Personality Characteristics as Predictors of Academic Performance of Secondary School Students

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Abstract

The purpose of this study was to investigate the relationship of personality characteristics to academic performance of secondary school students. The correlational type of descriptive reseach design was used for the study. Three hundred and ninety eight students constituted the study's sample. Both the independent and dependent variables were measured with relevant standardized instruments. Two research questions were answered in the study. Findings showed that personality dimentions jointly and relatively predicted academic performance except neuroticism. The findings imply that teachers should construct learning environments that take into consideration students' individual differences and strengths. Appropriate counselling interventions should be used to assist students experiencing worry, anxiety, frustration and stress to deal with their concerns.

Key words: *Big Five, academic performance, personality, personality characteristic.*

1. Introduction

Understanding the factors influencing academic performance has always been a great concern for counselling and educational psychologists. Many researchers are axious to know in advance who will perform well or not in any academic activity. Thus, identifying the factors determining academic success is a major concern of researchers for the purpose of developing an education curriculum aimed at improving levels of academic performance. This calls for examining the reasons for individual differences in students' academic performance.

Research works have identified intelligence as one major determinants of academic performance (e.g. Harris, 1940; Elshout & Veenman, 1992; Ackerman & Heggestad, 1997; Sternberg & Kaufman, 1998). However, some schools of thought believe that cognitive ability factors alone cannot account fully for individual differences in academic performance (Rothstein, Paunonen, Rush & King, 1994; Rindermann & Neubauer, 2001; Chamorro-Premuzic & Furnham, 2005; 2006). Hence, some researchers have explored the relationship between personality and academic performance (Chamorro-Premuzic & Furnharm, 2006; Noftle & Robbins, 2007; O'Connor & Paunonen, 2007, Conrad & Patry, 2012).

Many researchers agree that both cognitive and personality variables should be taken into consideration when predicting academic performance (Rindermann & Neubauer, 2001; Chamorro-Premuzic & Furnham, 2005), and neither of them is sufficient on its own. Although the direct relationship between academic performance and personality characteristics has been extensively studied (Gray & Watson, 2002; Farsides & Woodfield, 2003; Chamarro-Premuzic & Furnham, 2003a, 2005), the results were not as straight forward as they were for the relationship between intelligence and academic performance. Farsides and Whoodfreld (2003) reviewed previous research on the existing relationships between Big Five dimentions of personality and academic performance. They concluded that emperical evidence concerning the role each of the five personality factors plays in determining academic success is mixed. This study, therefore, examined the relationship between personality characteristics and secondary school students' academic performance in Ondo State, Nigeria. In addition, while a lot of research has been conducted in Europe & other Western countries, few studies have related personality to academic performance in adolescents and younger children in secondary schools in Nigeria.

Recently, myriad of personality characteristics measured by various personality inventories have been grouped by personality psychologists under five higher order personality factors: neurotism, extraversion, openness to experience, agreeableness and consciousness (Costa & McCrae, 1992; Goldberg, 1993). These factors are thought to encompass the entire domain of more narrow personality traits that fall at lower levels of the hierarchy. These traits are found in the Table 2 below.

Table 1: Domain and Facets of the Five Factors Model of Personality

S/N	*FACTOR/DOMAIN*	*FACETS*
1	*Neuroticism (N)*	*N1: Anxiety* *N2: Angry hostility* *N3: Depression* *N4: Self-consciousness* *N5: Impulsiveness* *N6: Vulnerability*
2.	*Extraversion (E)*	*E1: Warmth* *E2: Gregariousness* *E3: Assertiveness* *E4: Activity* *E5: Excitement – seeking* *E6: Positive emotions*
3.	*Openness to experience (O)*	*O1: Fantasy* *O2: Aesthetics* *O3: Feelings* *O4: Actions* *O5: Ideas* *O6: Values*
4.	*Agreeableness (A)*	*A1: Trust* *A2: Straightforwardness* *A3: Altruism* *A4: Compliance* *A5: Modesty* *A6: Tender-mindedness*
5	*Conscientiousness (c)*	*C1: Competence* *C2: Order* *C3: Dutifulness* *C4: Achievement striving* *C5: Self-discipline* *C6: Deliberation*

Source: Lievens, Coestsier, Fruyt & Maeseneer (2002)

Many contemporary researchers have chosen to study the relationship between Big Five personality domains and academic performance while others have evaluated more narrow personality traits at lower levels of the personality hierarchy, in terms of predicting academic success. For the purpose of this study, the relationship between the Big Five personality dimensions and academic performance would be examined.

2. Literature Review

2.1 Extraversion and Academic Performance

Extraversion is characterize by sociability, assertiveness, emotional expressions and excitability. Those who are high in this tait are often described as being out going and talkative while those who are low in this trait are described as queit and reserved. Research examining extraversion as a predictor of academic performance has produced mixed results. Many research findings revealed that extraversion negatively correlated with academic performance (Bauer & Liang, 2003; Furnharm, Chamorro-Premuzic, & McDougall, 2003; Furnham & Chamorro-Premuzic, 2004; Hair & Hampson,

2006). On the other hand, Rothstein et. al. (1994) found a positive association between extraversion and academic achievement.

2.2. Neuroticism and Academic Performance

Neuroticism is a long term tendency to be in a negative emotional state. People with neuroticism tend to have more depressed moods, anxious, angry and vulnerable. Studies have found negative associations between Neuroticism and academic performance (Chamorror-Premuzic & Furnharm, 2003a; Busato, Prins, Elshout, & Hamaker, 2000; Wagerman & Furnder, 2007; De Fruyt & Mervielde, 1996). On the other hand, neuroticism was found in some studies to be positively related to academic performance (De Raad & Shouwenburg, 1996; Eysenck, 1996).

2.3.Agreeableness and Academic Performance

Agreeableness is the tendency to be pleasant, compassionate, cooperative and accommodating in social situations rather than being antagonistic and suspicious of others. An agreeable person is good, natured, cooperative and functioning. Agreeableness have been found to be positively related to academic performance in some studies (Lounsbury, Sundstrom, Loveland, & Gibson, 2003; Farsides & Woodfield, 2003; Gray & Watson, 2002; Hair & Graziano, 2003; Conard, 2006). However, Paunonen, (1998) and Rothstein, et. al. (1994) reported negative association between agreeableness and academic performance.

2.4. Openness to Experience and Academic Performance

Openness reflects the degree of intellectual curiosity, creativity and a reference for novelty and variety. Investigation of openness as a predictator of academic performance have also produced mixed results. On one hand, a number of studies have identified a positive association between openness and academic performance (Chamorro-Premuzic & Furnharm, 2005; Lounsbury, Sundstrom, Loveland, & Gibson, 2003; Phillips, Abraham & Bond, 2003; Blickle, 1996). On the other hand, Noftle and Robbins (2007) did not find a significant relationship between openness and academic performance. Many other studies did not found association between openness and academic performance (Bauer & Liang, 2003; Diseth, 2003; Hair and Hampson, 2006; Conard, 2006).

2.5. Conscientiousness and Academic Performance

Conscientiousness is a tendency to show self-descipline, act dutifully and aim for achievement amidst various challenges. It has been one of the big five factors most consistently linked to academic performance. Many studies have found a positive association between conscientiousness and academic performance (Blickle 1996; Busato, Prins, Elshout, & Hamaker, 2000; Kling, 2001; Philips, et.al., 2003; Bauer & Liang, 2003, Chamorro-Premuzic & Furnharm, 2003a; Cornard, 2006; Hair & Hampson, 2006; Wegerman & Funder, 2007; Cornrad & Patry, 2012). O'Connor and Paunonen (2007) and Noftle and Robins (2007) even reported that consciousness was the strongest predictor of academic performance and the other form traits have weak or mixed relationship with GPA. Indeed, quite a number of research demonstrates that conscientious students achieve higher levels of academic success, both in high/secondary schools (e.g., Lounsbury, Sundstrom, Loveland, & Gibson, 2003; Preckel, Holling & Vock, 2006; Trautwein, Ludtke, Roberts, Schnyder, & Niggli, 2009) and in university (e.g., Busato, Prins, Elshout, & Hamaker, 2000; Bauer & Liang, 2003; Chamorro-Premuzic & Furnham, 2003a; Phillips, et.al, 2003; Conard, 2006; Noftle & Robins, 2007; Chamorro-Premuzic & Furnham, 2008).

Given the mixed and inconsistent findings reported by researchers on the association between the Big Five personality dimensions and academic performance, it is important that a study is carried out to investigate the relationship between these variables for the purpose of bridging the gap. This study is very important in Ondo State of Nigeria as very few studies have examined the role of personality characteristics in predicting academic performance of secondary school students. Thus, this study intended to examine the relationship between the Big Five factors (i.e. Neuroticism, Extraversion, Openness to Experience, Agreeableness, and consciousness) and academic performance. Based on the literature reviewed above, the following research questions are raised for this study:

1. What is the joint contribution of Big Five factors (Neuroticism, Extraversion, Openness to Experience, Agreeableness, and Consciousness) to academic performance of secondary school students?

2. What is the relative contribution of each of the Big Five factors to academic performance of secondary school students?

3. Reseach Methodology

3.1. Research Design

The researcher used correlational research design in the study. The research design enabled the researcher to establish the relationships between the Big Five factors and academic performance.

3.2. Participants

The sample consisted of 398 students [Male = 204 (51.3%); Female = 194 (48.7%)] randomly selected from 10 secondary schools in ondo State in Nigeria. The mean age for the sample was 15.28 (SD = 1.67), range = 10 – 19 years The researcher used stratified random sampling technique to choose the sample of the study.

3.3. Measures

The Big Five Inventory (BFI) developed by John and Srivastava (1999) was adopted for this study. The instrument is a 44-item inventory that was developed to assess the Big Five personality domains of Extraversion, Agreeableness, Conscientiousness, Neuroticism, and Openness. The BFI also contains 10 facet scales, two for each domain, that are used to examine personality characteristics within each domain (Soto & John, 2009). Respondents indicate their level of agreement with each of the 44 items using a 5-point Likert scale (1 = disagree strongly, 5 = agree strongly); 16 items are reverse-scored. The items are described in behavioral, cognitive, and affective terms. Examples of items on the BFI (all of which are preceded by the phrase "I am someone who ... ") are: "Is a reliable worker" (Self-Discipline facet of Conscientiousness), "Is generally trusting" (Altruism facet of Agreeableness), "Is inventive" (Ideas facet of Openness), "Is depressed, blue" (Depression facet of Neuroticism), and "Is full of energy" (Activity facet of Extraversion) (Soto & John, 2009). Alpha reliabilities were .87 for Extraversion, .79 for Agreeableness, .81 for Conscientiousness, .82 for Neuroticism, and .79 for Opennes to Experience.

Scores of the participants in their promotion examination from Senior Secondary School Two (SSS 2) to SSS 3 were used as the measure of academic performance. The average scores ranging from zero to 100, which were composed of examinations, tests and assignments, were used in data analysis.

3.4. Procedure

The inventory was administered with the aid of three research assistants after getting the approval from the school principals. It was ensured that enough time was given to the respondents to complete the questionnaire. Scores of the participants were obtained from the participants' instructors.

3.5. Data Analysis

Pearson Product Moment Correlation and Multiple Regression analyses were used to answer the research questions raised for this study.

4. Results

Bivariate correlation coefficients (Pearson's *r*), mean and standard deviations for the central measures are shown in Table 2

Table 2: Means, Standard Deviations and Inter-correlational matrix of predictor variables and academic performance (N = 398)

Variables	1	2	3	4	5	6
1. Extraversion	1					
2. Agreeableness	.20*	1				
3. Conscientiousness	.05	.23*	1			
4. Neuroticism	.27*	-.07	-.01	1		
5. Openness to Experience	.06	.28*	.06	.00	1	
6. Academic Performance	.16*	.31*	.33*	-.01	.21*	1
Mean	22.52	30.47	32.68	23.86	27.14	44.84
S.D.	4.11	6.06	6.58	5.61	4.88	13.31

Note. * = P < 0.05 (Significant results)

*T*able 2 summarizes the zero-order Pearson correlations between academic performance and other measures in the study. The results show that significant positive correlations were obtained between academic performance and Extraversion (r =.16, p < 0.05), Agreeableness (r = .31, p < 0.05), Conscientiousness (r = .33, p < 0.05) and Openness (r = .21, p < 0.05). However, no significant relationship was found between academic performance and neuroticism (r= -.01, p > 0.05)

Table 3: Summary of Multiple Regression Analysis between the predictors variables and the criterion measure.

Multiple R	= .44
Multiple R-square	= .20
Adjusted R-square	= .18
Standard error of the estimate	= 12.02

Analysis of variance (ANOVA)

Model	Sum of squares	Df	Mean square	F	P
Regression	13693.99	3	27338.80	18.95	< 0.05
Residual	56643.72	394	144.50		
Total	70337.71	397			

Table 3 shows that independent variables (extraversion, agreeableness, conscientiousness, neuroticism, openness) when pulled together significantly predicted academic performance of the participants. The values of R (adjusted) = .44 and R^2 (adjusted) = .18. This indicated that the Big Five factors of personality accounted for 18% of the total variance in academic performance of secondary school students The analysis of variance performed on the multiple regression yielded an F-ratio value of 18.95 and was found to be significant at 0.05 level.

Table 4: Relative Contribution of the Independent Variables to the Prediction.

Predictor Variables	Unstandardized Coefficients		Standardized		
	B	SEB	β	t	P
Extraversion	0.32	0.16	0.98	2.03	< 0.05
Agreeableness	0.43	0.11	0.20	3.93	< 0.05
Conscientiousness	0.55	0.09	0.27	5.83	< 0.05
Neuroticism	-0.002	0.11	0.00	0.02	> 0.05
Openness to Experience	0.37	0.13	0.13	2.86	< 0.05

The results obtained in Table 4 show that each of the independent variables made a significant contribution to the prediction of academic performance except neuroticism. In terms of the magnitude of contribution, conscientiousness made the most significant contribution (Beta = 0.55, t = 5.83; P < 0.05) to academic performance. Other variables made significant contributions in the following order: agreeableness (Beta = 0.43, t = 3.98; P < 0.05), openness to experience (Beta = 0.37, t = 2.86; P < 0.05) and extraversion (Beta = 0.32, t = 2.03; P < 0.05). Neuroticism did not make a significant positive contribution to academic performance among secondary school students (Beta = -0.002, t = 0.02; P > 0.05).

5. Discussion of Findings

The purpose of the present study was to examine the relationship between personality characteristics and secondary school students' academic performance. Results of this study showed that personality characteristics when pulled together significantly predicted academic performance. This finding is in agreement with those of Wolfe & Johnson (1995), De Raad and Schouwenburg (1996), and Rindermann and Neubauer (2001).

Consistent with previous literature (Bauer & Liang, 2003; Lounsbury, et. al., 2003, Phillips, et. al., 2003; Noftle & Robbins, 2007; O'Connor & Paunonen, 2007; Chamorro-Premuzic & Furnham, 2008; Conrad & Patry, 2012), conscientiousness was found to be the most important correlate and predictor of academic performance. The significant positive relationship between conscientiousness could be explained from the fact that conscientious individuals are known to be hardworking, well organized and ambitious in nature. In addition, each of the sub-scales of conscientiousness (e.g. competence, archiving striving, self-discipline etc) is theoretically related to performance in academic and occupational settings (Mount & Barrick, 1995; Salgado, 1997). This finding suggests that students that are low in self-achievement and self-discipline are at risk of failing to take examinations successfully.

Agreeableness is another personality characteristic that made significant positive relationship with academic performance. This finding is in consonance with previous studies (such as Farsides & Wood Field, 2003; Hairs & Graziano 2003; Lounsbury, et. al., 2003; Conard, 2006). The possible explanation for this finding is that agreeable students are always cooperative and functioning effectively. The students used in the present study had been effectively guided by their parents and teachers on how to prepare for and write examinations successfully and they probably adhered to the instructions. Though, agreeable individuals demonstrate traits such as altruism, antagonism but they are tender-minded, trustworthy and modest in conduct. These perhaps contributed to their academic success.

The results also showed that openness to experience significantly predicted academic performance. This is in harmony with the findings of previous researchers who reported that openness to experience significantly predicted academic performance (& Lounsbury, et. al., 2003; Chamorro-Premuzic & Furnham, 2005; Noftle and Robins, 2007). The finding could be attributed to the fact that individuals who score high in openness to experience are usually imaginative, curious, aesthetically sensitive, independent minded and have divergent thinking. These traits enhance good academic performance. In addition, those who are high in openness tend to have an intellectual style that is well-suited to contexts in which intellectual autonomy and creativity are rewarded.

The results of this study also revealed that extraversion had a significant relationship with academic performance. This is in harmony with the work of Rothstein, et.al. (1994) who reported that extraversion positively related to academic performance. However, the finding disagreed with the outcome of many previous studies (e.g. Bauer & Liang, 2003; Furnharm, et.al., 2003; Heir & Hampson, 2006). This outcome is very surprising because extraversion is indicative of high frequency of social interaction, gregariousness and excitement-seeking which are inimical to good performance. One possible explanation for this finding is the effectiveness of schoool authorities in organising preparatory classes for senior secondary school students after the official working hours. This probably contributed to their good performance. Notwithstanding, out of the four personality characteristics that positively predicted academic performance, extraversion made the least contribution.

The findings of this study also revealed that neuroticism had a negative contribution (though not significant) to academic performance of secondary school students. This finding corroborated the findings of previous researchers who reported negative associations between neuroticism and academic performance (Chamorror-Premuzic & Furnharm 2003a, 2003b; Wagerman & Funder, 2007). The result is not surprising because neurotic students are usually unstable emotionally. Under academic evaluations, neurotic students are known to experience anxiety and stress, thereby impairing their academic performance (Chamorror-Premuzic & Furnham, 2005).

6. Implications and Conclusion

The present findings revealed the replicable relationship between personality characteristics and academic performance. Conscientiouness was found to be the most predictor of academic performance. Therefore, teachers should construct learning environments that take into consideration students' individual differences and strengths. Such environments may encourage students to be well organised, disciplined and proactive about learning. Individual students should be encouraged to develop healthy study habits and time mangement for the purpose of good academic performance in the examinations.

In addition, practical steps should be taken by teachers and parents to assist students to set realistic and achievable goals. Such goals should be pursued passionately because grit plays an important role in achieving academic success. Similarly, exposing students who scored high in openness to experience to novel view points could foster interest and learning. Further, counselling and educational psychologists should identify students experiencing worry, anxiety, frustration and stress. These group of students should be assisted using appropriate counselling therapies such as Coginitve Behavioural Therapy, Rational Emotive Behaviour Therapy, Emotional Intelligence Training, Self-Management Technique, Problem Solving Technique and so on to deal with their concerns. Indeed, a student who is self-disciplined, curious, helpful, socially skilled and success driving is most likey to perform very well academically.

Personality assessment may be a useful tool in effectively guiding and counselling students throughout their academic pursuit. Information on the personality of each student in school could be used to direct students towards disciplines and programmes in which they are most likely to succeed.

This study is a cross-sectional reseach and self-report measure was partly used. These are clear limitations. Further researchers could embark on longitudinal studies in order to establish causal relationship. Notwithstanding, the present study has contributed to literature on role of personality characteristics in predicting academic performance of secondary school students

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