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Predictive Validity of Ume Scores to Students' Academic Achievement in Federal University of Technology, Yola

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Abstract: **Much noise has been in the air concerning the credibility of University Matriculation Examination (UME) scores for admission into Nigerian Tertiary Institutions. In this paper therefore, the researcher's purpose was to find the Predictive Validity of University Matriculation Examination (UME) scores to students' academic achievement in Federal University of Technology, Yola. The estimated population of the study was two thousand, five hundred (2500) 100-level students from which a sample of four hundred and Sixty-eight (468) was drawn, using stratified and purposive random sampling. The study employed correlation research design and used adapted existing pro-forma for data collection. The instrument was rated at 83 percent with 0.83 rational validity index. The findings revealed that there is a significant relationship between UME scores and First Year Grade Point Average (FGPA) thereby presenting UME as a strong predictor of students' academic achievement in FUT-Yola. The researcher therefore recommended among others that JAMB should improve on the integrity of its examinations, making the process acceptable to tertiary institutions.**

Keywords: **Academic Achievement, Federal University, University Matriculation Examination (UME).**

1. INTRODUCTION

University Matriculation Examinations (UME) is an examination body set up to ensure uniformity in the standard for the conduct of matriculation examination and placement of suitably qualified candidates into the nations' tertiary institutions.

University education is the highest level of educational system which aims at providing skilled and educated people for sustainable national development. Tertiary education comes up after secondary education in universities, colleges of education, polytechnics, and institutions for correspondence course. This level of education has the aim of aiding national development through level-relevant manpower training and development of individuals to acquire both physical and intellectual skills for self-reliant and usefulness in the society (National Policy on Education, 4th edition, FRN, 2004).

As a result of this laudable goal, it is crystal-clear that university is the highest centre of learning saddled with the multifarious roles to be accomplished through teachers, research, discovery and dissemination and community services. It is therefore of utmost importance to have reliable strategies for the selection of candidates to feed the various tertiary institutions in our nation. This is due to the fact that as foundation is to a building, so is the selection process to our tertiary institutions. Hence the need for standardized and reliable selection process as the input will definitely determine the output.

In the early days of our tertiary education, each institution handled the admission selection process independently which of course emanated the problem of multiple applications, multiple examinations and multiple admissions. Beyond this, the standard of such examinations could not be ascertained. This eventually brought the Joint Admissions and Matriculations Board (JAMB) on board through the decree (act) no. 2 of 1978 and amended by decree (act) no. 33 of 1989, FGN, 1978.

Asein and Lawal (2007) stated that the federal government in 1978 established JAMB with the primary objectives of ensuring a uniform standard for the conduct of matriculation examinations and placement of suitably qualified candidates into the nation's universities bearing in mind the available vacancies, institutional guidelines as well as candidates' preferences of institutions and courses.

However, examination malpractice has brought in corruption in education and assessment system. Almost all the examinations in our country have been bedeviled with examination malpractice, which the UME is no exception.

Okotete (2012) asserted that JAMB performed creditably well for over two and a half decades without any serious hitches and that this examination body was respected for its role as the sole determinants of candidates admitted by different tertiary institution until it began to experience problem of examination malpractice. The limited available spaces in our institutions could not take the growing teeming population of secondary school graduates, hence the desperacy of students to score high marks by hook or crook to get across the cut-off marks. This resulted in high level of malpractices perpetrated by candidates, parents as well as examination officials. According to Umo (2006) examiners compromised their integrity and the integrity of the examination. Also, Ekpe-Juda (2010) alleged that some officials make a fortune from the examination from leaking of question papers, organizing special centers, changing scores for those who can afford it or substituting names after admissions has been completed.

The Joint Admissions and Matriculations Board (JAMB) is responsible for the conduct of University Matriculation Examinations (UME) presently called Unified Tertiary Matriculation Examinations (UTME) to combine entrance examinations into all tertiary institutions other than universities in Nigeria. The admission process, using this examination, attempts to select qualified applicants for academic pursuit in different areas of interest. Presently, even though the various institutions conduct post JAMB test to verify the selection process, it is still the UTME that qualifies candidates to be selected to write the post JAMB. This spells out the great importance of the UTME. JAMB as the examination body itself has seen the need to ascertain relationship between UTME scores and the outcome of interest to the admitting institutions. Hence a periodic checks on predictive validity of the UME (The Research, Monitoring and Evaluation Department, JAMB 2007).

The foundation of every project is important, the admission process in any level of education will determine, to a large extent, the output. Presently, the output of our educational system as sub-standard cannot be unconnected with the foundation which is the admission process. Hence the need for constant checks on the validity of such selective examinations. A quality pre-entry examination is expected to have a reasonable relationship with post-entry examinations.

This study therefore sets to find out whether or not a candidate's success in UTME can predict his success in post-entry examinations. Examinations and tests are used as measures of academic achievement for which various interpretations and decisions are made in our educational system (Omole, 1977). In the same vein, Anikweze (2010) is of the view that testing is a trial of someone to find his ability, knowledge, skills, achievements and attitudes. Similarly, Gilbert (1974) attributes to tests the ability to predict success and failure with minimum risks both to the institution and individual involved.

The Oxford Advanced Learner's Dictionary explains the word predictive to be connected with the ability to show what will happen in the future. Harbor-Peters (1999) defines validity as the extent to which a test evaluates what it is designed to measure. Validity deals with how present performance would be used to estimate current measure of performance. Therefore, the question being asked is could students' performance in UTME predict their performance at post-entry examination such as 100 level examination?

Borg and Gall, cited in Ali, Chukwuma and Mgbodile (1991) identify that prediction studies deal with measuring a variable that can be used to predict some future events. From this, it can be understood that Predictive Validity is concerned with the usefulness of test score in predicting or estimating how the individual will perform on some subsequent criterion task. The need for a study as this is necessary due to the fact that for some time now, UTME formerly known as UME as qualifying entry examination into tertiary institutions has been clamoured by criticisms. Major of such is that students' pre-entry performance in UTME has a great divergence from the post-entry performance. Oritusin (2010) referred to a situation where University Vice Chancellors lamented that over 40 percent of registered undergraduates of most universities rarely cope, thereby questioning the high scores recorded in the UTME. Ekundayo (2010) also asserted that universities have really challenged the credibility of JAMB UTME.

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Some researchers have carried out some predictive studies on pre-entry and post-entry examinations. Among them is Abdulahi (1983) who carried out study on the predictive value of JME in selected school subjects and sought to establish empirically, the predictive value of JME by correlating its scores with the measures of first year university examination at the University of Ilorin in Biology, Chemistry, Physics, Geography and Economics. He discovered a significant correlation between JME and first year scores in Chemistry (0.72), Physics (0.59), and Economics (0.41) but low correlation in Geography (0.20) and Biology (0.32).

Nwana (1981) also sought to investigate the extent to which JME scores predict score of first year students across faculties in some Nigerian Universities. He discovered that the relationship in performance in JME and First-year Grade Point Average (FGPA) varies across the faculties and that the prediction of first and second semester year university grade is very low for JME.

Similar studies include Onwu (1985), Oyesola (1991) and Akujobi (1999). It is quite unfortunate that the low correlation as revealed in various studies is not unconnected with corruption of examination malpractice of different forms and shades. However, with the various checks put in by JAMB, there is hope. For example, in 2001, JAMB introduced variation in the numeration of questions for candidates sitting for the same matriculation examination. Presently also, there is the introduction of Biometric Data Capturing Machine to verify authenticity of candidates, thus, only right candidates are allowed to sit for the examination. It is evident that JAMB has not relented in effort to curb this menace as presently, the examination is being written through computer whereby each candidate is forced to mind his own business.

In contribution to the body of knowledge, this study sets out to find out how far UTME can predict students' performance in their post-entry examination in FUT Yola.

To achieve this, research questions are formulated and hypothesis employed.

Research Question 1

1. What is the relationship between students' UTME scores and their First-year Grade Point Average (FGPA) in FUT-Yola?

Hypothesis H_{o1}

There is no significant relationship between UME and FGPA in FUT- Yola.

Research Question 2

Is the degree of prediction of FGPA by UME scores influenced by gender in FUT- Yola?

2. DISCUSSION

Research Question 1:

What is the relationship between student UME scores and their First-Year Cumulative Grade Point Average (FCGPA) for FUT-Yola?

Table 4.1: Summary of relationship between UME scores and FCGPA for FUT-Yola

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.436[a]	.190	.184	.69612	.190	33.036	1	141	.000

a. Predictors: (Constant), UME

Regression analysis was carried out using the GPA as the criterion variable and UME scores as the predictor variable. The correlation coefficient between UME scores and FCGPA is =.436 at 1,141 DF and $p< 0.05$ is significant. Table 4.1 shows the Summary of the relationship between UME scores and FCGPA in FUT-Yola. The value of the correlation coefficient R = .436. This result is positive and moderately high. The coefficient of determination R2 =.190 or 19.0%. this means that the contribution of UME to the relationship is 19%. This result shows that the relationship between UME scores and FCGPA in FUT-Yola is high and significant.

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Table 4.2: Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	-.110	.428		-.258	.797	-.957	.736
	UME	.011	.002	.436	5.748	.000	.007	.015

a. Dependent Variable: GPA

The table above shows the calculated t-value of 5.748 which is higher than the critical t-value of 1.675 at $p< 0.05$ level of significance. We therefore conclude that since the Critical t-value at 1,141 DF is = 1.674 is less than the calculated value of 5.748 there is a significant relationship between UME scores and the FCGPA in FUT-Yola.

Hypothesis H_{o1}

There is no significant relationship between UME scores and FCGPA for FUT-YOLA.

Table 4.3: Paired Samples Statistics

		Mean	N	Correlation	Significance	Std. Deviation	Std. Error Mean
Pair 1	FCGPA	2.3282	143	.437	.000	.77065	.06444
	UME	219.47	143			30.219	2.527

Table 4.3 shows the paired samples statistics of UME with FCGPA. The table also depicts the Mean and standard deviation of UME and FCGPA. The result of the paired correlation analysis shows that it is positive and moderately high at R=.437. This result is also significant.

Table 4.4: Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	FCGPA - UME	-217.1404	29.89116	2.49962	-222.08164	-212.19906	-86.869	142	.000

Table 4.4shows the paired samples differences. From the table it can be seen that there exist a significant relationship between UME scores and FCGPA in FUT-Yola. It also shows the paired samples test of FCGPA- UME, the calculated t-value = -86.869 is > the critical t-value = 1.645 at 1,142 d.f in absolute terms. This is significant at $p<0.05$ level. Therefore, since the calculated value of -86.869 > the critical value of 1.645, we reject the hypothesis which says that there is no significant relationship between UME scores and FCGPA. In other words, there is a significant relationship between FCGPA and UME scores in FUT-Yola.

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Research Question 2:

What is the relationship between male and female students' performance in UME, and FCGPA for FUT-Yola?

Table 4.5: Summary of Relationship between performance of Male students in UME and FCGPA

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
	Sex = Male (Selected)				R Square Change	F Change	df1	df2	Sig. F Change
1	.348[a]	.121	.118	.90760	.121	34.076	1	247	.000

a. Predictors: (Constant), UME

The general contribution of UME to the prediction or relationship between UME and FCGPA is .434. This result is for both males and females students from FUT-Yola. Table 4.5 shows that taking males alone showed an R = .348. This is lower than when the two sexes were combined. The contribution of male candidates to the relationship is about .121 or 12.1%. Therefore, the relationship between male UME students and FCGPA is positive, high and significant at $p < 0.05$.

This study employed correlation research design, with the aim of discovering relationships between the two variables (University Matriculation Examination and First Year Grade Point Average). The predictor variable can be seen as the independent variable which is the UME screening test scores while the other criterion variable is the students' First Year Grade Point Average (FGPA) and also regarded as the dependent variable. The research design adopted is ex-post facto in nature, all the research variables had already existed before the commencement of the study and hence the researcher neither controlled nor manipulated any of them.

The estimated population size was two thousand and five hundred (2500) candidates from which a sample of four hundred and sixty-eight (468) candidates were selected using stratified random and purposive sampling. The limitation in the sample size arose from the exclusion of the use of modes of admission other than the University Matriculation Examination, such as Remedial Studies/ Pre-degree.

The instrument used for collecting the data was an adapted existing pro-forma [used by Omole (1997) and JAMB (2007)].

Furthermore, the format for data collection was subjected to critical appraisal by authorities in research methods and educational measurement and evaluation and their ratings of the appropriateness of the instrument were translated into percentage scores through which a mean of 83% was obtained. This percentage was interpreted as 0.83 rational validity index (Anikweze, 2010).

For uniformity sake, there was conversion of each candidate's score both UME and that of First Year Grade Point Average. Pearson Product Moment Correlations and Regression were employed for data analysis. The former was used to obtain the co-efficient of relationships between the variables, while Regression was used to find the equation for prediction. All analysis were done using SPSS 17.0 version.

3. CONCLUSION

From the above results, it is clearly seen that University Matriculation Examination (UME) served as a good predictor of the students' performance in their first year results. The result was in line with Omole (1997), who discovered that UME was one of the good predictors of students' performance in the university.

In the same vein, Ojerinde and Kolo (2009) discovered that there was a positive relationship between UME and students' First Year Grade Point Average. Some factors may account for the good performance of JAMB UME. The involvement of experts in the field of Test and Measurement in the test construction must have contributed immensely. Secondly, JAMB has always been carrying out predictive validity of her examinations to be sure of its relevance (Ojerinde and Kolo 2009). Also, JAMB examinations could be seen as a standardized examination which is subjected to various levels of judgement to improve its reliability, usability and validity. Equally, the UME is an achievement test in orientation.

4. RECOMMENDATIONS

The above findings imply that UME is a good predictor of students' First Year Cumulative Grade Point Average (FCGPA). Consequently, the following recommendations are made:

1. The Federal government should throw more weight behind the UME examination body (JAMB), by improving on the quality of the development and administration of its examinations.
2. JAMB should continue to improve on the integrity of its examinations to make the result reliable and acceptable. According to Olugbile (2010), Farouk Lawan, the then chairman of the house committee on education, said that JAMB should review the conduct of the UME and make the process acceptable to the universities.
3. The penalty for the offence of the examination malpractice should be commensurate to enable its enforcement.
4. JAMB should be more thorough in the compilation of candidates result to avoid the error of fictitious results.

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