NAD) = 3, Disagree (D) = 4, and Strongly Disagree (SD) = 5. The high score indicates the high neuroticism, and vice versa.

## 3. Academic Self-Efficacy Scale

This scale is an instrument to measure academic self-efficacy among students. Academic self-efficacy scale is based on dimensions

of academic self-efficacy, namely: level, generality, and strength. Academic self-efficacy scale is arranged in the following blue-print :

**Table 3.**

**Blue-Print of An Arrangement of Academic Self-Efficacy Scale**

No.	Dimensions of Academic Self-Efficacy	Favorable Items	Unfavorable Items	Total of Items
1.	Level	2	2	4
2.	Generality	2	2	4
3.	Strength	2	2	4
	Total	6	6	12

Score on each alternative answer is Strongly Appropriate (SA) = 5, Appropriate (A) = 4, Somehow (S) = 3, Inappropriate (I) = 2, and Strongly Inappropriate (SI) = 1 for favorable items. Score for unfavorable items is Strongly Appropriate (SA) = 1, Appropriate (A) = 2, Somehow (S) = 3, Inappropriate (I) = 4, and Strongly Inappropriate (SI) = 5. The high score indicates the high academic self-efficacy, and vice versa.

## **F. Validity and Reliability of Instruments**

### **1. Validity of Instruments**

Validity means the extent to which the accuracy of an instrument in performing its function as a measure (Azwar, 2000). Valid instrument means an instrument which is used to obtain data

(measuring) is valid. Valid means the instrument can be used to measure what should be measured (Sugiyono, 2013).

The validity of instruments in this research is evaluated using content validity, i.e., validity related to content that will be tested or measured, the extent to which items reflect attributable characteristics that will be measured. In this content validity shows that items on the instruments represent characteristics which will be measured (Soewadji, 2012).

Content validity is tested by professional judgment that will correct all items that have been composed whether or not they have met the attributable characteristics which will be measured (Suryabrata, 2005). The professional judgment in this research is both supervisors in this research.

Construct validity is conducted by selecting the items using product moment technique to test the correlation between each item score and the total scores of the entire items. In order to avoid an over-estimate calculation, it needs to be corrected by doing part-whole correlation for correcting the result of correlation. Determination of validity of items uses 5% significance level or error probability is  $\leq 0,05$ . If the probability of error is greater than 0,05, it means that the item assessed will be eliminated and will not be used as research analysis material.



## **2. Reliability of Instruments**

The reliable instrument is an instrument that will produce the same data although the instrument has been used multiple times to measure the same object (Sugiyono, 2013). Reliability refers to the consistency of measurement result that reflects the accuracy of an instrument (Azwar, 2000).

Reliability is identified by reliability coefficient in which the number is in the range 0 to 1,00. The closer the reliability coefficient to 1,00, the higher the reliability. The measurement of reliability in this research uses Cronbach's alpha formula because every single scale in this research is presented in one time only to a group of respondents (single trial administration) (Azwar, 2007).

### **G. The Methods of Data Analyses**

Methods of data analyses are conducted to analyze research data, so that data that are obtained can be further used to test hypotheses (Nazir, 2013). The methods of data analyses used in this research consist of two kinds, as follows:

#### **1. Statistical analysis to test the main-hypothesis**

The main hypothesis is tested using multiple regression analysis. This analysis is used to test the correlation between multi independent variables and one dependent variable (Creswell, 2015). This analysis is used to find out the magnitude of the correlation

coefficient of the independent variables simultaneously towards the dependent variable.

## 2. Statistical analysis to test the minor-hypotheses

The minor hypotheses in this research are tested using partial correlation analysis to find out the correlation coefficient and the direction of the relationship between the independent variables and the dependent variable, namely: the relationship between neuroticism and test anxiety, and the relationship between academic self-efficacy and test anxiety.

