

PERSONALITY TRAITS AND SELF-EFFICACY AS CORRELATE OF ACADEMIC PERFORMANCE AMONG SENIOR SECONDARY SCHOOLS IN ATSINA ZONAL OF EDUCATION, KATSINA STATE, NIGERIA

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Abstract

This study examined the relationship between personality traits, self-efficacy, and academic performance among senior secondary school students in Katsina Zonal Education Quality Assurance, Katsina State, Nigeria. Anchored in the Five-Factor Model and Bandura's theory of self-efficacy, this investigation utilized a correlational survey design to determine how specific psychological constructs influence academic achievement, particularly in the subject of Biology. The instruments used were the Big Five Personality Traits Questionnaire (BFPTQ), Self-Efficacy Scale (SES), and academic performance records in Biology. The instruments were validated through expert review, and a pilot study yielded reliability coefficients of 0.81 for the BFPTQ and 0.86 for the SES. Data were analyzed using descriptive and inferential statistics, including Pearson correlation and multiple regression analyses via SPSS version 25. The results revealed significant correlations between self-efficacy, certain personality traits such as conscientiousness and openness, and students' academic performance. The study emphasizes the importance of fostering psychological resilience and positive personality development in students to boost academic success. Based on the findings, recommendations were made for educational policymakers, teachers, and guidance and counselors to recognize and address the psychological needs of learners.

Keywords: Personality Traits, Self-Efficacy, Correlate Academic Performance

Introduction

Students' academic performance plays a vital role in producing the best quality graduates who will become great leaders and manpower for the country's economic development thus, responsible for the growth of country's economic, political and social development. Students' academic performance depends on many factors like personal, social, economic, psychological and academic environmental factors. However, impact from these factors on academic performance can be varying with students' personality and their origin. Among these factors are personality and self-efficacy is significant because positive impacts of other factors are dependent on students' academic performance. For many years, educational researchers and psychologists have been constantly searching for a clear understanding, if there is a real relation between personality traits, self-efficacy and student academic performance. Students' performance in academic settings, to a great extent, is an outcome of personal determinants of individuals. So, it becomes necessary to understand the role of personality traits in gaining desired academic outcomes (Wasantha, 2017).

A personality trait is an attribute of a person, on how he thinks, feel and react to an issue on a regular basis. Personality is the set of thoughts, attitudes and emotional attributes, which bonds to social actions that create influential environment (Dong, et al, 2022). Personality is a significant determinant of life outcomes (Almlund, et al, 2011) and traits of personality can be evaluated while probing the academic performance eventually. It has also been observed that the role of personality traits is very much sway to

the academic performance (Mammadov, 2022). Academic performance is regarded as crucial for job pathways, individual life trajectories and long-term success. It is also regarded as important as a societal effect. Other factors that have been researched into in the past include: child rearing patterns, peer group influence, economic background and learning environment. Another major factor that is believed to be responsible for academic performance in students is their personality traits. Personality has been defined in many ways by many psychologists who wrote on the concept. According to Daminabo (2018) Personality is the sum total of the characteristics that differentiates people or the stability of a person's behaviour across different situations. In other words it means those qualities the individual is noted for. Traits on the other hand are enduring dimensions of personality characteristics which differentiates people from one another (Colman, 2013). Traits are therefore the sum total of stable characteristics in a person across different times and situations, which make him or her unique or distinct from others. This agrees with the definition by Agbakwuru, (2010) which refer to personality traits as consistent differences between the behaviors characteristic of two or more people. It is also defined as "any distinguishable, relatively enduring way in which one individual varies from another" (Agbakwuru, 2010). Therefore, based on the above the present study intends to examine a study on Personality Traits and Self-Efficacy as Correlate of Academic Performance among Senior Secondary Schools in Katsina Zonal of Education, Katsina State, Nigeria.

Personality Traits and Academic Performance

The relationship between personality traits and academic performance has been extensively studied, particularly through the lens of the Five-Factor Model (FFM). Among the Big Five traits, conscientiousness consistently shows the strongest positive correlation with academic achievement, as it reflects diligence, self-discipline, and a goal-oriented approach—all of which are conducive to effective learning (Poropat, 2009). Conversely, traits like neuroticism are negatively associated with performance due to their link with anxiety and emotional instability, which can interfere with concentration and stress management. In addition to direct effects, personality traits influence academic behaviors indirectly by shaping students' learning preferences and coping strategies. For instance, extraverted students may prefer group discussions and collaborative tasks, while introverted ones may excel in solitary, reflective learning environments. Agreeableness can contribute to better peer relations and collaborative learning but may not directly affect academic scores unless the learning environment emphasizes teamwork and cooperation.

Educational psychologists have begun integrating personality assessments into student support programs, suggesting that a better understanding of students' personality profiles can inform teaching methods and academic advising (Mammadov, 2022). Furthermore, longitudinal studies suggest that the impact of personality traits on academic success persists beyond formal education, influencing lifelong learning, career progression, and adaptability (Zhou et al., 2023).

Self-efficacy is a psychological construct that reflects an individual's belief in their capacity to execute behaviors necessary to produce specific performance attainments (Bandura, 1997). It plays a critical role in determining how people think, feel, and act. High self-efficacy is associated with increased motivation, persistence, and resilience in the face of challenges, while low self-efficacy can lead to avoidance behaviors, low aspirations, and emotional distress. According to Bandura's social cognitive theory, self-efficacy influences goal-setting, effort investment, and perseverance during difficult tasks. In educational contexts, self-efficacy has emerged as a key determinant of academic success. Students with high academic self-efficacy tend to set challenging goals, use effective learning strategies, and display greater academic persistence (Usher & Pajares, 2009). This belief in one's capabilities also affects emotional responses such as anxiety and stress, especially during testing or performance evaluations. Recent findings suggest that interventions aimed at improving students' self-efficacy can significantly boost their academic performance and general well-being (Zhen et al., 2022).

Statement of the Problem

Academic performance remains a persistent concern among students, educators, policymakers, and the broader society, especially in the Nigerian education system where public interest in science education continues to grow. Despite investments in teaching resources, school infrastructure, and reforms in educational policy, many students still struggle to attain academic success, particularly in science subjects like Biology. Recent WAEC reports from 2017 through 2023 indicate that the majority of secondary school students in Katsina State do not meet the expected benchmark of academic proficiency in Biology, with failure rates often exceeding 50% (WAEC, 2023). This troubling pattern has raised questions about the underlying psychological and individual differences that might be contributing to academic outcomes beyond traditional explanatory factors such as curriculum, pedagogy, or school environment.

Research suggests that personality traits and students' beliefs in their own academic capabilities referred to as self-efficacy may significantly affect how students approach learning tasks, respond to academic challenges, and ultimately perform in school (Bandura, 1997; Vedel, 2015). Personality traits, conceptualized under the Five-Factor Model comprising extraversion, agreeableness, conscientiousness, neuroticism, and openness to experience—have been shown to influence students' motivation, emotional regulation, persistence, and study habits (McCrae & Costa, 1992; Dong et al., 2022). Likewise, students with high self-efficacy are more likely to set challenging goals, persist in the face of academic difficulties, and experience lower levels of test anxiety compared to students with low self-efficacy (Yokoyama, 2019; Jhoselle, 2020).

Therefore, this study seeks to bridge the gap in the literature by exploring how students' personality traits and their self-efficacy beliefs relate to academic performance in Biology. The research is designed to determine whether specific personality dimensions and levels of self-efficacy can predict students' academic outcomes and whether these psychological characteristics differ among high-achieving and low-achieving students.

Objectives of the Study

The main objective of this study is to:

1. To investigate the relationship between self-efficacy and academic performance in Biology among senior secondary school students in Katsina Zonal Education Quality Assurance, Katsina state, Nigeria.
2. To find out the relationship among personality traits (Extroversion, Agreeableness, Conscientiousness, Neuroticism and Openness to experience), self-efficacy and academic performance in Biology among senior secondary school students in Katsina Zonal Education Quality Assurance, Katsina state, Nigeria.

Research Questions

The study was guided by the following research questions:

1. What is the relationship among personality traits (Extroversion, Agreeableness, Conscientiousness, Neuroticism and Openness to experience), self-efficacy and academic performance in Biology among senior secondary school students in Katsina Zonal Education Quality Assurance, Katsina state, Nigeria?
2. What is the relationship between self-efficacy and academic performance in Biology among senior secondary school students in Katsina Zonal Education Quality Assurance, Katsina state, Nigeria?

Research Hypotheses

The study tested the following hypotheses at a 0.05 level of significance:

H₀₁:- There is no significant relationship among personality traits (Extroversion, Agreeableness, Conscientiousness, Neuroticism and Openness to experience), self-efficacy and academic performance in Biology among senior secondary school students in Katsina Zonal Education Quality Assurance, Katsina

state, Nigeria.

H02:- There is no significant relationship between self-efficacy and academic performance in Biology among senior secondary school students in Katsina Zonal Education Quality Assurance, Katsina state, Nigeria.

Methodology

This study adopted a correlational survey research design. The population comprised all SS II students in public senior secondary schools within Katsina Zonal Education Quality Assurance. A sample of 300 students was selected using stratified random sampling across schools in Katsina, Jibia, and Kaita LGAs. The instruments used were the Big Five Personality Traits Questionnaire (BFPTQ), Self-Efficacy Scale (SES), and academic performance records in Biology. The instruments were validated through expert review, and a pilot study yielded reliability coefficients of 0.81 for the BFPTQ and 0.86 for the SES.

Data were analyzed using descriptive and inferential statistics, including Pearson correlation and multiple regression analyses via SPSS version 25. Ethical approval was obtained from school authorities, and informed consent was secured from participants, ensuring confidentiality and voluntary participation.

Results

Research Question One: What is the relationship among personality traits (Extroversion, Agreeableness, Conscientiousness, Neuroticism and Openness to experience), self-efficacy and academic performance in Biology?

Table 1: Mean Responses on Personality Traits and Academic Performance (N = 349)

S/N	Personality Trait Items (BFPTQ)	SA	A	D	SD	Mean	Std. Dev
1	I am the life of the party (Extroversion)	100	120	80	49	2.98	0.96
2	I sympathize with others' feelings (Agreeableness)	112	130	75	32	3.12	0.89
3	I am always prepared (Conscientiousness)	128	140	52	29	3.28	0.85
4	I get stressed out easily (Neuroticism)	60	102	110	77	2.31	1.01
5	I have a vivid imagination (Openness to experience)	110	132	70	37	3.08	0.91

Students demonstrated high scores on conscientiousness and agreeableness traits (Mean \approx 3.28 and 3.12), and moderate levels on extroversion and openness. Neuroticism, however, had a relatively low mean (2.31), implying lower emotional instability among students. These results support the hypothesis that personality traits - especially conscientiousness—positively correlate with academic achievement in Biology.

Research Question Two: What is the relationship between self-efficacy and academic performance in Biology among senior secondary school students in Katsina Zonal Education Quality Assurance, Katsina state, Nigeria?

Table 2: Mean Responses on Self-Efficacy and Academic Performance

S/N	Self-Efficacy Items (SSEQ)	SA	A	D	SD	Mean	Std. Dev
1	I can always manage to solve difficult problems in Biology	108	135	66	40	3.09	0.90
2	If I try hard enough, I can succeed in Biology classes	122	140	52	35	3.26	0.84
3	I am confident in mastering Biology topics	115	138	60	36	3.23	0.86
4	Even when things are tough, I can perform well in Biology	100	130	78	41	3.01	0.95
5	I believe I can learn Biology independently	104	132	70	43	3.06	0.92

The average mean score across self-efficacy items is approximately 3.13, indicating that students generally have a strong belief in their ability to perform Biology-related tasks. This supports the rejection of

Hypothesis 2 and confirms that self-efficacy is positively related to academic achievement in Biology.

Testing of Hypotheses

HO1:- There is no significant correlation among Personality Traits (Extroversion, Agreeableness, Conscientiousness, Neuroticism and Openness to Experience), Self-Efficacy and Academic Performance in Biology among Senior Secondary School Students in Katsina Zonal Education Quality Assurance, Katsina state, Nigeria.

Table 3: Multiple Regression Analysis of Personality traits (Extroversion, Agreeableness, Conscientiousness, Neuroticism and Openness to Experience), Self-Efficacy and Students' Academic Performance in Biology

Model	R	R Square	Adjusted R Square	Standard Error	
1	0.328 ^a	0.108	0.093	5.242	
Analysis of Variance					
Model	Sum of Square	Df	Mean Square	F	S
Regression	1227.013	6	204.502	7.441	.000 ^b
Residual	10168.536	370	27.483		
Total	11395.549	376			

The analysis on table 3 revealed that there is significant influence of predictor variables (Extraversion, Agreeableness, Conscientiousness, Neuroticism, Openness to Experience and Self-Efficacy), since the multiple R coefficient indicated 0.328, $P < 0.05$, while the R^2 coefficient was 0.108. The 10.8% ($R^2 = 0.108$) observed variance in Students' Academic Performance among secondary school students in Katsina Zonal Education Quality Assurance was attributed to the joint effect of Extraversion, Agreeableness, Conscientiousness, Neuroticism, Openness to Experience and Self-Efficacy while the remaining 89.2% of the regression of the unexplained variance was due to other factors not considered in the regression model. The table indicated the F-calculated value as ($F = 7.441$; $p < 0.05$), hence the hypothesis was rejected. By implication Extraversion, Agreeableness, Conscientiousness, Neuroticism, Openness to experience and Self-Efficacy significantly correlates Students' Academic Performance among Senior Secondary School Students in Katsina Zonal Education Quality Assurance. This implies that Extraversion, Agreeableness, Conscientiousness, Neuroticism, Openness to experience and Self-Efficacy significantly influence Students' Academic Performance among Senior Secondary School Students in Katsina Zonal Education Quality Assurance, Katsina state.

HO2:- There is no significant relationship between Self-Efficacy and Academic Performance in Biology among Senior Secondary School Students in Katsina Zonal Education Quality Assurance, Katsina state, Nigeria.

Table 4: PPMC Showing the Relationship between Self-Efficacy and Students' Academic Performance in Biology

Variable	N	Mean	S.D	Df	r-value	p-value	Decision
Self-efficacy	377	57.32	7.944	375	0.185**	0.000	Sig.
Students' Academic Performance	377	10.24	5.505				

**Correlation not significant at 0.05 level (2-tailed)

The result on table 4 shows that there is significant relationship between Self-Efficacy and Academic Performance in Biology among Senior Secondary School Students in Katsina Zonal Education Quality Assurance; this indicates that r -value of 0.185 and p -value 0.000 is less than 0.05 significant alpha level at 375 degree of freedom. Therefore, hypothesis seven is hereby rejected, because there is significant relationship between Self-Efficacy and Academic Performance in Biology among Senior Secondary

School Students in Katsina Zonal Education Quality Assurance. Therefore, it is concluded from this result that Self-Efficacy was significantly found to have a positive relationship with Students' Biology Academic Performance.

Recommendations

Based on the findings, the following recommendations are made:

1. Schools should introduce routine assessments of personality traits and self-efficacy to help tailor academic and psychological interventions for students.
2. Guidance counselors should organize regular workshops that build academic self-confidence and help students develop adaptive personality traits.
3. Teachers should be trained to recognize personality differences and use differentiated instructional strategies that support various learner types.

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