UTME AND POST-UTME AS PREDICTORS OF STUDENTS' ACADEMIC PERFORMANCE IN CHEMISTRY IN NIGERIAN UNIVERSITIES

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Abstract: The paper examined Universal Tertiary Matriculation Examination UTME and Post Universal Tertiary Matriculation Examination POST-UTME as predictors of students' academic performance in chemistry in Nigerian universities. It also found out the relationship and effectiveness of UTME and post UTME results in predicting chemistry students' academic performance in universities. Ex-post facto design was adopted, since the data collected were already available without any manipulations. The instruments for the study were obtain from the records of UTME and post – UTME scores of chemistry students admitted during 2004-2005/2005-2006/2006-2007 academic session, This record contained all the cumulative grade points average (CGPA) of all the sampled students in chemistry. The findings revealed that there was very low significant relationship between the UTME scores and all levels CGPA in chemistry. Recommendations was therefore made that the improvement in the capacity building particularly Post UTME should continue to serve as moderation yardstick for possible errors committed requirement to the university.

Keywords: UTME, POST UTME, Predictors, Academic Performance, Universities.

INTRODUCTION

Many decades past, the nations of the world speaking through the Universal Declaration of Human Rights, asserted that everyone has a right to education. Despite notable efforts by the Countries around the globe to ensure the right to education for all people, researches have shown that more than one-third of the world children populations have no access to the printed knowledge, new skill and technologies that could improve the quality fo their lives and adapt them to social and economic development. (Kolawole and Illugbusi, 2007)

Alonge (2003) argues that the standard of education has not fallen but the performance is dwindling. However reports of WAEC Chief Examiner 2002, 2003 in subjects like English, Biology, Chemistry and Mathematics revealed high rate of failure and that students lack adequate theoretical background that can make them solve problems. Teachers and lecturers often complain that students reading habits are grossly inadequate. Oyinloye (2004) says that many students question the relevance of some courses to their future career, hence, they develop lukewarm attitude to their study. As Chemistry deals with asking questions about things around us that is, matter, investigating and comprehending the substance that made up our environment. Chemistry as a bedrock of all pure science courses enables someone to develop a vocational skill and become self-reliant as the nation is filled with great natural indispensable mineral resources including Crude oil, Natural gas, Uranium, Phosphate rocks, Cassiterites, Columbite and so on (Olanipekun, 2005).

Joint Admission and Matriculation Board was established by an act 2, of 1978 and saddled with responsibilities of conducting Matriculation Examination into all Universities, Polytechnics and Colleges of Education, JAMB eliminates a lot of

confusion as well as erosion on the learning purse of candidates who have to obtain several forms and sit for several examinations conducted by each University to ensure admission. Also to solve the strain of multiple admissions, because some candidates secured multiple admissions while many others were denied placement. The admission producer of JAMB curtailed the ability of the various Universities to control lthe number and quality of the candidates that should be admitted, since the qualifying examination is by JAMB. Olatuga (1999) alleged that most of the rich and influential people in the society gained admission into the University through the influence of their parents; even for courses that the children are too prepared for or inclined to offer. Olatuga concluded that if each university was allowed to conduct its own entrance examination and select its own candidates the question of admitting incompetent candidates would not arise. Daisi (1997) reported that JAMB cancelled results of candidates who were involved in examination malpractice and candidates who had unscannable scripts due to improper completion of answer scripts. In the light of this, the current POST-UTME was established in order to ensure content validity and reliability of the tests to predict student's academic performance at the University level, POST-UTME/Screening Test of Academic Readiness (STAR) was purposively designed for the screening of secondary school levels and successful remedial candidate into University. To access his/her readiness to face future University academic challenges.

Purpose of the Study

The purpose of this study was to investigate the effectiveness of the Universities Matriculation Examination (UTME and Post-Universities Tertiary Matriculation Examination (POST-UTME) in admitting Chemistry students into Nigerian Universities. Also this study is specifically designed to:
(1) Examine the effectiveness of the UTME results in predicting Chemistry students academic performance at all levels in Nigerian Universities.
(2) Examine the relationship between POST_UTME of Chemistry students and their academic performances of all levels in Nigerian Universities.

Research Questions

The following research questions were generated for this study.
(1) Is there any relationship between UTME scores of Chemistry students and their academic performance in Chemistry at all levels in Nigerian Universities?

(2) Is there any relationship between POST-UTME scores of Chemistry students and their academic performance in Chemistry at all levels in Nigerian Universities?
(3) Will UTME and POST-UTME scores of Chemistry students to their subsequent academic performance in some selected Nigerian Universities.

Hypotheses

Based on research question, the following research hypotheses were generated and tested at 0.05 level of significance.
(1) There is no significant relationship between UTME scores of Chemistry students and their academic performance in Chemistry at all levels in Nigerian Universities
(2) There is no significant relationship between POST-UTME scores of Chemistry students to their academic performance in Chemistry at all levels in Nigerian Universities.
(3) There is no significant effect of UME and POST-UTME scores of Chemistry Students to their subsequent academic performance in some selected Nigerian Universities.

Research Design

This study adopted an ex-post facto design, since the data collected were already on grougnd without any manipulations. The researcher just collected the data and used them as they occurred naturally.

Population of the Study

The study sample consisted of 312 chemistry students. The stratified and purposive sampling techniques were used to select three universities in South West, Nigerian based on proprietorship (Federal, State and Private owned University)

Research Instrument

The instruments for this study were obtained from two sets, the first set consisted of the records which contained all UTME and POST-UTME Scores of Chemistry students admitted during the 2004/2005, 2005/2006 and 2006/2007 academic session.
The set also consisted of the record which contained all the Cumulative Grade Point Average (CGPA) of all the sampled students in chemistry at the degree levels in Nigerian Universities.

Data Collection

The UTME, POST-UTME Scores and CGPA of all sampled Chemistry students were collected directed from the directorate of admissions and statistics as well as Examinations and records of the selected Universities after getting all the necessary permission.

WAEC/NECO GRADE	A_1	B_2	B_3	C_4	C_5	C_6	D_7	E_8	F_9
WEIGHTS	9	8	7	6	5	4	3	2	1

Table 1: the SSCE Stanine scores and their weights.

CGPA	4.50-5.00	3.50-4.49	2.40-3-49	1.50-239	1.00-1.49	0.00-0.99
GRADE	A	B	C	D	E	F

Table 2: The University CGPA level and their grades

Source of variation	UME (R)	R^2	Beta	F_c	F_t	Result
Part I	0.061	0.004	0.061	1.171		
Part II	0.106	0.011	0.106	3.542	2.21	*
Part III	0.07	0.005	0.020	1.536		.
Part IV	0.026	0.001	-0.464	0.215		.

$P \leq 0.05$ *: Significant, ˙: Not significant

Table 3: Regression analysis showing CGPA Chemistry students with UTME as a predictor

Source of variation	POST-UME (R)	R^2	Beta	F_c	F_t	Result
Part I	0.145	0.021	0.145	6.664		*
Part II	0.154	0.024	0.154	7.574	2.21	*
Part III	0.131	0.017	0.131	5.440		.*
Part IV	0.099	..0.01	0.099	3.093		*

Table 4: Regression analysis showing CGPA of Chemistry Students with their POST-UTME as a predictor.

Data Analysis

All the data collected for the generated null hypotheses were analyzed using Regression analysis as well as the Analysis of Variance (ANOVA)

RESULTS AND DISCUSSION

The data collected were analyzed for UTME and POST-UTME with their CGPA at all levels in some selected Nigerian Universities.

Hypotheses 1

There is no significant relationship between UTME Scores of Chemistry students and their academic performances in Chemistry at all levels in Nigerian universities

The analysis in Table 3 showed that there was o significant relationship to all levels CGPA except part II CGPA in chemistry by the UTME. The multiple R value of part I-IV CGPA showed that there were very poor relationships between UTME scores and all levels performance. The result revealed that UTME scores could only explain about 0.4%, 1.1% 0.5% and 0.1% variations for each of the levels, that is part I-IV CGPA in Chemistry as shown by the values of R^2, considering relationship of UTME scores to each of the CGPA. Beta aloes showed that UME scores had the highest predictive strength for part II CGPA in Chemistry, closely followed by part III and I CGPA in

Source of Variation	Model	Beta	T	R	R^2	F_c	F_t	Result
Constant			25.889					
Part I	UTME Post-UTME	-0.05 0.176	-0.687 2.436*	0.150	0.023	3.562		*
Part II	UTME Post-Utme	0.015 0.145	0.207 2.004*	0.155	0.024	3.797	2.21	*
Part III	UTME Post-UTME	-0.021 0.144	-0.285 1.988*	0.132	0.018	2.752		*
Part IV	UTME Post UTME	-0.147 0.192	-2.035 2.655*	0.152	0.023	3.634		*

$P \leq 0.05$, *: significant

Table 5: Regression analysis showing effect of CGPA of Chemistry Students with UTME and Post-UTME as predictor.

Chemistry. While Part IV CGPA had a high but negative predictive strength by the UTME scores. Since only part II F_c is greater than F_t, the null hypothesis is not rejected. This implies that UTME scores made no significant relationship to the academic performance in Chemistry at nearly all levels in Nigerian Universities

Hypotheses 2

There is no significant relationship between POST-UTME Scores of Chemistry Students to their academic performance in some selected Nigerian Universities.

Analysis in Table 4 showed that there was a significant relationship to all levels CGPA in Chemistry by the POST-UTME. The multiple R value of Part i-IV CGPA showed that there were very poor relationship between POST-UTME scores and all levels performance. The result also revealed that POST-UTME scores could only explain about 2.1%, 2.4%, 1.7% and 1.0% variations for each of the level that is part I-IV CGPA in Chemistry as shown by the values of R^2. Furthermore, the values of Beta showed that POST-UTME had the highest predictive strength for Part II CGPA Chemistry, closely followed by Part I and III CGPA Chemistry while Part IV had the least predictive strength by POST-UTME scores. Since all values F_c are greater than F_t hence the null hypotheses is not rejected. This implies that POST_UTME scores made significant relationship to the academic performance in Chemistry at all levels in Nigerian Universities.

Hypotheses 3

There is no significant effect of UTME and POST-UTME scores of Chemistry students to their subsequent academic performance in some selected Nigerian Universities.

Analysis in table 5 showed that multiple R values of Part I-IV CGPA had very poor relationship with both UTME and POST-UTME scores could only explain about 15%, 15.5%,, 13.2% and 15.2% variations for each of the level that is Part I-IV CGPA in Chemistry as shown by the R^2 values. Furthermore, t-values revealed that Part I, III and IV CGPA had high but negative effects by the UTME scores, but Part II CGPA had very poor positive effect by UTME scores. While Part I-IV CGPA in Chemistry showed perfect significant effect by the Post-UTME scores of Chemistry students.

CONCLUSION

The values of the multiple R in Table 3 showed that there was very low significant relationship between the UTME scores and all levels CGPA in Chemistry. Also, the relative contributions (beta weights) of the predictor variable (UTME) which were shown in Table 3 respectively showed that there was a significant contribution from the UTME scores of the selected University Chemistry students to their Part II CGPA in Chemistry at the degree level. This is closely followed by Part III and Part I CGPA while Overall CGPA is the worst. This finding is in contrast with previous research by Ndem (1991) who

found that there was a significant relationship between UTME composite scores and University academic performance of the students. Furthermore, the multiple R-values in Table 4 showed that was a very poor relationship between the POST-UTME and all levels CGPA in Chemistry. This may be due to the fact that Post-UTME students are more instricaly motivated to learn and achieve because of tasks given by Screening Test of Academic Readiness (STAR i.e. POST-UTME) items to ensure success. The study is in line with Nnamdi (2010) who found that there was a weak relationship between UTME scores, POST-UTME scores and the students' academic performance.

More so, Table 5 showed that the beta and T-values associated with Chemistry confirmed that POST-UTME scores had the highest significant effect on the academic performance of Chemistry students at all levels in the University except Part II CGPA that showed positive but o significant effect.

RECOMMENDATIONS

Based on the finding of this study the following recommendations were made

(1) As far as all Nigerian Universities were given autonomy to conduct POST-UTME independently, all chemistry candidates must be subjected to the task set by this aptitude test.

(2) As UTME and POST-UTME become necessary in Nigerian University admissions for candidates intending to study chemistry, a candidate' UME and POST-UTME chemistry scores should be used to determine his admission chances

(3) Instead of abolishing POST-UTME the use of electronic machine such as projector must be introduced to conduct the test, so as to fight students' educational ills in University.

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