

Openness as Correlate of Academic Achievement: A Case of Senior School Students in North Central Nigeria

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Abstract. In this study, openness as correlate of academic achievement: a case of senior school students in north central Nigeria was investigated. The study is guided by one research question, and one hypothesis formulated and tested. Three research instruments, namely, Big Five Personality Inventory (BFI), Mathematics Achievement Test (MAT) and English Language Achievement Test (ELAT) were used for data collection. The BFI, MAT and ELAT were administered to 1061 students drawn from schools across North-Central States of Nigeria. The collected data were analyzed using Pearson product moment correlation to answer research question on the basis of the values of r (coefficient of correlation). Correlation coefficient of a value below 0.50 was considered low while any above 0.50 was considered high. The formulated hypothesis was tested at 0.05 level of significance by comparing the p -value (probability values) of Pearson's product moment correlation obtained from SPSS application with the significance level at 0.05. Findings reveal that there is a significant relationship between personality trait of openness and academic achievement of senior secondary school students in north central Nigeria. Based on the findings, the study recommends that schools should encourage activities that foster creativity, curiosity, and a willingness to explore new ideas, such as project-based learning, debates, and research-oriented tasks.

Keywords: Openness, Academic performance, Students, Senior secondary, School.

Introduction

Openness is shorthand for "openness to experience." People who are high in openness enjoy adventure. They're curious and appreciate art, imagination and new things. The motto of the open individual might be "Variety is the spice of life." People low in openness are just the opposite: They prefer to stick to their habits, avoid new experiences and probably aren't the most adventurous eaters. Changing personality is usually considered a tough process, but openness is a personality trait that's been shown to be subject to change in adulthood. The motto of people high in openness might

be “Variety is spice of life” People low in openness is just the opposite: People who are high in this trait tend to be more creative. While those low in this trait are often much more traditional and may struggle with abstract thinking.

Manning et al [1] opined that openness is about a person’s openness to new experience and it is manifested in such things as an individual’s breadth of interests, level of creativity and intellectual qualities. Whereas, Harris [2], stated that openness to experience or creativity characterized the personal activities such as being imaginative, original and curious. Then, individuals who have a low level openness tend to stick to their routine, stay away from new experiences and adventure.

Academic achievement represents the performance outcomes that indicate the extent to which a person has accomplished specific goals that were the focus of activities in instructional environments, specifically in school, college and university. School systems mostly define cognitive goals that either apply across multiple subject areas (e.g., critical thinking) or include the acquisition of knowledge and understanding in a specific intellectual domain (e.g., numeracy, literacy, science, history) [3]. Therefore, academic achievement should be considered to be a multifaceted construct that comprises different domains of learning. Academic achievement is very wide-ranging and covers a broad variety of educational outcomes.

Many studies have been conducted on relation between academic performance and personality trait of openness [4-10]. According to De Fruyt and Mervielde [11], students’ achievement is highly related to personality traits of openness. Kareem [12] investigated the relationship between the personality trait of openness and the academic achievement of senior secondary school students in Kano State, Nigeria. The study found that there was a significant positive correlation between the personality trait of openness and students’ academic achievement in science subjects. Students with higher levels of openness demonstrated better problem-solving abilities and critical thinking skills, which contributed to improved academic performance.

Furthermore, the relationship between academic performance and openness may vary because of variety of tools used for measuring academic performance internationally [9]. It is on this basis that this study investigates openness as correlate of academic achievement: a case of senior school students in north central Nigeria.

Research Question

The following research question guided the study.

1. What is the relationship between personality trait of openness and academic achievement of senior secondary school students of North Central Zone of Nigeria?

Formulated Hypothesis

The following hypothesis guided the study and was formulated and tested at 0.05 level of significance.

1. There is no significant relationship between personality trait of openness and academic achievement of senior secondary school Students in North Central Zone of Nigeria.

Theoretical Framework

The study is based on Allport's Gordon trait Theory of Personality. Allport believed that a person's personality was determined at birth. He hypothesized that an individual's experiences and environment played a role in shaping their personality. According to Allport, an individual's personality is influenced by their childhood experiences, present environment, and the interaction between the two concepts. His theory focused on how each person was different from the next due to their salient personality components. A person's personality traits would make up their motivation and actions. Allport would later refer to personality traits as personality dispositions.

According to trait theorists, like Gordon Allport, your personality is made up of the traits you possess. A trait is a personal characteristic we have which stays generally the same overtime and is resistant to changing.

The Allport's Gordon trait Theory of personality is relevant to the study because it would assist in identifying different traits among our students which will make us use different approaches. Allport's theory make us understanding the reasons why certain learners attain low academic achievement based on the characteristics they possess. This theory helps us to know how to develop or shape students' personality.

Materials and Method

Correlation research design was used in this study. Correlation research design establishes relationships or association between two or more variables. It establishes the direction and magnitude of relationships or association between and among variables [13]. Data were collected using a structured questionnaires titled Big Five Personality Inventory (BFI), Mathematics Achievement Test (MAT) and English Language Achievement Test (ELAT). The BFI, MAT and ELAT were administered to 1061 students drawn from schools across North-Central States of Nigeria,

namely, Benue, Plateau, Nasarawa and FCT, using simple random sampling technique of lucky dip. Additionally, to answer the research question, the Pearson product moment correlation was used on the basis of the values of r (coefficient of correlation). A correlation coefficient value below 0.50 was considered low while any above 0.50 was considered high. The hypothesis was however tested at 0.05 level of significance by comparing the p -value (probability values) of Pearson's product moment correlation obtained from SPSS application with the significance level at 0.05. Hypothesis with p -value is less than 0.05, is rejected or accepted when it is greater than 0.05.

Results and Discussion

Research Question: What is the relationship between Personality trait of Openness and academic achievement of senior secondary school students in North Central Zone, Nigeria?

Table 1. Correlation between Personality trait of Openness and academic achievement of senior secondary school students in North Central Zone, Nigeria.

Variables	N	$\bar{X}$	Std.D	Df	r	Remark
Openness	1,061	3.12	1.78	1,059	0.524	Positive correlation
Achievement	1,061	58.70	7.66			

Table 1 shows the correlation between Personality trait of Openness and academic achievement of senior secondary school students in North Central Zone, Nigeria. The result revealed responses from 1,061 respondents with a degree of freedom (df) of 1,059. The mean scores for Openness and academic achievement are 3.12 and 58.70, with a corresponding standard deviation of 1.78 and 7.66, respectively. The correlation coefficient (r) is 0.524, which exceeds the benchmark value of 0.50. This implies that there is a significant positive relationship between Personality trait of Openness and academic achievement of senior secondary school students in North Central Zone, Nigeria.

Hypothesis: There is no significant relationship between personality trait of openness and academic achievement of senior secondary school Students in North Central Zone of Nigeria.

Table 2. Correlation between personality trait of openness and academic achievement of senior secondary school Students in North Central Zone of Nigeria.

Variables	N	$\bar{X}$	Std.D	Df	R	r^2	P-value	Decision
Openness	1,061	3.12	1.78	1,059	0.524	0.274	0.012	Reject
Achievement	1,061	58.70	7.66					

Level of significance Alpha (α) < 0.05 shows significant relationship

Table 2 shows the relationship between personality trait of openness and academic achievement of senior secondary school students in North Central Zone, Nigeria. The result revealed a correlation coefficient of $r = 0.524$, $r^2 = 0.274$, and a p-value of 0.012, which is less than the 0.05 level of significance. Therefore, the hypothesis is rejected. This implies that there is a significant relationship between personality trait of openness and academic achievement of senior secondary school students in North Central Zone, Nigeria.

Discussion of Findings

The finding from hypothesis one revealed that there is a significant positive relationship between the personality trait of openness and academic achievement of senior secondary school students in North Central Zone of Nigeria. The finding is in line with Adeyemi [14], whose findings indicated that: openness positively influences students' academic achievement in mathematics; it also shows that there was a significant relationship between students' openness scores and their problem-solving abilities in mathematics; and students with high openness levels exhibited better adaptability and critical thinking skills, leading to improved performance. This is supported by Johnson [15], whose findings revealed a significant positive correlation between openness and English achievement, indicating that students with higher openness scores performed better in English. Also, it was found that openness was a strong predictor of academic success, explaining a considerable proportion of the variance in students' academic performance.

Conclusion

The study concludes that personality trait of openness positively influenced academic performance of senior secondary school students of North Central states of Nigeria. Overall, the finding of the study posits that, students' openness spur commitments that bring about all round academic success.

Evidently, a positive personality trait and cultivating interest in core subjects, enhance academic achievement among students in the North Central states of Nigeria. Based on the findings of this study, it was therefore recommended among others that schools should encourage activities that foster creativity, curiosity, and a willingness to explore new ideas, such as project-based learning, debates, and research-oriented tasks. Additionally, schools and teachers should help students develop strong organizational skills, time management techniques, and self-discipline to improve academic performance.

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