Investigating personality differences between public and private university students and across gender: A focus on Malaysian Chinese sample

Chee-Seng Tan [1*], Intan Hashimah Mohd Hashim [2]

[1] *Department of Psychology and Counselling, Universiti Tunku Abdul Rahman, Kampar campus, Perak, Malaysia*
[2] *School of Social Science, Universiti Sains Malaysia, Penang, Malaysia*

Abstract

Studies have found that public higher institutions outperform private institutions in Malaysia. However, little attention has been given to understand individual factors that may contribute to the differences. Based on the relationship between personality and academic performance, this study examined personality differences between public and private university students. Gender differences in personality were also examined. Four hundred and twenty Chinese students completed a survey on the Big Five personality and demographics. Analyses showed that, public university students reported higher scores on Conscientiousness and Neuroticism than their counterparts. Furthermore, logistic regression analysis indicated that Conscientiousness, Neuroticism, and Agreeableness significantly predicted studentship (i.e., public or private university). In addition, male students scored higher in Openness and Extroversion, whereas female students were more neurotic and agreeable than their counterparts. The findings not only call the attention to include personality assessment in educational setting, but also suggest comparable patterns of gender differences in personality across different cultures. The findings highlight the importance for researchers and practitioners to be aware of the influence of trait differences when the sample consists of public and private students. The findings also stimulate future studies to investigate underlying mechanisms and impacts of these individual differences on students' academic performance.

Keywords: Conscientiousness, Neuroticism, Gender differences, Public university, Private university

* Corresponding author. *E-mail address:* tcseng@utar.edu.my

1. Introduction

The demand of higher education has increased rapidly during recent years in Malaysia. Private higher education institutions are expected to complement their public counterparts in fulfilling public's demands for tertiary education. Nevertheless, the growth of private higher education has raised some interesting questions. For example, there has been a stimulating debate on the quality and substances of education provided by the private higher institutions (Tham, 2011). One of the questions results from this concern is that whether or not public and private university students perform differently in academic performance and what leads to the differences (Komarraju et al., 2011). Mahyuddin, Elias, and Noordin's (2009) study on Malaysian students' academic achievement found that public higher institutions performed better than private institutions. Given the well-documented association between personality traits and academic performance, one avenue toward the identification of potential differences in academic achievement is to investigate personality differences between the two groups of students. Thus, the present study attempts to address the relationship between personality and studentship (public vs. private) by examining differences in personality and the extent to which personality predicts studentship. It can be argued that any differences found between the two groups reflect further differences beyond personality aspects. The role of gender on personality is also examined to understand if it moderates the association between personality and studentship.

2. Relevant prior research

2.1. The big five personality traits

Personality refers to a relatively stable set of cognitive and behavioral characteristics that not only shape individual responses across situations but also distinguish individual from one to another (Bekkers, 2006; Bozionelos, 2004). Although a number of possible traits have been suggested, the five-factor model (FFM; McCrae and John, 1992) is widely accepted and has received substantial support across cultures (Saucier and Goldberg, 2003). According to the FFM, personality traits can be described by five dimensions, namely, Openness, Conscientiousness, Extraversion, Agreeableness, and Neuroticism. Individuals high in Openness tend to be imaginative, curious, and intelligent, while conscientious people are associated with being responsible, organized, and careful. Extraverted people tend to be sociable, talkative, and assertive, and agreeable individuals are trusting, kind, and cooperative. People high in Neuroticism are more likely to display emotional instability, insecurity, and poor impulse control.

2.2. Personality and academic performance

The Big Five dimensions have been related to a wide range of outcomes, including prosocial behavior (e.g., Bekkers, 2006), job performance (e.g., Judge et al., 2013), video game playing style (e.g., Bean and Groth-Marnat, 2014), consumer attitudes and behaviours (e.g., Luchs and Mooradian, 2012), and creativity (e.g., Lin et al., 2012; Hughes et al., 2013). Research has also documented a close relationship between personality and

academic achievement (e.g., Chamorro-Premuzic and Furnham, 2003a; Neuenschwander et al., 2013; Noftle and Robins, 2007). For instance, Conscientiousness has been consistently found to have a positive association with academic achievement while Neuroticism is negatively related to grades in college (e.g., Cheng and Ickes, 2009; Kappe and van der Flier, 2010; Komarraju et al., 2011; Poropat, 2009, 2014). Academic performance is a function of intelligence and motivation, and the latter can be conceptually characterized by personality (Rindermann and Neubauer, 2001). Therefore, just like intelligence, personality is one of the non-cognitive factors that have significant influence on learning (Busato et al., 1999; Furnham, 1992; Furnham et al., 1999; Rindermann and Neubauer, 2001; Komarraju et al., 2011). Indeed, researchers postulate that intelligence defines the scope of individual's abilities (what a person can do), while personality traits determine how a person use the abilities to enhance (or impair) their performance (Chamorro-Premuzic and Furnham, 2003b).

Empirical evidence has been consistently found to support that personality is a valid predictor of academic performance (e.g., Blickle, 1996; De Raad and Schouwenburg, 1996; Poropat, 2009, 2014; Rindermann and Neubauer, 2001). Chamorro-Permuzic and Furnham's (2003b) longitudinal study, for instance, found that personality not only significantly predicts academic performance but also provides additional predictive power above the effect of academic behavior. Chamorro-Permuzic and Furnham followed two groups of undergraduates for three years to explore the association of personality, academic performance (indexed by exam marks and final-year project performance), and academic behaviors (e.g., absenteeism and essay writing performance). Significant relationship was found between personality and academic performance. In Sample 1, Neuroticism and Conscientiousness measured by the NEO Five-Factor Inventory –Revised (NEO-FFI; Costa and McCrae, 1992) were found to negatively and positively associate with academic performance, respectively. Moreover, hierarchical regression showed that the effect of Neuroticism and Conscientiousness on academic performance continued to emerge even after controlling for the impact of academic behaviors and tutors' evaluations. Similar findings were observed in the Sample 2. Neuroticism and Psychoticism measured by the Eysenck Personality Questionnaire-Revised (EPQ-R; Eysenck and Eysenck, 1985) were significantly correlated with academic performance. Nevertheless, the two traits predicted different dimension of academic performance. In particular, Neuroticism negatively predicted exam marks, whereas Psychoticism negatively predicted final-year project marks.

Similar findings have also been documented in Malaysian context. Lim and Melissa Ng Abdullah (2012) administered the Malay version NEO-FFI (Costa and McCrae, 1992) to 360 secondary school students and investigated the roles of personality and gender on academic achievement. In line with previous findings, Lim and Melissa Ng Abdullah found significant and positive relationship between academic achievement and Conscientiousness. Additionally, Openness was found to have significant association with grade point average. The role of Openness deserves more attention because some researchers (e.g., Chamorro-Premuzic and Furnham, 2003b) found no association between Openness and academic performance but others (e.g., Chowdhury, 2006; Noftle and Robins, 2007; Zeidner, 2009) found a positive relationship. The researchers explained that the mixed findings could be due to differences between samples and in concept of Openness.

Taken together, the findings suggest that personality, especially Conscientiousness, may account for individual differences in learning behaviors. In particular, it is predicted that conscientious students may

benefit from their responsibility, good discipline, and hardworking traits and hence, are more likely to achieve good academic results than their peers without the same traits. The roles of other dimensions on academic achievement are not conclusive, however.

2.3. Gender differences in personality

As above reviewed, there is a close relationship between personality and academic performance. Note that, however, factors other than personality may also influence academic performance. Gender differences, for instance, have been well-documented to play a significant role on academic achievement. Generally speaking, females outperform males on language (e.g., Goodman and Cirka, 2009; Voyer and Voyer, 2014), whereas males tend to have better performance in mathematics compared to females (e.g., Benedict and Hoag, 2004; Frenzel et al., 2007; Gupta et al., 2006). The reasons for these gender differences are not well understood. Nevertheless, given that both gender and personality are associated with school performance and personality traits mediate the association between gender and grades (Steinmayr and Spinath, 2008; Weisberg et al., 2011), it is reasonable to believe that personality differences could be one of the promising candidates accounting for these gender differences in school performance. Indeed, Spinath et al. (2014) reviewed literature related to this area and indicated that gender differences in academic performance, to a certain extent, can be attributed to differences in individual characteristics such as personality and motivation.

Gender differences in personality have been consistently observed in the research literature (Vecchione et al., 2012; Weisberg et al., 2011). For instance, compared to their counterparts, women are more likely to have higher levels of Extraversion, Neuroticism, Agreeableness and Conscientiousness (Costa et al., 2001; Feingold, 1994; McCrae, 2002; Vianello et al., 2013), whereas men scored higher on emotional stability (i.e., reverse-scored of Neuroticism) (Vecchione et al., 2012). Furthermore, gender has been found to moderate the relationship between personality and academic performance. On the basis of past findings, Nguyen et al. (2005) hypothesized that personality predicts academic performance and this association is moderated by gender. Nguyen and colleagues examined undergraduate and graduate business students' personality and their course grade and overall grade point average. Consistent with their hypothesis, both emotional stability and intellect (facets of openness) were found to have positive association with academic performance among male, but not female students. Taken together, the findings suggest that men and women are prone to certain types of personality traits. Therefore, it is necessary to take into account the role of gender when examining personality differences.

2.4. The present study

The present study attempted to explore the potential differences between public and private university students in Malaysia. Given that public university students were found to have better academic achievement than those in private university (Mahyuddin et al., 2009) and Conscientiousness was consistently found to have positive association with academic performance, it is hypothesized that public university students will

possess higher Conscientiousness compared to their counterparts. No prior assumptions were made to other personality dimensions as their associations with academic performance are not conclusive.

Note that, unlike past studies that examined and compared students' academic performance, personality was used as the proxy of academic performance in the present study from a theoretical and applied perspective. Theoretically, simply comparing academic performance gives little information as the results say little about the factors that contribute to the differences. Moreover, given that academic performance is found to have close relationship with personality, assessing personality differences not only sheds light in the question whether there are differences between public and private university students in academic performance, but also provide promising direction for future studies such as investigating the potential influence of personality differences on students' development and performance. From an applied point of view, the differences in personality, if any, demonstrate and emphasize the necessity to include well-established personality inventories in university settings as a predictor of academic performance. The inclusion of personality inventories in educational admissions system may improve the academic selection process.

In addition, given that female and male students have been found to outperform each other in certain dimension of personality and school performance, gender differences are also the focus in the current study. We included only Malaysian Chinese students in this study because studies (e.g., Steele-Johnson and Leas, 2013) have shown that race may moderate the effect of personality.

3. Method

The participants in this study consisted of two groups of Chinese undergraduate students (N = 425, 303 were female, M_{age} = 21.37, SD = 1.19). The first group comprised 209 students (75.6% females) from various majors enrolled in a psychology course at a public university. Their age ranged from 20 to 24 and mean age was 22.18 (SD = 0.78) years, and one participant did not respond. The private university sample consisted of 216 psychology students. Of these students, 67.1% were females and three participants did not report their gender. Students were aged 18 to 24 (M = 20.59, SD = 0.98) years. An independent t-test on age revealed a significant difference, $t(422)$ = -18.38, p< .001, Cohen's d = 1.81. This is a between-subject design with studentship (public vs. private) and gender as independent variables and personality factors as dependent variables. The whole study took approximately 10 min. The procedure was approved by the Institutional Review Board.

The Big Five Inventory (BFI; John and Srivastava, 1999) was used to measure personality traits. The BFI consists of 44 items that measure the five dimensions of personality, namely, Openness to New Experience, Conscientiousness, Extraversion, Agreeableness, and Neuroticism. Respondents indicated the extent to which they agree with the item on a 5-point Likert scale, ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Ten items were reverse scored and factor scores were computed by averaging corresponding item responses. Higher score represents higher level of a particular personality dimension (e.g., more open to new experience or greater agreeableness). The internal consistency reliability estimates (Cronbach Alpha) of the five

dimensions were acceptable: 0.72 for Openness (after eliminating item 41 as suggested by analysis output), 0.66 for Conscientiousness, 0.71 for Extraversion, 0.65 for Agreeableness, and 0.77 for Neuroticism.

The study was administered differently to the two samples. Participants at public university answered the study online, whereas private university respondents answered the study in paper-and-pencil form and were allowed to return the questionnaire to the researchers in one week interval.

4. Results

Table 1 shows the descriptive statistics for and correlation among age and the five dimensions of personality. Results showed that Conscientiousness was associated with age and the remaining personality dimensions. All the relationships were positive and significant with the exception of Neuroticism. Likewise, Neuroticism was significantly and negatively associated with all personality dimensions but not age. Moreover, Extraversion was significantly and positively correlated with Openness and Agreeableness, respectively.

Table 1. Descriptive Statistics and Intercorrelations among Variables in the Study ($N = 425$, except for age, $N = 424$)

		1	2	3	4	5	6
1.	Age	21.37 (1.19)					
2.	Openness	.08	3.43 (0.51)				
3.	Conscientiousness	.16**	.16**	3.18 (0.45)			
4.	Extraversion	.08	.37**	.24**	3.11 (0.53)		
5.	Agreeableness	.05	.05	.30**	.16**	3.57 (0.46)	
6.	Neuroticism	.08	-.16**	-.30**	-.38**	-.24**	3.09 (0.63)

Notes: Mean and (standard deviation) are along the diagonal.
**p< 0.01.

Because significant age difference was observed, multivariate analysis of covariate (MANCOVA), with age as covariate, was conducted to examine the effect of studentship and gender on the five personality dimensions. Covariate effect of age was found on Agreeableness, $F(1, 416) = 3.90$; $p = .049$; $\eta^2 = .01$, but not other dimensions. There was a significant effect of studentship on Conscientiousness, $F(1, 416) = 12.92$; $p< .001$; $\eta^2 = .03$, and Neuroticism, $F(1, 416) = 4.41$; $p = .036$; $\eta^2 = .01$. Pairwise comparison with Bonferroni adjustment revealed that public university students reported higher Conscientiousness and Neuroticism than their counterparts at private university (see Table 2). Likewise, students from public university were more agreeable than their counterparts, though the difference was marginally significant ($p = .058$).

Gender differences were observed in all dimensions except Conscientiousness: $F(1, 416) = 12.80$; $p < .001$; $\eta^2 = .03$ for Openness; $F(1, 416) = 6.51$; $p = .011$; $\eta^2 = .02$ for Extraversion; $F(1, 416) = 3.91$; $p = .049$; $\eta^2 = .01$ for Agreeableness; $F(1, 416) = 13.06$; $p < .001$; $\eta^2 = .03$ for Neuroticism. Pairwise comparisons indicated that male students rated themselves higher on Openness and Extraversion, and female students scored higher on Agreeableness and Neuroticism. Interaction effect was not found.

Table 2. Studentship and gender differences in Big Five personality factor scale scores

		Studentship		Gender	
		Private	Public	Male	Female
1.	Openness	3.43 (0.04)	3.52 (0.05)	3.57 (0.05)***	3.38 (0.03)
2.	Conscientiousness	3.09 (0.04)	3.31 (0.04)***	3.23 (0.04)	3.16 (0.03)
3.	Extraversion	3.13 (0.04)	3.16 (0.04)	3.22 (0.05)*	3.07 (0.03)
4.	Agreeableness	3.61 (0.04)	3.49 (0.04)#	3.50 (0.04)*	3.60 (0.03)
5.	Neuroticism	2.96 (0.05)	3.14 (0.05)*	2.93 (0.06)***	3.17 (0.04)

Note: Private = private university, Public = public university. Standard errors are shown in parentheses.
#p < 0.1; * p < .05; *** p < .001.

In addition, a logistic regression was conducted to explore the predictability of studentship (public university coded as 1) using personality measures. Given that both age and gender differences were found significant and the latter did not interact with personality, these two demographic variables were entered into Step 1 to partial out the variance in studentship that is attributable to these factors. The five personality factors were then entered into Step 2 to examine their impact on studentship. Age, but not gender, was found to have significant effect, $B = 1.8$, $SE = 0.17$, Wald = 110.85, p < .001, Exp(B) = 6.05, 95% confidence interval (CI) = [4.33, 8.47]. Moreover, after controlling for the effect of age, results revealed that personality dimensions with the exception of Openness and Extraversion significantly predicted studentship: $B = 1.62$, $SE = 0.37$, Wald = 18.97, $p < .001$, Exp(B) = 5.03, 95% CI = [2.43, 10.41] for Conscientiousness; $B = -0.96$, $SE = 0.34$, Wald = 7.87, $p = .005$, Exp(B) = 0.38, 95% CI = [0.20, 0.75] for Agreeableness; $B = 0.75$, $SE = 0.27$, Wald = 7.42, $p = .006$, Exp(B) = 2.11, 95% CI = [1.23, 3.61] for Neuroticism.

5. Discussion

The present study investigated the role of studentship and gender on personality differences in Malaysian context. In particular, on the basis of the close relationship between personality and academic performance, we measured and compared personality traits of the two groups of students. The role of gender in the

personality differences was also examined to understand if gender moderates the personality differences in students. In addition, the capability of personality traits in predicting studentship was examined.

Our findings contribute to the literature by providing evidence that public and private university students possess different pattern of personality traits. Specifically, results reveal that public university students are more conscientious than their counterparts at private university. In other words, the public university students are more responsible and organized. Given that Conscientiousness has been consistently found to have positive association with grades in college (Cheng and Ickes 2009; Kappe and van der Flier 2010; Poropat, 2009, 2014), it is assumed that the public university students are more likely to have better academic performance than their counterparts.

The public university students also reported higher Neuroticism, suggesting that they are more likely to display emotional instability and have poor impulse control than their counterparts. Despite literature has shown that neurotic students are more likely to have poor academic performance (e.g., Chamorro-Premuzic and Furnham 2003b), it is important to note that some studies (e.g., Chowdhury, 2006; De Feyter et al., 2012; Nye et al., 2013; Komarraju et al., 2011) have found that Neuroticism is positively related to (undergraduate students') academic achievement. Indeed, the destructive effect of neuroticism can be eliminated if the assessment are conducted under relax, less stressful conditions (Kappe and van der Flier 2010). In other words, the impact of Neuroticism on academic performance relies on assessment criterion. Neurotic students may do well when the evaluations are less stressful such as free of time constraints and not directly observed by raters. Therefore, the relationship between Neuroticism and academic performance remains open and it is premature to conclude that public university students with higher Neuroticism tend to have low performance. Studies that directly tap on Neuroticism and academic performance are needed to examine the role of Neuroticism.

Gender differences in personality are also observed in the current study. In particular, male students tend to be more open and extrovert than female students, whereas female students are more neurotic and agreeable than male students. It is noteworthy that the findings are in line with studies on Western population (e.g., McCrae 2002; Vianello et al., 2013), implying that the gender differences in personality traits are similar across cultures. In the similar vein, interaction between studentship and gender is not found, suggesting that both male and female students at each institution possess similar pattern of personality traits.

Taken together, the findings reveal that undergraduates at two institutions possess different characteristics. More importantly, the differences in Conscientiousness, Neuroticism, and Agreeableness predict their studentships. The results not only provide empirical evidence for individual differences but also highlight the necessity to include personality measurement in academic selection.

Although the current research highlights a number of important findings, there are some limitations that should be taken into consideration and could be addressed in future research. Most notably, academic performance was not assessed in the present study. Therefore, the findings of the present study are not able to provide direct evidence that personality differences are tied to academic performance. Note that, however, past research (e.g., Poropat, 2009, 2014) has consistently shown that personality is a valid predictor of academic performance. Moreover, examining personality is consistent with the goal of this exploratory study

to investigate whether or not undergraduates at different institutions possess different types of personality traits. The promising results indicate the importance of assessing personality differences in future studies dealing with students from different institutions.

Another major shortcoming of the present study is the limited sample of Chinese students from two universities. This narrow focus has reduced implications of the findings. For instance, it is not clear whether the personality differences found in Chinese students would emerge in other ethnic groups. Because studies (e.g., Steele-Johnson and Leas, 2013) have shown that ethnicity may moderate the effect of personality, it is predicted that personality may vary from one ethnic group to another. Therefore, despite the results become limited, researchers are still encouraged to focus on a particular ethnicity if the objective is to understand personality pattern of the given ethnic group. Nevertheless, it is interesting to include more institutions and recruit participants with diverse background to further examine ethnicity differences in personality, as well as the interaction effect of ethnicity and personality on outcome variables of interest.

In addition to ethnicity, difference in survey method deserves attention. The public university students answered the study online, whereas data were collected via paper-and-pencil format for private university sample. Recent studies (e.g., Cole et al., 2006; Ward et al., 2014; Weigold et al., 2013), however, have found that this procedural difference either has no impact or the effect was negligible.

Finally, the reliability of Conscientiousness and Agreeableness are slightly lower than the suggested level (0.70). Moreover, it is important to note that the role of some personality dimensions is not clear. For example, there was no significant difference between students in Agreeableness, though the trait was found to significantly predict studentship. This could be due to the present study only measured and compared the broad Big Five domains. Although it is common to evaluate broad dimensions in trait research, there is a growing trend to focus on the sublevel of facets within Big Five domain. One of the reasons is that Big Five are higher level factors of a variety of personality characteristics. These broad dimensions are not sufficient to discover the unique effect of the specific facets on variables of interest (Weisberg et al., 2011). Future studies, therefore, are encouraged to replicate the present study by measuring the personality at the facets level to have a better understanding of the impact of personality. Assessing the role of Compassion and Politeness, for instance, may account for the intriguing relationship between Agreeableness and academic performance.

6. Conclusion

The study is significant because it is the first to document personality differences between public and private university students and to demonstrate that personality as a predictor of studentships, particularly in the context of Malaysia. The main message is that personality should not be neglected in educational setting such as academic selection process. These individual differences provide critical information concerning whether a candidate is adaptive to meet the demand of educational system. In addition, the current findings are useful to teaching. Educators could possibly construct learning environments and/or use methods that are compatible with students' individual strengths and therefore maximize the learning outcomes. It is hoped

that the findings stimulate further studies to examine the potential influences of the personality differences on students' development, especially between those in public and private institutions.

References

Bean, A., and Groth-Marnat, G. (2014), "Video Gamers and Personality: A Five-Factor Model to Understand Game Playing Style", *Psychology of Popular Media Culture*, doi:10.1037/ppm0000025.

Bekkers, R. (2006), "Traditional and Health-Related Philanthropy: The Role of Resources and Personality", *Social Psychology Quarterly*,Vol. 69 No. 4, pp. 349-366.

Benedict, M.E. and Hoag, J. (2004), "Seating location in large lectures: Are seating preferences or location related to course performance?", *Journal of Economic Education*, Vol. 35, pp. 215-231.

Blickle, G. (1996),"Personality traits, learning strategies, and performances",*European Journal of Personality*, Vol. 10 No. 5, pp. 337-352.

Bozionelos, N. (2004), "The big five of personality and work involvement", *Journal of Managerial Psychology*, Vol. 19 No. 1, pp.69-81.

Busato, V.V., Prins, F.J., Elshout, J. J. and Hamaker, C. (1999), "The relation between learning styles, the Big Five personality traits and achievement motivation in higher education", *Personality and Individual Differences*, Vol. 26 No. 1, pp. 129-140.

Chamorro-Premuzic, T. and Furnham, A. (2003a), "Personality traits and academic examination performance", *European Journal of Personality*, Vol. 17 No. 3, pp.237-250.

Chamorro-Premuzic, T. and Furnham, A. (2003b), "Personality predicts academic performance: Evidence from two longitudinal university samples", *Journal of Research in Personality*, Vol. 37 No. (4), pp. 319-338.

Cheng, W. and Ickes, W. (2009), "Conscientiousness and self-motivation as mutually compensatory predictors of university-level GPA", *Personality and Individual Differences*, Vol. 47 No. 8, pp.817-822.

Chowdhury, M. (2006), "Students' personality traits and academic performance: A five-factor model perspective", *College Quartely*, Vol. 9 No. 3.

Cole, M.S., Bedeian, A.G. and Feild, H.S. (2006), "The Measurement Equivalence of Web-Based and Paper-and-Pencil Measures of Transformational Leadership: A Multinational Test", *Organizational Research Methods*, Vol. 9 No. 3, pp. 339-368.

Costa, P. and McCrae, R.R. (1992),*Revised NEO Personality Inventory (NEO-PI-R) and NEO Five-Factor Inventory (NEO-FFI): Professional manual*, Psychological Assessment Resources Inc, Odessa, FL.

Costa, P., Terracciano, A. and McCrae, R.R. (2001), "Gender differences in personality traits across cultures: Robust and surprising findings", *Journal of Personality and Social Psychology*, Vol.81No. 2, pp. 322-331.

De Feyter, T., Caers, R., Vigna, C. and Berings, D. (2012), "Unraveling the impact of the Big Five personality traits on academic performance: The moderating and mediating effects of self-efficacy and academic motivation", *Learning and Individual Differences*, Vol. 22 No. 4, pp. 439-448.

De Raad, B., and Schouwenburg, H.C. (1996), "Personality in learning and education: a review", *European Journal of Personality*, Vol. 10 No. 5, pp. 303-336.

Eysenck, H.J. and Eysenck, M.W. (1985), *Personality and individual differences: A natural science approach*, Plenum, New York, NY.

Feingold, A. (1994), "Gender differences in personality: A meta-analysis", *Psychological Bulletin*, Vol. 116 No. 3, pp. 429-456.

Frenzel, A., Pekrun, R. and Goetz, T. (2007), "Girls and mathematics —A "hopeless" issue? A control-value approach to gender differences in emotions towards mathematics", *European Journal of Psychology of Education*, Vol. 22 No. 4, pp. 497-514.

Furnham, A. (1992), "Personality and learning style: A study of three instruments", *Personality and Individual Differences*, Vol. 13 No. 4, pp. 429-438.

Furnham, A., Jackson, C.J. and Miller, T. (1999), "Personality, learning style and work performance", *Personality and Individual Differences*, Vol. 27 No. 6, pp. 1113-1122.

Goodman, S.B., and Cirka, C.C. (2009), "Efficacy and anxiety: An examination of writing attitudes in a first-year seminar", *Journal on Excellence in College Teaching*, Vol. 20 No.3, pp. 5-28.

Gupta, S., Harris, D.E., Carrier, N.M. and Caron, P. (2006), "Predictors of student success in entry-level undergraduate mathematics courses", *College Student Journal*, Vol. 40, pp. 97-108.

Hughes, D.J., Furnham, A. and Batey, M. (2013), "The structure and personality predictors of self-rated creativity", *Thinking Skills and Creativity*, Vol. 9, pp. 76-84.

John, O.P.and Srivastava, S. (1999), "The Big Five Trait taxonomy: History, measurement, and theoretical perspectives", In Pervin, L.A. & John,O.P. (Eds.), *Handbook of personality: Theory and research (2nd ed.)*, Guilford Press, New York, NY, pp. 102-138.

Judge, T.A., Rodell, J.B., Klinger, R.L., Simon, L.S. and Crawford, E.R. (2013), "Hierarchical representations of the five-factor model of personality in predicting job performance: Integrating three organizing frameworks with two theoretical perspectives", *Journal of Applied Psychology*, Vol. 98 No. 6, pp. 875-925.

Kappe, R. and van der Flier, H. (2010), "Using multiple and specific criteria to assess the predictive validity of the Big Five personality factors on academic performance", *Journal of Research in Personality*, Vol. 44 No. 1, pp. 142-145.

Komarraju, M., Karau, S.J., Schmeck, R.R. and Avdic, A. (2011), "The Big Five personality traits, learning styles, and academic achievement", *Personality and Individual Differences*, Vol. 51 No. 4, pp. 472-477.

Lim, P.S. and Melissa Ng Abdullah, L. Y. (2012), "Relationship between big-five personality domains and students' academic achievement", *Pertanika Journal of Social Sciences and Humanities*, Vol. 20 No. 4, pp. 973-988.

Lin, W.-L., Hsu, K.-Y., Chen, H.-C. and Wang, J.-W. (2012), "The relations of gender and personality traits on different creativities: A dual-process theory account", *Psychology of Aesthetics, Creativity, and the Arts*, Vol. 6 No. 2, pp. 112-123.

Luchs, M. and Mooradian, T. (2012), "Sex, Personality, and Sustainable Consumer Behaviour: Elucidating the Gender Effect", *Journal of Consumer Policy*, Vol. 35 No. 1, pp. 127-144.

Mahyuddin, R., Elias, H. and Noordin, N. (2009),"Emotional intelligence, achievement motivation and academic achievement among students of the public and private higher institutions",*The International Journal of Diversity in Organizations, Communities and Nations*, Vol. 9 No. 4, pp. 135-144.

McCrae, R.R. (2002), "NEO-PI-R data from 36 cultures: Further intercultural comparisons", In McCrae, R.R. and Allik, J. (Eds.), *The Five-Factor Model of personality across cultures*,Kluwer Academic/Plenum Publishers,New York, NY, pp. 105-125.

McCrae, R.R. and John, O.P. (1992), "An Introduction to the Five-Factor Model and its Applications", *Journal of Personality*, Vol. 60 No. 2, pp. 175-215.

Neuenschwander, R., Cimeli, P., Rothlisberger, M. and Roebers, C.M. (2013), "Personality Factors in Elementary School Children: Contributions to Academic Performance over and above Executive Functions?", *Learning and Individual Differences*, Vol. 25, pp. 118-125.

Nguyen, N.T., Allen, L.C. and Fraccastoro, K. (2005), "Personality Predicts Academic Performance: Exploring the moderating role of gender", *Journal of Higher Education Policy & Management*, Vol. 27 No. 1, pp. 105-116.

Noftle, E.E. and Robins, R.W. (2007), "Personality predictors of academic outcomes: Big five correlates of GPA and SAT scores", *Journal of Personality and Social Psychology*, Vol. 93 No. 1, pp. 116-130.

Nye, J.V., Orel, E. and Kochergina, E. (2013), "Big Five Personality Traits and Academic Performance in Russian Universities", *Higher School of Economics Research Paper No. WP BRP 10/PSY/2013*,

Poropat, A.E. (2009), "A meta-analysis of the five-factor model of personality and academic performance", *Psychological Bulletin*, Vol. 135 No. 2, pp. 322-338.

Poropat, A.E. (2014), "A meta-analysis of adult-rated child personality and academic performance in primary education", *British Journal of Educational Psychology*, Vol. 84 No. 2, pp. 239-252.

Rindermann, H. and Neubauer, A.C. (2001), "The influence of personality on three aspects of cognitive performance: Processing speed, intelligence and school performance", *Personality and Individual Differences*, Vol. 30 No. 5, pp. 829-842.

Saucier, G. and Goldberg, L. R. (2003), "The structure of personality attributes", In Barrick, M. and Ryan, A.M. (Eds.), *Personality and work*,Josses-Bass-Pfeiffer,New York, NY, pp. 1-29.

Spinath, B., Eckert, C. and Steinmayr, R. (2014), "Gender differences in school success: what are the roles of students' intelligence, personality and motivation?", *Educational Research*, Vol. 56 No. 2, pp. 230-243.

Steele-Johnson, D. and Leas, K. (2013), "Importance of race, gender, and personality in predicting academic performance", *Journal of Applied Social Psychology*, Vol. 43 No. 8, pp. 1736-1744.

Steinmayr, R. and Spinath, B. (2008), "Sex differences in school achievement: what are the roles of personality and achievement motivation?", *European Journal of Personality*, Vol. 22 No. 3, pp. 185-209.

Tham, S.Y. (2011), "Exploring access and equity in Malaysia's private higher education", *ABDI Working Paper 280*.

Vecchione, M., Alessandri, G., Barbaranelli, C.and Caprara, G. (2012), "Gender differences in the Big Five personality development: A longitudinal investigation from late adolescence to emerging adulthood", *Personality & Individual Differences*, Vol. 53 No. 6, pp. 740-746.

Vianello, M., Schnabel, K., Sriram, N. and Nosek, B. (2013), "Gender differences in implicit and explicit personality traits", *Personality and Individual Differences*, Vol. 55 No. 8, pp. 994-999.

Voyer, D. and Voyer, S.D. (2014), "Gender differences in scholastic achievement: A meta-analysis", *Psychological Bulletin*, Vol. 140 No. 4, pp. 1174-1024.

Ward, P., Clark, T., Zabriskie, R. and Morris, T. (2014), "Paper/Pencil Versus Online Data Collection", *Journal of Leisure Research*, Vol. 46 No. 1, pp. 84-105.

Weigold, A., Weigold, I.K. and Russell, E.J. (2013),"Examination of the equivalence of self-report survey-based paper-and-pencil and internet data collection methods",*Psychological Methods*, Vol. 18 No. 1, pp. 53-70.

Weisberg, Y.J., DeYoung, C.G. and Hirsh, J.B. (2011),"Gender differences in personality across the ten aspects of the Big Five", *Frontiers in Personality Science and Individual Differences*, Vol. 2, Article 178.

Zeidner, M. (2009), "Personality in educational psychology", In Corr, P.J. & Matthews, G. (Eds.), *The Cambridge handbook of personality psychology*, Cambridge University Press,Cambridge, UK, pp. 733-747.