

THE DIFFERENTIAL PREDICTIVE VALIDITY OF PRE-ENTRY EXAMINATIONS ON STUDENTS' ACADEMIC ACHIEVEMENT IN THREE UNIVERSITY TYPES IN SOUTHWEST NIGERIA

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ABSTRACT

Tertiary institution admissions are regulated by statutory exam councils. Despite high pre-entry examination scores, inadequate academic achievement and examination malpractice prompted this study, which aimed, to examine the differential predictive validity of pre-entry examination on students' academic achievement in three university types in Southwest, Nigeria.

The study adopted a survey design of an *ex-post-facto* type and used a multi-stage sampling technique to select the two thousand and seventy-five (2,075) participants for this study. The date

used for the analysis were UTME scores and CGPA from the first-semester examination of the 2016/2017 academic session. Two hypotheses were formulated and tested. Multiple regression analysis was used to analyse the data at 0.05 level of significance, using the SPSS 27 version.

The findings from this study revealed significant contributions of UTME and PUTME scores to academic achievement in federal ($R^2 \text{ adj} = .158$; $F_{(2,879)} = 83.389$; $p < .001$), State ($R^2 \text{ adj} = .032$; $F_{(2,855)} = 15.362$; $p < .001$), and private ($R^2 \text{ adj} = .058$; $F_{(2,332)} = 11.220$; $p < .001$), universities. In each of the Universities, the UTME scores are the most potent in contributing to academic achievement followed by the PUTME scores. Thus, UTME and PUTME scores relatively contributed to the CGPA of undergraduates irrespective of university ownership category.

On the basis of the findings, it was concluded that there is a distinct predictive contribution of PUTME assessments and the critical role of standardized entry examinations like UTME in higher education. It is recommended that universities in Nigeria should continue utilizing PUTME as a supplementary assessment, ensuring examination quality through expert involvement in test preparation and conduct.

Keywords: Predictive Validity, UTME, PUTME, Academic Achievement, Proprietary Universities.

INTRODUCTION

Globally, tertiary institution admissions are regulated by statutory exam councils. Despite high pre-entry examination scores, inadequate academic achievement and examination malpractice prompted this study, which aimed, to examine the differential predictive validity of pre-entry examination on students' academic achievement in three university types in Southwest Nigeria. Academic achievement is vital for students' future academic success. UTME and PUTME scores are used to assess readiness for university-level studies. Academic achievement is vital in entrance examinations such as the UTME and PUTME. It indicates students' cognitive abilities, subject knowledge, and preparedness for university-level studies. Academic achievement involves complex processes within the educational setting aimed at transforming a student's existing knowledge and skills into a more advanced state. This transformation is achieved through a combination of cognitive (mental) processes and behavioural elements, highlighting the holistic nature of educational outcomes Lamas (2015).

Notably, academic achievement is a critical factor in the Nigerian university system, and UTME and PUTME play a crucial and significant role in assessing students' readiness for undergraduate studies. Students' academic achievement has a profound impact on their future success, making it essential for them to strive for excellence in their academic pursuits. The Nigerian university system comprises federal, state, and private universities, offering undergraduate and postgraduate programs. The system is overseen by the National Universities Commission (NUC). The Joint Admissions and Matriculation Board (JAMB) administers UTME while various universities conduct their own PUTME screen examination to further assess potential candidates.

In the past, UTME cut-off scores were usually set at 200 but nowadays, these cut-off scores keep lowering from 200 to 180, 180 to 160 in the previous yesteryears and it had even worsened in

the recent year 2024 when Joint Admissions and Matriculation Board (JAMB) announced that the cut-off scores were lowered to 140 for universities while that of Polytechnic, Monotechnic and Colleges of Education was 100 and 80 respectively, due to several factors contributing to the fallen standard of education in Nigeria, as evidenced by this year 2024 recent cut-off scores may include but not limited to the decline in quality of secondary education in Nigeria which was due to inadequate funding of education coupled with the poor teacher training as teachers in Nigerian secondary schools lack the necessary training and motivation to effectively teach and prepare students for external exams, and lack of basic infrastructure Aladejana, and Ojedokun (2012); Zhenseh et al.(2022).

The available evidence shows that concerns exist about the effectiveness of these exams in predicting students' academic success. Challenges include inadequate funding and infrastructure, examination malpractice, pressure to increase university admission numbers, lack of accountability and quality control, and societal and economic factors like poverty and limited access to quality education, as many secondary schools in Nigeria lack these essential infrastructures such as libraries, laboratories and technology, hindering students' ability to learn effectively UNESCO (2019). Examination malpractice is another issue affecting achievement in the university system as it has become rampant in Nigeria, leading to students being admitted into universities without meeting the required standards Pam et al (2022).

Additionally, the pressure to increase university admission numbers in Nigeria especially to accommodate the private universities which have a scanty population of students in their institutions contributed to the pressure to admit more students, leading to lower cut-off scores to accommodate more candidates Uche (2019). There was of lack of accountability and quality control leading to inadequate monitoring and evaluation of these educational institutions has contributed to the decline in standards World Bank (2018). There are societal and economic factors which pose serious challenges like poverty and limited access to quality education have also contributed to the fallen standard OECD (2019). Despite all these challenging concerns, there was limited research on differential predictive validity between UTME and PUTME in the past and there was uncertainty about predictive validity in proprietary universities in Southwest Nigeria.

However, predictive validity is a key measure of how effectively a test forecasts students' future academic performance. For a test to demonstrate predictive validity, there must be a statistically significant correlation between test scores and the criterion used to assess validity. The process involves prospective students taking the UTME, a standardized national exam administered by the Joint Admissions and Matriculation Board (JAMB), which assesses their readiness for higher education across various subjects. After the UTME, universities conduct an additional screening test, the PUTME, to further assess candidates' abilities and suitability for their specific programs. However, challenges emerge when some high-scoring students fail to gain admission into universities, leading to a gap in the correlational data and potentially undermining the validity of the tests Afolabi-Ajayi (2021).

The process involves prospective students taking the UTME, a standardized national examination administered by the Joint Admissions and Matriculation Board (JAMB), which assesses their readiness for higher education across various subjects JAMB (2023). After the UTME, universities conduct an additional screening test (PUTME) to further assess candidates' abilities and suitability for their specific programmes.

Thus, this study examined the moderator variable-proprietaryship in proprietary universities, focusing on the characteristics that influence the relationship between UTME/PUTME scores and

students' academic achievement. The study aims to identify the characteristics of proprietary universities that enhance or hinder academic achievement, understand how UTME/PUTME scores interact with proprietorship factors, and develop targeted strategies to improve academic achievement in proprietary universities.

METHODS AND MATERIALS

Research Design:

This study adopted an *ex-post-facto* research design. The *ex-post facto* research design was used for this study because both the cause and the effect had already occurred.

Population:

The universal population of this study consists of 9,000 undergraduate students admitted through UTME and post-UTME; have registered into 200 level of a stratified randomly selected sample Federal, State and Private’s higher institutions in South West, Nigeria.

Sample and Sampling Techniques:

A sample size of 2,075 students from fifteen universities was chosen through the multistage and three each State located in Southwest Nigeria, drawn from students in federal (882), state (858), and private (335) institutions were selected through a purposive proportional random sampling technique. Participants included those admitted into the 100-level during the 2015/2016 academic year based on both UTME and PUTME scores, as well as those admitted directly into 200-level in the 2016/2017 session using only PUTME scores. Their academic performance was assessed using Cumulative Grade Point Averages (CGPAs) from both sessions. Data analysis involved descriptive statistics, multiple regression, and ANOVA, with all tests conducted at a 5% significance level.

Table 1 shows the selected Sampled Universities in the Southwest of Nigeria.

Institution Proprietorship	Sampled Universities	Frequency	Per cent
Federal Universities	Federal University Oye Ekiti	120	5.8
	Obafemi Awolowo University	220	10.6
	University of Lagos	230	11.1
	University of Ibadan	210	10.1
	Federal University of Technology Akure	102	4.9
State Universities	Lagos State University	213	10.3

	Ekiti State University	205	9.9
	Osun State University Osogbo	100	4.8
	Adekunle Ajasin University	160	7.7
	Ladoke Akintola University Ogbomosho	180	8.7
Private Universities	Redeemer University	60	2.9
	Elizade University	60	2.9
	Caleb University	75	3.6
	Afe Babalola University	60	2.9
	Ajayi Crowder University Oyo	80	3.9
Total		2075	100.0

Instrumentation:

Three instruments were used for the study. The first is the admission list consisting of the names of students admitted through UTME scores and registered into 100 levels for the two academic sessions before the introduction of PUTME; while these instrument is the list of those who were admitted through PUTME scores and registered into 100 levels for the two academic sessions and the third instrument is the Cumulative Grade Point Average CGPA of students' academic performance in first semester examination for the two academic sessions of the sampled higher institutions for this study. The student academic records are kept by the respective examination officers of each institution involved in the study.

Method of Data Collection:

The researcher recruited and trained a research assistant to gather data for this study. The researcher with his assistant personally visited all the institutions chosen in the sample. At each of the institutions, they obtained permission from relevant authorities to administer the questionnaires to participants. Thereafter, the was administered to the students in their lecture hall after explaining the purpose of the study to them and assured them that the information given was treated strictly confidential and used only for research purposes. The researcher and his assistant waited to collect the completed questionnaires. The researcher sought permission to visit the sampled institutions and collect all students' past results (data) from the Exams and Records Office of the institutions in the study through the examination officers. The designated officers of the University did make available all the relevant data via softcopy after authorities had approved the request with a serious warning to treat with utmost confidentiality it deserved and strictly used for this research. From the academic status, information about students past Commutative Grade Point Average (CGPA) was accessed and

collected to answer both research questions and to test the researcher’s null hypotheses for data analysis.

Method of Data Analysis:

The demographic data of the participants were analysed using Descriptive Statistical Techniques of frequency distribution tables, mean, and standard deviation. The hypothesis was tested using Multiple Regression Analysis (MRA) at the 5% level of significance.

Ho1: There is no significant combined contribution of UTME and PUTME on undergraduates’ academic achievement in the Nigerian Universities in South West, Nigeria

Table 2: Summary of Regression Model on combined contribution of UTME and PUTME on undergraduates’ academic achievement

Proprietorship	Model	Sum of Squares	df	Mean Square	F	Sig.
Federal University	Regression	64.846	2	32.423	83.389	.000 ^b
	Residual	341.773	879	.389		
	Total	406.619	881			
Model Summary: R= .399; R² = .159; R²(adj) = .158; F(2,879) = 83.389; p <.001						
State University	Regression	13.106	2	6.553	15.36	.000 ^b
	Residual	364.719	855	.427		
	Total	377.826	857			
Model Summary: R= .186; R² = .035; R²(adj) = .032; F(2,855) = 15.362; p <.001						
Private University	Regression	10.208	2	5.104	11.22	.000 ^b
	Residual	151.036	332	.455		
	Total	161.244	334			
Model Summary: R = .252; R²=.063; R²(adj) = .058; F(2,332) = 11.220; p <.001						

a. Dependent Variable: CGPA

b. Predictors:(Constant), PUTME, UTME

Results in Table 4.5revealed that there was a combined contribution of UTME and PUTME scores on undergraduates' academic achievement among the three different University ownership. Unified Tertiary Matriculation Examination (UTME) and Post-Unified Tertiary Matriculation Examination (PUTME) scores significantly predicted the Cumulative Grade Point Average (CGPA) for Federal University students (R² adj = .158; F (2,879) = 83.389; p < .001), for State University students (R² adj = .032; F (2,855) = 15.362; p < .001), and for Private University students (R²adj = .058; F (2,332) =11.220; p <.001).

Results of this study indicated that UTME and PUTME scores combined to significantly predict undergraduates’ academic achievement among the three categories of university ownership. However, the percentage prediction was highest in the case of Federal Universities students, then

Private Universities students and State Universities students in that order, accounting for 15.8%, 5.8%, and 3.2% respectively for the variance in students' academic performance.

Ho2: There is no significant relative contribution of UTME and PUTME on undergraduates' academic achievement in the midst of Federal, State and Private Universities in South West, Nigeria

Table 3: Coefficients result on the relative contribution of UTME and PUTME on undergraduates' academic achievement

Institution	Proprietorship	Unstandardized Coefficients		Standardised Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error				Tolerance	VIF
Federal	(Constant)	.06	.25		.24	.804		
	UTME	.01	.00	.37	12.14	.000	.99	1.004
	Post UTME	.00	.00	.11	3.58	.000	.99	1.004
State	(Constant)	1.15	.33		3.44	.001		
	UTME	.00	.00	.15	4.50	.000	.97	1.025
	Post UTME	.00	.00	.08	2.49	.013	.97	1.025
Private	(Constant)	1.07	.45		2.38	.018		
	UTME	.00	.00	.21	4.02	.000	.99	1.009
	Post UTME	.00	.00	.11	2.10	.036	.99	1.009

a. Dependent Variable: CGPA

Results in Table 4.6 indicated that both UTME and PUTME scores contributed significantly and relatively to the prediction of undergraduates' academic performance among the three-university ownership. In each of the universities, the UTME scores are the most potent in contributing to academic achievement followed by the PUTME scores as observed in Federal Universities UTME ($\beta = .376$; $t = 12.149$; $p < .05$) and PUTME ($\beta = .111$; $t = 3.588$; $p < .05$). For State Universities UTME ($\beta = .153$; $t = 4.501$; $p < .05$) while PUTME ($\beta = .153$; $t = 4.501$; $p < .05$), Private Universities UTME ($\beta = .085$; $t = 2.493$; $p < .05$) with PUTME ($\beta = .112$; $t = 2.105$; $p < .05$). The findings of this study showed that UTME and PUTME scores relatively contributed to the CGPA of undergraduates irrespective of university ownership category. In each of the cases, the UTME scores are the more potent in the prediction of students' academic achievement before the contribution of post-UTME, although both are significant in predicting undergraduates' academic achievement.

DISCUSSION OF FINDINGS

The findings corroborate earlier studies at the University of Benin on the effectiveness of UTME and PUTME. Prior evidence suggested that PUTME was more effective than UTME in identifying suitable candidates for admission. Yet, Ifedili and Ifedili (2010) reported contradictory results: the top five UTME candidates scored below 40% in the PUTME, only two of JAMB's twenty-six merit-list candidates passed, and in Law and Pharmacy, the highest-performing PUTME candidates did not appear on JAMB's merit list within the same admission year.

Aina (2017), in a study of 1,650 undergraduates admitted in 2011/2012 across the Faculties of Arts, Education, Science, and Social and Management Sciences, analysed UTME and PUTME scores against students' eight-semester CGPAs. The results confirmed that PUTME contributed positively to candidate selection and that high UTME performance was also associated with academic success. Strengthening the PUTME process was therefore recommended to enhance admission quality.

Similarly, Ubi (2015) found a significant relationship between pre-entry examination scores (UTME and PUTME) and students' CGPA in Years One through Three, recommending their continued use as admission prerequisites. In contrast, Kennedy and Ebuwa (2020) reported that UTME and PUTME scores, whether independently or combined, did not significantly predict final undergraduate outcomes, thus diverging from the present study.

Overall, although UTME and PUTME scores are intended to predict academic achievement, the present findings reveal only a weak but significant predictive capacity. This underscores the need to evaluate the quality of both examinations and identify which requires reform. The concern aligns with the low correlation between UTME and PUTME scores observed by Aromasodun (2022) and Kolawole et al. (2011).

The evidence also echoes Ifedili and Ifedili (2010), who noted that some students with low UTME scores later excelled in their first year, highlighting inconsistencies in predictive validity. By contrast, Ogunniran et al. (2019) maintained that the inclusion of PUTME alongside UTME remains the most effective approach. Likewise, Ubi (2015) reaffirmed that while both examinations predict performance, PUTME demonstrates greater effectiveness in selecting qualified candidates for university admission.

CONCLUSION

The study concludes that undergraduate academic success at federal, state, and private universities in Southwest Nigeria is influenced by both UTME and PUTME scores, with UTME scores generally showing a stronger correlation with CGPA. These findings highlight the distinct predictive contributions of PUTME assessments and the critical role of standardised pre-entry examinations scores like UTME in higher education. The observed variations in scores and CGPAs performance across university types indicate the need for specialised academic assistance programme and tailored admissions methods to optimise student achievement within each university ownership group.

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