

Extroversion-Introversion and Subject Preference as Factors of Academic Performance among Secondary School Students in FCT, Abuja

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Abstract: This study is in the influence of extroversion-introversion and subject preference in the academic performance of secondary school students. It is a departure from traditional pattern where academic performance has been typically associated with intelligence rather than personality or subject preference. The specific objectives of this study include to find out possible differences in the subject preferences and academic performance of secondary school students who manifest different types of personality traits and to examine the possible differences in the subject preferences and academic performance of the two personalities along gender lines. Two research questions and six null hypotheses were formulated. The study sampled secondary school students in Nigeria using the descriptive survey design. The total population for this study is 14,189 students and the sample for this study was 375. Three different instruments were used for this study to assess personality, subject preference and academic performance of students. Psychometric properties of the instruments were determined and reliability coefficients of 0.74 and 0.78 were obtained for the SPQ and SSPI respectively. Mean scores, frequency counts, percentages and t-test statistics were used in the analysis of data that were collected. This study found significance of difference between subject preferences between students showing extroverted and introverted traits as well as significant difference between the academic performances of students due to personality type. In view of this result, it is recommended that personality-based guidance of students on their vocational choices be made a priority. Teachers and parents should also be encouraged not to see a particular personality type as being academically inferior to other.

Keywords: Personality, Subject Preference, Academic Performance, Extroversion-Introversion.

1. INTRODUCTION

There has been a growing interest in predicting academic performance by educational psychologists since the time that the development of psychometric instruments began from the work of Binet (1908) to Willingham (1974) and even to this day. Psychologists therefore, have been interested in the concept of individual differences, in persons of all age groups as it relates to their growth and development, learning styles, personality types etc.

Tharp (1992) noted that most teachers begin their teaching careers with the idealistic notion that they can stimulate all their students to love their subjects and to learn a lot. But after a year of teaching, their idealism fail when they realized that some students, for reasons unknown, have great difficulty understanding the subject matter presented in their subjects. This inability to reach all students causes much frustration and soul searching as to the cause of student's failure.

This problem has led educationists to careful reexamination of other factors other than intelligence that might predict academic performance. Hence the explosion in research into the role of personality types in academic performance.

Although there is longstanding empirical evidence indicating that both personality and intelligence are important predictors of academic performance, intelligence seem to be the most recognized and appreciated factor. According to Tomas and Furnham (2003), academic performance has been typically associated with intelligence rather than personality. The fact that intelligence has gained such prominence over time may be related to the ease of measurement as both educational institutions and recruitment agencies typically use test scores as an indicator of academic performance.

Subject preference has also been identified as a major factor of academic performance. It has been noticed that traits other than intelligence may determine students' choice in specific subject areas. A varied list of predictors of specialty choice has been studied, including demographic and socioeconomic factors, academic achievement, medical school curricula, and lifestyle plans (Kassebaum, Szenas & Schuchert, 1996).

Stereotypical personality characteristics are frequently used to portray members of different occupational groups. For instance, Business persons are considered entrepreneurial; artists- creative and spontaneous; lawyers- logical and convincing; nurses- as a caring helper; physicians- as bright and knowledgeable (Rovelzzi-Carrol & Leavitt, 1984). Every career thus, have their subject combination requirements, personality characteristics and personal abilities which are supposed to be fully assessed before individuals can be deemed to be qualified to go into specific careers. Holland (1981) contended that people are most productive when there is a 'good fit' between their personality types and their career.

Personality is known to comprise salient individual differences which influence performance, intelligence (what a person can do) through specific abilities which facilitate understanding and learning, personality (how a person will do it) through certain traits which enhance or handicap the use of these abilities. According to Tharp (1992), one possibility is that an individual's personality type can increase a student's ability to succeed in one area of the study but push them toward failure in a different academic area.

2. STATEMENT OF THE PROBLEM

The period during and just before going to Senior Secondary school in the Nigerian educational system is marked by important career-selecting decisions whose implications are quite far-reaching. The student at this paramount junction is his intellectual pursuit is required to choose a path of study that should lead eventually to a satisfying career.

Students, when confronted with this crossroad, turn to friends, family, teachers and guidance counselors. The majority tend to look outside for unprofessional counsel that does not take into cognizance the important factors that determine individual differences such as ones personality type. In most cases only the factor of intelligence is considered. As a matter of fact some of the decisions are imposed by parents who desire to have a 'medical doctor', 'lawyer' or 'engineer' in the family. Many students at this level become victims of poor vocational decisions because of unrealistic vocational aspirations. Some students select occupations mainly because of the salaries, position, glamour and prestige attached to them.

Students are supposed to enroll in programmes based upon perceptions of 'good fit' between their personality type and their perceived ability to be successful in the programme. This is because there seem to be sufficient evidence to proof that personality type factors among other factors play significant role in the determination of the level of success in the future performance in occupations along chosen career paths, adequate personality-based career education is never provided.

When students make uninformed choices of career paths, they end in a situation where they struggle unsuccessfully with a course that their personality make-ups cannot accommodate. The resultant effect is that round pegs are kept in square holes.

Therefore a survey of students' subject preference is desired in this study as well as their personality type preference. The study further observed to see the difference between the academic performances of students in relation to their personality type and subject preferences.

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3. SIGNIFICANCE OF THE STUDY

This research work is of strategic importance because it provides empirical data that can improve our understanding of the relationship between personality, subject preference and career path choices. Understanding the role personality plays in a career decision making process will aid educators to assist students in determining what is best for them. This study will de-emphasize the current preoccupation with intelligence as measures of ability and recommend based on research evidence that different personalities tend to have different subject preferences. A study of this kind will also help students to appreciate their personality characteristics thus reducing the incidence of loss of self-esteem which is critical to overall performance and efficiency later on in life.

The general purpose of the study is to investigate students' personality dimensions (introversion-extroversion) as it affects their subject preferences and academic performances. The specific objectives of this study are to:-

1. Find out possible differences in the subject preferences and academic performance of secondary school students who manifest different types of personality traits.
2. Examine the possible differences in the subject preferences and academic performance of two personality types along gender lines.

In harmony the stated objectives of this study, research questions and null hypotheses were also postulated thus:

Research Question One: What are the differences among respondents in terms of academic performance and subject preference between extroverts and introverts?

Research Question Two: What are the differences in terms of academic performance and subject preference between male and female extroverts?

H₀₁: There is no significant difference between the subject preferences of secondary school students who are extrovert and introverts.

H₀₂: There is no significant difference between the academic performances of extrovert and introvert secondary school students.

H₀₃: There is no significant difference between the academic performance of male and female extroverts.

H₀₄: There is no significant difference between the subject preferences of male and female extroverts.

H₀₅: There is no significant difference between the academic performance of male and female introverts.

H₀₆: There is no significant difference between subject preferences of male and female introverts.

4. THEORETICAL FRAMEWORK

One of the outstanding theories is that of Carl. G. Jung. Carl. Jung, a Swiss Psychiatrist attempted a classification of human beings on two behavioural categories- extroversion and introversion. Chauhan (2002) identified the characteristics of these two types of personality as follows and this study has adopted Jungian theory in identifying personality characteristics of the respondents.

1. Introvert: A person who tends to withdraw into his/herself especially, when faced with emotional conflicts and stress in his/her environment. Introvert individual is shy, avoids people and enjoys to be alone etc.
2. Extrovert: In contrast to the introvert type, extrovert person's orientation is towards the external world. He/she deals with people intelligently in social situations. He is conventional, outgoing, social, friendly and free from worries and seeks the company of others etc.

5. PREVIOUS STUDIES

Fred (1985) investigated the relationship between personality characteristics and vocational choice using Holland's theory. The result from the study shows that:70% of the subjects had personality types that were congruent with their career choice. It was also established that the relationship between career choice and sex membership was not significant.

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The interest or subject preference of students has been a subject of many studies. Hotchkiss & Borow (1990); Mitchell & Krumboltz (1990), noted that career development appears to be strongly influenced by social factors like discriminations, societal attitudes, cultural expectations and stereotyping. In Nigeria, Egwuchukwu (1997) investigated the correlates of job aspirations of senior secondary school students in Anambra State. The results showed that: Students aspired most to Medicine, Accounting, Law, Pharmacy and Engineering in descending order of preference and also that students aspired least to Artistry, Architecture and Soldering in descending order of preference.

6. METHODOLOGY

Research Design:

The design for this study is a descriptive survey design in which a structured questionnaire was used to collect the required information. Nworgu (1991) said that the survey research is better with studies that strive to improve the lot of a given population.

Population and Study Sample:

The total population for this study is 14,189 students of Senior Secondary Schools. This comprises the number of students in 57 Senior Secondary Schools in Abuja Municipal Area Council of the FCT. The diverse attributes of the population of Abuja, where people of different ethnic backgrounds, socioeconomic status, professions and level of education are represented, ensured that this research covered a wide spectrum.

The sample for this study was 375 using Krejcie and Morgan (1970) which specified the appropriate sample size for specific populations. This sample was randomly assigned to the 17 schools in the Abuja Municipal Area Council of the FCT to give opportunity to every member of the population to be selected without the researcher's influence.

Instrumentation:

Three different instruments were used for this study. The first instrument titled, The Students' Personality Questionnaire (SPQ) was adapted from the Adolescent Personality Identification Scale by Abubakar 2007) which is used in identifying personality type dimensions of adolescents. The SPQ is a 30-item instrument structured along a four-point likert scale. Responses were scored using 4,3,2,1 for positive items and 1,2,3,4 for negative items. The responses were set out as strongly agree, agree, disagree and strongly disagree.

The second instrument is the Junior Secondary School Certificate Examinations results. It is student's academic reports for English Language, Mathematics, Integrated Science and Social Studies.

The School Subject Preference Indicator (SSPI) is a 20-item indicator designed to elicit information on student's subject preferences. Questions were structured along a four-point likert scale. The responses were set out as very much, much, little, very little were scored using 4,3,2,1 respectively.

The Students Personality Questionnaire, (SPQ) and the School Subject Preference Indicator (SSPI) were adjudged to be valid after subjecting the instrument to the scrutiny of experts in the field for face and content validation. The instruments were further subjected to pilot study using the split-half method to determine the reliability of the instrument. A reliability coefficient of 0.74 and 0.78 were obtained for the SPQ and SSPI respectively. The Junior School Certificate Examination is a standardized test as far as content coverage, syllabus and grading system is concerned. It is therefore judged as reliable.

Both descriptive (mean, frequency counts and percentages) and inferential statistics (t-test) were used in the analysis of data that were collected.

7. RESULTS

Research Question One: What are the differences among respondents in terms of academic performance and subject preference between extroverts and introverts?

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Table 1: Descriptive Statistics of Students' Subject Preferences, Academic Performance and Personality Types

Personality	Subject Pref.			Academic Performance		
	N	Mean	SD	N	Mean	SD
Extroverts	200	3.42	4.20	200	18.00	0.70
Introverts	175	2.86	5.00	175	14.00	0.80

Results on Table 1 indicated that the extroverts had the highest mean score of 18.00 in academic performance and 3.42 in subject preference with standard deviation of 4.20 and 0.70 respectively. On the other hand, the introverts recorded mean scores of 2.86 in subject preference and 14.00 in academic performance with standard deviations of 0.80 and 5.00 respectively.

Research Question Two: What are the differences in terms of academic performance and subject preference between male and female extroverts?

Table 2: Descriptive Statistics of Students' Subject Preferences and Academic Performance in terms of Gender and Personality Types

Personality	Male						Female					
	Subject Pref.			Academic Performance			Subject Pref.			Academic Performance		
	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD
Extroverts	120	3.64	1.20	120	18.20	3.00	80	3.20	1.40	80	17.80	2.60
Introverts	75	3.02	1.02	75	14.50	2.20	100	2.70	1.50	100	13.50	2.00

Results on Table 2 indicated that male extroverts recorded a mean score of 3.64 for subject preference and 18.20 for academic performance with standard deviations of 1.20 and 3.00 respectively. On their own parts, the female extroverts recorded a mean score of 3.20 for subject preference and 17.80 for academic performance with standard deviations of 1.40 and 2.60 respectively.

Testing of Hypotheses:

Six hypotheses were generated and tested at 0.05 level of significance as follows:

Null Hypothesis One: There is no significant difference between the subject preferences of secondary school students who are extrovert and introverts.

Table 3: t-Tests Result In Respect of Introvert and Extroverts' Responses on Subject Preferences

Personality	N	Mean	SD	df	t-cal.	Sig. (2-tailed)	Decision
Extroverts	200	3.42	0.70	373	10.00	0.000	Rejected
Introverts	175	2.86	0.80				

Result on Table 3 showed that there was significant difference between the responses of extroverts and introverts on subject preferences. As a result, the first hypothesis was rejected. In other words, the personality type of the respondents did affect students' subject preferences.

Null Hypothesis Two: There is no significant difference between the academic performances of extrovert and introvert secondary school students.

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Table 4: t-Test Result In Respect of Mean Performances of Extrovert and Introverts

Personality	N	Mean	SD	df	t-cal.	Sig. (Two-tailed)	Decision
Extroverts	200	18.00	4.20	373	12.00	0.0000	Rejected
Introverts	175	14.00	5.00				

Table 4 shows the result of analysis for hypothesis two. It indicated that there was significant difference as regards the performances of extroverts and introverts. The hypothesis was therefore rejected in the light of present result. However, a closer examination of their mean scores revealed that the extroverts performed higher than the introverts.

Null Hypothesis Three: There is no significant difference between the academic performance of male and female extroverts.

Table 5: t-Test Result In Respect of Mean Performance of Male and Female Extroverts

Gender	N	Mean	SD	df	t-cal.	Sig. (2-tailed)	Decision
Male	120	18.20	3.00	198	1.42	0.6213	Accepted
Female	80	17.80	2.66				

Results on Table 5 revealed that there was no significant difference between the mean performance of male and female extroverts. Hence the third hypothesis becomes acceptable. It does appear therefore that the respondents' gender do not influence their performance.

Null Hypothesis Four: There is no significant difference between the subject preferences of male and female extroverts.

Table 6: t-Test Result In Respect of Male and Female Extroverts' Responses on Subject Preferences

Gender	N	Mean	SD	df	Sig. (2-tailed)	Decision
Male	120	3.64	1.20	198	0.0000	Rejected
Female	80	3.20	1.40			

Results on Table 6 showed that there was significant difference between in the subject preferences of male and female extroverts. In the light of this result, the fourth hypothesis was rejected. In other words, the subject preferences of male and female extroverts were not the same.

Null Hypothesis Five: There is no significant difference between the academic performance of male and female introverts.

Table 7: t-Test Result In Respect of Mean Performance of Male and Female Introverts

Gender	N	Mean	SD	df	t-cal.	Sig. (2-tailed)	Decision
Male	75	14.50	2.20	173	3.00	0.0000	Rejected
Female	100	13.50	2.00				

The t-test value for all items was obtained as shown in Table 7. Result displayed on the table showed that there was significant difference between the mean performances of male and female introverts. The null hypothesis was therefore rejected based on these results. It then implies that the mean performances of male and female introverts differed significantly.

Null Hypothesis Six: There is no significant difference between subject preferences of male and female introverts.

Table 8: t-Test Result In Respect of Male and Female Introverts' Responses on Subject Preferences

Gender	N	Mean	SD	df	t-cal.	Sig. (2-tailed)	Decision
Male	75	3.02	1.02	173	2.68	0.0003	Rejected
Female	100	2.70	1.50				

Results of the analysis shown on Table 8 indicated that there was significant difference in the subject preferences of male and female introverts. It then implies that the subject preferences of the introverts did differ as a result of gender.

8. DISCUSSION

This study has made significant findings with regards to the variables under study. In the first hypothesis, which sets out to test the significance of difference between subject preferences between students showing extroverted and introverted traits, it was found that there was significant difference between the two groups. This is a clear indication that the personality type of students of FCT secondary school tend to affect their subject preference. This finding agrees with Holland (1981) who held the view that the choice of a career is an expression of personality. Odeleye (1985) went further to say that extroverts significantly choose more person-oriented activities than introverts while introverts choose more task-oriented activities than extroverts. Garden (1997) studied MBTI profiles and career paths of software workers and found support for the notion that S-N and J-P dichotomies are relevant to the choice of starting one's own company, with both Ns and Ps significantly choosing this route relative to Ss and Js. In contrast, Es, Ss, Ts, and Js chose a managerial career path more often than Is, Ns, Fs, and Ps did.

However Hurley (2002) differed from the finding in this study when it was observed in a study to identify any differences between art and business majors' personality type, and whether or not personality type correlated with their choice of major arrived at results which suggests that there are no differences in levels of Type A between students who are decided art majors, and those who are declared business majors.

The second hypothesis also found that there was significant difference between the academic performances of students due to personality type difference. These differences were also found in a later study of 906 students, and the authors (Schuir and Puble, 1988) as reported by Tharp (1992) concluded that the J-P scale is indicative of the personality characteristics that are most uniquely associated with college instructors' evaluation of achievement. Also reported by Tharp (1992) were the findings of Melear (1990) who gave the MBTI to 673 non major undergraduate students in an introductory Biology course that used a structured learning environment with defined goals and deadlines.

The findings of Durosaro (1993) who investigated the relationship between students' academic performance and the introversion-extroversion dimension of their personality revealed however that there were no significant correlations between the two variables.

A close examination of their mean scores in this study revealed that the extroverts performed higher than the introverts. This finding differs from Entwistle (1972) found out in America among adults that as far as academic performance is concerned the introvert is superior. He concluded that though this might appear to be an over-generalisation but it remains a powerful prediction at least relatively.

On the gender-related hypotheses it has been found in all cases except one that there was significant difference between male and female subject preferences as well as academic performances whether amongst introverts or extroverts. While it is often perceived that people select a job on the basis of experiences or exposures to the world of work it is possible to relate people's preferences of subjects (which become a determining factor for their careers) to their personality type. Studies have shown that gender plays an important role in career choices. Male and female career choices are normally different because of the difference in their self-concepts. Studies (Adams and Walkerdine, 1986; Best, 1983; and Spender, 1982) showed that girls tended to opt for a very narrow range of stereotypically feminine occupations. Similarly, Tomlinson and Evans (1991) found that male students scored significantly higher than female students on the realistic and investigative scales of the Strong-Campbell Interest Inventory. On the other hand, female students prefer social, artistic, and conventional types of occupations. The findings of the study suggested that the career interest patterns of university students vary across gender.

The finding of this study on gender influences on academic performance is quite consistent with that of Tomlinson and Evans (1991). They found that male college students scored significantly higher than female college students on Strong-Campbell Interest Inventory. However a study by Rahim (1995) showed that CGPA of female and male students did not differ significantly. Studies on the academic performance at the secondary level also showed that their academic performance did not differ significantly (Rahim, 1995, 2000). This may be explained on the basis of the contemporary

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drive to make women compete favourable in a world largely dominated by men. Girls are being encouraged and sensitized into developing positive attitudes towards science.

9. CONCLUSION

In recent years, studies have shown that introversion-extroversion have assumed the status of being one of the mostly used variables as far as the concept of personality is concerned. In other words, researchers as well as practitioners have begun to reckon with the need to consider the individual's personality before assigning him on a job or function was emphasized. It is thus likely that the prediction of academic performance (and maybe performance in general) will be improved with the inclusion of sound personality inventories, which does not, to any extent, imply that personality inventories should replace ability tests.

This study has found reason to conclude that personality type affects subject preference as well as academic performances of students in the FCT thus providing in-depth understanding of the relationship between personality and career path choices. Understanding the role personality plays in a career decision making process will aid counsellors and educators to assist students in determining what is best for them. This finding discourages the current preoccupation with intelligence as measures of ability and recommend based on research evidence that different personalities tend to have different subject preferences.

10. RECOMMENDATIONS

As a result of the findings of this study, the following recommendations have become necessary:

- The study provides basis for personality-based guidance of students on their vocational choices. It will also help students to appreciate their personality characteristics thus reducing the incidence of loss of self-esteem which is critical to overall performance and efficiency later on in life.
- The relevance of subject preference as highlighted in this study makes it relevant to encourage teachers and parents not to see a particular personality type like introverted students as being academically inferior to their extroverted counterparts.
- The defining characteristics of one's personality should not be negatively construed to the end that the individual is embarrassed by the reaction of teachers and parents. The study therefore calls for appreciation of individual differences in view of the inherent comparative advantage of variant personality type irrespective of peculiar inadequacies.
- Given the increase interest that competitive universities are showing in standardized tests for the selection of their students, it is believed that personality inventories should not be neglected in any academic selection process, because individual differences in personality are probably of educational relevance in higher learning programmes.

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