

ENTRY QUALIFICATIONS AS PREDICTOR OF UNDERGRADUATE BIOLOGY STUDENTS' ACADEMIC ACHIEVEMENT IN NIGERIAN UNIVERSITIES

Biman, K. Abubakar¹, John Sakiyo², Kawu Waziri³ and Fatima M. Joda⁴

¹Adamawa State Polytechnic, Yola

^{2,3,4}Moddibo Adama University of Technology, Yola

ABSTRACT

The study was conducted to find out whether undergraduate biology students' ordinary level results and JAMB qualification can predict the students' academic achievement in Nigerian Universities. The population of the study was 471 students. It included all undergraduate biology education students of the School of Technology and Science Education (STSE) and all Zoology students of the School of Life Science (SLS) who were at 500 level from 2006-2016 academic sessions. The researcher utilized all biology students of the two stated schools in all the stated academic sessions as sample. An inventory proforma tagged "Entry Qualification and Cumulative Grade Point Average Proforma" (EQCGPAP) was used for data collection. Linear and multiple regression analysis were used to test the hypotheses at 0.05 level of significance. The findings of the study revealed that West African Senior School Certificate Examination (WASSCE), Senior School Certificate Examination (SSCE), National Business and Technical Certificate Examination (NBC/NTC) and Unified Tertiary Matriculation Examination (UTME) did not predict biology student's academic achievement. It was recommended among others that WAEC, NECO, NBC/NTC and JAMB bodies should be strict in conducting their examinations to ensure that the entry grades indicate real achievement of the candidates to be admitted so that the grades can predict future achievement.

KEYWORDS: NECO, WAEC, JAMB, Academic Achievement, Biology

INTRODUCTION

The quality of any educational system depends on the quality of input and output of the educational process. Education is the greatest investment that a nation can make for the quick development of economic, political, social and human resources (Federal Government of Nigeria, (FGN), 2004). The National policy on Education (2004) stated that, education is an Instrument of excellence that witnesses the active participation of governments, non-governmental agencies, communities and individuals. The goal of education as stated in the National Policy on Education by the Federal Government of Nigeria emphasizes the benefit that Nigerians will derive from education by identifying the needs of the society in consonance with environment and modern globalization.

The imperative role of science to national development cannot be neglected because of the link between science and national development. Science and technology education are the tools needed to meet the developmental goals (Akase, Mwekaven, Awuhe & Tombuwua, 2015). Akase et al (2015) opined that the implication of education to the Nigerian national transformation agenda is that education should make people change for better socially, morally and economically. Biology students are part of science students who need training to achieve these goals.

Entry qualification is a prerequisite for gaining admission into higher institutions and universities globally. Entry qualification for admission of candidates into Nigerian Universities is based on the overall grading system by public examination bodies. These bodies include West African Examination Council (WAEC), National Examination Council (NECO) and National Business and Technical Examination Board (NABTEB). They are part of the educational system in Nigeria meant to conduct examinations and award certificates to successful candidates for secondary schools and out-of-school candidates. These examining bodies are established to ensure validity of examinations among other factors for national interest in achieving national goals and aspirations. A cut off mark score in the Unified Tertiary Matriculation Examination (UTME) is part of the entry qualification. The overall grading by these public examination bodies include: A1, B2 and B3 for distinction, C4, C5 and C6 for credit grade, D7 and D8 for ordinary pass while F9 for the failure grade. A candidate having up to 5 distinctions or 5 combination of distinctions and credit or at least credit in five subjects including Mathematics and English Language with some passes in public examinations and a cutoff mark score in UTME is qualified for admission into tertiary institution .

Academic achievement is a measure of knowledge gained in formal education usually indicated by test scores, grades, grade point average and degrees (Lawrence & Vimala, 2012). Academic achievement in university setting is being assessed through the Cumulative Grade Point Average (CGPA) of students in all the courses registered. Students are considered to have performed well if the CGPA is high. The grade point average is on cumulative basis from 100 level (part one) to 500 level (part five). The CGPA would determine the performance level of the student from one semester to another. The classification of CGPA is such that 4.50 and above is First Class, 3.50-4.49 is second class upper division, 2.40-3.49 is second class lower division, 1.5 – 2.39 is third class, 1.00-1.49 is pass degree while below 1.00 fail.

Statement of the Problem

It was observed that a good number of students admitted into undergraduate programmes in universities with good grades perform poorly as indicated by their CGPA. Many were admitted with higher credits, but were later on withdrawn due to poor performance. Some students who were admitted with good grades happened to be the ones cheating in the examination halls. With these problems, it is important to conduct more research on predictability of students' academic achievement in higher institutions using their previous entry qualifications or results. The problem of this study therefore is to examine the prediction of students' entry qualification on academic achievement of undergraduate biology students in Nigerian universities.

Purpose of the Study

The purpose of this study was to find out whether entry qualification of biology undergraduate students can predict academic achievement in University. The specifically the study sought to determine if:-

1. WASSCE results can predict biology undergraduate students' academic achievement in Nigerian universities
2. NECO SSCE results can predict biology undergraduate students' academic achievement in Nigerian universities.
3. NBC/NTC results can predict biology undergraduate students' academic achievement in Nigerian universities.
4. UTME results can predict biology undergraduate students' academic achievement in SLS and STSE.

Hypotheses

The following Null hypotheses were formulated and tested at 0.05 level of significance using linear regression:-

1. HO1. WASSCE results do not significantly predict undergraduate biology students' academic achievement in Nigerian universities.
2. HO2. NECO SSCE results do not significantly predict undergraduate biology students' academic achievement in Nigerian universities.
3. HO3. NBC/NTC results do not significantly predict undergraduate biology students' academic achievement in Nigerian universities.
4. HO4. UTME results do not significantly predict undergraduate biology students' academic achievement in Nigerian universities.

METHODOLOGY

The research design that was employed for this study was ex-post facto design. The area of the study was Modibbo Adama University of Technology (MAUTECH) Yola. The population for this study was 471 biology education and Zoology. The researcher utilized the number of all biology education students of the School of Technology and Science Education (STSE) who were at 500 level from 2006 to 2016 academic sessions. An inventory proforma tagged Entry Qualification and Cumulative Grade Point Average Proforma (EQCGPAP) data at 0.05 confidence level.

RESULT AND DISCUSSION

HO1. WASSCE results do not significantly predict undergraduate biology students' academic achievement in SLS and STSE.

Table 1. Linear Regression Analysis of WASSCE and CGPA

Model	Sum of Square	df	Mean Square	F	p
Regression	0.028	1	0.028	0.063	0.802
Residual	84.458	188	0.448		
Total	84.486	189			

Table 2. Regression Model of Relative Contribution of WASSCE on Students' CGPA

Variables	B	SE	Beta (β)	R	R ²	Adj R	T
Constant	2.710	0.246	11.021				
WASSCE Result	0.002	0.009	0.018	0.0180.000	0.005	0.251	

Table 1 and 2 show that there is no significant contribution of WASSCE on students' CGPA. The result shows that WASSCE result had no predictive strength with $\beta=0.018$. WASSCE result had not contributed anything. $R^2=0\%$ to the overall students' CGPA. This implies that there are other factors that contributed to students' CGPA apart from WASSCE. There was no linear relationship between students' WASSCE result and CGPA ($B=2.710$; $R= 0.018$; $T=0.251$; $P=0.802$). There is no significant difference between the various R values, $F=0.063$ ($df=1$), $P=0.802$. Since the computed P -value (0.802) is greater than the level of significant (0.05), the null hypothesis was not rejected that WASSCE result do not significantly predict student's achievement.

HO2 NECO SSCE results do not significantly predict undergraduate biology students' academic achievement in SLS and STSE.

Table 3. Linear regression analysis of NECO and CGPA

Model	Sum of Square	df	Mean Square	F	p
Regression	0.078	1	0.078	0.170	0.680
Residual	89.805	196	0.456		
Total	89.883	197			

Table 4. Regression Model of Relative Contribution of NECO on Students' CGPA

Variables	BSE	Beta (β)	R	R ²	Adj R	T
Constant	2.909	0.216				13.447
NECO SSCE results	-0.003	0.008	-0.029	0.029	0.001	-0.004-0.413

Table 3 and 4 show that there is no significant contribution of NECO on students' CGPA. The result shows that NECO result had no predictive strength with $\beta = -0.029$. NECO result had not contributed anything. $R^2 = 0.001$ (0.1%) to the overall students' CGPA. This implies that there are other factors that contributed to the students CGPA apart from NECO result. There is no linear relationship between students' NECO results and their CGPA ($B=2.909$; $R=0.029$; $T=-0.413$; $P=0.680$). There is no significant difference between the R values; $F=0.170$ ($df=1$); $P=0.680$. Since the computed P-value (0.680) is greater than 0.05 level of

HO3. NBC/NTC results do not significantly predict undergraduate biology students' academic achievement in SLS and STSE.

Table 5. Linear Regression Analysis of NABTEB and CGPA

Model	Sum of Square	df	Mean Square	F	p
Regression	0.002		1	0.002	0.004
Residual	17.832	41	0.435		0.952
Total	17.834	42			

Table 6. Regression Model of Relative Contribution of NABTEB on Students' CGPA

Variables	BSE	Beta (β)	R	R ²	Adj R	T
Constant	2.997	0.613				3.890
NECO SSCE results	-0.001	0.24	-0.009	0.009	0.000	-0.24 -0.60

Table 5 and 6 show that there is no significant contribution of NABTEB on students' CGPA. The result shows that NABTEB results had no predictive strength with $\beta = -0.009$. NABTEB results had not contribution anything; $R^2 = 0\%$ to the overall students CGPA. This implies that there are other

factors that contributed to the students' CGPA apart of NABTEB result. There is no linear relationship between students' NABTEB results and their CGPA ($B = 2.997$; $R = 0.009$; $T = -0.60$; $P = 0.952$). There is no significant difference between the R values; $F = 0.004$ ($df: 1$); $P = 0.952$. Since the computed P-value (0.952) is greater than 0.05 level of significant the null hypothesis was not rejected that NABTEB results do not significantly predict students' academic achievement in SLS and STSE.

HO4. UTME results do not significantly predict undergraduate biology students' academic achievement in SLS and STSE.

Table 7. Linear Regression Analysis of UTME and CGPA

Model	Sum of Square	df	Mean Square	F	p
Regression	0.007	1	0.007	0.018	0.894
Residual	42.932	104	0.413		
Total	42.939	105			

Table 8: Regression Model of Relative Contribution of UTME on Students' CGPA

Variables	BSE	Beta (β)	R	R ²	Adj R T
Constant	2.912	288			10.112
JAMB UTME	-0.004	0.028	-0.013	0.0130.000	-0.00-0.134

Table 7 and 8 show that there is no significant contribution of UTME on students' CGPA. UTME has no prediction on the overall students' CGPA. The result shows that UTME results had no predictive strength with $\beta = -0.013$ with $R^2 = 0\%$ to the overall students' CGPA. This implies that there are other factors that contributed to the CGPA apart from UTME result. There is no linear relationship between students' UTME result and their CGPA ($B = 2.912$; $R = 0.013$; $T = -0.134$; $P = 0.894$). There is no significant difference between the R-values $F = 0.018$ ($df = 1$); $P = 0.894$ since the computed P-value (0.894) is greater than 0.05 level of significant, the null hypothesis was not rejected that UTME results do not significantly predict students' achievement.

DISCUSSION

Findings of this study showed that WASSCE results do not predict biology students' academic achievement. This findings corroborated with the findings of Gbore (2014) which revealed that

WASSCE and NECO SSCE exhibited poor predictive strength to academic performance among the University Undergraduates in the South West Nigeria, but disagreed with the findings of Ajao and Awogbene (2012) who found out that there was significant positive relationship between students' academic achievement in WASSCE mathematics, and the findings of Momoh, Gbodi and Morenikeji (n.d) that WAEC SSCE was a good predictor in subsequent academic pursuits, and the findings of Obioma and Salau (2007) that WASSCE was the best single predictor of the students' Cumulative Grade Point Average (CGPA)

The study also revealed that NECO SSCE results have no predictive strength on biology students' academic achievement. This finding is in line with that of Gbore (2014) who revealed that NECO SSCE exhibited poor predictive strength to academic performance among the University Undergraduates in the South West Nigeria, but disagreed with the findings of Ajao and Awogbene (2012) that there was significant positive relationship between students' achievement and NECO SSCE mathematics.

In the same vein findings of the study revealed that NABTEB NBC/NTC did not have predictive strength on biology students' academic achievement. This finding disagree with the findings of Ammu, Nagarajah and Mei-Ling, (2012) who found out that NBC/NTC results did not significantly contribute to students' CGPA.

CONCLUSION

Based on the findings of this study, it was concluded that the West African Senior School Certificate examination (WASSCE), the Senior School Certificate Examination (SSCE), the National Business Certificate/National Technical Certificate (NBC/NTC) and the Unified Tertiary Matriculation Examination (UTME) do not predict biology students' Cumulative Grade Point Average (CGPA) at tertiary education level.

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