



INFLUENCE OF BIG FIVE PERSONALITY TRAITS ON ACADEMIC PERFORMANCE AMONG SECONDARY SCHOOL STUDENTS IN GBOKO METROPOLIS

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Abstract

The study investigated the influence of personality traits on academic performance among secondary school students in Gboko Metropolis. A cross sectional survey design was employed, and participants were selected using a simple random sampling technique. A total of 274 employees took part in the study, comprising 170 males and 104 females. Data were collected using the Big five personality inventory (BFI-44) and academic performance Questionnaire (APQ). Multiple regression analyses were conducted to test the research hypotheses. The findings revealed that openness to experience, conscientiousness, and extraversion significantly and independently predicted academic performance. In contrast, agreeableness and neuroticism were not significant predictors. Overall, the results indicated a significant joint influence of personality traits on academic performance. Based on these findings, it was recommended that secondary schools in Gboko metropolis incorporate personality (psychometric) testing into the admission process to help identify candidates whose traits align with optimal academic performance.

Keywords: *Big 5 personality, traits, academic performance, Students, & Secondary Schools.*

Introduction

Education represents a distinct form of investment, within which academic performance is a crucial element. In today's era of industrialization and globalization, education has become highly competitive, with academic distinction achieved through rigorous competition (Williamson, 2017). An individual's educational standing is largely reflected through their academic performance and accomplishments. The academic performance of students has long been a central concern for educators. In recent times, this focus has intensified among academics, parents, and students alike (Al-Quasy et al., 2012). Remarkably, academic performance has evolved into a critical indicator for shaping a child's future prospects (Dweck, 2000).

Numerous scholars have noted that academic performance involves both the objectives and the strategies for achieving them (Ibrahim, 2004), and it is frequently measured in objective terms through attained results (Al-Edaily, 2005). Academic performance signifies the level of accomplishment a student achieves in educational activities over a defined period. It indicates how effectively a learner meets the educational goals established by their institution.

Research indicates that personality traits significantly influence academic performance. The Big Five personality framework, comprising openness to experience, conscientiousness, extraversion, agreeableness, and neuroticism, has been consistently correlated with academic outcomes across diverse countries and professional fields (Barrick & Mount, 2015; Judge, 2012; Hogan & Holland, 2013). While this relationship is well-documented in contexts like the United States, Europe, and South Africa, empirical evidence from Nigeria, specifically concerning secondary school students in Gboko metropolis, remains scarce. This gap serves as the impetus for the current investigation.

Statement of the Problem

Findings from numerous studies and meta-analyses indicate that the Big Five personality dimensions are associated with academic performance (Barrick & Mount, 2015; Hough, Eaton, Dunnette, Kamp & McCloy, 2009; Salgado, 2007; Tett, Jackson, Burnett & Rothstein, 2003; Vinchur, Schippmann, Sweizer & Roh, 2008). Barrick & Mount (2015) and Salgado (2000) found conscientiousness to be a strong predictor of academic performance in the United States, Europe, and South Africa. Similarly, Vinchur et al. (2008) concluded that extraversion and conscientiousness predict academic performance across various occupations in Thailand. However, the majority of these studies were conducted in the United States, Europe, South Africa, and Thailand, leaving a gap in knowledge regarding secondary school students in Gboko Metropolis. This gap necessitated the current research, which aims to explore the influence of Big Five personality traits on academic performance within this specific context.

Aim and Objectives of the Study

The primary aim of this study is to investigate the influence of Big Five personality traits on the academic performance of secondary school students in Gboko Metropolis, thereby addressing the identified knowledge gap. The specific objective is:

1. To examine the independent and combined influence of openness to experience, conscientiousness, extraversion, agreeableness, and neuroticism on the academic performance of secondary school students in Gboko Metropolis.

Research Question

The research question guiding this study is:

1. To what extent do openness to experience, conscientiousness, extraversion, agreeableness, and neuroticism, both independently and collectively, influence the academic performance of secondary school students in Gboko Metropolis?

Hypothesis

The following hypothesis was tested in this study:

1. Openness to experience, conscientiousness, extraversion, agreeableness, and neuroticism will independently and jointly influence the academic performance of secondary school students in Gboko metropolis.

Big Five Personality Traits

Personality traits are understood as enduring attributes that shape an individual's behavior across various situations. The Big Five model represents the most widely accepted framework for categorizing these traits, including Agreeableness, Neuroticism, Conscientiousness, Openness to Experience, and Extraversion.

Agreeableness reflects a propensity to be kind, cooperative, polite, and gentle (Bono & Judge, 2024). Key characteristics include sympathy, kindness, flexibility, trust, a tendency to apologize, good-heartedness, and tolerance (Barrick, Mitchell & Stewart, 2003). Students with high agreeableness tend to be popular (Llewellyn & Wilson, 2003), are often friendly and helpful, and value harmonious relationships (Williamson, 2017).

Neuroticism is generally defined as the tendency to experience frequent and intense negative emotions in response to stressors (Barlow, Sauer-Zavala, Carl, Bullis & Ellard, 2014). It encompasses the experience of unpleasant emotions, with common traits including anxiety, depression, anger, irritability, sadness, worry, and a sense of danger (Barlow et al., 2014). Students high in neuroticism often react poorly to environmental stress, feel threatened, and may perceive minor frustrations as overwhelming, which can negatively impact academic performance (Widiger & Oltmanns, 2017).

Highly conscientious students are often characterized as organized, meticulous, and punctual in their daily activities. Foulkrod et al. (2010) associate this trait with being organized and goal-oriented. Barrick, Mount, and Judge (2001) suggest that students exhibiting high conscientiousness tend to work diligently, are disciplined, and maintain high performance goals.

Students with this trait are often liberal-minded, intellectually curious, open to new experiences, and engaged with subject matter. A tendency for brainstorming is also a characteristic (Nadkarni & Hermann, 2010). Openness suggests a student is mature, practical, and receptive to new ideas, often contributing to academic efficiency (Douglas, 2012).

Extraversion is typically characterized by the tendency to experience positive affect, exhibit assertive behavior, engage in decisive thinking, and seek social attention (Wilt & Revelle, 2017). Sociability is a core component (Judge et al., 2002; Nadkarni & Hermann, 2010). Students high in

extraversion often display confidence, dominance, and excitement-seeking behavior, which can contribute to academic success (Carter, Miller & Widiger, 2012).

Academic Performance

Academic performance denotes the level of achievement a student attains in educational activities over a specific period, reflecting their success in meeting institutional learning objectives. It is a primary concern for secondary schools, as student success is often measured by it. The key elements of academic performance include measure of achievement, which is commonly assessed through test scores, examination results, continuous assessment, and Grade Point Average (GPA); knowledge and skills acquisition, which indicates the student's understanding and application of learned knowledge and competencies; and comparison with standards, which is evaluated against curriculum expectations, institutional benchmarks, and peer achievement. The importance of academic performance is underscored by its roles in: (i) assessing student progress, (ii) determining advancement to higher education levels, (iii) influencing future career opportunities, (iv) serving as a basis for awards and recognition, and (v) guiding instructional improvements.

Methodology

This study employed a cross-sectional survey design. This approach was deemed most appropriate as it enables the researcher to sample a large population, collect data via questionnaires, and draw inferences regarding the influence of personality traits on academic performance levels.

The study was conducted within secondary schools located in Gboko metropolis. Records from the Benue State Ministry of Education indicate approximately 111 secondary schools (both public and private) in the area.

Using the Taro Yamane formula, the number of schools to be sampled was calculated as follows:

- $n = N / (1 + N(e)^2)$
- $n = 111 / (1 + 111(0.05)^2)$
- $n = 111 / (1 + 0.2775)$
- $n = 86$

Thus, 86 secondary schools formed the sample. Further investigation revealed that these 86 schools contained approximately 950 students. Applying the Krejcie and Morgan (1970) sample size determination table, a sample of 274 students was estimated from the population of 950. Therefore, the final sample size for the study was 274 students.

Data were collected using a questionnaire comprising two distinct scales: the 44-item Big Five Inventory (BFI-44) developed by John, Donahue, and Kentle (1991), and Academic Performance Questionnaire (APQ) by Lina Koopman (2014). Standard multiple regression analysis was utilized to test the hypothesis.

Results

Correlation Matrix

To examine the relationships among personality traits and academic performance, a correlation matrix was computed.

Table 1: *Correlation Matrix for the Relationship among Openness to Experience, Extraversion, Neuroticism and Academic performance*

Table	1	2	3	4	5	6	Mean	SD
Openness	-						20.05	2.89
Conscientiousness	.056	-					19.09	2.42
Extraversion	.215**	.416**	-				18.40	2.90
Agreeableness	.050	.033	.019	-			14.13	.99
Neuroticism	.401**	.035	.170**	.166**	-		28.69	5.34
Academic performance	.029	.524**	.351**	.140*	.312*	-	28.67	5.34

The results in Table 1 show that openness to experience is positively correlated with extraversion ($r=.215$, $p<0.01$) and neuroticism ($r=.401$, $p<0.01$). Conscientiousness is positively correlated with extraversion ($r=.416$, $p<0.01$) and academic performance ($r=.524$, $p<0.01$). Agreeableness is positively correlated with neuroticism ($r=.170$, $p<0.01$) and academic performance ($r=.351$, $p<0.01$). Additionally, neuroticism shows a positive correlation with academic performance ($r=.312$, $p<0.01$).

Hypothesis Testing

The hypothesis was tested using multiple regression analysis, with results presented in Table 2.

Table 2: *Summary of Multiple Linear Regression Showing the Influence of Personality Traits (openness to experience, conscientiousness, extraversion, agreeableness, neuroticism) on Academic performance among secondary school students in Gboko metropolis.*

DV	Predictors	R	R ²	F	df	β	t	P
Academic performance	Constant	.762	.452	82.857	5,265		6.743	.000
	Openness					.117	2.265	.024
	Conscientiousness					.468	9.164	.000
	Extraversion					.205	3.916	.000
	Agreeableness					.100	2.143	.033
	Neuroticism					-.395	-7.746	.000

The results in Table 2 indicate a significant combined influence of the personality traits (openness, conscientiousness, extraversion, agreeableness, neuroticism) on academic performance, with $R = .762$, $R^2 = .452$, $[F(5,265) = 82.857; p < 0.01]$. Collectively, these traits accounted for 45.2% of the variance in academic performance. Individually:

- Openness to experience ($\beta = .117$; $t = 2.265$, $p < 0.01$) was a significant positive predictor.
- Conscientiousness ($\beta = .468$; $t = 9.164$, $p < 0.01$) was a significant positive predictor.
- Extraversion ($\beta = .205$; $t = 3.916$, $p < 0.01$) was a significant positive predictor.
- Agreeableness ($\beta = .100$; $t = 2.143$, $p < 0.01$) was a significant positive predictor.
- Neuroticism ($\beta = -.395$; $t = -7.746$, $p < 0.01$) was a significant negative predictor.

This suggests that students scoring higher on openness, conscientiousness, extraversion, and agreeableness tend to have higher academic performance, while those high in neuroticism tend to have lower academic performance. Among the predictors, conscientiousness had the strongest contribution (46.8%), while agreeableness had the weakest (10.0%).

Discussion of Findings

This study aimed to investigate the influence of Big Five personality traits on the academic performance of secondary school students in Gboko metropolis. The hypothesis, which stated that the five traits would independently and jointly influence academic performance, was supported. The regression analysis revealed a significant combined effect, with the traits explaining 45.2% of the variance in academic performance.

Individually, openness to experience, conscientiousness, extraversion, and agreeableness emerged as significant positive predictors, while neuroticism was a significant negative predictor. Conscientiousness demonstrated the strongest positive influence. These findings align with previous research. For instance, the positive influence of extraversion found here is consistent

with studies like Erdheim, Wang, and Zicker (2006) and Bacon (2001), who noted that extraverts often perform well in social and interactive contexts. The link between extraversion and positive emotions (Costa & McCrae, 1997) and subsequent gratification (Connolly & Viswesvaran, 2000) supports its role in academic settings. The predictive power of openness found in this study is supported by the work of De Jong, Velde, and Jansen (2001) and Kickul and Newman (2000), who link it to ambition, achievement orientation, and leadership emergence—all beneficial for academic success.

The robust predictive role of conscientiousness corroborates the well-established findings of Barrick and Mount (2015), who identified it as a key predictor of performance across various domains. Its consistency as a predictor underscores its critical importance for academic outcomes. The negative influence of neuroticism observed in this study aligns with the findings of Magnus et al. (2003) and Judge et al. (2002), who found it negatively related to job satisfaction and performance. Barrick and Mount (2015) also noted that highly neurotic individuals may struggle to work independently, which could hinder academic achievement. Finally, the significant positive, albeit weakest, influence of agreeableness is consistent with the meta-analytic findings of Barrick and Mount (2015) and Judge et al. (2002), who reported relatively weak correlations between agreeableness and performance metrics.

Conclusion

The conclusions drawn from this study are based on its findings. The research established that the Big Five personality traits collectively have a significant impact on the academic performance of secondary school students in Gboko metropolis. Independently, openness to experience, conscientiousness, and extraversion were found to be significant predictors, while agreeableness and neuroticism were not significant predictors in this specific context. These findings underscore the critical role personality traits play in academic outcomes and suggest they should be considered within educational settings.

Recommendation

Based on the finding of this study, the following recommendation is made:

1. Secondary schools in Gboko metropolis should consider incorporating personality (psychometric) testing into their admission processes, as these traits have been shown to be significant predictors of academic performance.

References

- Al-Edaily, V. H. (2005). Relationship between the five factor model of personality and academic performance. *Mediterranean Journal of Social Sciences*, 7(4), 118-122.
- Al-Quasy, L. M., & Khuffash, S. R. (2012). Relationship between Personality Traits and Academic Performance among University Students. *Journal of Educational and Social Research*, 2(1), 121-129.
- Bacon, C. L. (2001). *Academic Self Concept and Academic of African American Students transitioning from Urban to Rural Schools* (Doctoral dissertation). University of Iowa.
- Barlow, D. H., Ellard, K. K., Sauer-Zavala, S., Bullis, J. R., & Carl, J. R. (2014). The origins of neuroticism. *Perspectives on Psychological Science*, 9(5), 481-496.
- Barrick, M. R., & Mount, M. K. (2005). Yes, personality matters: Moving on to more important matters. *Human Performance*, 18(4), 359-372.
- Barrick, M. R., & Mount, M. K. (2015). Self-determination in work organizations. *Journal of Applied Psychology*, 74, 580-590.
- Barrick, M. R., Mitchell, T. K., & Stewart, G. L. (2003). Situational and motivational influences on trait-behavior relationships. In M. R. Barrick & A. M. Ryan (Eds.), *Personality and work: Reconsidering the role of personality in organizations* (pp. 60-82). San Francisco: Jossey-Bass.
- Barrick, M. R., Mount, M. K., & Judge, T. A. (2001). Personality and performance at the beginning of the new millennium: What do we know and where do we go next? *International Journal of Selection and Assessment*, 9(1-2), 9-30.
- Bean, B., & Eaton, J. (2000). The Effect of School, Family and Community Support on the Academic Achievement of African American Adolescents. *Urban Education*, 33, 385-409.
- Bing, M. N., & Lounsbury, J. W. (2000). Openness and job performance in U.S.-based Japanese manufacturing companies. *Journal of Business and Psychology*, 14(3), 515-522.
- Bono, J. E., & Judge, T. A. (2004). Personality and transformational and transactional leadership: A meta-analysis. *Journal of Applied Psychology*, 89(5), 901-910.
- Carter, N. T., Miller, J. D., & Widiger, T. A. (2018). Extreme personality at work and in life. *Current Directions in Psychological Science*, 27(6), 429-436.
- Connolly, J. J., & Viswesvaran, C. (2000). The role of personality in job satisfaction: A meta-analysis. *Personality and Individual Differences*, 29, 265-281.
- Costa, P. T., & McCrae, R. R. (1992). *Revised NEO Personality Inventory (NEO PI-R) and NEO Five-Factor Inventory (NEO-FFI) professional manual*. Odessa, FL: Psychological Assessment Resources.
- De Jong, R. D., van der Velde, M. E. G., & Jansen, P. G. W. (2001). Testing reciprocal relationships between job characteristics and psychological well-being: A cross-lagged structural equation model. *Journal of Occupational and Organizational Psychology*, 74, 29-46.
- DeNeve, K. M., & Cooper, H. (1998). The happy personality: A meta-analysis of 137 personality traits and subjective well-being. *Psychological Bulletin*, 124(2), 197-229.
- Douglas, L. G. (2012). Entrepreneurs and personality. *Entrepreneurship Theory and Practice*, 36(3), 513-541.
- Dweck, C. S. (2000). *Self-theories: Their role in motivation, personality, and development*. Philadelphia: Psychology Press.
- Erdheim, J., Wang, M., & Zickar, M. J. (2006). Linking the Big Five personality constructs to organizational commitment. *Personality and Individual Differences*, 41, 959-970.
- Foulkrod, K. H., Field, C., & Brown, C. V. (2010). Trauma Surgeon Personality and Job Satisfaction: Results from a national survey. *The American Surgeon*, 76(4), 422-427.
- Hogan, R., & Holland, B. (2003). Using theory to evaluate personality and job-performance relations: A socioanalytic perspective. *Journal of Applied Psychology*, 88(1), 100-112.

- Hough, L. M., Eaton, N. K., Dunnette, M. D., Kamp, J. D., & McCloy, R. A. (1990). Criterion-related validities of personality constructs and the effect of response distortion on those validities. *Journal of Applied Psychology*, 75(5), 581-595.
- Ibrahim, M. L. (2004). Personality, affect, and behavior in groups. *Journal of Applied Psychology*, 75, 107-116.
- John, O. P., Donahue, E. M., & Kentle, R. L. (1991). *The Big Five Inventory—Versions 4a and 54*. Berkeley, CA: University of California, Berkeley, Institute of Personality and Social Research.
- Judge, T. A., Bono, J. E., Ilies, R., & Gerhardt, M. W. (2002). Personality and leadership: A qualitative and quantitative review. *Journal of Applied Psychology*, 87(4), 765-780.
- Kickul, J., & Neuman, G. (2000). Emergent leadership behaviors: The function of personality and cognitive ability in determining teamwork performance. *Journal of Management*, 26(1), 27-37.
- Koopman, L. (2014). *Individual Academic Performance Questionnaire (IWPQ)*. Unpublished manuscript.
- Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. *Educational and Psychological Measurement*, 30(3), 607-610.
- Llewellyn, D. J., & Wilson, K. M. (2003). The controversial role of personality in entrepreneurial psychology. *Education + Training*, 45(6), 341-345.
- Nadkarni, S., & Hermann, P. (2010). CEO personality, strategic flexibility, and firm performance: The case of the Indian business process outsourcing industry. *Academy of Management Journal*, 53(5), 1050-1073.
- Oakes, D. W., Buckley, M. R., & Broach, D. (2001). Cognitive ability and personality predictors of training program skill acquisition and job performance. *Journal of Business and Psychology*, 15(4), 523-548.
- Raab, G., Stedham, Y., & Neuner, M. (2005). Entrepreneurial potential: An exploratory study of business students in the U.S. and Germany. *Journal of Business and Management*, 11(2), 71-88.
- Salgado, J. F. (2007). The Big Five personality dimensions and counterproductive behaviors. *International Journal of Selection and Assessment*, 10(1-2), 117-125.
- Salgado, J. F. (2008). The Big Five personality dimensions and job performance: A meta-analysis. *Journal of Applied Psychology*, 88(4), 770-786.
- Tett, R. P., Jackson, D. N., & Rothstein, M. (2003). Personality measures as predictors of job performance: A meta-analytic review. *Personnel Psychology*, 44(4), 703-742.
- Vinchur, A. J., Schippmann, J. S., Switzer, F. S., & Roth, P. L. (2008). A meta-analytic review of predictors of job performance for salespeople. *Journal of Applied Psychology*, 83(4), 586-597.
- Weiten, W. (2010). *Psychology: Themes and variations* (8th ed.). Belmont, CA: Wadsworth Cengage Learning.
- Widiger, T. A., & Oltmanns, J. R. (2017). Neuroticism is a fundamental domain of personality with enormous public health implications. *World Psychiatry*, 16(2), 144-145.
- Williamson, J. M. (2017). *Teaching to individual differences in science and engineering librarianship: Adapting library instruction to learning styles and personality characteristics*. Cambridge, MA: Chandos Publishing.
- Wilt, J., & Revelle, W. (2017). Extraversion. In T. A. Widiger (Ed.), *The Oxford handbook of the five factor model* (pp. 57-78). Oxford, UK: Oxford University Press.