CHAPTER V

RESULTS AND DISCUSSION

A. Results

1. Assumption Test

The assumption test constitutes an important part of research. It is implemented before hypothesis testing. The assumption test aims at obtaining information whether research data have fulfilled research requirements for further analysis. The assumption test in the current research consisted of normality test, linearity test, and multicollinearity test using the Statistical packages for program social sciences (SPSS) version 16.0.

a. Normality Test

The normality test was implemented in research analysis to get information whether distributions of data in this research were normal or not. The data were distributed normally if p was > 0,05, while the data were not distributed normally if p was < 0,05.

Kolmogorov-Smirnov Z technique was used in the normality test on the three research variables. The result was that p of the three variables was greater than 0,05 (p > 0,05), which implied that the data were distributed normally.

Detail results of the normality test in the three research variables were K-SZ = 1,152, p = 0,141 on the variable of

neuroticism; *K-SZ* = 0,772, *p* = 0,591 on the variable of academic self-efficacy; *K-SZ* = 0,937, *p* = 0,344 on the variable of test anxiety. The calculation results of the normality test in detail can be seen in Appendix 6-1.

b. Linearity Test

The linearity test is one of the prerequisites in correlation analysis or linear regression. The linearity test was implemented to find out whether the independent variables and the dependent variable have a significantly linear correlation or not. A correlation between the independent variables and the dependent variable was linear if *p-deviation from linearity* was > 0,05. Conversely, a correlation between independent variable and dependent variable was not linear, if *p-deviation from linearity* was < 0,05.

Based on the linearity test, it was found *F-deviation from linearity* = 0,714, *p-deviation from linearity* = 0,794 between neuroticism and test anxiety, and *F-deviation from linearity* = 0,873, *p-deviation from linearity* = 0,631 between academic self-efficacy and test anxiety. It can be seen that *p-deviation from linearity* between neuroticism and test anxiety was greater than 0,05 (*p* > 0,05). Similarly, *p-deviation from linearity* between academic self-efficacy and test anxiety was greater than 0,05 (*p* > 0,05). It implied that there was a linear correlation between the independent variables and the dependent variable. The analysis

results of the linearity test can be seen completely in Appendix 6-1.

c. **Multicollinearity Test**

The multicollinearity test aims at checking whether there is a linear correlation among predictor variables in multiple regression model. The linear correlation among predictor variables will interfere with a correlation between predictor variables and criterion variable, because the region among predictor variables is overlapping. Therefore, there should be no multicollinearity among predictor variables in multiple regression model.

The linear correlation between the independent variables in this research could be seen through the multicollinearity test. *Variant Inflation Factor* (*VIF*) was used to indicate whether a correlation between the independent variables was linear or not. There was no a linear correlation (or no multicollinearity) if *VIF* was < 5, while there was a linear correlation (or there was multicollinearity) if *VIF* was > 5.

Result of the multicollinearity test showed *VIF* between two independent variables (i.e., neuroticism and academic self-efficacy) = 1,088, $p = 0,000$. *VIF* was smaller than 5 (*VIF* < 5). This implied that there was no multicollinearity between two independent variables in this research. The result of the multicollinearity test can be seen fully in Appendix 6-1.

2. Hypotheses Testing

The Hypotheses in this research consisted of the main-hypothesis and the minor-hypotheses. Hypotheses testing used Statistical packages for program social sciences (SPSS) version 16.0.

a. The Main-Hypothesis

The main-hypothesis in this research was that there is a relationship between neuroticism, academic self-efficacy and test anxiety among the ninth-grade students at MTs "X". Test anxiety is the dependent variable (Y), neuroticism is the first independent variable ($X1$), and academic self-efficacy is the second independent variable ($X2$). This hypothesis was tested using multiple regression analysis.

Based on the analysis result, it was found correlation coefficient (R_{x1x2}) = 0,485, F = 15,223, p = 0,000 ($p < 0,01$). This implied that the main-hypothesis in this research was accepted. So, there was a significant relationship between neuroticism, academic self-efficacy, and test anxiety among the ninth-grade students at MTs "X".

Contributions of two predictor variables were seen from coefficient of determination (*R Square*) = 0,235. It indicated that test anxiety could be accounted for neuroticism and academic

self-efficacy simultaneously with percentage in the amount of 23,5%, and the remaining 76,5% contribution might be explained by other variables.

It was found that β-academic self-efficacy = - 0,311, p = 0,001 ($p < 0,01$) was higher than β-neuroticism = 0,293, p = 0,002 ($p < 0,01$). So, of the two predictor variables, academic self-efficacy contributed more strongly to predict test anxiety than neuroticism. The clearer calculation of analysis can be checked in Appendix 6-2.

b. The Minor-Hypotheses

There were two minor-hypotheses in this research. Both minor-hypotheses were tested using partial correlation analysis. The hypotheses were accepted if p (significance level) was < 0,01, while the hypotheses were rejected if p was > 0,01.

The first minor-hypothesis was that there is a positive relationship between neuroticism and test anxiety among the ninth-grade students at MTs "X". The higher the students' neuroticism, the higher the students' test anxiety, and vice versa.

The second minor-hypothesis was that there is a negative relationship between academic self-efficacy and test anxiety among the ninth-grade students at MTs "X". The higher the students' academic self-efficacy, the lower the students' test anxiety, and vice versa.

Based on the analysis result, it was found r_{x1y} = 0,382, p = 0,000 on the relationship between neuroticism and test anxiety without controlling for academic self-efficacy, and r_{x1y} = 0,306, p = 0,002 after controlling for academic self-efficacy; r_{x2y} = - 0,395, p = 0,000 on the relationship between academic self-efficacy and test anxiety without controlling for neuroticism, and r_{x2y} = - 0,323, p = 0,001 after controlling for neuroticism. Significance level (*p*) of these two hypotheses was smaller than 0,01 (*p* < 0,01). It implied that both minor-hypotheses were accepted. So, there was a significant positive relationship between neuroticism and test anxiety when academic self-efficacy was partialled-out, and there was a significant negative relationship between academic self-efficacy and test anxiety when neuroticism was partialled-out. The results of minor-hypotheses testing can be checked in Appendix 6-2.

B. Discussion

The result of the main-hypothesis testing in the current research demonstrated that there was a significant relationship between neuroticism, academic self-efficacy and test anxiety (R_{x1x2} = 0,485, F = 15,223, *p* < 0,01). So, the main-hypothesis was accepted. The predictor variables are neuroticism and academic self-efficacy, while the criterion variable is test anxiety. Further, each predictor variable will be discussed

in detail, because both predictor variables have the variance of contribution in predicting test anxiety.

The first finding showed that neuroticism had a significantly positive correlation to test anxiety when academic self-efficacy was partialled-out (r_{x1y} = 0,306, p < 0,01). Thus, the higher neuroticism the students have, the higher test anxiety the students experience, and vice versa. High neuroticism was linked to lower test anxiety. This finding is consistent with previous studies by Jamshidi, Tahmasebi, and Akbari (2015), Kumaran and Kadhiravan (2015), Hoferichter and Raufelder (2013), Akbari et al. (2012), Gupta and Dutta (2012).

Every student grasps that they will be ranked, assessed, and compared to their classmates in a test, which implies that if they perform on the test poorly, they will obtain negative consequences not only from their teachers but also from their parents (Mayer, 2008). Students with high neuroticism feel oppressed to perform well in their desire to fulfill expectations of peers and teachers, which in turn, will increase anxiety during test situations (Hoferichter, Raufelder, & Eid, 2014). It is in line with the result of Khodamoradi and Rafiee's study (2016) that students who are more neurotic have higher test anxiety. Hence, it is plausible to suggest any psychological or educational intervention to pay attention students with high neuroticism who are obviously more susceptible than others (Chamorro-Premuzic, Ahmetoglu, & Furnham, 2008), and this result

reveals the importance of including personality factor, such as neuroticism in test anxiety studies (Hoferichter & Raufelder, 2013)

An individual with high neuroticism is more stressed under testing situations than an individual with low neuroticism (Moutafi, Furnham, & Tsaousis, 2006). High neuroticism level has been reported to have adverse impacts on stress perception, lower the capacity of coping strategies, and jeopardize psychosomatic well-being (Kecici, 2013), causing increased test anxiety (Hoferichter & Raufelder, 2013). Unsurprisingly, neuroticism is related to higher test anxiety (Chamorro-Premuzic & Furnham, 2002), and test anxiety causes examination avoidance (Zeidner, 1998; Chamorro-Premuzic & Furnham, 2002).

In addition to that, neurotic individuals are known to have a need for perfection and unassailability (Feist & Feist, 2010). The tendency to be perfectionist overstrivers and never being satisfied with anything else aside from a perfect score can make examinees feel anxious in testing situations (Zeidner, 2014). Students' high expectation and thought of perfection can cause test anxiety (Olatoye, 2009). According to Costa and McCrae (in Velde, 2015), individuals with high neuroticism have irrational perfectionistic beliefs, pessimistic attitudes, and low self-esteem. Low self-esteem can evoke elevated stress prior to and during a test that eventually will contribute to failure and intensify the propensity of test anxiety (Dan, Ilan, & Kurman, 2014).

Furthermore, individuals with high neuroticism are mood swings and volatile in their emotions (Costa & McCrae, as cited in Maltby, Day, & Macaskill, 2017). Students with high emotionality (incapable of regulating emotions of theirs) tend to experience higher test anxiety, inasmuch as individuals who have hardships to regulate emotions of theirs will be arduous to regulate task-irrelevant thinking, and they are more likely to distraction, which finally yields elevated test anxiety (Hayes & Embretson, as cited in Malone & Bertsch, 2016). The finding of Liu, Meng, and Xu's study (in Dacanay, 2016) showed that prevalence of test anxiety among students with unstable emotion (81,4%) is higher than students with stable emotion (41,0%).

On the contrary, individuals who have low neuroticism are emotionally stable, calm, and optimistic (Chamorro-Premuzi, 2011). They are well adjusted and not vulnerable to extreme maladaptive emotional states (Costa & McCrae, as cited in Maltby, Day, & Macaskill, 2017). They can be referred to as an emotionally intelligent individual. Someone who is characterized as emotionally intelligent is aware of and able to identify the potential effects from his or her a variety of emotional states. Therefore, the individual is able to regulate and control the emotions of his or hers (Dacanay, 2016). Individuals who are able to manage their emotions and feeling to be utilized wisely in guiding them to act in practical aims commonly have low test anxiety, inasmuch as individuals who are adept at managing emotional resources of theirs to guide their thinking and actions

are prone to see test situations as less threatening despite in threatening tests (Gupta & Dutta, 2012).

Another finding in the present study was that academic self-efficacy had a significantly negative association with test anxiety when neuroticism was partialled-out (r_{x2y} = - 0,323, p < 0,01). So, the higher academic self-efficacy the students have, the lower test anxiety the students experience, and vice versa. In other words, an increase of self-efficacy has been related to a reduction of test anxiety. This finding is similar to that of a previous study by Asayesh, Hosseini, Sharififardi, and Kharameh (2016) that the students with higher self-efficacy experience lower test anxiety. In their study, an increase one score of self-efficacy decreases 21% the test anxiety level. According to the result of Salar, Baghaei, Zare, and Salar's research (2016), it is even concluded that self-efficacy is one of the effective factors affecting the students' decrease of test anxiety.

Some researchers as well have pointed out that self-efficacy is a negative predictor of test anxiety (Cayubit, 2014; Yang & Taylor, 2013), and self-efficacy has been consistently to have a negative correlation to test anxiety. The higher self-efficacy, the lower test anxiety (Roick & Ringeisen, 2017; Bayani, 2016; Onyeizugbo, 2010).

Test anxiety derives from a fear of being overwhelmed. The fear of being overwhelmed stems from individuals' perceptions that they do not have abilities to overcome a situation they encounter (inefficacy) (Onyeizugbo, 2010b). Individuals who are uncertain about their abilities to

reach expected outcomes will evaluate themselves pessimistically. Hence, they lose their capacity in problem-solving and anxiety of theirs goes up (Salar, Baghaei, Zare, & Salar, 2016), because Individuals who are hesitant regarding their efficacy believe that things are more arduous than they actually are, and this belief can generate test anxiety and confine their way to solve problems (Onyeizugbo, 2010b).

Self-efficacy is individuals' belief that they can do things based on their abilities (Cayubit, 2014). Students who have low self-efficacy are more likely to execute less attempt on an assignment at which they feel incompetent (Ahmad, Hussain, & Azeem, as cited in Yang & Taylor, 2013). This perceived incompetence raise test anxiety and particularly lead to the adverse impact on performance (Barrows, Dunn, & Lloyd, 2013).

While, students with high self-efficacy believe in personal abilities and exhibit more effort, desire, and persistence in performing assignment of theirs (Cassady, as cited in Asayesh, Hosseini, Sharififardi, & Kharameh, 2016). They believe in themselves and are capable to envisage successful outcomes. Therefore, students with higher self-efficacy demonstrate lower test anxiety, inasmuch as students who see themselves as competent will tend to struggle with learning the way to do better on challenging assignments, such as exams (Barrows, Dunn, & Lloyd, 2013).

Individuals' imagination about abilities is one of the most important things in confronting anxiety situations (Cassady, as cited in Asayesh, Hosseini, Sharififardi, & Kharameh, 2016), and students who have high self-efficacy envisage how they can succeed and they trust in their own abilities (Barrows, Dunn, & Lloyd, 2013). Research of Knigge and Illner (in Cacchione, 2013) showed that corroboration of self-efficacy can diminish test anxiety significantly, and the result of Roick and Ringeisen's research (2017) emphasized the necessity for toughening self-efficacy in schools and universities, particularly for students who have severe test anxiety. A study by Khodamoradi and Rafiee (2016) also found that self-efficacy levels can predict test anxiety levels. An increase of self-efficacy is related to a reduction of test anxiety.

Academic self-efficacy can give information on how students respond emotionally in testing situations or assessment processes (Cayubit, 2014). Emotional responses, such as anxiety are body's physiological reactions that are derived from the autonomic nervous system increasing palpitation and perspiration in responding to stressful situations, such as tests. An individual with high self-efficacy or belief in his/her abilities and skills can control those physiological reactions from influencing his/her self negatively (Barrows, Dunn, & Lloyd, 2013).

Contributions of the predictor variables were 23,5%. This implied that test anxiety might be accounted for neuroticism and academic self-efficacy simultaneously, and the remaining 76,5% contribution could be

likely explained by other factors both internal and external factors. Internal factors encompass gender (Sideeg, 2015 Lowe, 2014; Tehrani, Majd, & Ghamari, 2014; Roy, 2013; Sridevi, 2013) and maladaptive perfectionism (Stoeber, Feast, & Hayward, 2009). External factors encompass school-level (Aydin, 2017; Harpell & Andrews, 2013; Aysan, Thompson, & Hamarat, 2001), culture (Bodas, Olleendick, & Sovani, 2008), alterations in life, school problems and practical reasons (Mayer, 2008), and type of family (Kumaran & Kadhiravan, 2015).

C. The research limitation

The present research is merely restricted to focus on internal factors affecting test anxiety, that is neuroticism and academic self-efficacy. Based on the preceding interview towards some the ninth-grade students at MTs "X", it was found that external factors may influence test anxiety the students experienced, such as obtaining low grades many times on the past tests, getting parents' anger due to test results, and insults from other students. Thus, for future research, it needs to take into consideration such factors to get clearer information on what factors that may account for test anxiety. Another limitation concerning the concept of test anxiety and neuroticism, there is the possibility of overlapping between neuroticism and test anxiety. An additional limitation in the current study, items on test anxiety scale only represent written exams.