

VARIABLES RESPONSIBLE FOR THE POOR ACADEMIC PERFORMANCE OF STUDENTS IN A NIGERIAN UNIVERSITY

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ABSTRACT

The study examines variables that are responsible for the poor academic performances of students in the Nigerian Universities using the Accounting Department in Federal University, Wukari, Taraba State, Nigeria as a case study for the analysis. A sample of 131 with four (4) strata of academic sessions were obtained from the population of 195 students and analyzed using 2⁴ factorial design. Four null hypothesis were tested in the study and it was revealed that sex, mode of entry and school earlier attended were not the major factors responsible for weak or strong CGPA in Accounting Department of Federal University, Wukari Taraba State, Nigeria. However, age was tested to be a significant factor that determines the students CGPA in accounting department. The studies concluded that age of student affect their academic performance.

KEYWORDS: CGPA, 2⁴ factorial design, Strata.

1.0 Introduction

The development of any nation is hinged on solid educational foundation for its citizenry. This suggests that education is a means of effecting changes in the society in order to build a well-developed country. The objective of education includes creativity, objectivity and intellectual adventure. Education enables a child to develop physically, mentally, socially, emotionally and intellectually. Education is the key to creating a society, which is dynamic and productive, offering opportunity and fairness to all. Therefore, it is axiomatic that efforts should be geared towards maintaining high standards in schools. The standards will be reflected in students' academic achievement.

The students' performance plays an important role in producing the best quality graduates who will become great leader and manpower for the country thus responsible for the country's economic and social development (Ali et al, 2009). The performance of students in any academic task has always been of special interest to educators, parents and society at large. The primary concern of any educator who is entrusted with the responsibility of selecting students for any advance training program me in a given field is the ability to estimate as accurately and as early as possible the probability that such candidates will succeed or fail.

The major obstacle to the development of education in Nigeria is persistent poor academic performance of students. In furtherance to the menace of low academic performance which cannot be

over emphasized as it had eaten deep into the quality of students and eventual leaders produced into the Nigerian economy. It could be deduced that there exists a vacuum in the quality of students produced and the required quality of individual for various institutional need of the country.

The issue of poor academic performance of students in Nigeria has become worrisome to the government, parents, teachers and even student themselves. The quality of education not only depends on the teachers as reflected in the performance of their duties, but also in the effective coordination of the school variables. According to Umoh (2009), nature only provides the raw materials in form of potentials, but it is the environment that determines the extent of development. It is believed that physical features have a form of relationship with the students' academic performance in terms of the age, sex, school and mode of entry.

Age has played a considerable part as regards to education, like entry age of students to a school; hence, age could be a predictor to success. Age has been reported to have significant influence on performance of students, it helps the mental ability in thinking. (Abubakar&Uboh, 2010).

Many studies have been conducted to determine the factors that influence students' academic performance, Baker &Maclyntyre, (2003) &Bosede, (2010) asserted that the gender (sex) and location of school determine the student academic performance in some subject area. It is worth noting that students' academic achievement is affected by numerous factors including sex, age, and mode of entry and school factors.

This research therefore, is motivated by the problem of poor academic performance of students poses to the quality of students graduating from universities in Nigeria and as such intends to find out the effect of sex, age, school and mode of entry on academic performance of students using analysis of variance (ANOVA), case of study of Accounting Department at Federal University, Wukari, Nigeria and the objectives includes to determine if sex, age, school attended and mode of entry into the university individually affect the students' scores in Accounting, and to determine if the possible combine effect of the factors affect the students' scores in Accounting.

2.0 Methodology

2.1 Population of Study

The study population comprised of one hundred and ninety-five (195) students from the department of Accounting of Federal University Wukari, Taraba State. Questionnaires were administered to the entire students and due consideration was given to both genders. The sample technique adopted for this study was probability-samplingtechnique. Taro-yamane at 5-percent estimated error was used to determine the representative sample size of 131and Bowley's proportional to derive each stratum which are the size of respondents in each of the four academic session (2014 -2018).

2.2 Sample Size Determination/ Sampling Technique

The sample size of 131 used to represent the whole population, was determined using Taro-Yamane formula:

$$n = \frac{N}{1 + Ne^2}$$

where: n = sample size, N = Population, e = Error margin or estimated error (5%).

and Bowley's proportional formula was used to determine the number of sample from each level. The formula is:

$$n_h = \frac{n \times N_{\square}}{N}$$

Where:

n_{\square} = Number of students allocated to each level, n = Total sample size

N_{\square} = Number of students in each section of the population, N = Population size

2.3 Research Hypotheses

The study investigates the effect of sex, age, school and mode of entry of students' academic performance, therefore, data collected shall be used in testing the following hypotheses:

H_{01} : There is no significant effect of sex on academic performance;

H_{02} : There is no significant effect of age on academic performance;

H_{03} : There is no significant effect of private and public schools earlier attended on academic performance;

H_{04} : There is no significant effect of mode of entry on academic performance.

2.4 2^4 -Factorial Designs

Factorial designs are used in the study of the effects of two or more factors, including all the possible combinations of the level of the factors that makes-up the treatments. Here, we focus on the effects of sex (factor A), age (factor B), type of school attended (factor C) and mode of entry on the score of students, each factor exists at two levels.

The mode for the experiment is:

$$Y_{ijkl} = \mu + \tau_i + \beta_j + \gamma_k + \phi_l + (\tau\beta)_{ij} + (\tau\gamma)_{ik} + (\beta\gamma)_{jk} + (\tau\phi)_{il} + (\beta\phi)_{jl} + (\gamma\phi)_{kl} + (\tau\beta\gamma)_{ijk} + (\tau\beta\phi)_{ijl} + (\beta\gamma\phi)_{jkl} + (\tau\gamma\phi)_{ikl} + (\tau\beta\gamma\phi)_{ijkl} + e_{ijkl}$$

where: $i = 1, \dots, a$; $j = 1, \dots, b$; $k = 1, \dots, c$; $l = 1, \dots, d$

Y_{ijkl} = the response

μ = mean response or over all mean

τ_i = factor A_i , β_j = factor B_j , γ_k = factor C_k , ϕ_l = factor D_l

$(\tau\beta)_{ij}$ = interaction effect between factor A and factor B

$(\tau\gamma)_{ik}$ = interaction effect between factor A and factor C

$(\tau\phi)_{il}$ = interaction effect between factor A and factor D

$(\beta\gamma)_{jk}$ = interaction effect between factor B and factor C

$(\beta\phi)_{jl}$ = interaction effect between factor B and factor D

$(\gamma\phi)_{kl}$ = interaction effect between factor C and factor D

$(\tau\beta\gamma)_{ijk}$ = the three factor interaction effect of ABC

$(\tau\beta\phi)_{ijl}$ = the three factor interaction effect of ABD

$(\beta\gamma\phi)_{jkl}$ = the three factors interaction effect of BCD

$(\tau\gamma\phi)_{ikl}$ = the three factor interaction effect of ACD

$(\tau\beta\gamma\phi)_{ijkl}$ = the four factor interaction effect of ABCD

e_{ijkl} = the error term

2.5 Hypothesis:

- i. H_{01} : *None of the main factors have significant effect on the scores*
 H_{11} : *At least one of the main factors have significant effect on scores*
- ii. H_{11} : *None of the main factors have significant effect on scores*
 H_{12} : *At least one of the interaction factors have significant effect on scores*

2.6 Method of multiple comparisons (Multiple range test)

The ANOVA is a powerful procedure for testing the homogeneity of a set of means. However, if we reject the null hypothesis and accept the stated alternative that the means are not equal. We still do not know which of the population means are equal and which are different. Several test are available that separates a set of significantly different means onto subset of homogeneous means. The test we considered in this research work is call the Duncan's multiple range tests.

3.0 Analysis

This study examined the effect of sex, age, school and mode of entry on academic performance of students in the accounting department of Federal University, Wukari Nigeria. The result of the test shows that H_1 , H_3 and H_4 are all accepted while H_2 is rejected. The detailed result is presented in both the factorial and post hoc analysis.

3.1 ANOVA

A factorial between groups analysis of variance in Table 1 explore the impact of sex, age, school attended and mode of entry measured as the independent variables on students' cumulative grade point average (CGPA) measured as the dependent variable of accounting students, Federal University, Wukari. There was not interaction effect between sex, age, school attended and mode of entry. For the main effect, there was a statistically significant effect of age on CGP with p value of 0.001; however, the effect size was large at 0.148 partial et squared. Sex, school attended and mode of entry all had no significant effect on student with CGPA with p-value of 0.634, 0.256 and 0.274 respectively.

Table 1: Tests of Between-Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	19.185 ^a	6	3.197	4.049	.001	.164
Intercept	481.335	1	481.335	609.473	.000	.831
Sex	.180	1	.180	.228	.634	.002
Age	17.021	3	5.674	7.184	.000	.148
Sch	1.027	1	1.027	1.300	.256	.010
Entry	.952	1	.952	1.206	.274	.010
sex * Age	.000	0	.	.	.	.000
sex * sch	.000	0	.	.	.	.000
sex * entry	.000	0	.	.	.	.000
Age * sch	.000	0	.	.	.	.000
Age * entry	.000	0	.	.	.	.000
sch * entry	.000	0	.	.	.	.000
sex * Age * sch	.000	0	.	.	.	.000
sex * Age * entry	.000	0	.	.	.	.000
sex * sch * entry	.000	0	.	.	.	.000
Age * sch * entry	.000	0	.	.	.	.000
sex * Age * sch * entry	.000	0	.	.	.	.000
Error	97.930	124	.790			
Total	781.383	131				
Corrected Total	117.115	130				

a. R Squared = .164 (Adjusted R Squared = .123)

3.2 Post Hoc Tests

The Tukey HSD test in Table 2 indicated that the mean score for Age group 16-20 years' age group ($M=2.72$ and $SD=1.089$) was significantly different from the 21-25 years' group ($M=2.865$ $SD = 0.822$). Also age group 26-30 ($M=2.358$ and $SD = 0.867$) was significantly different from the more than 30 years' group ($M=2.480$ and $SD = 0.891$). However, group 16-20 years' age group was not significantly different from the 26-30 years' group, more than 30 years' group, also group 26-30 years' age group was not significantly different from the 31-35 years' group.

Table 2 Dependent Variable: Student Cumulative Grade Point Average Tukey HSD

(I) Student Age	(J) Student Age	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
16-20years	21-25years	.9866*	.22625	.000	.3974	1.5758
	26-30years	.5041	.22368	.115	-.0784	1.0866
	More than 31years	.2445	.23574	.728	-.3694	.8584
21-25years	16-20years	-.9866*	.22625	.000	-1.5758	-.3974
	26-30years	-.4824	.20669	.096	-1.0207	.0558
	More than 31years	-.7421*	.21969	.005	-1.3142	-.1699
26-30years	16-20years	-.5041	.22368	.115	-1.0866	.0784
	21-25years	.4824	.20669	.096	-.0558	1.0207
	More than 31years	-.2596	.21704	.630	-.8248	.3056
More than 31years	16-20years	-.2445	.23574	.728	-.8584	.3694
	21-25years	.7421*	.21969	.005	.1699	1.3142
	26-30years	.2596	.21704	.630	-.3056	.8248

*. The mean difference is significant at the .05 level.

4.0 Findings

The study proposed that sex, age, school attended and mode of entry has no significant effect on academic performance of students CGPA. For each of the stated objectives only hypothesis two that was rejected otherwise hypothesis one, three and four were all accepted. Therefore, for each of the stated hypotheses, hypothesis one, three and four results of the analysis fail to support the rejection of the stated hypotheses and is therefore, accepted meaning that sex, school attended and mode of entry has no significant difference on student CGPA in the accounting department of the Federal University Wukari.

Therefore, hypothesis one, which states that there is no significant effect of sex on academic performance, is accepted meaning that sex of students does not influence the students' academic performance in the accounting department of the Federal University. That is, the sex of a student does not determine his or her performance as measured by the CGPA. Whether a student is male or female, this does not have a significant influence on his or her CGPA.

Hypothesis two, which states that there is no significant effect of age on academic performance, is rejected. The implication is that the age of the student is a significant predictor of academic performance of students in the accounting department of the Federal University. That is, the performance of a student is influenced by his or her age as the result indicates. The significant effect of the age difference is reported by the Tukey HSD test. The Post-hoc comparisons using the Tukey HSD test indicated that the difference in the mean score was for age group 16-20 and 21-25, age group 21-25 and more than 30 years and above. The difference in the age group was not significant for the other age groups.

Hypothesis three which states that there is no significant effect of school attended on academic performance is also accepted meaning that school attended by students during their secondary school education does not have an effect on the performance of accounting students of Federal University as measured by their CGPA. That is, the performance of a student that attends public school is not significantly different from the performance of a student that attends a private school.

Hypothesis four, which states that there is no significant effect of mode of entry on academic performance is likewise accepted meaning that mode of entry does not have an effect on the performance of accounting students of Federal University as measured by their CGPA. That is, the performance of a student as measured by his or her CGPA is not influenced by whether his mode of entry is either through direct entry or UTME.

5.0 Conclusion

The Analysis of Variance (ANOVA) showed that sex, school attended and mode of entry of the students has no significant effect on their academic performance considering the fact that their p-values (0.634, 0.256 and 0.274 respectively) are greater than the 0.05 level of significance.

While the age of the students with a p-value (0.000) showed that age as a factor significantly affects the academic performance of the students.

The age of the students significantly affected their academic performance. The sex, school attended and mode of entry did not show any significant effect on the academic performance of the students.

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