

PREDICTIVE VALIDITY OF POST UNIFIED TERTIARY MATRICULATION EXAMINATION SCORES AGAINST CUMULATIVE GRADE POINT AVERAGE OF UNDERGRADUATES IN BENUE STATE.

Aduloju, M. O. (adumeg@gmail.com)

Adikwu, Odihi (Odihiadikwu@gmail.com), &

Tsanger Terkura (tsangerter@gmail.com)

*Department of Educational Foundations and General Studies, Federal University of
Agriculture, Makurdi, Benue State-Nigeria*

ABSTRACT

The successive introduction of different complementary criteria for admission into Nigerian Universities and other higher institutions is informed by the desire to get candidates properly screened to ensure that only the most qualified are admitted. This also presupposes that there has ever been the felt-need to continue to improve on the admission process in order to ensure that those admitted have the potential to succeed in the task ahead of them. The latest of these admission criteria, which was introduced and later cancelled, is Post-Unified Tertiary Matriculation Examination (Post-UTME). This was purported to be an aptitude test that should not only select suitably qualified candidates for admission but also predict their performances in the undergraduate programme. This paper assesses the relationship between performance of students in Post-UTME and their performance in the undergraduate programme in the universities in Benue State, with a view to determining the potency or otherwise of the cancelled aptitude test. Proportionate stratified random sampling technique was adopted to select 376 out of 6301 students admitted by three universities in Benue State, during the 2011/2012 session. Post-UTME scores of those sampled and their 2nd year Cumulative Grade point Average (CGPA) were collected, using a self-constructed proforma and correlated using Spearman ranked order correlation (r). The coefficient of determination (r^2) was also calculated to ascertain the extent to which variations in student's CGPA are explained by Post-UTME scores. Based on the findings, appropriate recommendations were made.

Keywords: Post-UTME, Aptitude Test, Assessment and Predictive validity.

INTRODUCTION

Different levels of education have pre requisites which form the basis for screening and selection of qualified candidates for admission. This is true of tertiary level of education. Nigerian universities in particular have, since inception of university education in this country, adopted some criteria as the basis for selection and placement of candidates considered to be qualified for admission into different courses. The Senior School Certificate Examination (SSCE) has been one of them.

During the colonial days and prior to the establishment of the West African Examinations Council (WAEC), external examinations for secondary school leavers were conducted by some external agencies like Cambridge University, London University, City and Guides of London, Royal Society of Arts, among others (Adejoh and Obinne, 2013). The certificate issued by these bodies formed the basic prerequisite for admission into the higher education institutions, including universities. However, as time went on, the colonial government saw the need for an indigenous examination body to conduct external examinations and issue ordinary level certificates to deserving candidates in the four Anglophone West African countries (Nigeria, Ghana, Sierra Leone and the Gambia). A proposal to that effect was therefore submitted in 1950 and WAEC was subsequently established in 1953 (Adejoh & Obinne, 2013) to take over the responsibility of conducting the external examinations for award of ordinary level certificates to secondary school leavers in the present day Nigeria and other affected countries of Ghana, Sierra Leone and Gambia. Other examination bodies that also issue the SSCE are the national Examinations Council (NECO) and the National Business and Technical Education Board (NABTEB). According to Harbor-Peters (1999), NECO was established in 1999 with its headquarters at Minna, Niger State, to serve as an alternative examination body to WAEC. One of its functions is the conduct of SSCE. On the other hand, NABTEB was established by Decree no 70 of 1993 to, among others take over the conduct of technical and business examinations earlier conducted by the Royal Society of Arts of London, City and Guilds of London and WAEC as well as issue results and certificates.

This ordinary level certificate issued by WAEC, National Examinations Council (NECO) and National Business and Technical Education Board (NABTEB), which is known by the name Senior School Certificate Examination (SSCE) in Nigeria today, had among other purposes, served as the basic academic requirement for admission into the universities and other tertiary institutions in the country for a good number of years.

However, it came to be observed that the SSCE, as the only basic academic requirement for university admission had, over the years, failed to ensure the proper screening and

selection of the most qualified candidates for admission into Nigerian universities due to inherent irregularities and malpractices. Thus, Oku (2006), laments that the SSCE is fraught with all manner of examination malpractices. In agreement, Nnachi (2006) maintains that;

In as much as external examinations have become the parameters for measuring the quality of relevant characteristics or traits in the learner, especially as it relates to primary and secondary levels of education, thereby determining the suitability of the candidate for furthering his or her education, external examinations in Nigeria have witnessed some embarrassment of fraud P234.

It is pertinent to state that the devastating impact of examination malpractices on the credibility/integrity of any examination and hence its results does not need any emphases here. The loss of confidence in the SSCE as occasioned by the menace of examination malpractice and the consequent introduction of additional and complementary examinations as the basis for selection and placement of candidates into admission vacancies in the universities and other tertiary institutions in Nigeria. This may have become a major contributory factor to the production of the present crop of graduates, most of whom the society seems to be dissatisfied with their performance and therefore quality.

The Joint Admissions and matriculations Board (JAMB) was therefore established by law to conduct matriculation examinations into all approved universities in Nigeria. According to Harbor-Peters (1999), with the establishment of JAMB in 1977, an additional requirement for admission into Nigerian universities was introduced (i.e. to conduct matriculation examinations for admission into all Nigerian universities). The author further clarifies that the establishment of this examination body was aimed at monitoring and coordinating admission into the universities through a centralised examination system in order to do away with problems of multiple admissions of candidates and also minimise cases of admission irregularities as well as malpractices among individual universities (Adenegan and Osho 2012).

The examination conducted by JAMB was then referred to as Universities Matriculation Examination (UME). This was aimed at distinguishing it from the other examination conducted by the same body for Monotechnics, Polytechnics and Colleges of Education (MPCE). However, in 2010 the mandate of JAMB was extended to cover all approved Polytechnics, Monotechnics and Colleges of Education in the country. According to Adenegan and Osho (2012), JAMB therefore started conducting a single examination

known as Unified Tertiary Matriculation Examination (UTME). Thus, Adejoh and Obinne (2013) identify one of the functions of JAMB as the placement of suitably qualified candidates into the admission vacancies in the nation's higher institutions based on guidelines approved for each institution by its proprietor and candidates' preferences. According to the Registrar of JAMB as cited by Adenegan and Osho (2012), the introduction of UTME was intended to solve admission problems in the nation's tertiary institutions. And that unification of admissions by JAMB was also aimed at removing the dichotomy between graduates of the universities and other tertiary institutions. Thus, Imam, Onyeneho, Onoja and Ifewalu (2015) declare that JAMB is committed to ensuring that the assessment of candidates for admission into all tertiary institutions in Nigeria is given the highest technical quality and is free from all forms of bias.

However, as time went on the Nigerian educational system again became dissatisfied with the effectiveness and efficiency with which JAMB had lived up to this responsibility. This is because examinations conducted by this body were not completely free from malpractices and other irregularities. In this regard, Hamman-Tukur (2013) asserts that universities in Nigeria alleged malpractices in the conduct of UTME by JAMB, which gave rise to the introduction of Post-Unified Tertiary Matriculation Examination (Post-UTME) by the university authorities to serve as an aptitude test for university admission in Nigeria. According to Bandele (2004), aptitude is the innate capacity of an individual to learn, and that tests used in measuring aptitude are predominantly administered where prediction of subsequent performance, not based on prior learning is intended. The author explains further that aptitude tests can be used to estimate the extent to which an individual will benefit from a specific course or training and hence his/her suitability for such a course. This implies that such tests constitute a yardstick not only for selection but also for placement of candidates into courses where they have high scholastic aptitude.

From the foregoing, the importance or usefulness of aptitude tests is no longer farfetched. In this regard, Ary, Jacobs, Sorensen, & Rezavieh, (2010) declare that educators have found aptitude tests useful and generally valid for the purpose of predicting school success. This explains why such tests are also referred to as scholastic aptitude tests as their main purpose is to predict individuals' potential for future performance. Bandele (2004) therefore declares that the purpose of aptitude tests is more of the determination of the innate capacity to learn and not the outcome of extensive learning itself.

What has been said so far portrays clearly that one who seats for and performs well in an aptitude test potentially stands to do well in future learning endeavours. It is pertinent to

stress here that the introduction of post-UTME, also referred to as aptitude test, was informed by the felt need to ensure more sanity in the university admission process in this country. Thus, before its recent scraping, post-UTME served as the final complementary criterion for university admission in Nigerian universities. This was aimed at doing away with the observed mismatch between candidates' performance in public examinations and their subsequent low achievement in university degree examinations (Obioma and Salau, 2007). In a related way, Hamman – Tukur (2013) analysed that in order to qualify for university admission a candidate had to pass the SSCE with at least five credits (at not more than two sittings) including English Language and Mathematics. Also, that such a candidate has to make a minimum of 180 and above, depending on the course and university, in the UTME. The candidate will then be subjected to post-UTME screening, if he or she did not apply through direct entry. The important expectation of this admission process had been that a candidate's good performance in the SSCE and UTME indicate successful completion of the secondary level of education and the readiness of the candidate to transit to the next level, while good performance in POST-UTME should predict the potential in the candidate to succeed in the enormous task ahead of him or her in the university. The extent to which POST- UTME, not only serves as an admission criterion but also provides the basis for prediction of the future performance of those admitted depicts its predictive validity, otherwise its recent scraping shall be justified.

Validity is one important attribute possessed by any assessment exercise which helps to determine or indicate its usefulness and most importantly that of the data generated from it. Afemikhe (2014) argues that in validity, the interest is on the defensibility of the inferences made from assessment score. The property is not that of the instrument but of the inferences base on the score obtained from the assessment. However, the focus in this work is not on the instrument itself but rather on the interpretation and meaning/usefulness of the scores generated from the instrument. That is, the validity of the interpretations and the inferences that are drawn from the scores obtained from the instrument as compared to future performance of the same person (s). This refers to the type of validity known as predictive validity (Ary, et al, 2010). The authors went ahead to define predictive validity as the relationship between the scores obtained on a particular measure and the criterion scores obtained at a future time. This was also buttress by Afemikhe (2014) that say the predictive related validity evidence try to show if the present test score can predict a specified future performance. The author argument is that if the final grade point average (GPA) at the university is to predict then the UTME scores PUTME scores are correlated with GPA, and if the coefficient between the predictor and the criterion is high a higher validity coefficient will be obtained. Olomolaiye in Fakeye

(2005) earlier stated that predictive validity is the degree to which variation in a predictor variable forecasts variation in a criterion variable. An example of a typical criterion is Cumulative Grade Point Average (CGPA) which is considered a relevant measure of success at the tertiary level of education and is generally chosen as a criterion for validity studies of scholastic aptitude tests (Ary, et al, 2010).

It is important to stress here that in any validity studies, two different examinations are usually involved. The first examination taken is called the predictor variable, while the one that is taken later is called the criterion variable (Adejoh and Obinne, 2013). The extent of prediction and therefore level of predictive validity of the predictor on the criterion variable is dependent on the nature and strength of the relationship between them. In this regard, Fakeye (2005) declares that predictive validity can only be established between the predictor and the criterion been measured where there is a positive high degree of relationship or correlation between the scores obtained from the predictor and the criterion. Adejoh, and Obinne (2013) further clarify that the higher the correlation, the more effective is the test in predicting the criterion. Ary, et al (2010), maintain that academic performance of learners can be predicted using available data on their present and previous performances. The scholars further report that correlation researches have shown that high school grades and scholastic aptitude measures are related to college Cumulative Grade Point Average (CGPA). Thus, if a student scores high on aptitude test and has good grade in high school, he or she is more likely to make good grades in college than the student who scores low on the two predictor variables. The scholars conclude that although this prediction may be affected by such personal intervening factors as motivation, initiative or study habits among others, the prediction is good enough to be useful to college admission officers.

A number of related studies have been carried out in this regard. In the study on predictive validity of public examinations on performance of graduates of Nigerian universities, Obioma and Salau (2007) found that public examinations were poor predictors of university students' academic achievement. This was also buttressed by Omodara (2010) whose study revealed poor predictive validity of UME scores on academic performance of science university graduates. In the federal universities across the country, Ikiroma (2016) found that UTME and POST-UTME were not statistically significant predictors of CGPA in most of the faculties/colleges of the affected universities. The present study samples one each of federal, state and private universities in Benue State to fill the existing gap. In this study therefore, Post-UTME scores of students were correlated with their corresponding CGPA to assess the relationship between the two variables with a view to determining the potency or otherwise of the former as an aptitude test for

university admission in Nigeria. This shall help to determine whether or not the scrapping of the aptitude test is justifiable.

RESEARCH QUESTION

This research question was raised to guide the study;

What is the relationship between students' performance in post-UTME and their performance in the undergraduate programme?

METHODOLOGY

This paper is a correlational study. This is because it attempts to correlate two variables all of which the authors cannot manipulate but accept as given. The population consist of 6301 undergraduates admitted by three universities in Benue State during the 2011/2012 academic session. A sample of 376 students was selected using multi-stage technique: the three universities represent federal, state and private universities. The students' sample was selected using proportionate stratified random sampling technique given that students were stratified on the basis of institutional affiliation. Data for the study were collected from the academic offices of the three universities using a self-constructed proforma. The scores of the two variables involved were both converted to percentages in order to allow for a common unit of measurement, and correlated using Spearman Ranked Order Correlation (ρ) to answer the single research question for the study, while the coefficient of determination (r^2) was computed to ascertain the extent of variation in CGPA that can be explained by Post-UTME scores.

Results

Research Question 1

What is the relationship between students' performance in post-UTME and their performance in the undergraduate programme?

Table : Correlation Analysis of the relationship between Post-UTME and CGPA of undergraduates in the universities in Benue State

Pair of variables	N	...	r	R ²
Post-UTME/ CGPA	376	.05	.40	16%

The range of correlation coefficient from +0.4 and below indicates positive low relationship, +0.5 and +0.6 indicates positive moderate relationship while +0.7 and above indicate positive high relationship between the variables of interest (Rumsey 2016). Thus, data in the table showed that there is a direct positive but low relationship between candidates' performance in Post-UTME and their corresponding performance in the undergraduate work as exemplified by their CGPA. This implies that good performance of students in Post-UTME could be indicative of their likely good performance in the undergraduate work, as measured in their CGPA. However, the relationship is not very strong, as it is clearly portrayed by the magnitude of the correlation coefficient which is 0.40 in respect of the relationship between the two variables.

In order to determine the extent of predictive validity of student's post-UTME scores on their academic achievement in the universities, the Coefficient of Determination (r^2) was calculated and found to be 16%. This implies that only 16% of variation in students' CGPA is explained by variation in their post-UTME. This is an indication that post-UTME does not significantly predict CGPA.

DISCUSSION

The results of data collected and analysed for the study indicate that there is a direct positive but low correlation between performance of candidates in Post-UTME and their corresponding performance in the undergraduate programme. And that the relationship between the two variables is not statistically significant. This therefore implies that Post-UTME is a poor predictor of CGPA. The finding is therefore consistent with those of Ikiroma (2016), Omodara (2010) and Obioma and Salau (2007) who found that Post-UTME, UME and public examination were poor predictors of university students' academic achievement (CGPA). The inability of Post-UTME, as an aptitude test for university admission to serve its desirable purpose of predicting students' future performances and therefore their scholastic abilities may be attributable to the reason contained in the views of Bandele (2004) who maintains that most local tests though called aptitude tests are at best achievement tests, such that some individuals may perform well in a given aptitude test but shall have no potential for future learning because such a test is not truly a measure of the capacity to succeed in future learning but rather a measure of previous learning due to intensive instruction or training. This factor, coupled with inherent irregularities and/ or malpractices may likely render an aptitude test unreliable and its results undependable. One may readily agree with the nature of the test as a limiting factor in this case. This is because tests are constructed to serve different purposes, that is why an aptitude test is different from an achievement test, as the formal

purports to measure and determine one's capacity for future learning and hence its rightful description as a scholastic aptitude test, while the purpose of the later is to measure one's level of present learning achievement, as the name implies. Thus, any test that is constructed as an achievement test but is erroneously or ignorantly administered as an aptitude test would produce invalid and unreliable assessment data, whose interpretation and inferences would definitely be misleading.

In agreement with the limiting factors of malpractices and other irregularities, Esein and Lawal (2007) lament that post UTME screening itself is not immune from the scourge of examination malpractice that is ravaging the countries' education system today. Indeed, the devastating and far reaching impact of examination malpractices and other examination irregularities on the validity and reliability of evaluation data in the contemporary Nigerian society cannot be overemphasised. It is rather pertinent to note here that any assessment data that happen to be a product of examination malpractice is rendered invalid and unreliable. Post-UTME as an aptitude test for university admission in Nigeria seems to be a likely victim of these factors, if not more, which led to its eventual abolition.

CONCLUSION

Based on the result of the study, Universities authorities should not base their admission criteria solely on the student's Post –UTME scores because this has not really shown the true reflection of the student's ability. This further portrays that there is no strong positive relationship between the variables (Post-UTME and CGPA). It is therefore concluded that Post-UTME is a weak predictor of undergraduates' CGPA.

RECOMMENDATIONS

Based on the findings of the study the following recommendations were made;

- i.** Though the relationship between Post-UTME and CGPA is positively low, it should be used along with other criteria's for admission,
- ii.** Relevant stake holders should intensify efforts to safeguard the conduct of all examinations, both internal and external, in order to minimise cases of examination malpractice and other irregularities that tend to render their results invalid, unreliable and therefore undependable.
- iii.** University authorities should intensify efforts at ensuring that their internal examinations (tests and semester examinations) are devoid of all forms of malpractices/irregularities in order to make the results a true reflection of the students' abilities.

- iv. Examination bodies and university authorities should raise their minimum cut-off points and pass mark from 'average' to half ($1/2$) of the maximum marks obtainable. This is necessary in the present dispensation where malpractices and other irregularities have adulterated performance so much that it becomes difficult to determine who passes on merit and who does so with the aid of one malpractice or the other.

REFERENCES

- Adejoh, M. J. & Obinne, A. D. E. (2013). *Basic Issues in Test, Measurement and Evaluation*. Makurdi: Asofad Printing Limited.
- Adenegan, K. E. & Osho, F. T. (2012). Comparison of the Academic Performance of Students Admitted Through UME and Direct Entry Model: A Case Study of the Department of Mathematics, Adeyemi College of Education Ondo. *Journal of Science and Education*, 3(1), 67-77.
- Afemikhe, O. A. (2014). *Educational Measurement and Evaluation*. Ibadan: Amfitop Books (A subsidiary of Amfitop Nigeria Limited).
- Ary, D. Jacobs, L. C. Sorensen, C. K., & Rezavieh, A. (2010). *Introduction to Research in Education*. Belmont: Wadsworth.
- Bandle, S. O. (2004). *Educational Research in Perspectives*. Ibadan: Niyicomland Printing Stores.
- Esein, J. E, and Lawal, Y. (2007). Admission into Tertiary Institutions in Nigeria. A Paper Presented at the 33rd Annual Conference of the International Association for Educational Assessment, held at BukuAzerbaijan from 17th – 21st September.
- Fakeye, D. O (2005). An Examination of Predictive of Senior Secondary School Certificate Examination English Language Scores in Selected Secondary Schools in Ibadan. *Journal of Contemporary issues in Education*, 3 (1).14-21.
- Hamman-Tukur, A. (2013). Assessment in the Nigerian educational System and the Transformation Agenda: The Need for Change. *Journal of Educational Research and Evaluation*, 12 (Sp. Ed), 15-21.

- Harbour-Peters, V. F. A. (1999). *Noteworthy Points on Measurement and Evaluation*. Enugu: Snaap Press Limited.
- Ikiroma. B. (2016). Predictive Validity of Academic Entry Requirement into Federal Universities in Nigeria. *Journal of Educational Research and Behavioural Sciences*, 5 (2), 031-040.
- Imam, J. D. Onyeneho, P. Onoja, J. O. & Ifewalu, C. B. (2015). Assessing Quality of UTME through the Applications of Modern Test Theory in Test Production Process. *Journal of Educational Assessment in Africa*, Vol, 10.
- Nnachi, R. O. (2006). Causes of and Remedies for Examination Irregularities among External Examination Candidates in Nigeria. *The Nigerian Educational Psychologist*, 4(2) 233-243.
- Nworgu, B.G. (1991). *Educational Research: Basic Issues and Methodology*. Ibadan: Wisdom Publishers Limited.
- Obioma, G. & Salau, M. (2007). The Predictive Validity of Public Examinations: A Case Study of Nigeria. A Paper Presented at the 33rd Annual Conference of International Association Educational Assessment (IAEA) Held in Baku, Azerbaijan. 16th - 21st September.
- Oku, O. O. (2006). Perception of Secondary School Principals on Forms of Unethical Behaviours in Senior School Certificate Examinations (SSCE) and way of Promoting the Ethics of Examination. *The Nigerian Educational Psychologist*, 4 (2) 223-232.
- Rumsey, D.J (2016) *Statistics for Dummies*. 2nd edition: <http://www.dummies.com/education/math/statistics/how-to-interpret-a-correlation-coefficient-r> retrieve 13/09/17.