

## **Meta-Analysis of Predictive Studies of University Matriculation Examination in Nigeria**

**Ale Veronica Modupe\*, Prof E.B Kolawole**

Faculty of Education, Ekiti State University, Ado – Ekiti, Nigeria

### **\*Corresponding Author:**

Ale Veronica Modupe

Email: [dupedupson@yahoo.com](mailto:dupedupson@yahoo.com)

---

**Abstract:** The study investigated the results of past research studies on predictive strength of University Matriculation Examination in Nigeria. The purpose was to identify the area of weakness in past predictive studies on University Matriculation Examination in Nigeria and to employ meta – analytic method to integrate past studies on predictive validity of university matriculation examination in Nigeria. The research used a sample size of 35 studies on predictive validity of UME in Nigeria that was purposively selected to have met the criteria for meta – analysis. The study employ the descriptive design of survey type. For each of the 35 studies used for this meta – analysis, a coding sheet was designed to document the sample size and the probability level. The data collected were subjected to Chi – Square ( $\chi^2$ ), standard normal deviate, and Fisher’s Z transformation at 0.05 level of significance. The result of the findings indicated that differences in the sample size of selected empirical studies significantly affected the validity of UME and that there was no significant difference in the probability levels of the selected studies. Based on the findings, it was recommended that there should be a benchmark for sample size of published articles like journal papers and unpublished studies like Ph.D and masters work. A standard range of probability level of 0.05 and 0.01 for published and unpublished articles should be strictly adhere to.

**Keywords:** University Matriculation Examination, Nigeria, weakness , predictive studies, meta – analysis

---

### **INTRODUCTION**

In recent times, there has been a lot of criticism and arguments that the crop of university undergraduate we have in our various higher institutions in Nigeria today are not comparable to the ones of olden days, which was regarded as the era of golden age of education in Nigeria. There are lamentations from home and abroad that the glorious and enviable days of high academic standard have gone into extinction among the Nigerian undergraduates.

There have been lots of students through JAMB which were found to be unable to cope with university education. Ejikonye[1] lamented that many who obtained high scores in JAMB did not demonstrate comparative level of ability in the university. Ogedengbe[2] also discovers that candidates admitted into Nigeria Universities through JAMB, many of whom were credited with high scores such as 260,270, or more are being forced to withdraw due to intolerable poor academic performance. In his own submission, Obaji [3] lamented the grievous situation in the quality of students selected by JAMB, like somebody who scored 290 or 300 in the UME but cannot spell lagos or lawyer and cannot answer basic question posted to him. Infact, in the research conducted by Umo and Ezedu

[4], who examined the relationship between UME and post-UME scores, at university of Nsukka accusing fingers who pointing at the JAMB for contributing to the law of correlation due examination malpractice. The duo even recommended that those who scored highly in JAMB and very low in post UME screening should be intinterrogated unchanged over to the law enforcement agent provided they were unable to provide sufficient answers for the disparity .

These have led many researchers into predictive validity of University Matriculation Examination in Nigeria , as there are many studies, so also are their variations and conflicting research results. While some studies have shown that academic achievement can be predicted from grades assigned to students in previous works, others have shown there are no relationships at all. These contradictions are clearly revealed in the works of Oluwatayo [5], Ogedengbe[2] who found that UME had low predictive strength on undergraduates performance. Ndem [9] investigates the usefulness of the Joint Matriculation Examination (JME) in Nigeria university admissions. The result of the analysis showed a significant difference in (JME) composite performance for 1987/1988 set and that no

entry qualification was superior to others as an admission criterion for every selected course of study.

Ogedengbe [2], mentions that JAMB results are far from reflecting the true relative abilities of candidates. "That the JAMB questions leak regularly, impersonation is wide spread, high mark can be bought from JAMB officials and that the JAMB computing system sometimes do interchange marks for a fee". The questions now are "how well does UME predict the performance of students in the universities? What are causes of variance in the reports of past predictive studies on University Matriculation Examination?"

In order to answer the above questions, this work had meta – analyzed and synthesized the results of past research studies on predictive validity of University Matriculation Examination in Nigeria .What is meta-analysis.

Meta – analysis is the bringing together of data from a large collection of past researches on a particular topic for the purpose of integrating the findings. Meta – analysis is an attempt to correct weakness in individual research by integrating the findings of past research studies.

### Statement of the Problem

The problem of this study is the inherent flaws in the individual research work. These flaws are traceable to the type of sample size and probability level used by different researcher. It has been discovered that relying on individual studies may be misleading and hence the use of meta – analysis to scientifically and statistically integrate the studies with the power to correct this flaws and bring out more acceptable and reliable results.

### Research Hypotheses

In an attempt to solve the problem associated with isolated individual studies. The following research hypothesis were generated and tested at 0.05 level of significant.

Ho<sub>1</sub>: The sample size of the studies will not have a significant effect on the effect size.

Ho<sub>2</sub>: The selected studies are not significantly different in terms of their probability level.

### METHODOLOGY

This study used the descriptive research of survey type. Meta – analytic technique for integrating research findings by Glass [6] and Rosenthal [7] was also utilized.

The population included all available published articles, unpublished PhD and master’s dissertations, conferences and journal papers that focused on predictive validity of UME in Nigeria . The sample used consisted of 35 studies among so many that met the criteria for meta analysis. The 35 studies

included both published and unpublished research work like thesis and students project. For each of the 35 studies used for this meta analysis, a profoma known as coding sheet was designed to document the following criteria:

1. The type of publication
2. The year of publication
3. Units of analysis used in computing
4. Types of significance testing
5. Recorded probability level
6. Sample size and sample type.

The data collected were analysed using Hunter and Schmidt's [8] psychometric meta analytic method. In this method, all studies related to the predictive studies of university matriculation examination in Nigeria were gathered together. "The effect size" and the probability level of each study were recorded and the results were transformed using fisher's transformation.

### RESULTS

The results of the study are presented as follows

Ho<sub>1</sub>: The selected studies are not significantly different in terms of their sample sizes.

**Table-1: Heterogeneity of sample size.**

No of Studies (N)	N – 3	Mean Fisher Zr	Weighted Fisher {Wzr}	(N – 3)Zr
35	23956	0.374	0.481	11527.3765

P < 0.05

From the table the mean fisher Zr = 0.37352 and the weighted fisher = 0.48119 (Wzr) is greater than the mean fisher (Zr), the null hypothesis is rejected. This simply means that the heterogeneity of the effects size of the selected studies is due to heterogeneity of the sample sizes used by various primary researchers.

**Table-2: Computation of the probability levels of the 35 selected studies**

No of Studies	Z (standard normal deviate)	(Z – Z) <sup>2</sup>
35	1.80	2.85

The statistical significance of the heterogeneity of the probability levels was obtained from Chi – square ( $\chi^2$ ) computed from the expression given by Rosenthal and Rubin (1997). Each of the P – value for the selected studies was converted to the standard normal deviate (Z) to produce a uniform scale.

From table 2, the calculated  $\chi^2 = 2.85$  is less than table value of 43.7 at P = 0.05. Since the table value is greater than the calculated value, the null hypothesis is accepted.

---

## DISCUSSIONS

From table 1, the result of the hypothesis showed that selected studies are significantly different in terms of their effect sizes. The implication of this is that there is no statistically linear trend in terms of effect size across this set of studies. The sample size apply an important role in appropriateness of the statistical techniques used by various primary researchers, hence there is a need to map the type of techniques the researchers uses. Using Pearson to analyse nominal or ordinal data may be a great error.

The result of hypothesis 2 showed that there are no significant difference in the selected studies in terms of their probability levels. This then means that the probability level set for individual research studies, either published work like journals and conference papers or unpublished studies like PhD or master's dissertation have no significant effect on the result of individual research studies.

## CONCLUSIONS

From the analysis of data, it can be clearly seen that differences or variations in the sample size used by different researcher was responsible for differences in the result of past predictive studies on University Matriculation Examination in Nigeria, because from the analysis of the second hypothesis the probability level set for individual research studies have no significant effect on the result of past predictive studies on predictive validity of UME in Nigeria. although there exist a probability level of 0.05 in education and 0.01 in the sciences accepted for researchers and since almost all of the primary researchers uses the accepted probability level, hence the non – significant result.

## RECOMMENDATIONS

On the basis of the findings of this study, the following recommendations are made.

1. There should be a bench mark for sample size that would be used for published and non – published article.
2. A standard range of probability level of 0.05, 0.01 set for published and unpublished articles should be strictly adhered by all researcher at any level since the result shows no significant relationship.

## REFERENCES

1. Ejikeonye; Scrap JAMB, NECO and save Nigeria Education. Lagos forum on express yourself responsibly, 2004.
2. Ogedengbe; JAMB, a Growing Natural Headache. Guardian, Thursday 9<sup>th</sup> November, 2000.
3. Obaji C; Post UME tests; FG backs ministers, the punch newspaper, 17th November, 2005.
4. Umo U, Ezedu SA; The relationship between University Matriculation Examination and the screening scores at the University of Nigeria, Nsukka, 2010.
5. Oluwatayo JA; Mode of entry and performance of Nigerian University undergraduates in science courses. Ph.D Thesis Faculty of Education, University of Ado – Ekiti, 2003.
6. Glass GV; Meta – analysis in social research” sage publications inc, 1981.
7. Rosenthal, Rosnow; Essentials of behavioural research, 1984.
8. Hunter JE, Schmidts FL; Methods of meta-analysis correcting errors and bias in research findings. New bury park. C.A. sage production, 1990.
9. Ndem UD; Validity of the Joint Matriculation Examination for Admission and its predictive value for Academic performance ObafemiAwolowo University. Ile – Ife . 1991.