

UTME AND POST-UTME SCORES AS PREDICTORS OF POLYTECHNIC STUDENTS' ACHIEVEMENT IN FIRST YEAR NATIONAL DIPLOMA (ND) EXAMINATIONS (A CASE STUDY OF MOSHOOD ABIOLA POLYTECHNIC, ABEOKUTA, NIGERIA.)

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ABSTRACT

This study was conducted to examine the relative effectiveness of the Unified Tertiary Matriculation Examination (UTME) and Post Unified Tertiary Matriculation Examination (Post-UTME) on the first year (NDI) academic performance of students admitted to Moshood Abiola Polytechnic in 2012/2013 session. This is a correlation research as well as Ex-Post facto design. The study was set out to investigate the relationship that exists between the performances of students in UTME and Post-UTME (predictor variables) and MAPOLY students' achievement (CGPA) in first year ND examination (predicted variable). Secondary data from the institution were used to develop a predictive model. The population consists of all registered admitted students for the 2012/2013 academic session. Total sample of one thousand (1000) students were randomly selected from all the academic departments of the institution with respect to each department's population vis-à-vis stratified sampling and simple random sampling technique. Using Multiple regression, Multiple correlation coefficient, Coefficient of multiple determination, t-Test, ANOVA F-Test, LSD multiple comparison test and Correlation Matrix to analyze the data, result shows the regression coefficient for Post-UTME to be 0.0212 with a P-value of $2e^{-16}$ while that for UTME to be 0.0004 with a P-value of 0.404. Findings show that Post-UTME was more effective than the UTME. More so, there was a low and inverse relationship between students' score in Post-UTME and UTME. Polytechnics managements should give high priority to students' Post-UTME performance than their UTME performance when admitting them. A 35% pass mark in Post-UTME in addition to a student's UTME score is considered adequate when considering students for admission into polytechnics. JAMB should be saddled with the responsibility of conducting pre-qualifying examination whereby polytechnics should be allowed to conduct a Post-UTME screening

Keywords: UTME, Post-UTME, JAMB, Polytechnic

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Introduction

At the end of the Senior Secondary education, students sit for two Senior School Certificate Examinations (SSCE): one is conducted by the West African Examination Council (WAEC) and the other by the National Examination Council (NECO). Students who wish to acquire higher education are expected to also write the Unified Tertiary Matriculation Examination (UTME) conducted by the Joint Admissions and Matriculation Board (JAMB). Those candidates that meet the prescribed cut-off marks in the UTME would qualify for a University, or Polytechnic, or College of Education admission/placement.

However, in the last decade (or thereabout) tertiary institutions (including MAPOLY) have been conducting individual Post-UTME examinations as part of requirements for admission of candidates. The Post-UTME came into being as a result of findings/developments which indicated that scores obtained in the UTME did not quite reflect the capability of each student. The Post-UTME Screening Tests/Examinations are put in place by each tertiary institution to ascertain the quality of the scores obtained by candidates in the UTME. Candidates that now meet the new UTME and Post-UTME (combined) Cut-off marks are finally offered admission into the institution of their choices.

Many stakeholders in the technical/polytechnic education sector in Nigeria have argued that the glorious days of high academic standard and enviable achievement among polytechnic undergraduates have reached a disturbing point. Graduates from the polytechnics who wish to proceed to the Universities under the Direct Entry Method are often made to face further examinations before being admitted or admitted at a level lower than that which they ought to be admitted. For example, a National Diploma (ND) graduate (even with Distinction) may be asked to start at 100 level in the University instead of at 200 level; ditto for a Higher National Diploma (HND) graduate who may be asked to start at 200 level instead of at 300 level. In other words, the integrity of our ND and HND Certificates are in doubt; and this calls for serious concern and re-examination.

There are calls (Okwilagwe, 2001) from different quarters that we should re-examine the present modes, criterion, and procedures for the selection of candidates for admission into various Degree and Diploma programmes in Nigerian tertiary institutions with a view to determining the credibility of the criteria. In particular, arguments (Alonge, 2004) have been advanced for and against the conduct of Post-UTME. As of today, almost all Nigerian higher institutions now conduct Post-UTME Screening Examinations before selecting candidates for admission. In his submission, Alonge (2004) argued that in test theory, any device employed by an individual or an examining body or institution for the purpose of selecting candidates for any training programme in a given field, should be able to measure as accurately as possible, the

probability that such candidates will pass or fail. This is to say that, success or failure is in effect caused by the method of selection of candidates for a training programme. Various authors had researched into the predictive validities of different testing instruments for different purposes in the context of many moderator variables. Among such researchers are Daramola (1990); Idowu (1990), and Okwilagwe (2001).

To the best of our knowledge, no study in the literature at our disposal has been carried out to compare the first year (NDI) academic performance of polytechnic students admitted through UTME scores and Post-UTME scores at Moshood Abiola Polytechnic, Abeokuta and in Nigerian polytechnics at large.

The statement of the problem therefore seeks to determine the most effective process of selecting candidates for admission at Moshood Abiola Polytechnic (MAPOLY), Abeokuta by evaluating academic status of the product of UTME and Post-UTME to ascertain the superiority of one over the other in the quality of students admitted.

Methodology

Research Design

The design employed for this study was ex-post facto research design. The design was most suitable and appropriate for the study since the past records and results of the students were used in reaching conclusion about the students' learning outcome. However, this study extensively makes use of Multiple Regression Analysis to explore the nature of the relationship or the extent of association between the performance (CGPA) of students after their first year (ND I) exams and major admission variables (Post-UTME and UTME score) where the CGPA represents the dependent or explained variable while the Post-UTME & UTME scores represent the independent or explanatory variables. Some of the important statistic to be estimated are the Multiple regression, Multiple correlation co-efficient (R), Co-efficient of multiple determination (R^2), t-Test, ANOVA *F-Test*, Correlation Matrix and LSD multiple comparison test. The statistical packages utilized are SPSS (version 21), Ms-Excel (version 2007) and the R-program (version 3.1.1).

Population and Sample

The population of the study covers all registered admitted students for the 2012/2013 academic session. Total sample of one thousand (1000) students were randomly selected from all the academic departments of the existing five academic Schools of the institution with respect to each department's population vis-à-vis stratified sampling and simple random sampling technique. More specifically, the researchers made use of secondary data from Moshood Abiola Polytechnic, Abeokuta, Nigeria for the 2012/2013 academic session. This data is made up of the

Post-UTME score, UTME score and the CGPA of all registered admitted students after their first year (ND I) exams.

Method of data analysis

Data were collected and computed using statistical packages. Multiple regression was used to develop a predictive model to explore the nature of the relationship between the performance (CGPA) of students after their first year (ND I) exams and major admission variables (Post-UTME and UTME scores). Multiple correlation coefficient (R) was used to report the strength of the relationship between the dependent and independent variables. Coefficient of multiple determinations (R^2) explains the total variation in the explained variable accounted for by variations in the explanatory variables included in the model. The t-Test was used to test the explanatory power of the individual regression coefficient $\hat{\beta}_1, \hat{\beta}_2, \dots, \hat{\beta}_k$. The test was carried out to ascertain whether the individual explanatory variables are statistically significant in determining the explained variable. ANOVA F -Test for the regression model was used to test whether all the independent variables included in the work are jointly significant in determining the dependent variable. It reveals whether the level of variation explained by the model is due to chance or not.

Discussion OF Results

Evaluation Based on Economic Criterion

From the analysis, the CGPA predictive model is deduced as:

$$CGPA = 1.8199 + 0.0212PostUTME - 0.0004UTME$$

$\hat{\beta}_0 = 1.8199$ implies that without prior knowledge of the Post-UTME score and UTME score, the CGPA will be approximately 1.82. $\hat{\beta}_1 = 0.0212$ implies that for every unit increase in the Post-UTME score while the UTME score is kept constant; the CGPA will increase by 0.0212. The Post-UTME score conformed to its expected sign. The positive sign suggest that there is a positive relationship between the Post-UTME score and the CGPA. This indicates that increase in Post-UTME score will bring about a rise in the CGPA. $\hat{\beta}_2 = 0.0004$ implies that for every unit increase in the UTME score while the Post-UTME score is kept constant; the CGPA will decrease by 0.0004. The UTME did not conformed to its expected sign. The negative sign suggest that there is an inverse relationship between the UTME score and the CGPA. This indicates that increase in UTME score will bring about a fall in the CGPA.

Evaluation Based on Statistical Criterion

a. Goodness of fit Test (R^2)

We got R value to be 0.420. This indicates that there is a weak but positive relationship between the dependent variable (CGPA) and the independent variables (Post-UTME and UTME Score). R^2 value of 0.176 implies that

approximately 17.6% of the variation in the CGPA is being explained by the Post-UTME score and UTME score.

b. Student's t-Test

The **P-value** of $2e^{-16}$ for the Post-UTME score which was less than the set level of significance ($\alpha = 0.05$) indicates that the Post-UTME score exert significant influence on CGPA. In the same vein, the **P-value** of 0.404 for the UTME score which was greater than the set level of significance ($\alpha = 0.05$) indicates that the UTME score does not significantly impact on the on CGPA. In addition, *t-value* of 13.678 for the Post-UTME score and -0.835 for the UTME score indicates that the Post-UTME score has higher explanatory powers (i.e. actually contributes more to the model) than the UTME score in predicting the CGPA.

c. F-Test

The **Sig** value of 0.000 from the Regression ANOVA result which is less than the set level of significance ($\alpha = 0.05$) indicates that both the independent variables (Post-UTME and UTME score) are jointly significant in predicting the CGPA. In addition, the result also implies that the 17.6% variation in the CGPA explained by the model is not due to chance.

d. Correlation Matrix

From our result in Table 9, the Correlation matrix shows that there is a weak negative correlation between Post-UTME score & UTME score and between UTME score & CGPA. In contrast, there is a weak but positive correlation between Post-UTME score and CGPA.

Conclusion

It can be concluded that that Post-UTME was more effective than the UTME. Students perform differently in Post-UTME, UTME and after first year (ND I) exams in polytechnics. There is a low and inverse relationship between students' score in Post-UTME and UTME. This relationship is however significant at 0.01 level of significance. UTME is still necessary but no longer sufficient, reliable, credible, adequate and capable of selecting credible and competent candidates for polytechnic admission in Nigeria.

Recommendations

- Polytechnics managements should give high priority to students' Post-UTME performance than their UTME performance when admitting them since Post-UTME performance impact positively on CGPA and also significantly influences the CGPA of students after first year (ND I) exams.

- JAMB should not be scrapped as being proposed in some quarters. Instead, JAMB should be saddled with the responsibility of conducting pre-qualifying examination whereby polytechnics should be allowed to conduct a Post-UTME screening since both UTME and Post-UTME are jointly significant in predicting the CGPA of students after first year (ND I) exams in polytechnics, as this will make students sit tight and shun all forms of examination malpractices.
- Polytechnics managements (especially MAPOLY) should consider adequate, a cut-off point of 200 in UTME as bench mark for calling students for Post-UTME screening exercise into polytechnics to attract the best students presumably.
- Polytechnics managements (especially MAPOLY) should consider adequate, a pass mark of 35% in Post-UTME in addition to a student's UTME score when considering students for admission into polytechnics.

References

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Result Outputs

Table 1: Model Summary (via SPSS)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.420 ^a	.176	.174	.37096	1.658

a. Predictors: (Constant), UTME, Post-UTME

b. Dependent Variable: CGPA

Table 2: Regression ANOVA (via SPSS) $\alpha = 0.05$

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	29.305	2	14.653	106.479	.000 ^a
	Residual	137.198	997	.138		
	Total	166.503	999			

a. Predictors: (Constant), UTME, Post-UTME**b. Dependent Variable: CGPA****Table 3: Coefficients** (via R)

Coefficients	Estimate	Std. Error	t value	Pr(> t)
(Intercept)	1.8199015	0.1322656	13.759	<2e-16 ***
Post-UTME	0.0211899	0.0015492	13.678	<2e-16 ***
UTME	-0.0003993	0.0004781	-0.835	0.404

Signif. codes: 0 '*' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1**

This gives the predictive model as:

$$CGPA = 1.8199 + 0.0212 \text{ PostUTME} - 0.0004 \text{ UTME}$$

Table 4: Achievement ANOVA (via MS Excel) $\alpha = 0.05$

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	29039389	2	14519694	60255.92	0	2.998729
Within Groups	722178.4	2997	240.9671			
Total	29761567	2999				

Table 5: LSD MULTIPLE COMPARISONS (via SPSS)

(I) Factor	(J) Factor	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Post-UTME	UTME	-191.80200*	.69421	.000	-193.1632	-190.4408
	CGPA	30.46386*	.69421	.000	29.1027	31.8250
UTME	Post-UTME	191.80200*	.69421	.000	190.4408	193.1632
	CGPA	222.26586*	.69421	.000	220.9047	223.6270
CGPA	Post-UTME	-30.46386*	.69421	.000	-31.8250	-29.1027
	UTME	-222.26586*	.69421	.000	-223.6270	-220.9047

*. The mean difference is significant at the 0.05 level.

Table 6: Correlation Matrix (via SPSS)

		Post-UTME	UTME	CGPA
Post-UTME	Pearson Correlation	1	-.294**	.419**
	Sig. (2-tailed)		.000	.000
	N	1000	1000	1000
UTME	Pearson Correlation	-.294**	1	-.146**
	Sig. (2-tailed)	.000		.000
	N	1000	1000	1000
CGPA	Pearson Correlation	.419**	-.146**	1
	Sig. (2-tailed)	.000	.000	
	N	1000	1000	1000

** Correlation is significant at the 0.01 level (2-tailed).