

**UNIVERSITY MATRICULATION EXAMINATION AS A PREDICTOR
OF STUDENTS' FINAL GRADES IN THE FACULTY OF HEALTH
SCIENCES AND TECHNOLOGY OF UNIVERSITY OF NIGERIA,
NSUKKA**

BY

**EZE, EUNICE CHINYERE
REG. NO: PG/M.SC/08/53061**

M.Sc DISSERTATION

**PRESENTED TO THE DEPARTMENT OF
NURSING SCIENCES
FACULTY OF HEALTH SCIENCES AND TECHNOLOGY
COLLEGE OF MEDICINE
UNIVERSITY OF NIGERIA, ENUGU CAMPUS**

**IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE
AWARD OF MASTER OF SCIENCE DEGREE IN NURSING
(NURSING EDUCATION)**

SUPERVISOR: DR (MRS) N .P. OGBONNAYA

JANUARY, 2014.

TITLE PAGE

**UNIVERSITY MATRICULATION EXAMINATION AS A PREDICTOR
OF STUDENTS' FINAL GRADES IN THE FACULTY OF HEALTH
SCIENCES AND TECHNOLOGY OF UNIVERSITY OF NIGERIA,
NSUKKA**

BY

**EZE, EUNICE CHINYERE
REG. NO: PG/M.SC/08/53061**

M.Sc DISSERTATION

**PRESENTED TO THE DEPARTMENT OF
NURSING SCIENCES
FACULTY OF HEALTH SCIENCES AND TECHNOLOGY
COLLEGE OF MEDICINE
UNIVERSITY OF NIGERIA, ENUGU CAMPUS**

**IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE
AWARD OF MASTER OF SCIENCE DEGREE IN NURSING
(NURSING EDUCATION)**

SUPERVISOR: DR (MRS), N .P. OGBONNAYA

JANUARY, 2014.

APPROVAL

This dissertation, University Matriculation Examination as a predictor of students' final grades in the Faculty of Health Sciences and Technology of University of Nigeria, Nsukka has been approved for the award of Master of science Degree in Nursing, in the Department of Nursing Sciences, Faculty of Health Sciences and Technology, College of Medicine, University of Nigeria, Enugu Campus.

BY

.....

**Dr (Mrs) Ngozi P. Ogbonnaya
(Supervisor)**

.....

Date

.....

**Dr (Mrs) Uchenna V. Okolie
Head of Department**

.....

Date

.....

External Examiner

.....

Date

.....

**Prof. Obinna Onwujekwe
(Dean, FHST UNEC)**

.....

Date

CERTIFICATION

I, Eze Eunice Chinyere, certify that this is an original work carried out by me, except as specified in the acknowledgement and references, and that neither the thesis nor the original work contained therein has been submitted to this university or any other institution for the award of a degree.

.....

Eze, Eunice Chinyere.
(Student)

.....

Date

.....

Dr (Mrs) Ngozi P. Ogbonnaya
(Supervisor)

.....

Date

DEDICATION

This work is dedicated to all teachers who earnestly work hard to improve the society through the transfer of knowledge.

ACKNOWLEDGEMENT

I am greatly indebted to my supervisor Dr (Mrs) N.P. Ogbonnaya for her painstaking supervision, encouragement, and guidance towards the successful completion of this study. I remain grateful to the Head, Department of Nursing Sciences Dr (Mrs) Uchenna V. Okolie. The contributions and encouragement of my lecturers like Dr (Mrs) I.O. Ehiemere (P.G. Coordinator), Dr (Mrs) I. L. Okoronkwo, Dr A.C. Nwaneri, Dr (Mrs) A. N. Anarado, Prof C. B. Okafor, Dr (Mrs) A. U. Chinweuba, and indeed, all the lecturers in the Department of Nursing Sciences cannot be easily forgotten. I appreciate all of you.

My profound gratitude also goes to the authorities of the University of Nigeria, Enugu Campus as represented by the Deputy Vice Chancellor - Professor Ifeoma Enemuo; the Provost, College of Medicine - Prof. B. J. C. Onwubere; the Dean, Faculty of Health Sciences and Technology - Prof Obinna Onwujekwe and the four Heads of the Departments involved in this study i Dr (Mrs) Uchenna V. Okolie, Bar. Dr. Peter Achukwu, Dr Charles Eze, and Dr S. E. Igwe. I thank them for their permission that enabled me to carry out this study.

I cannot forget to thank the Deputy Registrar of UNEC Bar C. I. Onodugo and his staff for making the students' academic records available for this study.

My immediate family members also deserve special mentioning and appreciation. To my ever-supportive husband i Dr Kenneth M. Eze; and my lovely children i Chidinma, Chigoziri, Chinenye, Onyinye and Kelechi, I say thank you and God bless you.

Abstract

This study was aimed at determining the extent to which University Matriculation Examinations (UME) - now Unified Tertiary Institutions Matriculation Examinations (UTME) score predicted students' final grades in four departments (Nursing Sciences, Medical Radiography and Radiological Sciences, Medical Laboratory Sciences and Medical Rehabilitation Sciences) of the Faculty of Health Sciences and Technology, University of Nigeria, Enugu Campus. A non experimental, retrospective correlational design was used for the study. Seven research questions and seven hypotheses guided the study. Records of 306 UME students of the Faculty of Health Sciences and Technology who were registered in the 2005/2006 and 2006/2007 academic sessions, and whose result were ready and approved by the University Senate as at December 2012 were selected and studied. The data was collected with a researcher-designed proforma and analyzed with the aid of Computer Statistical Package for Social Sciences (SPSS) version 17. Pearson's Product Moment Correlation Coefficient (r) and Partial Correlations Coefficient (r^2) were the statistics used. $P < 0.05$ was considered statistically significant. Major findings of the study were that UME score was a poor predictor of students' final grades 3% in the Faculty of Health Sciences and Technology. There was significant relationship between the UME scores and the FCGPA among students of the Medical Radiography and Radiological Sciences Department ($p < 0.05$); there was significant differences in UME scores and the FCGPA in favour of the male students: There was a significant relationship ($p < 0.05$) between the UME scores and the FCGPA of the male students; UME scores accounted for about 8% ($r^2 = .0751$) variance in the FCGPA of the male students while it accounted for less than 1% ($r^2 < .0001$) for the female students. There was also significant departmental difference in UME scores and the FCGPA among the students of Medical Radiography and Radiological Sciences Department. It was recommended among others, that less emphasis be placed on the Unified Tertiary Institutions Matriculation Examination (UTME) scores for admission of students into universities; also that more universities be established to reduce the pressure of seeking admission at all costs from the few existing ones. The main limitation of the study is that the records of students of only two academic sessions in the FHST were studied. Suggestions for further research were also highlighted.

TABLE OF CONTENTS

Content	Page
Title Page	i
Approval Page	ii
Certification	iii
Dedication	iv
Acknowledgement	v
Abstract	vi
Table of Contents	vii
List of Tables	xi
List of Figures	xi

Chapter One: Introduction

Background to the Study	1
Statement of the Problem	8
Purpose of the Study	9
Research Questions	9
Hypotheses	10
Significance of the Study	11
Scope of the Study	12
Operational definition of terms	12

CHAPTER TWO: Literature Review

Conceptual Review	13
Admission Policies	14
The Nature of Correlation Studies	16

The Concept of Validity	é	é	é	..	é	..	é	é	16
Predictive Tests	é	é	é	..	é	..	é	é	17
Nature of Predictive Tests	é	é	é	..	é	..	é	é	18
University Matriculation Examination (UME) as a Predictive Test	é						é	é	19
Concept of Academic Achievement	é		é .	é .	é	é	é	é	20
Assessment of Academic Achievement	é	é		é	é	é	é	..	21
Tools for Assessing Academic Performance	é			é	é	é	é	é	22
Grading of Academic Achievement	é		é	é	..	é	é	é	26
Factors Influencing Students's Academic Achievement in Universities	é						é	é	26
Review of Related Theories	é	é	é	é	é	é	é	é	32
Test Theories	é	é	é	é	é	é .	é	é	32
Systems Theory	é	é	é	é	é	é	é	é	33
Fundamentals of the Systems Theory	é		é	é	é	é	é	é	35
Input- Process-Output Model of Systems Theory Applied in the Education Setting	é								36
Review of Relevant Empirical Studies	é		é	é	é	é	é	é	37
Summary of Literature Review	é	é	é	é	é	é	é	é	44
CHAPTER THREE: Research Methods									
Design of the Study	é	é	é	é	é	é	é	é	48
Area of Study	é	é	é	é	é	é	é	é	48
Subjects of the Study	é	é	é	é	é	é	é	é	52
Inclusion Criteria	é	é	é	é	é	é	é	é	52
Population of the Study	é	é	é	é	é	é	é	é	52
Instrument for Data Collection	é		é	é	é	é	é	é	53
Ethical Considerations	é	é	é	é	é	é	é	é	53
Procedure for Data Collection	é		é	é	é	é	é	é	53
Method of Data Analysis	é	é	é	é	é	é	é	é	54

CHAPTER FOUR: Presentation of Results	é	é	é	é	é	é	é	é	é	é	55-62
CHAPTER FIVE: Discussion of the Findings, Educational Implications, Conclusions, Recommendations and Summary											
Discussion of the Findings	é	é	é	é	é	é	é	é	é	é	63
Relationship of UME Scores and the FCGPA of FHST Students	é	é									64
Relationship between UME Scores and FCGPA of Nursing Sciences Students										é	65
Relationship between UME Scores and FCGPA of Medical Laboratory Sciences Students	é	é	é	é	é	é	é	é	é	é	66
Relationship between UME Scores and FCGPA of Medical Rehabilitation Sciences Students	é	é	é	é	é	é	é	é	é	é	66
Relationship of Between UME Scores and FCGPA of Medical Radiography and Radiological Sciences Students	é	é	é	é	é	é	é	é	é	é	67
Differences in the UME Scores and the FCGPA of Male and Female Students of FHST	é	é	é	é	é	é	é	é	é	é	68
Departmental Differences in UME Scores and FCGPA in the FHST										é	69
Conclusion	é	é	é	é	é	é	é	é	é	é	70
Educational Implication of the Study	é				é	é	é	é	é	é	72
Recommendations	é	é	é	é	é	é	é	é	é	é	73
Limitations of the Study	é			é	é	é	é	é	é	é	74
Suggestions for Further Studies	é			é	é	é	é	é	é	é	75
Summary of the Study	é			é	é	é	é	é	é	é	75
References	é	é	é	é	é	é	é	é	é	é	78
Appendix I	é	é	é	é	é	é	é	é	é	é	84
Appendix II	é	é	é	é	é	é	é	é	é	é	85
Appendix III	é	é	é	é	é	é	é	é	é	é	86

Appendix IV	é	é	é	é	é	é	é	é	é	87
Appendix V	é	é	é	é	é	é	é	é	é	88
Appendix VI	é	é	é	é	é	é	é	é	é	89
Appendix VII	é	é	é	é	é	é	é	é	é	90
Appendix VIII	é	é	é	é	é	é	é	é	é	91

LIST OF TABLES

Table 1: Relationship of UME Scores (UME Scores, PUME Scores and average of UME + PUME Scores), and FCGPA among the students of FHSTé .é	55
Table 2: Relationship of UME scores (UME Scores, PUME Scores and Average of UME + PUME Scores) and FCGPA among nursing sciences students é é	56
Table 3: Relationship of UME scores (UME Scores, PUME Scores and average of UME + PUME), and the FCGPA among Medical Laboratory Sciences Studentsé . é é é .. é é é é é	57
Table 4: Relationship of UME scores (UME, PUME, and Average of UME + PUME Scores) and FCGPA of Medical Rehabilitation Sciences studentsé é é	58
Table 5: Relationship of UME score (UME Scores, PUME Scores, and Average of UME + PUME Scores) and the FCGPA of Medical Radiography and Radiological Sciences Students é é é é é é	59
Table 6: Differences in UME scores (UME, PUME, and Average of UME + PUME Scores) and FCGPA of male and female students é	60
Table 7: Departmental differences in UME scores (UME Scores, PUME Scores, and Average of UME + PUME Scores) and FCGPA in the FHSTé . é é	61

LIST OF FIGURES

Figure 1: Conceptual model of the Studyé é é é é é	37
---	----

CHAPTER ONE

INTRODUCTION

Background to the Study

University Matriculation Examination (UME), now known as Unified Tertiary Institutions Matriculation Examinations (UTME) is a common entrance examination conducted by the Joint Admissions and Matriculation Board (JAMB) of Nigeria on yearly basis for the sole purpose of selecting and placing suitably qualified candidates into Nigerian Universities. Before the establishment of JAMB for the admission of students into various Universities, the universities were conducting individual admission exercises (Omodara, 2010). Series of complaints marred this type of admission process. Osakuade (2011) reports a lot of challenges among which were the issue of multiple applications and admissions, uncoordinated system of university admissions, and high cost implication for the candidates. Others included the pattern of enrolment in the universities which showed that majority of the universities drew the bulk of their students from their immediate geographical neighbourhoods (catchment areas). As a result, in 1974, the committee of Vice-Chancellors came up with the idea of central admission in order to eliminate various problems created by individual admission exercises (Ifedili & Ifedili, 2010).

In recent times, there seems to be remarkable awareness of Nigerians about university education. This is a positive development that has resulted in the increase in the number of new Universities, enrolment figures, and the huge investment in the sector by the government, religious groups, and individuals. As at August 2012, there were a total of one hundred and twenty four (124) Universities in Nigeria: 50 privately owned, 37 states and 37 federal Government owned (National University Commission (NUC, 2012). This may partly be consequent on the fact that, the National Policy on Education (NPE) stipulates that

University education in Nigeria shall make optimum contribution to national development by intensifying and diversifying its programmes for the development of high level manpower within the context of the needs of the nation (Federal Republic of Nigeria (FRN), 2004). It may also be due to the fact that most professional bodies have made university education basic in the training of its members. University education is competitive worldwide and the generation of Nigerian students that can contribute meaningfully to her development cannot be selected haphazardly. Hence the competition for admission slots becomes more rigorous every year. Admissions into degree programmes in the universities are therefore premised on success in selection examination like the Unified Tertiary Institutions Matriculation Examinations (UTME).

To overcome the challenges posed by individual universities' admission exercises as was practiced originally, the Federal Government of Nigeria established JAMB in 1978 as a centralized examination body saddled with the responsibility of conducting placement examinations into Nigerian Universities. The Board conducted the first matriculation examination for entry into all degree-awarding institutions in Nigeria in 1979; Polytechnics and Colleges of Education in 1991, Monotechnics in 1998 and Innovative Enterprises Institutes in 2009, (JAMB, 2011). Since then, entrance examinations into Nigerian universities have continued to be handled by JAMB.

However, the population of potential students into Nigerian universities has exploded such that competition to enter into universities has been a source of concern to parents as well as the applicants. This is proven by the JAMB's enrolment figures into the universities which have risen from 52,755 in 1978 when JAMB was established to 167,617 in 1987 and 236,261 in 1996 (Adesina, 2005). The Board had over one million, five hundred and three thousand, nine hundred and thirty one (1,503,931) candidates in the 2012 Unified Tertiary Institutions Matriculation Examination (UTME) (Nairaland, 2011). Black-Revo (2010)

reported that the Registrar of JAMB asserted that the 2010 admissions into tertiary institutions were the worst in the history of the country. This was because, out of the over 1.4 million candidates that sat for UTME, only about 500,000 were offered admissions into universities. This development has not improved and could be contributing to malpractices.

Desperate candidates may have adopted different examination malpractices in order to secure admission into degree programmes of their choice. This according to Onyeoziri in Ifedili & Ifedili (2010) was done due to great dissatisfaction with JAMB and unpredictable changes in educational policies. Many parents register their children for JAMB earlier than educational policy has planned for them. Umo and Ezeudu (2010) asserted that parents see fulfillment in what their wards will be and not in what they are, thereby aiding and abating examination malpractice. There are also fears in many quarters that the quality of students admitted by JAMB deteriorates yearly despite their high scores in UME. Several professionals and researchers are of the opinion that the glorious days of high academic performance and enviable achievements among Nigerian undergraduates have reached a varnishing point (Obioma & Salau, 2007). The researchers therefore called for an education summit to rectify the situation. According to Afolabi, Mabayoje, Togu, Oyadeyi & Raji (2007), most universities which depend solely on UME scores for admission of students have come to realize that candidates with very high UME scores do not do well in the university and are often asked to withdraw.

JAMB has also been criticized for its inability to organize credible entrance examinations that have integrity. Umo and Ezeudu (2010) were of the opinion that JAMB alone cannot solve these problems due to so many factors that come into play. As a remedy, there have been persistent calls from different quarters for the re-examination of the modes of selecting candidates for admission into the various degree programmes in Nigerian universities. This is

with a view to determining the credibility of each of the admission criteria. Such calls which are borne out of alleged mismatch between candidates' performance in UME and their subsequent achievement in university degree examinations have eventually resulted in the Post-UME (PUME) screening exercise (Obioma & Salau, 2007).

Post-UME was introduced by some Nigerian universities in 2005 barely few months after the release of UME results. Criticisms and supports for or against the introduction of Post-UME by the academia, researchers and opinion leaders are intense. But these universities were of the opinion that they could no longer rely solely on JAMB scores for the selection of their students. Rather they introduced Post-UME as a means of reducing incompetent applicants. Nwanze (2005) in favour of the new admission regime reported that only 4,422 out of 34,892 candidates who scored 200 and above, (out of a total of 400 marks) in UME conducted by JAMB passed the Post-UME tests at University of Benin. According to Nwanze, JAMB result is unreliable for testing students' ability to cope in the universities because some drop out, some end up changing to other courses, while some spend extra years before they could graduate. Makanjuola (2005) in his own submission on why Post-UME is necessary, claimed that some students who scored high marks in UME do not even turn up for Post-UME for fear of failure. While not calling for complete scrapping of JAMB, Makanjuola proposed that Post-UME would provide a complement to JAMB's UME. In addition to these claims and counter-claims, studies on the predictive validity of UME by Omodara (2003) and Obioma and Salau (2007) suggested low predictive power of UME. Negative and inverse correlation of UME scores with some external criteria have also been investigated and reported by Adeyemo (2008). Furthermore, JAMB (2007) reported a very low value of relationship between UME Scores and Final Grade Point Average (FGPA) but attributed this to the differences in the skills and competencies emphasized by the UME and that of the university education and the incidence of extraneous variables among others.

In one of his addresses in 2006 titled: "University is Not for All", the former Nigerian President Olusegun Obasanjo posited that it was in a bid to reposition the university education that the government introduced the Post-UME; adding that an audit was carried out on all universities in the country to determine their true worth. The Minister for education during Obasanjo's regime, speaking on the reason why the Federal Government backed Post-UME, posited that "the true stand of the government is that the situation is indeed pathetic, the country is faced with a grave situation in the quality of students selected by JAMB" (Obaji, 2005). Contributing to the discourse, Mimiko (2006), in one of his papers titled: "How Relevant is JAMB to University Admission?" lamented that JAMB has declined consistently in its credibility, integrity and reliability on its performance; thus, it had enjoyed little or no respect among Nigerians. Mimiko went further to blame the desperation of going to high institutions on students who connive with their parents to secure admission. He opined that the advent of private universities and pre-degree programmes have contributed in no small measure to the irrelevance of JAMB. Mimiko concluded by calling for the sustenance of the Post-UME screening exercise, which he described as an advancement of the frontiers of autonomy of the universities. Complementing the views of Mimiko was Afemikhe (2007) who observed that the subsequent two years since the inception of Post-UME at the University of Benin witnessed tremendous results. Afemikhe submitted that the pass rate of the students had improved while Post-UME students' involvement in examination related problems had not been found.

Despite the reasons given by some people against JAMB, some still research and speak in defense of UME. Taking a contrary stand, Ajaja, (2010) examined the influence of these two admission scores (UME and Post-UME) on the students' achievement and found no significant effect on students' final CGPA. He lamented that the irony of it all was that there was a decline in the performance of students admitted with Post-UME screening than UME.

Onyechere (2005) also asserted that Post-UME screening is illegal. According to him, examination malpractice in Nigeria is a universal societal problem and not the problem of JAMB. He argued that since we have limited spaces for all these candidates and private universities are for the children of the rich, then, candidates will be in a desperate mood to secure admission at all cost. He warned that if our response to malpractice in UME is to scrap JAMB, then we should be talking about scrapping WAEC, NECO and all the institutions of higher learning. Commenting further on the illegality of Post-UME, the former Executive Secretary of NUC, opined that universities conducting multiple-choice objective test for their Post-UME have derailed from the manner the examination was conceived (Okebukola, 2009). To him, when Post-UME was initiated, the screening exercise was meant to test (without gender and other discriminations) candidates' coherence in the English language through essay writing and oral interviews.

An important issue relating to academic achievement is gender. The learning achievements of male and female students may be different, hence the concern of educational researchers on gender and students' achievement. Gender refers to those socially ascribed attributes which differentiate females from males. It is commonly heard among educators and students alike that some disciplines are gender-biased. Some individuals are of the opinion that male students perform better than female students in some subjects like mathematics, chemistry, and physics. These subjects are sometimes regarded as masculine, while subjects like English language, literature, etc, are regarded as feminine (Igbokwe, 2012). Influence of gender on students' academic achievements has over the years attracted the attention and interest of scholars. However, it is worthy to note that opinions and findings about the issue are diverse. Specifically, some scholars like Uzuka (2009) and Akinsola, Adedeji & Adeyinka (2007) found out that the male students achieved significantly better than the female students, while others like Busch (1995) reported that female students achieved

significantly better than the male students. On the other hand, Fisher (2008) found that there was no gender difference in students' performance if subjected to the same treatment. Montague (2008) argued that the idea that boys perform better than girls may result in low motivation in girls and could widen the gender gap in achievement in favour of boys. He observed that cultural beliefs like these are "incredibly influential," making it critical to investigate them in research studies. The above literature shows that several studies have been carried out on the influence of gender on academic performance, yet the effect remains unclear and inconclusive. The major aim of this study is to determine how far UME scores predicted students' FCGPA in the FHST, but it also sought to find out whether there would be significant differences in the UME scores and FCGPA among the two sexes. The present study is thus poised to contribute in resolving the issue of gender differences in academic achievement by using the Health Sciences and Technology disciplines.

Furthermore, majority of empirical studies at the disposal of this researcher are not confident in the sustainability of the UTME to select credible candidates into Nigerian universities today (Umo & Ezeudu, 2010 and Ifedili & Ifedili, 2010), while few are in support of it (Ajaja, 2010). Few literatures however, imply that measures of educational achievement during or at the end of secondary education are reasonably good, but nevertheless incomplete predictors of the performance of students in general during tertiary education (Ansgar, 2002). Apparently, students' achievements in learning objectives may also depend on the circumstances of their experiences under the school instructional process. The suspicion that students' Final Cumulative Grade Point Average (FGPA) does not justify their UME scores also contributed to the birth of Post-UTME. Apart from the strong opinion expressed by elites in academia, leaders, and the pressure mounted on the Ministry of Education for a policy shift, there have been systematic investigations to inform decision-making in this respect.

Statement of the Problem

Complaints are rife about the students' poor academic performance in Nigerian universities over the years (Afemikhe, 2007; Mimiko, 2006; Omodara, 2004, and Obioma & Salau, 2007). This is also the case in the Faculty of Health Sciences and Technology (FHST) of the University of Nigeria, Enugu Campus (UNEC), where the researcher obtained her first degree and currently undergoing a Post-Graduate (PG) programme. Students' academic records at the UNEC Registry show that after admission, many students continue to fail their courses. Many have references and incomplete results, and a large number spent extra years before they could graduate. For example, as at the time the data for the present study was being collected, there were over 300 'over-stay' candidates (external candidates i.e. those students who have spent over 8 years) in the FHST (Registry Records, 2012). Many ended up with poor grades. In the final analysis not all students were able to complete their academic requirements on time. This is a source of worry to all concerned.

However, it is expected that candidates who possess ordinary level requirements and attained high score in UME are capable of pursuing degree courses in the university successfully. It is also expected that candidates with higher UME scores will end up with higher FCGPA. On the other hand, students with low UME scores would be expected to end up with low FCGPA relatively. From available literature, several studies have been carried out on predictive validity of UME scores on the students' academic achievements in different universities in Nigeria. (Saladeen & Murtala, 2005, Adeyemo, 2008, Omirin, 2007, Ifedili & Ifedili, 2010; Umo & Ezeudu, 2010; Omodara, 2010; Ukwuije & Asuk, 2011, Osakude, 2011, etc). No study has been undertaken to determine the predictive power of UME scores on the students' final grades in the FHST of UNN. This is the gap this study intends to fill. This study thus, intends to correlate students' final grades with their UME scores since UME is supposed to be an aptitude or predictive test. The problem of this study therefore, is to

ascertain if UME scores correlate with final cumulative grade point average (FCGPA) of students in the FHST of the University of Nigeria, Enugu Campus.

Purpose of the Study

The purpose of the study was to find out how far the students' UME Scores were reflected in their final results (FCGPA) in the Faculty of Health Sciences and Technology of the University of Nigeria.

Specifically, the objectives of the study were to determine:

- (1) The relationship between UME scores and FCGPA of students of FHST.
- (2) The relationship between UME scores of Nursing sciences students and their FCGPA.
- (3) The relationship between UME scores of Medical Laboratory Sciences students and their FCGPA.
- (4) The relationship between UME scores of Medical Rehabilitation Sciences students and their FCGPA.
- (5) The relationship between UME scores of Medical Radiography and Radiological Sciences students and their FCGPA.
- (6) Whether there is significant difference in the UME scores and the FCGPA of male and female students of the FHST.
- (7) Whether there is significant departmental difference in the UME scores and FCGPA of FHST students.

Research Questions

- 1 What is the relationship between UME scores and FCGPA of FHST students?
- 2 What is the relationship between UME scores and the FCGPA of Nursing Sciences students?
- 3 What is the relationship between UME scores and the FCGPA of Medical Laboratory Sciences students?

4. What is the relationship between UME scores and the FCGPA of Medical Rehabilitation Sciences students?
5. What is the relationship between UME scores and the FCGPA of Medical Radiography and Radiological Sciences students?
6. What is the difference in the UME scores and the FCGPA of the male and female students of FHST?
7. Will there be significant departmental differences in the UME scores and FCGPA in the FHST?

Hypotheses

To further guide the study, the following null hypotheses were formulated and tested at

$P < 0.05$ level of significance (95% confidence interval). They were:

1. There is no significant relationship between UME scores and FCGPA of FHST students.
2. There is no significant relationship between UME scores and FCGPA of Nursing Sciences students.
3. There is no significant relationship between UME scores and FCGPA of Medical Laboratory Sciences students.
4. There is no significant relationship between UME scores and FCGPA of Medical Rehabilitation Sciences students.
5. There is no significant relationship between UME scores and FCGPA of Medical Radiography and Radiological Sciences students.
6. There is no significant difference in the UME scores and the FCGPA of the male and female students of FHST.
7. There is no significant departmental difference in UME scores and FCGPA in the FHST.

Significance of the Study

As the importance of evaluation cannot be overemphasized in the teaching -learning process, the findings of this study will help in understanding the predictive validity and prognostic value of UME scores as an admission pre- requisite in most Nigerian universities. Findings of this study will thus be most beneficial to the government, university authorities, educational researchers, candidates, parents, and indeed, the Nigerian public.

When placed in government gazette, the findings of this study will sensitize all on the predictive value of UME scores as an admission criteria into tertiary institutions. The government will therefore be better informed and assisted in the promulgation of appropriate legislation on both the conduct and quality of selection examinations such as the UME.

University authorities as part of educational policy makers will through the findings of this study better understand the effectiveness of UME scores in predicting the achievement of their students. This is particularly crucial to the University of Nigeria authorities, given its measures in recent times to improve the quality and achievements of her students in all disciplines. This study is therefore apt in understanding the relationship which is of interest to the university authorities.

Furthermore, findings of the study will be beneficial to prospective students, parents and guardians as it will reveal the frustrations and attendant economic wastes that may follow when students are admitted to read courses which they were not adequately prepared to undertake. Some spend extra years to graduate while some will not eventually graduate.

The findings of the study will also be significant to researchers in education who are interested in determining the optimum mode and combination of characteristics that will best discriminate among students who will benefit maximally in the university education. There is

no gain saying that this study will also add to the existing knowledge of researchers on the effectiveness of entry characteristics of students to their final performance.

Scope of the Study

The scope of this study was confined to establishing the relationship between UME scores of Faculty of Health Sciences and Technology students at the University of Nigeria, Enugu Campus (UNEC) and their FCGPA. The UME scores and the FCGPA that were studied were the 2005/2006 and 2006/2007 academic sessions' freshmen who subsequently graduated between the 2009/2010, 2010/2011 and 2011/2012 academic sessions. These sessions were chosen for this study because Post- UME screening tests were commenced in the UNN in the 2005/2006 academic session. Gender was included in the study in order to contribute in resolving the controversy regarding gender and academic achievements in the universities.

Operational Definition of Terms

UME as a Predictor of Students' Final Grades: a variable that is used to predict the value of another variable. UME scores were used in this study as predictor (independent) variable of students' final grades.

Final Grade: the final Cumulative Grade Point Average (FCGPA). A student's final grade-point average is the weighted mean value of all grade points he/she earned through credit by examination, at the end of the degree. FCGPA is the dependent (consequent or outcome) variable in this study.

UME Score: in this study, UME score refers to the average of the scores obtained by a student in the University Matriculation Examinations conducted by JAMB and the Post-University Matriculation Examination (PUME) or screening tests conducted by the UNN in the 2005/2006 and 2006/2007 academic sessions.

CHAPTER TWO

Literature Review

In this chapter, the literature reviewed was presented under the following sub-headings:

Conceptual Review

Review of Related Theories

Review of Relevant Empirical Studies

Summary of Literature Review

CONCEPTUAL REVIEW

Trends in University Education in Nigeria

Trends connote the general direction in which a situation is changing or developing. In Nigeria, there was not much emphasis on university education during the colonial era. The University College, Ibadan (UCI), now the University of Ibadan (UI) was established in 1948 as an overseas campus of the London University. It was the only university in Nigeria till October 1960 when the University of Nigeria, Nsukka (UNN) was established. During that period, Nigerians who needed university education had to travel abroad to do so, that is, if they could afford it.

Through most of the colonial period (1842-1959), the Nigerian education system and curriculum was aimed at serving the interest of the colonists. Nigerians were dissatisfied with this education system. They believed that education should solve the problems of the society through its curriculum. Thus, after the attainment of independence in 1960, many educators expressed concern about the lack of relevance of the Nigerian educational system in meeting the pressing economic, social and cultural needs of the nation.

In the No. 59 of the 1969 National Curriculum Conference, it was recommended that a six year primary school course followed by a six year secondary school course broken into three junior and three senior courses, culminating in a four year University course is recommended for the attainment of the nation's educational goals, that is a 6-3-3-4 plan (Onyekwelu, 2002). Prior to the adoption of the 6-3-3-4 plan, Nigeria was operating the 6-5-4 plan. Before the Nigerian Civil War (May 1966 – Jan. 1970), there were already five universities in Nigeria. These were the University College, Ibadan, founded in Jan. 1948 and the University of Nigeria, Nsukka, founded on 7 Oct. 1960. There were also the Ahmadu Bello University, Zaria, founded 1962; the University of Lagos, also founded in 1962 and the University of Ife (now Obafemi Awolowo University, Ile-Ife), founded in 1962. The University of Ibadan emerged as a full-fledged University in December 1962 (Fafunwa, 2004). These are regarded as the first generation universities.

Between 1970 and 1982, the Federal Government established 15 more universities. Since then, University education has witnessed tremendous development because of the demand for it. For example, a total of one million, three hundred and seventy five thousand, six hundred and forty two (1,375,642) candidates registered for the UME in 2010 (Nairaland, 2010). There have also been Government's deliberate efforts in the past few years to encourage private universities to assist in meeting these demands for higher education. These have helped matters a lot as the number of fully accredited privately owned universities in Nigeria has risen to 50 from 7 two decades ago (NUC, 2012).

Admission Policies

Candidates for university matriculation must meet minimum entry requirements and succeed in selection tests to which they are exposed. Possession of a minimum of five credit passes in WASSCE, SSCE (or their equivalent) or a combination of both is a pre-requisite for sitting

for the UME conducted by JAMB. Obioma and Salau (2007) noted that candidate's admission and placement into Nigerian universities irrespective of whether the university is federal, state or privately- owned is contingent on meeting the prescribed cut-off mark in the UME. It is believed that these entry qualifications and entrance examinations will positively predict candidates' performance in the University. But since the result of WASSCE or SSCE can range from the excellent (A1) to the just average or lucky mediocre (C6), a vital predictive factor is being ignored (Oyebola, 2006). The strength and quality of the school certificate result is largely ignored with the standard requirement being at least credit level passes in at least five relevant subjects.

University education is much valued in Nigeria; people pursue it with such fervency and vigour. With a population of about one hundred and sixty -seven million in Nigeria, there has been an increase in the demand for university education. To ensure equal opportunities of admission for prospective candidates from various States, the admission policy of JAMB is by quota system. This is divided into 40% for academic merit, 30% for catchment areas, 20% for educationally less developed areas and 10% for discretion (Ifedili & Ifedili, 2010).

Catchment areas privileges candidates whose States of origin are proxy to a particular university. The educationally disadvantaged States are mainly the southern minorities and the northern states. The 10% discretion is dependent on each university's value judgment while considering their peculiar needs for candidates with special characteristics. This policy guides university admission of candidates especially for the Federal Government owned Universities. The inference one may draw here is that admission criteria generally employed in Nigeria, hardly serve the academic purpose they are assumed to be serving.

The Nature of Correlational Studies

Educational researchers use correlation techniques in an attempt to determine the nature and scope of relationships, if any exist, between two or more variables being investigated. Correlation is the degree of relationship existing between two or more variables using correlation coefficient. It is important to note that correlation does not necessarily imply causation. Correlational studies rather tell us how effectively one variable can be associated with, or be used to predict another. Correlational methods permit one to analyze the relationship among a large number of variables in a study (Enunwah, 2003).

Correlational study's approach requires no manipulation or intervention on the part of the researcher other than that required to administer the instrument(s) necessary to collect the desired data. A positive correlation coefficient indicates a direct relationship; a negative coefficient indicates an inverse relationship, while zero coefficients indicate no relationship. Most correlational researches carried out in education are either to help explain the relationship among important human behaviours or to predict likely outcomes. This can also be depicted in a graph through a scatter gram.

The Concept of Validity

A frequently used but somewhat old fashioned definition of valid instrument is that which measures what it is supposed to measure. Actually, validity pertains to the appropriateness of inference and decisions taken as a result of use of an instrument. Thus, validity is not a property of an instrument but the informed decision thereof. JAMB, (2007), maintained that a more accurate definition of validity revolves around the defensibility of the inferences researchers make from the data collected through the use of an instrument. All educators therefore, want evaluation system that permits them to draw valid conclusions about the characteristics (ability, achievement, attitudes, and so on) of their students. So validity is the

most important idea to consider in the process of selecting students for admission into Nigerian universities. The search for the most valid mode of selecting candidates for admission into Nigerian universities has informed a lot of studies on predictive power of students' scores in SSCE, UME and Post-UME (Akanbi, 1997; Enunwah, 2003; and Ukwuije, 2012).

Chief among the problems that lead to the cessation of the dispensation of exclusive conducts of Matriculation Examination in Nigeria by JAMB (1979-2005) was public opinion and dissatisfaction with the validity of UME scores. Poor undergraduate students' performance in many programmes led to requests for further screening of applicants for university education before they could be offered admission.

Predictive Tests

Prediction in the broad sense of the term consists essentially of estimating the values of some function of variables over time, on the basis of certain present attributes, which may or may not contain random errors. It is the ability to estimate future achievement based on the past or present achievement. The attribute to be estimated may be a group of related events or functional set. In forming such estimates, the mathematical operations that may be employed are usually limited by practical considerations (Galit, 2012). Thus, in most cases the operation furnishing the estimate must be linear and fixed in addition to the obvious requirement of being physically realizable. The material end product of such a prediction is what is commonly known as a predictor or an estimator.

These predictors are mainly coefficients or estimates of statistical procedures like the Pearson Product Moment Correlation Coefficient, Regression coefficient, etc. In such statistical procedures, it is evident that a function of time cannot be predicted intelligently unless sufficient *a priori* information is available about both the function and the errors. The

nature of such information, as well as the characteristics of phenomenon thus assumes a variety of forms. The conducted UME, a major parameter for admission into Nigerian universities is such a predictive test used to infer students' readiness to attain academic success in the university. Other predictive tests include the Scholastic Aptitude Test (SAT), Graduate Management Admission Tests (GMAT), Graduate Record Examination (GRE), American College Testing (ACT), etc.

Nature of Predictive Tests

Predictive test or validity is a measurement of how well a test predicts future performance. It is a form of criterion validity in which how well the test works is established by measuring it against a known criteria. In order for a test to have predictive validity, there must be a statistically significant correlation between test scores and the criterion being used to measure the validity (unknown author, accessed from [www. testden. com](http://www.testden.com) on 28/4/2013).

One of the classical examples of this is the American College entrance Testing (or the UME in Nigeria). When students apply to colleges, they are usually required to submit test scores from examinations such as the West African Examination Council (WAEC), JAMB/ UME, SAT or the American College Test (ACT). These scores are used as bases for comparison, with evaluators looking at the performance of students who have had similar tests in the past. The belief is that the test scores can predict how well a student will perform in the university (college). High test scores tend to be correlated with good performance in the university, making students with high scores appealing to admission departments.

The college (UME) score example is an excellent example of the weaknesses of predictive validity. Some students who take such tests do not attend university, which means that no data is generated to correlate their test scores and their university performance. This creates a hole in the data set, which can undermine the validity of such tests (Shuttleworth, 2009).

Standardized testing has also been accused of some biases that can work against particular students, for instance, female students. They may perform poorly on the test and well in the universities, thereby skewing the results.

Statistical significance can be challenging to calculate. A number of factors can influence test results, especially when they involve data from a test and criterion measures that are collected at different points. Predictive validity influences everything; from health insurance rates to university admissions, with people using statistical data to try and predict the future for people based on information which can be gathered about them from testing.

Predictive validity is most commonly used when exploring data in the field of psychological study and analysis. It is used to collect information about various populations, and to create generalizations which may be useful when assessing individuals. For example, it is often used by big companies that administer a test to prospective employees, comparing test data from current employees to determine whether or not someone will be a good fit with the company (unknown author, accessed from [www. mackivconsult. com](http://www.mackivconsult.com) on 28/4/2013).

University Matriculation Examination (UME) as a Predictive Test

University Matriculation Examination (UME) is an examination conducted by the Joint Admissions and Matriculation Board (JAMB) on yearly basis for the sole purpose of selecting and placing suitably qualified candidates into Nigerian universities. Before the inception of JAMB, individual universities in Nigeria conducted their own entrance examinations, but this had a lot of challenges among which were the issue of multiple applications, general untidiness or uncoordinated system of university admission, and high cost implication for the candidates (Omodara, 2004).

JAMB has however been criticized over the years for its inability to organize credible entrance examination, that has integrity (Ezike, 2010; Olugbamila, 2010, and Obioma &

Salau, 2007). These criticisms led some universities to introduce Post-UME screening in 2005. Post-UME screening exercise is a situation where candidates who obtained a certain score, for example 180 and above in UME are invited by their choice universities for further re-examination to ascertain the worth and authenticity of their scores in UME. The universities were of the opinion that they could no longer rely solely on UME scores for the selection of their students but rather want another examination to act as a means of reducing incompetent candidates.

Makanjuola (2005) in his own submission on why Post-UME is necessary claimed that at Obafemi Awolowo University (OAU), some of the students who scored high marks in UME did not even turn up for Post-UME because of fear of failure. Makanjuola is however not alone in this opinion as studies on predictive validity of UME by Omodara (2004) and Oluwatayo (2003) also supported the low predictive power of UME scores on student's academic performance in the Universities. Negative and inverse relationship of UME scores with some external criteria were also noted by Adeyemo (2008). The authors are however not calling for complete scrapping of JAMB. Despite the reasons given by many for the scrapping of UME because of its many challenges, it is supposed to be a predictive test that discriminate candidates who are ready and will achieve higher in university education.

Concept of Academic Achievement

Academic achievement (also referred to as academic performance) is defined as the extent to which a learner is profiting from instruction in a given area of learning. It is a reflection of the extent to which skills and knowledge has been imparted to the student. Academic achievement also denotes the knowledge attained and skills developed in the school subject, usually designated by the scores (Karnataka, 2009). Okpala, (2011) defined student's academic achievement as "indicators of student's performance in curricular- driven tasks as a

result of exposure to the curricula experiences. Academic performance is also seen as success or failure in a school curricula-based examinations or tests. It is influenced by personality, motivation, opportunities, education and training. Other factors that influence academic achievement include study habits, study skills, study attitudes, self concept, socio-economic status, intelligence, etc.

Study habits refer to the activities carried out by learners during the learning process. They are intended to elicit and guide one's cognitive processes during learning. Study habits include home environment and planning of work, reading and note taking habits, planning of subjects, habits of concentration, preparation for examinations, general habits and attitudes and school environment (Karnataka, 2009).

Assessment of Academic Achievement

Educational assessment is a procedure of assigning values to the learning achievements during and at the end of a course. It is an attempt by the teacher to gain knowledge of his/her students' competencies. Ukwuije (2012) defined educational assessment as a process of documenting, usually in measurable terms, knowledge, skills, attitudes, beliefs, practices or generally what behaviour a learner does or does not have, acquire or develop before, during, and at the end of instruction, or a course of study. It can be on-going (formative) or at the end of a course of study i.e. terminal or summative assessment. Educational assessment is indispensable in the teaching/ learning process.

The process of academic assessment involves several interrelated activities such as: stating the objectives for the activity, generating needed information (data) by the use of testing and non- testing techniques, then analyzing the data and finally making judgment or decision. The testing techniques are the use of examinations/tests. The non-testing techniques make use of observations, interviews, rating scales, questionnaires, portfolios, exhibitions, class

discussions, students' self assessments, projects, assignments, home work, e.t.c. (Ukwuije, 2012). The terms assessment, appraisal and evaluation are often used interchangeably by educators, though there may be some minor differences.

Tools for Assessing Academic Performance

The major tools/instruments for assessing academic achievements are examinations and tests. Examination is defined as an instrument used to measure samples of behaviour. Test is also defined as an instrument administered to the testee for determining some previously identified objectives in the individual. The objectives may vary from achievement, attitudes, interest, personality, social adjustment, psychomotor skills, etc.

Ohuche and Akeju (1977), also Ukwuije, (2012) see tests and examinations as those stamps of external authority whose results are used to take far-reaching decisions and which very often place a mark of distinction or stigma on pupils. They are instruments for determining the degree of change that has occurred among individuals or things at the end of treatments or instructions. Tests/examinations are also defined as systematic procedures for comparing the behaviour of two or more persons.

Tests are categorized into two major groups: performance and written tests. Examples of performance examinations are oral test and practical work while examples of written tests are closed book examination, open book examination, pre-published examination, open time (take home) examination, project work, and e-examination (Alonge, 2003). These are explained below.

- 1. Oral test/Viva:** This is regarded as the oldest method of examination. Viva is used to test fluency or the flexible use of language or knowledge in a particular course in a relatively unstructured situation. In disciplines such as languages, engineering, health sciences,

(including nursing sciences), an oral examination is usually an integral part of the total assessment. It offers an opportunity to examine the depth and fluency of the testee on the subject matter as well as the opportunity of probing deeper to elicit the understanding of the testee in an environment devoid of undue assistance. However, some testees may be frightened by the presence of a strict examiner especially if the latter is an external examiner. Oral examination takes more time, it is more costly to administer, and more difficult to maintain objectivity.

2. Practical Work: This can be laboratory work, field work, clinical procedures or drawing practice. It generally refers to work done by students in a situation which enables them to extend or apply information and skills learnt in other parts of the course.

3. Closed Book Examination: This usually takes the form of two to three hours examination during which the students are required to answer a number of questions which are not known in advance. The aim is to test the examinee's ability to produce his or her own work, recall information and quote relevant references from memory, and organize him- or herself to complete the task within a limited time.

This type of examination induces extremely high level of anxiety before or during the examination, and this can impair students' performance (Alonge, 2003). The disadvantages include: limited ability to sample all the work covered in the course (specially in essay type), encourages students to limit their study by spotting questions, encourages rote learning as well as difficulty in comparing students' abilities, especially where there are choice of questions to answer.

4. Open Book Examination: This is a situation whereby the students are permitted to refer to textbooks, lecture notes or handouts during examinations. The aim is to reduce the emphasis on the memorization of facts, as well as assess the higher levels of learning such as

evaluation, analysis, synthesis and application. It also assesses the skill of knowing where to find information and of being able to do so quickly. To ensure equality of access to books during examination, the students should be allowed only to use notes and readings and any course notes that are available to all the students.

5. Pre-Published Examination: Pre-Published examination is one in which some or all the questions that will appear in the final examination paper are published or announced to the students days or even weeks in advance of the date of the examination. Students are permitted to prepare their answers to the questions in any way they wish, but cannot take any notes into the examination hall. The aim is to reduce the element of luck in questions spotting in examination, as well as stress prior to the examination. It may however cause the students to delay serious work until the examination questions are circulated. It also encourages cramming just before the examinations.

6. Open Time (Take Home) Examination: In this type of examination, the entire examination paper, or a section of it is distributed to the examinees and they are required to complete the paper at their own time and submit their scripts by a specified date. In answering the questions, students have free access to all books and notes. Generally like the pre-published type, the purpose of open time or take-home examination is to reduce the stress and anxiety of having to produce a result under the pressure of a time limit. It also reduces the need for rote learning, and tests examinees' ability to find and use references.

However, open time examination can increase the difficulty of maintaining a reliable standard in marking because of the greater variations in length and quality of answers. It also provides opportunity of cheating.

7. Project Work: This is a special form of take-home examination which provides for a topic to be studied at a greater depth than would normally be covered in the classroom or

during lecture. It usually requires the student to undertake independent study and enquiry. It tests the student's ability to plan his/her work effectively and select materials from a mass of data for writing a report. Group project helps student to develop group skills i.e. ability to work with others.

8. Electronic Examination (E-Examination): E-Examination involves the conduct of examination through the website or the internet, or the use of computers. It is sometimes called computer Based Testing (CBT), Computer Aided Testing (CAT), etc. Oladipo (2009) in Ukwuije, (2012) posited that CBT is a technologically advanced method of testing in which questions and responses are electronically recorded, adding that the CBT systems can be a stand alone or a part of the virtual learning environment possibly accessed through the World Wide Web on the internet. Currently, CBT is being used in some universities to conduct some of their examinations like the PUTME and limited internal examinations. Multiple choice objective questions are often used. CBT has the advantages of reducing the work load on examination training, supervision and grading, as well as making reviewing and archiving simpler.

Examination/Test types include Teacher-made tests, standardized tests, achievement tests, aptitude tests and intelligence tests, etc.

A good test instrument is expected to possess basic qualities which include validity, reliability, credibility, civility, availability and utility (Nwana, 2000, in Ukwuije, 2012). A test should also have well determined difficulty level (not too difficult or too simple), discriminating power (how it differentiates between good and weak students), and distractor index (how it discourages guessing).

Grading of Academic Achievement

In the University of Nigeria, academic performance is determined by adding the student's score in the examination and his/her score in continuous assessment (CA), over 100%. The University Senate has made it compulsory that CA should constitute 20 - 30%, while examination should constitute 70 - 80%, as the case may be. Scores yielded from both CA and examinations constitute the composite score for the student in each course.

In the FHST, students' academic performance is graded thus: 70% and above is designated as 'A' and has 5 points; 60 - 69%: 'B' 4 points; 50 - 59: 'C' 3 Point; 45 - 49: 'D' 2 points; 40 - 44: 'E' 1 point, and less than 40%: 'F' 0 point.

The final cumulative Grade point Average (FCGPA) is obtained by adding all the grade points (cumulative grade points (CGP) obtained by the student in all the courses he/she registered from the first year to the final year, and dividing the figure with the total unit loads of all the courses registered from the first year to the final year. The answer is approximated to two decimal places. For example, a student obtained a CGP of 599. The total unit loads of all the courses she registered were 191. Her FCGPA is thus: $599 \div 191 = 3.14$

The FCGPA is graded as follows:

First class (1st class) 4.5 and above; second class upper division (2¹): 3.50 - 4.49; second class lower division (2²): 2.4-3.49; third class (3rd class): 1.5-2.39; Pass 1.0-1.49; and Fail below 1.0.

Factors Influencing Students' Academic Achievement in Universities

Generally, factors affecting students' academic performance are categorized into parents' (family causal factors), teachers' (academic) causal factors, and students' (personal) causal factors (Diaz, 2003 in Mlambo, 2011).

It is believed that the combination of factors influencing academic performance, however varies from one academic environment to another, from one student to the next and indeed from one socio-cultural setting to another.

Factors, such as students' effort, previous schooling, parents' education and family incomes, self motivation, age of student, learning preferences, class attendance and entry qualifications have been found to have significant effects on students' academic performance in many settings (Aripin, Mahmood, Rohaizard, Yeop, & Anuar, (2008).

Students' (Personal) factors include the elements which are subjected to individual traits, abilities, psychological conditions, learning preferences, and opportunities and constraints affecting their academic performance. Students' attitude towards a particular subject, class attendance, entry qualifications and prerequisites, age of students and influence of peers are some of the personal factors that can influence students' academic achievement. In addition, a positive relationship between self motivation and academic performance has also been established (Mlambo, 2011). Some of these factors are subsequently discussed in some detail.

Students' learning preferences: It has been found out that a good match between students' learning preferences and instructors' teaching style has positive effect on students' performance (Harb & EL-Shaarawi, 2006). Learning preference refers to a person's "natural, habitual and preferred way" of assimilating new information. This implies that individuals differ in regard to what mode of instruction or study is most effective for them. Many scholars agree that effective instruction can only be undertaken if the learners' learning preferences are diagnosed and the instruction is tailored accordingly (Pashler, McDaniel, Rohrer, and Bjork, 2008). It has been reported that some students learn better when information is presented through words (verbal learners), whereas others seem to learn better when it is presented in the form of pictures (visual learners) (Omrod, 2008). It then stands to

reason that in a class where only one instructional mode is employed, there is a strong possibility that a number of students will find the learning environment less optimal and this could affect their academic performance.

Learners have been categorized into at least four major learning preference classes as visual learners, aural (or oral/auditory) learners, read/write learners and kinesthetic (or tactile) learners. However, a number of learners are multimodal with more than one preferred style of learning, in addition to using different learning styles for different components of the same subject. There is also a possibility that learning preferences would depend on the subject matter being taught.

Class attendance and academic performance: A number of factors have been attributed to contribute to declining class attendances around the world in the last 15 years. The major reasons given by the students for non-attendance include assessment pressures, poor delivery of lectures, timing of lectures, and work commitments (Newman-Ford, Lloyd and Thomas, 2009). The number of mature students with full-time employment, especially at the post graduate level has risen in recent times. The use of information technology also means that information that used to be obtained from sitting through lectures can now be obtained at the click of the mouse. Given all these developments that either makes it impossible or unnecessary for students to attend classes, the question that needs to be asked is whether absenteeism affects students' academic performance. Although there is existing evidence that points to a strong correlation between attendance and academic performance, none of them have demonstrated a causal effect. The inability of such studies to isolate attendance from a myriad of confounding student characteristics (e.g. levels of motivation, intelligence, prior learning, and time management skills), is a major limiting factor for the utility of these findings (Rodgers and Rodgers, 2003).

Entry Qualifications and Prerequisites: For many institutions, student admission is based on a number of different qualifications such that students receiving instructions in the same course differ widely in terms of their prior knowledge. For example, a student may have got C6 in all the 5 prerequisite WASSCE subjects for admission into a particular course of study while another may have got A1 or B2 in most of the relevant subjects. Learning is a cumulative process, thus a student recruited with higher entry requirements will be well prepared for the course material compared to a student admitted based on the basic minimum qualifications. In addition, a student's score in entrance examinations like the JAMB's UME should give an indication of her/his preparedness to study a particular course successfully.

All these assumptions can only be true if the students did not engage in examination malpractices either at the WASSCE or the UME and /or Post - UTME levels.

Academic Factors: They are those factors affecting student's academic performance pertaining to content, methodology, assessment system, teaching- learning environment, etc. There is no gain saying that availability (or otherwise) of educational input resources such as classrooms, hostels, laboratories, libraries, internet access, teaching aids, electricity, water supply, adequate sanitation, good campus roads, optimal teacher-student ratios, etc, have effects on student's academic achievement. Overworked and underpaid teachers with the attendant low morale as is the case with Nigerian lecturers certainly will have negative effects on student's academic achievement.

Parental (Family) Causal Factors: The effect of family income and parent's educational level on academic performance has not been equivocally established. Socioeconomic status of students and their families show moderate to strong relationship with academic performance (Sirin, 2005), but these relationships are contingent upon a number of factors

such that it is nearly impossible to predict academic performance using socio-economic status (Mlambo, 2011).

Other factors responsible for dwindling academic achievement in Nigerian Universities, according to Babalola (2008) include:

The Quality of Students Produced from Secondary Schools: The quality of students turned over to the universities by the primary and secondary schools are generally poor. This is as a result of so many factors which include ill-equipped schools and poorly trained and grossly underpaid teachers.

The JAMB: JAMB test for university candidates is no longer a true test because the examination has been thoroughly abused. Invigilators connived with candidates to cheat; surrogates impersonate real candidates to write examinations, parents collude with JAMB officials. In the end dullards come up with inflated marks ranging from 280 to 300 plus. Most candidates who scored between 280 and 300 never turned up for screening. A candidate who scored 303 in JAMB got only 28% in Post- JAMB test whereas one who scored only 220 in JAMB scored 48% in the university test. Invariably, those who performed well were those who scored between 210 and 260 (Babalola, 2008).

Strikes: One major factor which is the cause of falling standard in our universities and often responsible for the poor grades among our universities is the incessant strikes by ASUU, NASUU and other unions in the university. Hardly does a semester pass without our universities getting closed down either due to strike by the lecturers or unrests by the students themselves. These are usually for the wrong reasons or no reasons at all.

It suffices to say that strikes dislocate the educational system, affects the morale and morals of students, lower the quality of education and degrees as teachers return to class months after they vacated it, only to compress the syllabus and increase the cost of education.

Indiscipline: According to the same author, indiscipline remains one of the major factors responsible for the precipitous decline in the quality of education in Nigeria. This manifests itself in different forms. Cases of unethical and unprofessional practices which are unbecoming of university teachers, such as immorality, indiscriminate admission of unqualified or unfit candidates, examination malpractices, absentee lecturers, fraudulent and criminal activities, disrespect for constituted authority and polarization of academia, cases of plagiarism, and late release and non-release of examination results - which is regarded as a serious misconduct. Many lives and futures of students have been adversely hampered by deliberate late release and non-release of results for months or even for years. In some cases, examination scripts are not marked at all or concealed. By this, some hapless students could not report at NYSC camps, prospective lawyers are denied admission to the law school while many promotions are delayed in the process (Babalola, 2008).

Cultism: Student cultism is perhaps one of the greatest problems confronting tertiary institutions in Nigeria. In recent years, this plague has assumed frightening and deadly dimensions. It is so worrisome that the possibility of its spread to secondary (and even primary) schools in the country is enough to give every caring parent a cause to lose sleep (Bello, 2013).

REVIEW OF RELATED THEORIES

Test Theories

Test theories provide a general framework for linking observable variables such as test scores and ability scores of individuals. There are two currently popular statistical frameworks which address measurement problems such as test development and their validity - Classical Test Theory (CTT) and Item Response Theory (IRT). Although the models of CTT and IRT were developed for the most part with objective paper and pencil test in mind just like the UME, they are best suited for this study and apply more broadly to any data collection procedures where the ultimate aim is to arrive at quantification scores of any phenomenon being measured in order to make a decision.

In contrast, the models of CTT are generally specified at the level of the test as a whole but several advantages flow from the specification of IRT models at item level. This feature of IRT models provides a firm stateside basis for scientific test design. In the case of UME, total test scores are most frequently used to make decisions or relate to other variables of interest. And since the total test score is only as good as the sum of its parts and that means its items, shifting through item-level analysis may seem tedious and beyond the scope and intent of this study.

However, the conceptual foundations, assumptions and extensions of the basic characteristics of CTT have allowed for the development of some excellent psychometrically sound premise in testing the validity of selection evaluation tests like UME. In CTT, the interpretation of a test score is meaningless without the context of normative information. The same holds true in UME, where statistics generated from the candidates can only be confidently generalized to their expectations and aptitude to cope in the university environment. The underlying question addressed by CTT in this study is vivid: How do responses and performances of

FHST candidates in UME relate to their objectives and by extension the decisions they warranted in admission and placement?

Since most classical approaches assume that the raw score (X) obtained by any one individual is made up of a true component (T) and a random error component (E): $X = T + E$, the true score of a candidate in UME can be found by taking the mean score that the person would get on the same test if they had an infinite number of UME sessions. Because it is not possible to obtain an infinite number of UME scores, T is a hypothetical, yet central aspect of CTTs. In the formulation, where E is defined, T is the difference between X and E. The intent of CTT here is to determine the degree in which UME scores are influenced by random errors. This had lead to a multitude of methods for estimating the validity and reliability of evaluation scores in particular. UME test scores have high validity and reliability when E has small variance relative to the variance of T. Much time and effort has been spent to identify and deal with random errors in the context of test validity. However, some errors are not random but systematic and they remain largely underdetermined in UME. Examples of such systematic errors are examination malpractices, quota system, corruption and double standards in admission process

Systems Theory

Systems theory is the trans-disciplinary study of the abstract organization of phenomena, independent of their substance, type, or spatial or temporal scale of existence. It investigates both the principles common to all complex entities, and the (usually mathematical) models which can be used to describe them (Heylinghen & Joslyn, 1992).

Systems theory was proposed in the 1940s by the biologist, Ludwig von Bertalanffy (1901-1972) in his book *General Systems Theory* published in 1968. The theory was furthered by Ross Ashby. Von Bertalanffy was both reacting against reductionism and attempting to

revive the unity of science. He emphasized that real systems are open, and that they can acquire qualitatively new properties through emergence, resulting in continual evolution. Rather than reducing an entity. (e.g. the human body) to the properties of its parts or elements (e.g. organs or cells), systems theory focuses on the arrangement of and relations between the parts which connect them into a whole. This particular organization determines a system, which is independent of the concrete substance of the elements (e.g. particles, cells, transistors, people, etc). Thus the same concepts and principles of organization underlie the different disciplines (physics, biology, technology, sociology, etc), providing a basis for their unification.

A system may be defined as a set of social, biological, technological or material partners co-operating on a common purpose. Systems theory is a philosophical doctrine of describing systems as abstract organizations independent of substance, type, time and space. Systems theories are connected to both ontological and epistemological views. The ontological view implies that the world consist of ñsystems ñor ñintegrative levelsò. The epistemological view implies a holistic perspective emphasizing the interplay between systems and the elements in determining their respective functions. It is thus opposed to the more atomistic approaches in which objects are investigated as an individual phenomenon. Systems theory exists in different versions and is related to some other fields.

General systems theory (GST) is particularly an approach in philosophy of science aimed at understanding the world as sets of systems.

Systems concepts include: system ï environment, boundary, input, process, output, state, hierarchy, goal-directedness, and information (E:\Systems Theory\What is Systems Theory.htm).

Fundamentals of the Systems Theory

- A. Structure of integrative levels rests on a physical foundation. The lowest level of scientific observation would appear to be the mechanics of particles.
- B. Each level organizes the level below it plus one or more emergent qualities (or unpredictable novelties). The levels are therefore cumulative upwards, and the emergence of qualities marks the degree of complexity of the conditions prevailing at a given level, as well as giving to that level its relative autonomy.
- C. The mechanism of an organization is found at the level below, its purpose at the level above.
- D. Knowledge of the lower level infers an understanding of the matters on the higher level; however, qualities emerging on the higher level have no direct reference to the lower level organization.
- E. The higher the level, the greater its variety of characteristics, but the smaller its population.
- F. The higher level cannot be reduced to the lower, since each level has its own characteristic structure and emergent qualities.
- G. An organization at any level is a distortion of the level below, the higher-level organization representing the figure which emerges from the previously organized ground.
- H. A disturbance introduced into an organization at any one level reverberates at all levels it covers. The extent and severity of such disturbances are likely to be proportional to the degree of integration of that organization.
- I. Every organization, at whatever level it exists, has some sensitivity and responds in kind.

Input- Process-Output Model of Systems Theory Applied in the Education Setting.

The Input- process ï Output model of the Systems theory can be applied in the educational setting because both the universities and the JAMB can be regarded as subsystems within the Supra system called Nigeria. Events or changes in the larger society (Nigeria) will invariably reflect on its subsystems such as institutions of higher learning (e.g. universities) and statutory bodies (e.g. JAMB) as well as on families and individuals that make up the nation.

The input material in this model refers to the entry characteristics of the students as typified by their UME scores. The students with relatively high UME scores are admitted into courses of study in the University with the expectation that they will perform well in their disciplines.

The process which is known as the action part of the model includes all the teaching ï learning activities and other items in the curriculum to which the students are exposed. The process phase can be affected by many variables such as poor study habit, lack of school facilities e.g. classrooms, laboratories, teaching aids, well-equipped and functional libraries, malpractices in UME and \ or at any point in the course of study, etc. These factors will affect the studentsô final performance in varying degrees depending on the circumstances of each environment.

If the conditions necessary for effective teaching- learning are present, and if the students made their UME scores and other academic achievements without examination malpractice, then, the UME scores should adequately predict the studentsô FCGPA.

Conversely, if the school system does not provide conditions necessary for effective teaching - learning to take place or the students were admitted into the university by means of UME scores obtained via examination malpractice, then the UME scores will not adequately reflect the studentsô FCGPA.

The output - (final Cumulative Grade point Average [FCGPA] in this study), reflects the nature of the activities that took place during the course of study. It measures the students' dedication to the course. The more dedication the student has, and the higher the UME score, the higher the output (FCGPA) is expected to be.

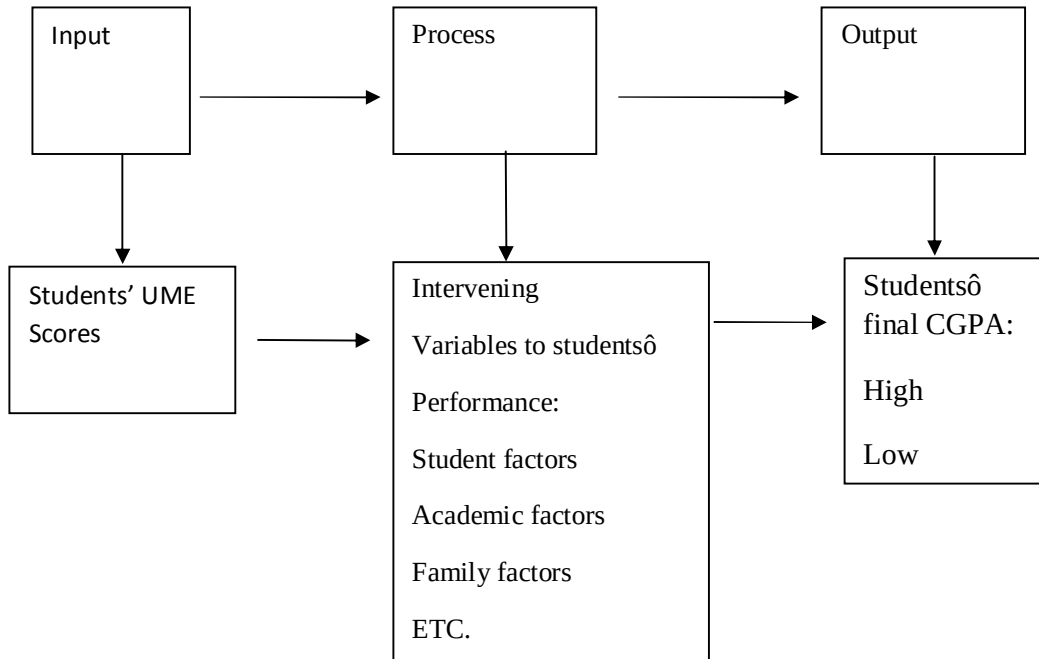


Figure 1: Conceptual model of the study: (Adapted Input process output: Education model from IPO-education ĩ Adobe Reader on 29/1/2013)

REVIEW OF RELEVANT EMPIRICAL STUDIES

Entry Grades and Students' Achievement

Many studies have been carried out on entry qualifications as correlates of students' academic achievement. In the following paragraphs, effort is made to bring the findings and circumstances of these studies to focus.

In an attempt to identify post - enrolment factors that have important influence on students' success at university, Fraser and Killen (2003) studied 99 students across all years of the Bachelor of Arts, with specialization in education, and the B.Ed post graduate programme at the University of Pretoria. The response from the students and lecturers were analyzed with descriptive statistics and placed into categories that emerged as the data were interpreted. These categories were then used to create a set of 52 statements that described factors that contribute to students' success in universities. According to the study, the factors that predict students performance in universities include self motivation, self discipline, students' interest, self confidence, teaching methods, availability of quality learning resources, impartation of theory into practice, appropriate balance between academic commitments and social life, continuous assessment, family support, financial security, etc.

Saladeen and Murtala, (2005) investigated the relationship between the quality of SSCE results, JAMB's UME scores, and students' academic performance at the 100 level pre-clinical sciences examinations at the Lagos State University College of Medicine (LASUCOM). Records of students admitted into the Medical School in the 1998/1999 session were studied. Descriptive statistics and correlation coefficient were used to determine the correlation between the variables. The results showed that there was no significant correlation between SSCE and JAMB's UME scores. In addition, the correlation between JAMB's UME scores and the students' performance at the 100 level pre-clinical sciences also proved to be non significant. They concluded that SSCE is a better predictor of students' performance at pre-clinical sciences examination than JAMB's UME scores. They also reported gender differences in favour of females in their performance at the first year examinations. However, the males' performances at the pre-clinical sciences examination were better than that of the females. The sex differentials in performances of the students were not significant. They opined that the observed differences in performance between the

two sexes may be due to cultural influences which tend to encourage the males to achieve higher than the females.

The JAMB, (2007) studied the predictive validity of the Universities Matriculation Examination (UME) using students admitted into six Nigerian universities - Bayero University, Kano; Nnamdi Azikiwe University, Awka; University of Ibadan, Ibadan; University of Lagos, Lagos; University of Nigeria, Nsukka and University of Ilorin, Ilorin. UME scores of students admitted in the 1998, 1999 and 2000 sessions, and their first year grade point averages (FGPA) (and other relevant data) were collected from the students' files with a proforma. Data were analyzed using correlation analysis and multiple regression analysis. JAMB reported a very low value of relationship between the students' UME scores and their FGPA. The Board attributed the findings to a number of factors such as:

1. Incongruence in the skills and competencies tested by the Board's UME and the skills emphasized in the first year of university education;
2. Incidence of extraneous influences which may produce such scores that may differ from the candidates' true scores;
3. Events and conditions in the institutions which include poor and/or harsh teaching environment, sorting, impersonation, intimidation through cultish activities, etc.

JAMB, (2007) therefore recommended among others that:

1. JAMB should take deeper look in terms of the focus and emphasis of the exam vis-à-vis the actual skills and competencies the universities do emphasize;
2. There is need for developing greater guarantees for integrity and credibility;

3. The Board should source and use only credible examination centres where adequate spacing of candidates can be achieved and hired mercenaries kept at bay.

In a study to find out the effect of mode of entry into medical school on performance in the first year, Afolabi, Mabayoje, Togun, Oyadeyi, and Raji, (2007) compared the relative performance of 294 students admitted into the medical programme through pre-degree sciences with those students admitted through the UME. This was done using a correlational design at the Ladoke Akintola University of Technology, Ogbomosho, Nigeria. The performance indices used were the university 100 level CGPA and physiology examination scores during the 200 level comprehensive examinations. The relevant data were collected with a proforma and analysed using the student-t test, Pearson's Product Moment Correlation Coefficient and Regression Analysis. The results showed that the students admitted through UME performed better in 200 level physiology examination but there was no correlation between UME scores and O-level aggregate, 100 level GPA and 200 level physiology result. The pre-degree examination result however showed a strong positive correlation with O-level aggregate, 100 level GPA and 200 level physiology scores. The study therefore recommended that the pre-degree examination result be used in admitting students in medical sciences.

Furthermore, a similar study by Adeyemo, (2007) examined the moderating influence of emotional intelligence on the link between academic self efficacy and achievement among students using 300 undergraduate students at the University of Ibadan whose mean age was 16.5. Two valid and reliable instruments were used to assess emotional intelligence and academic self efficacy while their first semester results were used as a measure of academic achievement. Descriptive statistics, Pearson's Product Moment Correlation Coefficient and hierarchical regression analysis were used to analyze the data. The result demonstrated that

emotional intelligence and self efficacy significantly correlated with academic achievement. On the basis of the findings, it was suggested that emotional intelligence should be integrated into the undergraduate curriculum. The study further advocated for the promulgation of education policy on emotional intelligence and academic self efficacy.

Omirin, (2007) also did a research on gender issue in performance of students admitted through UME and pre-degree into the Nigerian universities. Ex-post facto design was adopted for the study. A proforma was used to collect data from a sample of two hundred and fifty students from the Faculty of Sciences in the University of Ado Ekiti. Purposive, stratified and proportionate sampling were employed in the selection of the sample. Data collected were analyzed using students t-test. Result of the study revealed that there was no significant difference between the academic performance of male and female students in Nigerian universities. Based on the finding, it was recommended that both male and female students should be given equal chances of admission in UME and pre-degree programmes

Adeyemi (2009) was of the view that different entry modes affect students' final performance in school. This was after a study on mode of entry as a product of success in final year bachelor of education degree examinations in universities in Ekiti and Ondo states, Nigeria. Using educational management students of the university, the researcher revealed that there was significant relationship between students' mode of entry into the universities and obtaining CGPA of 3.5 and above in the final 400 level bachelor of education degree. Among admissions through the direct entry, UME and pre-degree program, the study showed that admission through pre-degree was the best predictor of students' success while the UME mode of admission was the second best predictor of students' success. Based on the findings of the study, it was recommended that more emphasis should be given to admission into the

universities through the pre-degree mode of entry as the findings isolated this mode as the best alternative in achieving the objectives of the National Policy on Education (NPE).

Omodara (2010) assessed the predictive validity of UME scores on academic performance of university undergraduates at the University of Ado-Ekiti, Nigeria. Using Pearson's Product Moment Correlation Coefficient and Regression Analysis, he correlated the UME scores and the Cumulative Grade Point Average (CGPA) of 300 level students who got admission into the university with the 2004 UME results. The findings revealed that the predictive strength of UME scores on academic performance of the students was low. He concluded that UME is a poor predictor of academic performance, and recommended that the JAMB should improve on the methods of administration of the UME so as to guide universities to admit students who will perform well in their respective courses.

In another study involving the predictive power of UME, Ifedili and Ifedili (2010) did a study at the University of Benin, to determine the effectiveness of UME and Post UME. The study suggested the supremacy of Post-UME over UME in selecting the best candidates for university education. Other contradictions according to Nwanze also reported by Ifedili and Ifedili (2010), reveals that in the same university the best five UME students did not score up to 40% in Post-UME. Also, only two candidates passed Post - UME out of the twenty-six candidates in JAMB merit list. In law, the best 16 candidates failed the Post-UME. In Pharmacy, the best fifteen students in Post-UME were not on JAMB merit list, all in a particular admission session of the university.

However, the wide discrepancy between UME and Post-UME scores in this study or any other could be rationalized on the CTT's Parallel Test Theory (PTT) which assumes that two or more tests with different domains as in the case of UME (achievement) and Post-UME (aptitude) sampled, will give similar true scores but have different error scores. The

apprehension of this study thus, is that the error scores are large enough between the two tests which invariably inhibit the measure of their true score (T). This is, because the higher the T the better the quality of validity and decisions warranted by their scores.

Some other studies have combined UME to predict other criterion. Achor, Aligba and Omananyi (2010) examined the predictive power of UME scores and pre-degree result on Senior School Certificate Examination (SSCE) of pre-degree science students of Benue State University with a view of seeking alternative to multiple selection examinations. Three standard examination results in mathematics and physics were used for analysis in the study with SSCE as dependent variable and prelim and UME scores as independent variables. Using multiple regression analysis, it was found that prelim and UME mathematics did not significantly predict SSCE mathematics, while prelim physics significantly predicted SSCE physics. The study recommended among others that the current selection examinations be improved upon through strict supervision (especially the UME) to guarantee their public acceptance and credibility.

Osakude (2011) also did a case study that determined the relative effectiveness of University Matriculation Examination and Post University Matriculation Examination on the final year academic performance of students admitted into Adekunle Ajasin University in 2004/2005 and 2005/2006 sessions. This study also has a comparative advantage because the population comprised the last students that were admitted with UME only and the first set that were admitted with the average of UME and Post-UME scores respectively. The population consisted of the entire students who were admitted into the University in the two sessions. The researcher adopted descriptive research design and made use of a proforma to collect the UME scores, Post UME scores and their respective classes of degrees. Using Pearson's Product Moment correlation and t-test statistics to analyze the data, findings showed that

there was a low relationship between students' scores in UME and Post-UME. More so, Post-UME was more effective than the UME in predicting final performance but the difference was so little. The researcher thus recommended that:

- (1) JAMB should be saddled with the responsibility of conducting pre-qualification examination whereas universities should be allowed to conduct a Post-UME screening.
- (2) For the Post-UME screening, students should only be tested on their levels of coherence in the English language through essay writing and oral interview in addition to objective tests.
- (3) A bench mark of 180 was recommended for calling students for Post-UME screening.

Similarly, Ukwuije and Asuk (2011) in Ukwuije, (2012) investigated the relative importance of WASSCE, UTME and Post- UTME results in predicting first year Cumulative Grade Point Average (CGPA) of students in selected faculties in the University of Port Harcourt. They found out that WASSCE was the best predictor accounting for about 12% of the systematic variation in CGPA, Post- UTME accounting for about 7% and UTME accounting for little or nothing. They recommended among others that more universities be established in order to remove the pressure of seeking for admissions at all costs from the relatively few existing ones.

Summary of Literature Review

In Nigeria, there was not much emphasis on university education during the colonial era. The University College, Ibadan (UCI), now the University of Ibadan (UI) was established in 1948 as an overseas campus of the London University. It was the only university in Nigeria till October 1960 when the University of Nigeria, Nsukka (UNN) was established.

By 1982, the Federal Government Universities were 20 in number. Since then, University education has witnessed tremendous development because of the demand for it.

University admission is competitive-worldwide; the selection procedure is geared toward ensuring that best candidates are selected for university admissions from a large pool of applicants. The UME, a major parameter for admission into Nigerian universities is a predictive test used to infer students' readiness to attain academic success in the university.

Predictive test or validity is a measurement of how well a test predicts future performance.

JAMB has however been criticized over the years for its inability to organize credible entrance examination, that has integrity (Ezike, 2010; Olugbamila, 2010, and Obioma & Salau, 2007). These criticisms led some universities to introduce Post-UME screening in 2005.

The Input- process ÷ Output model of the Systems theory can be applied in the educational setting because both the universities and the JAMB can be regarded as subsystems within the Supra system called Nigeria.

The selection of right candidates for the university education is as important as the quality of instruction. Scarce resources can be judiciously optimized when only those who can maximally benefit from a given programme of education are selected for the purpose. Therefore research in its predictive validity cannot be over emphasized.

Test theory does not suggest that the materials presented is not of direct practical value, because CTT and IRT that undergird modern measurement are not exclusively mathematical and statistical but of practical predictive and inferential value about human characteristics. Thus, they are also theories to guide the examination of the meaning or appropriateness of a given practical measurement operation in a given situation just like the UME. Hence, their validity and reliability implies that score based inferences and validity are warranted, and that an important measure like UME purported to indicate some concept and construct about

students entry characteristics largely affects the dimension it is intended to measure and not some other.

From the literature reviewed, it could be noticed that educational research is replete with studies of predictive validity; both local and foreign. While there were several studies conducted and reported, few sought to use UME exclusively in recent times to find out if there has been any change in its predictive validity. In addition, there have been no such studies using the students of the Faculty of Health Sciences and Technology of the University of Nigeria, Enugu Campus. There also seem to be a declining trend in the validity of UME as earlier studies suggest its high predictive validity on student's achievement (Agomuo, 1984; Obije, 1995) while later studies disapprove of its validity and rationale (Obioma & Salau, 2007; Ifedili & Ifedili, 2010).

The differences in opinion from the findings of these studies suggest incongruent views of what it takes to be successful in academic study. Some of these opinions seem to have risen for reasons that have not been given much attention by educational researchers in predicting students' success in university education. One of such considerations in predicting students' success with their previous performance is a consideration of the implications of success being defined by implicit and explicit factors that are contradictory. This point calls for explanation. "Academic success" is usually taken to mean that students are able to meet the assessment requirements of the programme in which they enroll. Some others however see success in university education as the ability to marry well, socialize and integrate with the society which is the ultimate and a long term goal.

Apparently, it seems students' success in school depends on the circumstance of their experiences under the university instructional process but numerous studies in educational research suggest a positive relationship between students' entry grade and their academic

achievement. Academic success is, no doubt, the main focus of all educational activities and has thus, received tremendous attention from educators. However prediction with entry qualification is not clear. Thus, that there is no significant difference in the academic achievement of students with low, medium and high entry grades should naturally suggest that all the learning objectives set during the school year were met, but this is rarely the case.

However, poor predictive value of public examination like UME naturally suggests that it may not be a good index for determining or selecting those who are likely to benefit maximally and succeed in university education. Some researchers however acknowledge that the reasons for the low predictive power of UME scores are not entirely clear. Thus, further research effort like this present study is required to isolate and investigate UME as one of the factors responsible for this observed phenomenon from a critical area of our health care delivery like the allied medical sciences.

CHAPTER THREE

Research Methodology

This section of the study discussed the research methods that were employed in this research work. Specifically, the areas highlighted include the: design of the study, area of the study, population of the study, instrument for data collection, procedure for data collection, ethical considerations and method of data analysis.

Design of the Study

In this study, non-experimental, retrospective, correlational design was employed to determine what relationships exist between students' UME scores and their FCGPA. This design was considered appropriate for use in this study on UME as a predictor of students' final grades in the Faculty of Health Science and Technology of University of Nigeria as it allows for a statistical technique for establishing the extent of relationships between variables. Fraenkel and Wallen, (2003) cautions that a correlational approach requires no manipulation or intervention on the part of the researcher other than that required to administer the instrument necessary to collect the data desired. Thus, data on FHST students' scores in UME were collected and correlated with their FCGPA to determine their relationship in magnitude and direction.

Area of Study

This study was carried out in the Enugu Campus of the University of Nigeria (UNN). UNN was established in 1960 as the first indigenous Nigerian University. UNN has 14 academic faculties with nine in Nsukka campus and five in Enugu campus. University of Nigeria is in Enugu State. The State has 17 Local Government Areas (LGA). Enugu is one of the five states that make up the South-East geopolitical zone of the country with the slogan "Coal

City State. It is bounded by Anambra in the west, Abia in the south, Ebonyi in the east and Benue States in the north.

The University of Nigeria Enugu Campus (UNEC) is located in the Enugu metropolis which is the capital city of Enugu State. The city has a Federal Secretariat as well as many other Federal and International Organizations.

UNEC is situated in the New Layout/Independence Layout axis of the city being bounded by the Maryland area, Kenyatta Market, former WTC compound and the Institute of Management and Technology (IMT). UNEC is headed by a Deputy Vice Chancellor (DVC) and has five faculties viz: Health Sciences and Technology, Law, Environmental Studies, Business Administration and Medicine and Surgery.

The Faculty of Health Sciences and Technology (FHST) is located in the ñAbuja area of UNEC. The FHST building houses five Departments: Nursing Sciences, Medical Radiography, Medical Rehabilitation, Medical Laboratory Sciences, Health Administration and Management; as well as the Dean's office.

Faculty of Health Sciences and Technology of the UNEC

The development of degree programmes for allied medical professions in University of Nigeria is harmonized in the faculty of Health Sciences and Technology. The faculty is aimed at training a health team of graduates in four areas that include Nursing Sciences, Medical Laboratory Sciences, Medical Rehabilitation, and Medical Radiography and Radiological Sciences. The motive of this orientation was to correct the dilemma of team players who cannot function at the same level to provide a comprehensive health care in any given community (UNN, 2006).

The Department of Nursing Sciences offers a five-year Bachelor of Nursing Sciences (B.NSc) programme to her candidates. Admission is through UTME/JAMB and by Direct Entry (DE). Candidates must have satisfied the minimum requirements for admission and are required to obtain credits in English Language, Chemistry, Biology, Physics, and Mathematics in the Senior School Certificate Examination or its equivalent. This qualification is the same across the faculty.

The Department of Medical Laboratory Sciences offers a five-year professional B.MLS degree programme in Medical Laboratory Sciences. Courses in Medical Laboratory Sciences are taught under five disciplines; Clinical Chemistry, Hematology, Medical Microbiology, Histopathology and Immunology including instrumentation and Pharmacology (UNN, 2006).

Department of Medical Rehabilitation offers a five year standard degree programme leading to B.Sc (Medical Rehabilitation). The objective of the curriculum is to provide the education required by those who wish to practice in the broad field of Medical Rehabilitation based on physiotherapy.

The Department of Medical Radiography and Radiological Sciences was formerly known as the Department of Radiography from its inception in 1983 to 1990. When the Departmental curriculum was revised, the programme was changed from the Term to the Semester System. The department offers a five-year standard B.Sc Degree programme in Medical Radiography and Radiological Sciences starting from 1983/84 academic session. Medical Radiography and Radiological Sciences involves the use of ionizing radiation (including x-rays) and other forms of radiation energy in the diagnosis, management, and treatment of human diseases.

The Registrar's Department of UNN

The Registrar's Department is one of the support Services departments in the University. The Registrar is the Head and Chief Administrative officer. The Registrar has a dual function in the University system, namely, assisting the Vice- Chancellor (VC) in the day-to-day administration of the University and secretaryship of the statutory bodies of the University and their various committees.

The functions of the Registrar's Department include the processing of admission forms and examination results, among others. Staff of the Registrar's Department strives to ensure that no one is in doubt as to the reliability of the decisions they record, the data they present, the information they give and the results they produce, knowing fully well that the university community is a highly critical and meticulous community (<http://www.unn.edu.ng/units/registry>).

The Registrar discharges his responsibilities to the Senate through the Registry. The Registry therefore plays a prominent role in the academic life of the University. The department acts as data banks where information is stored and retrieved. The functions of the University Registry are carried out in the following offices: Central Registry, Admissions office, Examinations office, Records office, Careers and Publications office, Senate Affairs office, Council Affairs office, Endowment fund office, Administration Unit, Sandwich and Evening Programmes Unit (SEP Unit) and Registry (Enugu Campus); and faculty offices (University of Nigeria, 2012). The Registry (Enugu Campus) is located at the UNEC and it does all the functions of the Registry as it pertains to the Enugu Campus of UNN. It is headed by a Deputy Registrar.

Subjects of the Study

The subjects of the study consisted of the students of the FHST who were admitted in the 2005/2006 and 2006/2007 academic sessions, and who graduated in the 2009/2010, 2010/2011 and 2011/2012 sessions. They were 306 in number.

Inclusion Criteria

Only the records of students of the 4 departments in FHST (Nursing Sciences, Medical Laboratory Sciences, Medical Rehabilitation and Medical Radiography and Radiological Sciences) with 2005/ and 2006/ registration numbers, and whose results were ready and had been approved by the University Senate as at December, 2012 were included in the study. Direct Entry students were excluded from the study because they did not sit for the JAMB& UME.

Population of the Study

The population of the study consisted of all the one thousand, nine hundred and twenty-two (1,922) students in the 4 Departments of FHST (comprising: Nursing: 564; Medical Laboratory: 560; Medical Rehabilitation: 359; and Medical Radiography and Radiological Sciences: 439), who were registered between the 2005/2006 and 2010/2011 academic session. They were admitted primarily into the FHST on the basis of their UME scores. The records of those students with 2005/ and 2006/ registration numbers, and who graduated between the 2009/2010, 2010/2011 and 2011/2012 academic sessions were studied. That is, the students whose results were ready and have been approved by the University Senate were included as the sample of the study. They were three hundred and six (306) in number as follows: Nursing: 60; Medical Lab.Sciences:101; Medical Rehabilitation: 68; and Medical Radiography: 77 (UNEC Registry Records, 2012).

Instrument for Data Collection

A proforma, which was developed by the researcher and face-validated by the supervisor, was used for the data collection. The proforma was designed to accommodate the serial number, name, department, registration number, gender, UME scores, Post-UME scores, average of UME scores and Post-UME scores; and FCGPA. (Appendix iii)

Ethical Considerations

Firstly, a letter of introduction was obtained from the Department of Nursing Sciences (appendix i). Administrative permit was duly sought and obtained from the Dean of the Faculty of Health Sciences and Technology for permission to access and use the students' academic records (appendix ii) for the research project. With the approved application to use the students' academic records, consent and support of the four Heads of Departments concerned were also obtained.

Application for Ethical Clearance (appendix iv) along with consent form (appendix v) was written to the Chairman, Health Research Ethics Committee at the University of Nigeria Teaching Hospital Ituku / Ozalla, Enugu. Ethical clearance Certificate was issued by the Committee (appendix vi).

Administrative permit to access and use the students' academic records for the project was written to the DVC of UNEC (appendix vii) and approval was given (appendix viii).

Confidentiality of the students' academic records was maintained throughout the process of the data collection and analyses.

Procedure for Data Collection

With the letter of permission to access and use students' academic records from the DVC of UNEC, the Deputy Registrar, UNEC was approached for his assistance. The Registry staff assigned to assist the researcher helped to extract the files of the students who were registered

in the faculty in the 2005/2006 and 2006/2007 academic sessions, and who subsequently graduated between the 2009/2010, 2010/2011 and 2011/2012 academic sessions. The relevant data were collected from each eligible student's file using the proforma. The data collection period lasted for two weeks.

Method of Data Analysis

Data were collected and coded before being analyzed with the aid of Computer Statistical Package for Social Sciences (SPSS, version 17) software. The collected data were arranged according to the research questions and the formulated hypotheses. Pearson's Product Moment Correlation Co-efficient (r) and Partial Correlations coefficient (r^2) were used to analyze the data according to the research hypotheses. The Pearson's Product Moment Correlation Coefficient (r) and partial Correlations Coefficient (r^2) were used to show how far the UME scores predicted students' final academic outcome. Partial Correlation Coefficient (r^2) tries to factor out the extent of the variation in the dependent variable (FCGPA in this study) that is attributable to, or explained by the independent variable (UME scores in this study). The coefficients were interpreted on the following predetermined criteria by the researcher:

- | | | | |
|----|--------------|---|-------------------------------|
| 1. | 00 | = | zero correlation |
| 2. | - .01 to -.3 | = | low negative correlation |
| 3. | - .4 to -.6 | = | moderate negative correlation |
| 4. | -. 7 to -.9 | = | strong negative correlation |
| 5. | - 1 | = | perfect negative correlation |
| 6. | . 01 to .3 | = | low positive correlation |
| 7. | .4 to .6 | = | moderate positive Correlation |
| 8. | .7 to .9 | = | strong Positive Correlation |
| 9. | 1 | = | Perfect Positive Correlation |

The seven null hypotheses that guided the study were tested at 0 .05 level of significance.

CHAPTER FOUR

Presentation of Results

The results of the data analyses are presented in this chapter. The results are presented in tables according to the hypotheses that guided the study.

Hypothesis 1: There is no significant relationship between the UME scores and the FCGPA of FHST students.

Table 1: Relationship of UME Scores (UME, PUME, and average of UME + PUME scores), and the FCGPA of the students of FHST.

FHST Students	N	Mean	Standard Deviation	r	Partial Correlation (r^2)	Level of sig. (2-Tailed)	α	Decision
UME score	306	236.61	25.25	.083	.0068	.146	.05	Not significant
PUME score	306	212.81	24.41	.187	.0349	.001	.05	Significant
Average of UME + PUME Score	306	224.58	18.50	.168	.0282	.003	.05	Significant
FCGPA	306	3.25	.52					

NOTE: Pearson's Product Moment Correlation Coefficient (r) was calculated with the average of UME scores + PUME scores, and the FCGPA.

Table 1 shows that there was a significant positive relationship between average of UME scores + PUME scores and the FCGPA among students of FHST: $r = .168$, $df = 304$, $p = .003$. The Table also shows that there was a significant positive relationship between PUME scores alone and the FCGPA among the students: $r = .187$, $df = 304$, $p = .001$. There was however no significant relationship between UME scores alone and the FCGPA of the students: $r = .083$, $df = 304$, $p = .146$. The partial correlations (r^2) of the predictors (UME, PUME and average of UME scores + PUME scores) show that the average of UME scores + PUME scores accounted for about 3% ($r^2 = .0282$), PUME scores alone accounted for about 4% ($r^2 = .0349$), whereas UME scores alone accounted for less than 1% ($r^2 = .0068$) of

variance respectively, in the students' FCGPA. This means that the predictive power of average of UME scores + PUME scores on the FCGPA mainly came from variance due to PUME scores alone. UME scores alone had a poorer predictive validity (less than 1%) on the FCGPA of the students involved in this study. Average of UME scores + PUME scores had a significant relationship ($p < 0.05$) with the FCGPA among FHST students. The null hypothesis which stated that there was no significant relationship between the UME scores and the FCGPA of FHST students was therefore rejected. The alternative hypothesis which stated that there was a significant relationship between the UME scores and the FCGPA of students of the FHST was accepted.

Hypothesis 2: There is no significant relationship between the UME scores and the FCGPA of Nursing Sciences students.

Table 2: Relationship of UME Scores (UME, PUME and Average of UME + PUME scores) and the FCGPA of the Nursing Sciences students

Nursing Sciences Department	N	Mean	Standard Deviation	r	Partial Correlation (r^2)	Level of sig. (2-Tailed)	α	Decision
UME score	60	232.73	27.75	.194	.0376	.137	.05	not significant
PUME score	60	203.40	17.54	.063	.0039	.633	.05	not significant
Average of UME+ PUME score	60	218.07	15.68	.207	.0428	.112	.05	not significant
FCGPA	60	3.25	.52					

Table 2 shows that there was no significant relationship between average of UME + PUME scores and the FCGPA among the Nursing Sciences students: $r = .207$, $df = 58$, $p = .112$. The Table also shows that there was no significant relationship between either UME scores alone or PUME scores alone and the FCGPA: $r = .194$, $df = 58$, $p = .137$; and $r = .063$, $df = 58$, $p = .633$, respectively. There was no significant relationship ($p > 0.05$) between the average of

UME + PUME scores and the FCGPA among the Nursing Sciences students. The null hypothesis which stated that there was no significant relationship between the UME scores and the FCGPA of Nursing Sciences students was therefore accepted.

The partial correlations (r^2) of the predictors (UME, PUME and average UME + PUME scores) show that average of UME scores + PUME scores and UME scores alone accounted for about 4% each ($r^2 = .0428$, and $r^2 = .0376$ respectively) while PUME scores alone accounted for less than 1% ($r^2 = .0039$), of the variances in the FCGPA of the Nursing Sciences students. This means that none of the scores (UME, PUME and average of UME + PUME scores) was a robust predictor of the FCGPA of the Nursing Sciences students involved in the study.

Hypothesis 3: There is no significant relationship between the UME scores and the FCGPA of Medical Laboratory Sciences students.

Table 3: Relationship of UME scores (UME, PUME and average of UME + PUME Scores), and the FCGPA among Medical Laboratory Sciences students.

Medical Laboratory Sciences Dept.	N	Mean	Standard Deviation	r	Partial Correlation (r^2)	Level of sig. (2-Tailed)	α	Decision
UME score	101	234.02	20.39	-.054	.0029	.589	.05	not significant
PUME score	101	212.17	23.01	.144	.0207	.151	.05	not significant
Average of UME+ PUME score	101	222.92	16.79	.067	.0045	.503	.05	not significant
FCGPA	101	3.32	.51					

Table 3 shows that average of UME scores + PUME scores had no significant relationship with the FCGPA of the Medical Laboratory Sciences students: $r = .067$, $df = 99$, $p = .503$.

The Table also shows that there was no significant relationship between PUME scores alone and the FCGPA: $r = .144$, $df = 99$, $p = .151$, as well, there was no significant relationship between UME scores alone and the FCGPA: $r = -.054$, $df = 99$, $p = .589$. Since there was no significant relationship ($p > 0.05$) between the average of UME + PUME scores and the

FCGPA of the Medical Laboratory Sciences students, the null hypothesis which stated that there was no significant relationship between the UME scores and the FCGPA of the Medical Laboratory Sciences students was therefore accepted, while the alternative hypothesis was rejected.

The partial correlations (r^2) of the predictors (UME, PUME and average UME + PUME scores) however, show that average of UME scores + PUME scores and UME scores alone accounted for less than 1% ($r^2 = .0045$ and $.0029$ respectively), while PUME scores alone accounted for about 2% ($r^2 = .0207$) of the variances in the FCGPA of the Medical Laboratory Sciences students. This means that the UME scores, PUME scores and average of UME + PUME scores were very weak predictors of students' final grades in this Department.

Hypothesis 4: There is no significant relationship between the UME scores and the FCGPA of Medical Rehabilitation students.

Table 4: Relationship of UME scores (UME, PUME, and average of UME + PUME Scores) and the FCGPA of Medical Rehabilitation students.

Medical Rehabilitation Dept	N	Mean	Standard Deviation	r	Partial Correlation (r^2)	Level of sig. (2-Tailed)	α	Decision
UME score	68	234.68	23.83	.141	.0199	.252	.05	not significant
PUME score	68	217.76	29.54	.164	.0269	.181	.05	not significant
Average of UME + PUME score	68	226.45	22.10	.177	.0313	.148	.05	not significant
FCGPA	68	3.25	.54					

Table 4 shows that there was no significant relationship between average of UME scores + PUME scores and the FCGPA of Medical Rehabilitation students: $r = .177$, $df = 66$, $p = .148$. The Table also shows that there was no significant relationship between both UME scores alone, and PUME scores alone and the FCGPA: $r = .141$, $df = 66$, $p = .252$; and $r = .164$, $df = 66$, $p = .181$, respectively. There is no significant relationship ($p > 0.05$) between the average

of UME + PUME scores and the FCGPA among the Medical Rehabilitation students. Therefore, the hypothesis that there is no significant relationship between the UME scores and the FCGPA of the Medical Rehabilitation students was accepted, and the alternative hypothesis was rejected.

The Table also revealed that the partial correlations (r^2) of the predictors (UME, PUME and average of UME + PUME scores) show that both average of UME scores + PUME scores and PUME alone accounted for about 3% each ($r^2 = .0313$ and $.0269$ respectively) of the variances in the FCGPA of the students. UME scores alone accounted for about 2 % ($r^2 = .0199$) of the variance in the FCGPA of the students involved in this study. This means that although none of the prequalification measures (UME, PUME and average of UME scores + PUME scores) was a robust predictor of the FCGPA, average of UME scores + PUME scores and PUME scores alone were more robust predictors (about 3% each) of the FCGPA than the UME scores alone (2%).

Hypothesis 5: There is no significant relationship between the UME scores and the FCGPA of Medical Radiography and Radiological Sciences students.

Table 5: Relationship of UME scores (UME, PUME, and Average of UME + PUME scores) and the FCGPA of Medical Radiography and Radiological Sciences students

Medical Radiography and Radiological Sciences Dept.	N	Mean	Standard Deviation	r	Partial Correlation (r^2)	Level of sig. (2-Tailed)	α	Decision
UME score	77	244.74	28.70	.087	.0076	.454	.05	not significant
PUME score	77	216.60	24.08	.289	.0835	.011	.05	significant
Average of UME+ PUME score	77	230.19	17.58	.226	.0511	.049	0.5	Significant
FCGPA	77	3.25	.53					

Table 5 above shows that there was a significant relationship between average of UME scores + PUME scores and the FCGPA among Medical Radiography and Radiological Sciences students: $r = .226$, $df = 75$, $p = .049$. The Table also shows that PUME scores alone also had significant relationship with the FCGPA: $r = .289$, $df = 75$, $p = .011$. But UME scores alone had no significant relationship with the FCGPA: $r = .087$, $df = 75$, $p = .454$. Since there was a significant relationship ($p < 0.05$) between the average of UME + PUME scores and the FCGPA of the Medical Radiography and Radiological Sciences students, the null hypothesis that there was no significant relationship between the UME scores and the FCGPA of the Medical Radiography and Radiological Sciences students was rejected while the alternative hypothesis was accepted. The partial correlations (r^2) however, show that average of UME score + PUME scores accounted for about 5% ($r^2 = .0511$), PUME scores alone about 8% ($r^2 = .0835$), and UME scores alone for less than 1% ($r^2 = .0076$) of the variances, respectively, in the FCGPA of Medical Radiography and Radiological Sciences students.

Hypothesis 6: There is no significant difference in the UME scores and the FCGPA of the male and female students of the FHST.

Note: Two way Multivariate Analysis of Variance (2-way MANOVA) was used to test for **hypothesis 6** and **7** in order to allow for the investigation of interaction effect of gender and department on the UME, PUME and average of UME + PUME scores, and the FCGPA of FHST students.

Table 6: Differences in UME scores (UME, PUME, and Average of UME + PUME scores) and the FCGPA of the male and female students of FHST

	N	=	UME		PUME		Average of UME		FCGPA		r	r ²	Level	Ū	Decision
	306		score		score		+ PUME						of	sig.	
							scores						(2-		tailed)
	n		Mean	SD	Mean	SD	Mean	SD	Mean	SD					
Females	138		234.70	26.40	206.91	23.69	220.60	19.82	3.14	.53	.007	<.0001	.934	.05	not significant
Males	168		238.18	24.23	217.65	24	227.85	16.70	3.33	.50	.274	.0751	< .001	.05	Significant

Table 6 shows that average of UME + PUME scores had significant positive relationship with the FCGPA for the male students: $r = .274$, $df = 166$, $p < .001$, but there was no significant relationship between average of UME + PUME scores and the FCGPA of the female students: $r = .007$, $df = 136$, $p = .934$. Since there was a significant relationship ($p < 0.05$) between the average of UME + PUME scores and the FCGPA of the male students, whereas there was no significant relationship ($p > 0.05$) between the average of UME + PUME scores and the FCGPA of the female students, the null hypothesis which stated that there was no significant difference in the UME scores and the FCGPA of the male and female students of FHST was rejected, rather the alternative hypothesis was accepted. The partial correlations (r^2) also show that average of UME + PUME scores accounted for about 8% ($r^2 = .0751$) of the variances in the FCGPA of the male students while it accounted for less than 1% ($r^2 < .0001$) for the female students. Thus, the UME scores were better predictors of the FCGPA for the male students than the female students of FHST involved in this study.

Hypothesis 7: There is no significant departmental difference in the UME scores and the FCGPA in the FHST.

Table 7: Departmental differences in UME scores (UME, PUME, and Average of UME + PUME scores), and the FCGPA in the FHST.

Dept.	N =	UME scores			PUME scores		Average of UME		FCGPA		r	r ²	Level	α	Decision
	306						+ PUME scores						of sig.		
													(2		
	n	M	SD	M	SD	M	SD	M	SD				tailed)		
Nursing	60	232.73	27.75	203.40	17.54	218.07	15.68	3.11	.50	.207	.0428	.112	.05	not significant	
Med Lab.	101	234.02	20.38	212.17	23.02	222.92	16.79	3.22	.51	.067	.0045	.503	.05	not significant	
Med Rehab.	68	234.68	23.83	217.76	29.54	226.45	22.10	3.25	.54	.177	.0313	.148	.05	Not significant	
Med. Radio.	77	244.74	28.70	216.60	24.08	230.19	17.56	3.28	.53	.226	.0511	.049	.05	significant	

Table 7 shows that significant departmental differences in the average of UME + PUME scores and the FCGPA exist only in the Medical Radiography and Radiological Sciences Department while there was no significant departmental difference in the average of UME +

PUME scores and the FCGPA among the other 3 departments. Since the average of UME + PUME scores had significant positive relationship ($p < 0.05$) with the FCGPA of the students of Medical Radiography and Radiological Sciences Department, the null hypothesis which stated that there was no significant departmental differences in the UME scores and the FCGPA in the FHST was rejected, rather the alternative hypothesis was accepted.

The partial correlations (r^2) also show that average of UME + PUME scores accounted for about 4% ($r^2 = .0428$) of the variance in FCGPA for the Nursing Sciences students, less than 1% ($r^2 = .0045$) for the Medical Laboratory Sciences students, about 3% ($r^2 = .0313$) for the Medical Rehabilitation students, and about 5% ($r^2 = .0511$) for the Medical Radiography students.

CHAPTER FIVE

Discussion of the Findings, Educational Implications, Conclusions, Recommendations and Summary

This chapter dealt with the discussion of the findings of the study, the conclusions drawn from the findings and the educational implications of the study. Recommendations based on the findings and suggestions for further research are also highlighted. Finally, limitations of the study as well as a brief summary of the entire work were presented.

Discussion of the Findings

The findings of this study are discussed in line with the research hypotheses that were formulated to guide the study. Specifically, the findings were discussed according to the following sub-headings:

- Relationship between UME scores and the FCGPA of FHST students.
- Relationship between UME scores and the FCGPA of Nursing Sciences students.
- Relationship of UME scores and the FCGPA of Medical Laboratory Sciences students.
- Relationship between UME scores and the FCGPA of Medical Rehabilitation Sciences students.
- Relationship of UME scores and the of FCGPA of Medical Radiography and Radiological Sciences students.
- Differences in the UME scores and the FCGPA among the male and female students of FHST.
- Departmental differences in UME scores and FCGPA in the FHST.

Relationship of UME Scores and the FCGPA of FHST Students

Hypothesis 1 was formulated to determine the relationship between the UME scores and the FCGPA among FHST students.

One of the major findings in this study was that a significant positive relationship ($p < 0.05$) existed between the average of UME + PUME scores and the FCGPA of the FHST students. It also showed that the UME scores were very poor (about 3%) predictors of the FCGPA among the students (Table 1).

The findings also show that there was a significant positive relationship ($p < 0.05$) between the PUME scores alone and the FCGPA of the students. PUME scores alone also had a predictive power of about 3% on the FCGPA. However, UME scores alone had no significant relationship ($p > 0.05$) with the FCGPA. In addition, the predictive power of UME scores alone on the FCGPA was less than 1%.

The findings could probably be attributed to differences in content of the UME examinations and that of the curriculum content examined during the course of study. In addition, examination malpractices during the JAMB's University Matriculation Examinations and to an extent during the Post-UME screening tests (Babalola, 2008), could be a possible explanation for the observed poor predictive power of UME scores on the students' FCGPA.

The null hypothesis was rejected as there was a statistically significant positive relationship between the average of UME scores + PUME scores and the FCGPA among the FHST students.

The findings of this study are in agreement with that of JAMB (2007) and Omodara (2010) which reported a very low value of relationship between the UME scores and the students' FGPA. Similarly, Osakude (2011) found out that UME scores had a low relationship with the

Post - UME scores. Additionally, he reported that Post ï UME scores alone were more effective in predicting the students' final performance but the difference was so little.

Relationship between UME Scores and the FCGPA of Nursing Sciences students

Findings revealed that there was no significant relationship ($p > 0.05$) between the average of UME + PUME scores, and the FCGPA of Nursing Sciences students. Furthermore, there was no significant relationship ($p > 0.05$) between either the UME scores alone, or the PUME scores alone, and the FCGPA of the Nursing Sciences students involved in this study (Table 2).

The result could probably be attributed to a number of reasons. These include lack of facilities like Faculty library, largely inaccessible Departmental library, inadequate classrooms, no reading - rooms, ill ï equipped central library at UNEC, as well as the crowded academic programme in this Department. For instance, the students take their professional examinations ï General Nursing and Midwifery, as well as the degree examinations within the five ï year programme. More so, the generally harsh school environment could contribute to the observed mismatch between the students' UME scores and their FCGPA. In addition, the possible incidence of examination malpractices during the University Matriculation Examinations may not be ruled out.

The finding is in consonant with that of Ukwuije and Asuk (2011) who reported that UME scores contributed little or nothing to the students' academic achievements in selected faculties at the University of Port Harcourt. The findings of this study also reiterate the assertions of Babalola (2008) that JAMB test for university candidates was no longer a true test because the examination has been thoroughly abused.

Relationship between UME Scores and FCGPA of Medical Laboratory Sciences Students

The findings show that average of UME + PUME scores had no significant relationship ($p > 0.05$) with the FCGPA of the students of Medical Laboratory Sciences Department.

The findings also indicated that all the indices for admission of students into the Department had very poor predictive power (less than 3%) on their FCGPA.

Once again, the predictive validity of JAMB's UME scores comes to question. The students may have engaged in examination malpractices during the University Matriculation Examinations and to some extent during the Post University Matriculation Examinations. Furthermore, according to JAMB (2007), the influence of events and conditions in the institutions which include poor and / or unfavourable teaching- learning environment, sorting, impersonation, intimidation through cultish activities, etc, could have far- reaching consequences.

The finding of this study are similar to that of Saladeen and Murtala, (2005) which reported among others, that the correlation between JAMB's UME scores and the students' performance at 100 level pre- clinical sciences proved non significant.

Relationship between UME Scores and FCGPA of Medical Rehabilitation Sciences Students

Table 4 indicated that none of the average of UME + PUME scores, PUME scores alone, nor the UME scores alone had significant relationships ($p > 0.05$ respectively) with the FCGPA of Medical Rehabilitation Sciences students involved in the study.

The Partial correlations (r^2) of the different scores revealed that average of UME + PUME scores, PUME scores alone, and UME scores alone, accounted for about 3%, 3% and 2%,

respectively, of the variances in the FCGPA of the students. This implies that each of the three different scores is a poor predictor of the students' final grades in this Department.

The findings could also be attributed to unfavourable teaching- learning environment as well as the possibility of examination malpractices during the admission processes and /or during the course of study. It has been observed that examination malpractices have become so popular in the academic world that it has almost become a culture among the students (Naze, 2011). Stiff competition for the hopelessly few available vacancies for admission of students may have resulted to some students engaging in one form of examination malpractice or another in order to secure admission. This may be the major factor responsible for students obtaining final grades that were not related to their admission scores. On the other hand, a student who scored relatively low marks in the UME may have worked harder during the course of his/ her studies and thus ended up obtaining high Grade Point Average relative to his/ her entrance scores.

The findings also agree with that of Saladeen and Murtala, (2005) and Ukwuije and Asuk, (2011) which found no significant relationship between UME/UTME scores and students' performance in the universities. The finding also lends credence to the submission of Babalola (2008) that JAMB test for university candidates was no longer a true test because, according to him, the examination has been thoroughly abused.

Relationship of Between UME Scores and FCGPA of Medical Radiography and Radiological Sciences Students

The answer to research question five and the corresponding hypothesis five was articulated in Table 5. The findings showed that there was a statistically significant positive relationship ($p < 0.05$) between average of UME + PUME scores, and FCGPA. It also showed that there was a significant positive relationship ($p < 0.05$) between PUME scores alone and FCGPA

of the students. However, there was no significant relationship ($p > 0.05$) between UME scores alone and the FCGPA of the students involved in the study.

Furthermore, the partial correlations coefficient (r^2) showed that average of UME scores + PUME scores accounted for about 5% while PUME scores alone, and UME scores alone accounted for 8% and 1% of the variances respectively, in the FCGPA of the Medical Radiography and Radiological Sciences students.

The result could probably be explained by the relatively less crowded academic programme in this Department thus giving the students enough time to concentrate on the requirements of their degree programme. For example, the students take their professional examinations when they had finished with their degree programme. This could lead to better academic performance. Conversely, a Department like Nursing Sciences has their professional examinations embedded within the 5 years, thus making the students' academic programme to be more crowded. This could affect the relationship between their UME scores and the FCGPA.

The finding of this study agrees with that of JAMB, (2007) and Omodara (2010) which also reported positive relationships between UME scores and students' academic achievements in the universities though the value of the relationship was low.

Differences in the UME Scores and the FCGPA of Male and Female Students of FHST

Findings from the study showed that average of UME + PUME scores had significant positive relationship ($p < 0.05$) with the FCGPA of the male students, but there was no significant relationship ($p > 0.05$) between average UME + PUME scores and the FCGPA of the female students.

The partial correlations coefficient (r^2) also indicated that average of UME + PUME scores accounted for about 8% variance in FCGPA of the male students, while it accounted for less than 1% variance for the female students.

The discrepancies in the predictive validity of UME scores for the male and female students could probably be attributed to the fact that some of the female students face more distractions during the course of their studies. For example, many of them marry and have babies while in the university. This would probably reduce the amount of time available for their studies thereby leading to a mismatch between their UME scores their final grades. More so, many families have higher expectations on their male children than the females and such higher expectations may motivate the males to achieve higher than the female students.

The result of this study disagrees with that of Omirin, (2007) which reported that there was no significant difference between the academic performance of male and female students in Nigeria. The difference in the findings of the present study and that of Omirin, (2007) could probably be attributed differences in the number of male and female students involved in the study. The findings of this study also contrasts that of Saladeen and Murtala, (2005) which reported gender difference in favour of females in their performance at the first year examinations. They however, reported that the males performed better than the females at the pre - clinical sciences examinations and attributed the observed sex differentials in performance to cultural influences.

Departmental Differences in the UME Scores and the FCGPA in the FHST

There was significant difference in the average of UME + PUME scores and the FCGPA among the students of Medical Radiography and Radiological Sciences Department but there was no significant departmental difference in the average of the UME + PUME scores and the FCGPA among the other three departments studied. Average of UME + PUME scores

had significant positive relationship ($p < 0.05$) with the FCGPA of the students of Medical Radiography and Radiological Sciences Department. But there was no significant relationship ($p > 0.05$) between the average of UME + PUME scores and the FCGPA of the students of the other three Departments studied.

There appears to be peculiar factors in the Medical Radiography and Radiological Sciences Department that may have accounted for the observed departmental differences in the average of UME + PUME scores and the FCGPA. But this is open to further investigations to pin-point the factors that may be responsible for the observed differences.

However, the observed departmental differences could probably be explained by the relatively fewer number of students in each class in the department of Medical Radiography and Radiological Sciences thus making for better student/ lecturer ratios than the other departments. For example, there were 104 students in the 2006/2007 class of the Nursing Sciences Department while there were 74 students in the 2006/2007 Medical Radiography Radiological Sciences class. In addition, the manner in which their programme is organized could probably be a contributory factor. For example, the students sit for their professional examinations when they had finished with their degree programme, but a department like Nursing Sciences has the professional examinations conducted by a different body (the Nursing and Midwifery Council of Nigeria) built into the 5- year programme, including the degree examinations, thus making their academic programme to be more crowded. The other two Departments: Medical Rehabilitation and Medical Laboratory Sciences, have no other examinations except those required in their degree programmes.

Conclusion

This study examined the predictive validity of the UME scores on the students' final grades in the Faculty of Health Sciences and Technology (FHST) of University of Nigeria, Enugu

Campus. The relationship between the students' UME scores and their FCGPA was investigated.

The following conclusions are drawn on the basis of the findings of the study.

1. There was a low positive relationship between the UME scores and the FCGPA among students of the FHST. UME scores were poor predictors (3%) of students' final grades in the FHST.
2. There was no significant relationship between the UME scores and the FCGPA of Nursing Sciences students.

However, UME scores had low predictive power (4%) on the FCGPA of Nursing Sciences students.

3. There was no significant relationship between the UME scores and the FCGPA of Medical Laboratory Sciences students. UME scores were also poor predictors (1%) of the students' final grades in the Department of Medical Laboratory Sciences.
4. Similarly, there was no significant relationship between the UME scores and the FCGPA of Medical Rehabilitation Sciences students. UME scores were also poor predictors (3%) of the FCGPA in the Department of Medical Rehabilitation Sciences.
5. There was a significant relationship between the UME scores and the FCGPA of Medical Radiography and Radiological Sciences students. UME scores were also poor, but comparatively better predictors (5%) of FCGPA in the Department of Medical Radiography and Radiological Sciences.
6. There was a significant relationship between the UME scores and the FCGPA of the male students, but the UME scores had no significant relationship with the FCGPA of

the female students of the FHST. UME scores were also better predictors (7%) of the FCGPA among the male students than the female students of FHST in which the UME scores accounted for 1% of the variances in the FCGPA.

7. There was no significant Departmental difference in the UME scores and the FCGPA among 3 out of the 4 Departments studied. Significant Departmental difference in UME scores and the FCGPA was found only in the Department of Medical Radiography and Radiological Sciences.

Educational Implications of the Study

1. Thorndike and Hagen (1974) in Umo and Ezeudu (2010) explained the classical theory of Measurement as a ratio between the true score (T) and the error score (E) and posits that the higher the error score the less reliable the test instrument. It has been suggested that examination malpractice has its origin from the society and hence the UME scores, PUME scores as well as the FCGPA are prone to malpractices. However, it can be assumed that, although the FCGPA cannot categorically be said to be free from malpractices, the tendency of such malpractices to significantly influence FCGPA is reduced as the FCGPA consists of the aggregate of scores obtained by the students in different courses (taught by different lecturers) from the first year to the final year. The implication is that the JAMB and educational systems should endeavour to ensure that the error score is minimized to the barest minimum while increasing the true score. This will ensure that the decisions that will be made with the scores would be sound and accurate decisions.
2. The findings of the study imply that UME score is a very poor predictor of students' final grades in the FHST of University of Nigeria, Enugu Campus. Hence, much emphasis should not be placed on the UTME scores for admission of students into

Nigerian Universities. The UTME scores can be combined with the weighted aggregate of the students' WASSCE results in the five subjects that are considered prerequisites before admitting a student into a particular course of study.

3. Based on the findings of the study, the Departments may need to conduct oral interviews as a means of further screening of their prospective students in order to have the opportunity of interacting with them personally to elicit those who were able to justify their UME scores.

Recommendations

The following recommendations are made in view of the findings and educational implications of the study.

1. The screening exercise (Post-UTME) for admission as a Post JAMB admission process should be continued by the universities who are currently doing so. It is also recommended that the universities which have not yet commenced the Post JAMB's UTME screening exercise should start doing so in order to serve as a revalidation of the students' UTME scores.
2. JAMB should take measures to improve the conduct of the Unified Tertiary Matriculation Examinations (UTME) so as to help tertiary institutions select candidates who are adequately prepared for successful pursuance of courses of study in the universities.
3. The qualification to take the Post-UTME screening examination shall be the minimum pass mark in UME, i.e. 160, and not 180. That is 40% for each of the four subjects and not 45%. This is because it appears that most of those high scores are not

reliable. In doing so the effect of the UTME scores will be reduced to the barest minimum.

4. Higher School Certificate (HSC) may be reintroduced as qualification for direct entry into Nigerian Universities.
5. There is a dire need to establish more universities (with adequate human and material resources) to reduce the need for examination malpractice in the JAMB's UTME so as to gain admission in the very few vacancies available in the existing universities.

Limitations of the Study

The conclusions and generalizations that can be made from the findings of this study are subject to some limitations.

The study is limited to the evaluation of the predictive power of UME score for the students' final grades in the Faculty of Health Sciences and Technology of the University of Nigeria, Enugu Campus. Some discrepancies may exist in other Faculties of the University.

The study also assumed that there was no form of examination malpractices in the report of the students' results in all the courses studied. The study also assumed uniformity in grading standards across the four Departments involved in the study. Furthermore, the influence of 'ineligible but admitted' candidates (e.g. those admitted on the basis of Educationally Less Developed States [ELDS], discretion, and 'friends of the Departments') were not considered.

Suggestions for Further Research

The limitations of this study suggest the need for further research in the following areas:

1. Comparative study of the factors affecting academic achievement in the different Departments of FHST.
2. Study of predictive power of UTME scores on the students' final grades can be replicated using students of more academic sessions other than the 2005/2006 and 2006/2007 sessions.
3. Replication of this study is also suggested in other faculties of this University, and indeed many other Universities in the federation.
4. Study to determine the factors / courses that are responsible for delay in students' graduation in the FHST.

Summary of the Study

The main purpose of the study was to determine the predictive power of UME scores on the students' final grades (Final Cumulative Grade Point Average) in the Faculty of Health Sciences and Technology of University of Nigeria. The study was guided by seven research questions and seven hypotheses. The hypotheses were tested at $p < .05$ level of significance. Some literatures related to the study were reviewed. The review of literature was basically on documentary sources like unpublished thesis and dissertations, published books, journal articles and internet sources.

Retrospective, non-experimental correlational design was used for the study.

Two academic sessions (2005/2006, and 2006/2007) were purposively chosen for the study.

A proforma, face ï validated by the researches' supervisor was used to collect the students' academic records from the Registrar's Department of UNEC.

Data were arranged and coded before being analyzed according to the research hypotheses. Pearson's Product Moment Correlation coefficient (r) and partial correlation coefficient (r^2) were the statistics used to test the hypotheses using the Statistical Package for Social Sciences (SPSS) version 17. The results of the analysis were presented in tables.

The findings of the study show that:

1. There was a significant positive relationship ($P < 0.05$) between the UME scores and the FCGPA of the FHST students. UME scores were poor predictors (3%) of the students' final grades in the FHST.
2. There was no significant relationship ($P > 0.05$) between the UME scores and the FCGPA of Nursing Sciences students. UME scores were poor predictors (4%) of the students' FCGPA in the Department of Nursing Sciences.
3. There was no significant relationship ($P > 0.05$) between the UME scores and the FCGPA of the students of Medical Laboratory Sciences Department. UME scores were also poor predictors (1%) of the students' FCGPA in the Department of Medical Laboratory Sciences.
4. There was no significant relationship ($P > 0.05$) between the UME scores and the FCGPA of the students in the Department of Medical Rehabilitation Sciences. Similarly, UME scores were also poor predictors (3%) of the students' FCGPA in the Department of Medical Rehabilitation Sciences.
5. There was a significant positive relationship ($P < 0.05$) between the UME scores and the FCGPA of the students in the Department of Medical Rehabilitation Sciences. UME scores were also poor, but comparatively better predictors (5%) of the students' FCGPA in the Department of Medical Radiography and Radiological Sciences.
6. There was a significant relationship ($P < 0.05$) between the UME scores and the FCGPA of the male students, whereas there was no significant relationship ($P > 0.05$)

between the UME scores and the FCGPA of the female students. UME scores predicted the male students' FCGPA better (8%) than that of the female students (1%).

7. There was no significant Departmental difference in the UME scores and the FCGPA among 3 (Nursing Sciences, Medical Laboratory Sciences, and Medical Rehabilitation Sciences) out of the 4 Departments studied. Significant Departmental differences in the UME scores and FCGPA existed only in the Medical Radiography and Radiological Sciences Department.

Based on the findings, the conclusion is that UME score were poor predictors of students' final grades (FCGPA) in the FHST of UNEC. Hence the major educational implication of the findings of the study is that much emphasis should not be placed on the UTME scores and Post-UTME scores alone. Rather, other indices like the students' weighted aggregate score in the five subjects that are the prerequisite for the particular course should be taken into consideration before admitting the students.

There is also the need to establish more universities in order to increase the chances of admitting as many qualified candidates as possible thus reducing the need for examination malpractices in the Unified Tertiary Institutions Matriculation Examinations (UTME).

The major limitation of this study is that the poor predictive power of UME scores for the students' FCGPA cannot be confidently generalized to the University since only students of two sessions in the Faculty of Health Sciences and Technology were used.

Suggestions for further research are highlighted for a replication of the study in other Faculties of the University.

REFERENCES

- Achor, E.E, Aligba O.S and Omananyi O.E. (2010). Predictive Power of two selection examinations on senior school certificate examination results of pre- degree science students of Benue State University, Markudi, Nigeria: Journal of Science and Technology Education Research. 1(2), 37-43. Rerieved from <http://www.academicjournals.org/JSTER on28/07/2012>.
- Addison, J.F.(1990). Examinations and the Upper Secondary Curricula in Selected Anglo Phone and Franco-Phone West African Countriesò Unpublished PhD Thesis, Institute of Education, University of London UK. June, pp: 13-16.
- Adesina, S. (2005). Growth Without Development. Nigeriaôs Educational Experience (1914-2004). Abeokuta: Educational Industries Nigeria Limited.
- Adeyemi T. O. (2009). Mode of Entry as a Predictor of Success in Final Year Bachelor of Education Degree Examination in Ekiti and Ondo States, Nigeria. Middle ĩ East Journal of Scientific Research, 4(1); 10-19.
- Adeyemo, E.O. (2008). A Meta-analysis of Empirical Studies on the Validity of UME in Nigeria. Ph.D thesis, Faculty of Education, Obafemi Awolowo University, Ile-Ife.
- Afemikhe, O.A. (2007), ñAssessment and Educational Standard Improvement: Reflections from Nigeriaò. *A paper presented at the 33rd Annual conference of the International Association for Educational Assessment*” held at Baku, Azerbaijan. September 16th ĩ 21st 2007.
- Afolabi, A. O., Mabayoje, V. O. Togu, V. A. Oyadeyi, A. S & Raji,Y. (2007). The effect of Mode of Entry into Medical School on Performance in the First Two Years. *Journal of medical science*. 7(6): 1021-1026
- Afolabi, A. O., Mabayoje, V.O., Togun. V. A., and Oyadeyi, O. S. (2007). The Academic Profile of Students Failing in the First Two Years of Medical School. *Middle-East Journal of Scientific Research* 2 (2): 43-47, 2007
- Agomuo, P. (1984). The Relationship between JAMB Entrance and Final Degree Results of Graduate of Faculty of Education. Unpublished ME.D Thesis. UNN.
- Ajaja, O.P. (2010), ñThree Years of Post UME Screening: Influence on Science Education Studentsô Achievement in Delta State Universityò, *Int J Edu Sci*, 2(1), 29-40
- Akanbi, B. (1997). A Study of the Relationship between the Entry Qualification Grades and the Final Performance of Students in History Examination at A.T.C/A.B.U. Now Federal College of Education Kano and Kano State College of Education. *The Nigerian Teacher. A Journal of Teacher Education*. Published by the National Commission for Colleges of Education 5(1 & 2); 63-69.

- Akinsola, M. K., Adedeji, T. & Adeyinka, T. (2007). Mathematics Performance of Secondary School Student. *Eurasia Journal of Mathematics, Science & Technology Education*. 3(4), 363-370.
- Alonge, F. (2003). Assessment and Examination: The Pathways to Educational Development. Inaugural Lecture series, University of Ado- Ekiti.
- Ansger, R. (2002). Predictors of Academic Performance and Pro-social Behaviours of Business Administration Students. *Journal of Academy of Business and Economics*.
- Aripin, R., Mahmood, Z., Rohaizad, R., Yeop, U., and Anuar, M. (2008). Students' learning styles and academic performance. 22nd Annual SAS Malaysia forum, 15th July 2008, Kuala Lumpur Convention center, Kuala Lumpur, Malaysia.
- Babalola, A. (2008). The dwindling standard of Education in Nigeria: The way forward. First Distinguished lecture series (updated 23rd April 2008) at Lead City University, Ibadan. Accessed from E:/ Educational Factors/The Dwindling standard of Education in Nigeria: The Way forward-Nigeria Village square. htm on 9/3 2013
- Bello, A.N. (2013). Falling Standard of Education in Nigeria: Who is to Be Blamed? Retrieved from E:/\educational factors\falling standard of Education in Nigeria Who is to Blamed.htm. Retrieved on 8/3/2013.
- Black_Revo, K. (2010). *2010 admissions will be the worst-* JAMB registrar. Daily Tribune March 30, 2010. Retrieved on 22/01/2011 from <http://www.dailytribune.com.ng/index.php/news>
- Borde, S. (1998). Predictors of student academic performance in the introductory marketing course. *Journal of Education for Business*, vol. 73, (No.3) pp. 302-307.
- Busch, T. (1995). Gender Differences in Self Efficacy and Academic Performance Among students of business administration. *Scandinavian journal of educational research*. 39, 311- 318.
- Daniels, M. and Schouten, J. S. (1970). Education in Europe: The Screening of Students, Problems of Assessment and Prediction of Academic Performance. Council for Cultural Co-operation of the Council of Europe. London: George Harrap Co. Ltd.
- Dockery, K.A. (1986). The Effects of IQ, Sex and School Entrance Age on the Achievement and Self Esteem of Ten-to -Eleven Year old Students. Unpublished PhD Thesis, Temple University USA. Dissertation Abstracts on CD Rom. Order No AAC 8611836.
- Enunwah, C. I. (2003). Entry Qualification as a correlate of Final Performance in National Diploma: A Case Study of Ibrahim Babangida College of Agriculture Obubra Cross River State. Unpublished Master's Thesis UNN.

- Eysenck, H. (1995). Clever Measures, The Times Higher Education Supplement 1160. January 27: 15.
- Ezike, N. (2010). Abolishing Post UME not the Answer. the Nations Newspaper of 17th June Retrieved from www.nationsnewsonline.com on 20th June 2011.
- Fafunwa, B.A. (2004). History of Education in Nigeria. Ibadan: NPS Educational Publishers Limited
- Federal Republic of Nigeria (2004). National Policy on Education. Lagos: NEDRC.
- Fisher, M. (2008). No gender difference in Maths Performance. <http://www.news.wisc.edu>. retrieved on 23 September 2011.
- Fraenkel, J. R. and Wallen, N. E. (2003). How to Design and Evaluate Research in Education. New York. Jane Karpacz.
- Francis, A., Goheer, A., Ramsey, H.D., Kaplan, A.D., Kerstetter, K., Kirk, A. L., Liu, S., Thomas, A.M., and Yeh, T. (2004). Promoting Academic Achievement and Motivation: A discussion & Contemporary Issues Based Approach. Retrieved from nature of academic achievements- final thesis. PDF-Adobe Reader on 29/3/13.
- Galit, S. (2012). Predictive vs. Explanatory Modeling in IS Research Smith School of Business, University of Maryland, College Park MD, USA
- Grede, M. and Kuncel, N.R. (2008). Study Habits, Skills, and Attitudes. The Third Pillar Supporting Collegiate Academic Performance. Association for Psychological Science. Vol. 3 No. 6 (2008) PP 425-453 Retrieved from academic achievement. pdf-Adobe Reader on 29/3/13
- Heinesen, E. (2010). Estimating class-size effects using within-school variation in subject-specific classes. The economic journal, 120 (545) 737-760.
- Heylinghen, F. and Joslyn, C. (1992). Cambridge Dictionary of Philosophy, Cambridge University Press. Retrieved from the Principia cybernetica web at E:/ Systems Theory/What is systems Theory. Htm on 8/3/2013
- Ifedili, C. J. A and Ifedili, J. C. (2010). An Assessment of Post University Matriculation Examination: A Case Study of University of Benin. *Journal of Social Science*, 22(2); 101-106.
- Igbokwe, U. (2012). Effects of Self-Regulatory Strategy on Self-Efficacy and Achievement of Students with Visual Impairment on Mathematics. Unpublished M.Ed thesis. UNN
- JAMB. (2011). 2012-2013 Unified Tertiary Institutions Matriculation Examination Brochure.
- Joint Admissions and Matriculation Board (JAMB) (2007). A Study of the Predictive Validity of the Universities Matriculation Examination (UME) 1998 i 2000. Abuja: The Research, Monitoring and Evaluation Department of JAMB.

- Karnataka, J. (2009). Influence of study habits and self-concept on academic achievement of boys and girls. M.H.Sc thesis submitted to the University of Agric. Sciences, Dwarwad-580 005, India. Retrieved from study habit. pdf-Adobe Reader on 29/3/13
- Makanjuola, R. (2005), "Why Post-UME test is necessary". The Punch Newspaper, 22nd November, 2005. P.34
- Matovu, M. (2012). Academic self-concept and Academic achievement among University Students. International Online Journal of Educational Sciences; 4(1), 107-116. Retrived from www.iojes.net self-concept and academic achievement. Pdf-Adobe Reader on 29/3/2013.
- Mimiko, F. (2006). "How Relevant is JAMB to the University Admission?" The Highlights: The weekly bulletin of Adekunle Ajasin University, Akungba Akoko. Vol.11 No. 8
- Mlambo, V. (2011). An analysis of some factors affecting student academic performance in an introductory biochemistry course at the University of the West indies. Caribbean Teaching Scholar, vol. 1, No. 2, November 2011, 79-92.
- Montague, M. (2008). Self regulatory Strategies to Improve Mathematical Problem Solving for Students whit Learning Disabilities. *Learning disabilities quarterly*. 38, 37 ï 44.
- Nairaland. (2011). Federal Government Approves More Universities. Retrieved From <http://www.Nairaland.com/edu> on 28 February, 2011.
- National Universities Commission (2012). Fully Accredited Universities in Nigeria. Retrieved From <http://www.Nairaland.com/edu> on 20 February, 2012.
- Nairaland; (2010). Health care delivery system in Nigeria: Making it work for all. Retrieved from www.nairaland.com on May 28, 2010.
- Naze, V.C. (2011): EXAMINATION MALPRACTISE AMONG TERTIARY STUDENTS: Causes, Consequences and the Way Out by (Online) available at <http://pressclubnfcusunizik.wordpress.com/2011/10/11/examination-malpractise-among-tertiary-students-causes-consequences-and-the-way-out-by-naze-vitalis-c/> (Assessed on January 22, 2014)
- Newman-Ford, L., Lloyd, S., and Thomas, S. (2009). An investigation in the effects of gender, prior academic achievement, place of residence, age and attendance an first ï year undergraduate attainment. Journal of Applied Research in Higher Education, 1(1), 13-28.
- Nwanze, E. (2005), "4422 out of 34,892 candidates pass Post-UME test in UNIBEN". The Nigerian Tribune, 28th November. P 26
- Obaji, C. (2005). "Post-UME tests: FG backs Ministers". The Punch Newspaper, 17th November, 2005.
- Obije, J B. (1995). Entry Qualification as a Correlate of Students Performance in Delta State Technical College. Unpublished E. ED Thesis. UNN.

- Obioma, G. and 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 for Educational Assessment (IAEA) held in Baku, Azerbaijan, 16-21 September 2007.*
- Okebukola, P.O. (2009). The Nations Newspaper, Thursday December 3rd, p.35.
- Okpala, P. N. (2011). Evaluation of Students's Achievements in classroom/ clinical setting. Paper presented at the Institute of Education, University of Ibadan, Nigeria.
- Olugbamila, A. (2010). Campus violence on the rise. The Nations newspaper of 24 Feb. P. 21.
- Oluwatayo, J.A. (2003). Mode of entry and performance of Nigerian university undergraduates in science courses. Ph.D thesis, Faculty of Education, University of Ado-Ekiti
- Omirin, M. S. (2007). Gender Issue in the Performance of Students Admitted Through UME and Pre-degree into the Nigerian Universities. *Educational research and review academi journal*. 2(3). 046-048
- Omodara, M. F. (2010) Assessment of the Predictive Validity of UME scores on Academic Performances of science University undergraduates: *Multidisciplinary Journal of Research Development* Vol. 14; No. 1, Pp. 66 - 71
- Omodara, M.F. (2004). ñA Comparative Assessment of UME and Pre-Degree Scores as Measures of Academic Performance among University Undergraduatesò *Ikere Journal of Education*, 6(1), 76-83.
- Omrod, J.E. (2008). Educational Psydiology: developing learners. Sixth Edition. Upper Saddle River, New Jersy: Reason Education. Accessed on 8/3/2013 from student factors affecting achievement. Prof-Adobe Reader.
- Onwuka, U. (2002). The Concept of Curriculum. In Offoma G.C. (Ed). *Curriculum Theory and Planning*. Enugu: Family Circle Publications. Pp 1- 17.
- Onyechere, I. (2005). ñIn defense of JAMBò. Daily Sun, 28th October. P41
- Onyekwelu, N. (2002). The 6.3.3.4 System of Education: Problems and Prospects. In
- Onwuka J. A. (Ed) *Introduction to Education: The Nigerian Perspective*. Enugu. Ugovin Publishers. pp. 104-116.
- Osakude, J. O. (2011) Effectiveness of University Matriculation Examination and Post-University Matriculation Examination on the Academic Performance of Nigerian Undergraduate Students. *Journal of Education and Practice*. V2 (4). 59-65. www.iiste.org
- Owolabi, H.O (2009).Matriculation Examination Plus: Use of Computer Assisted Aptitude Test for Undergraduate Admissions into a Nigerian University. Retrieved from <http://www.enowmowservices.net> on 2/09/2011.

- Oyebola, D. D. O. (2006). The Importance of O'level grades in medical school admission. The University of Ado Ekiti Experience. *African Journal of Biomedics*. vol 9. 15 ï 21.
- Pashler, H., McDaniel, M., Rohrer, D., and Bjork, R. (2008). Learning styles: Concepts and evidence. *Psychological science in the public interest*, 9 (3), 106-119.
- Rodgers J.R. and Rodgers, J.L. (2003). An investigation into the academic effectiveness of class attendance in an intermediate micro economic theory class. Faculty of commerce-papers, University of Wollongong, N.S.W., 2522 Australia. Accessed on January 19, 2013. from <http://ro.vow.edu.au>. Commpapers/174.
- Rother, J. (2010) Health Care Delivery Reform and the role of Nurses: Impact on Consumers, payers and providers. Washington DC. Champion nursery
- Saladeen, H.M. and Murtala B.A (2005). Relationship between Admission Grades and Performance of Students in the First Professional Examinations in a New Medical School: *African Journal of Biomedical Research*, 8 (1) 51-57.
- Shuttleworth, M. (2009). Predictive Validity. Retrieved from Exportable. com:[http://explorable.com/predictive validity](http://explorable.com/predictive-validity) (9) on 28/4/2013.
- Sirin, S.R. (2005). Socioeconomic status and academic achievement: A meta-analytic review of research. *Review of Educational Research*, 75 (30), 417-453.
- Ukwuije, R.P.I. and Asuk, A. W. (2011) in Ukwuije, R.P.I. (2012) ñEducational Assessment: A sine Qua Non for Quality Educationñ 83rd edition of the Inaugural lecture series at University of Port Harcourt.
- Umo, U. and Ezeudu, S.A. (2010). ñRelationship between University Matriculation Examination Scores and the Screening Scores at the University of Nigeria Nsukka. (Online) www.iaea.info/documents/paper-11621ebe4 accessed on 21/08/2011
- University of Nigeria, Nsukka. (2006) Academic Calendar. 2006-2010. Nsukka, University of Nigeria Printing Press.
- UNN (2004). University of Nigeria, Nsukka: 2004-2006 Calendar. Nsukka. University of Nigeria Calender Editorial Board.
- UNN (2012). The Registrar's Department. Retrieved from <http://www.unn.edu.ng/units/registry>. Registry/University of Nigeria Mozilla firefox on 2/4/2013.
- Uzuka, F. (2009). Nigerian Student's Perception on Mathematics in Secondary Education. Unpublished *Doctorial thesis*. Teacher Collage ï Colombia University.
- Wikilist (2011). Universities in sub-Saharan Africa. Retrieved on 24 April 2011 from <http://www.wikilist.com/universities/nigeria>.
- Zimmerman, B. J., Bandura, A., and Martinez-Pons, M. (1992). Self-motivation for academic attainment: The role of self-efficacy beliefs and personal goal setting. *American Educational Research Journal*, 29 (3), 663-676.

APPENDIX III

PROFORMA FOR COLLECTION OF STUDENTS' DATA

Name	Department	Reg. number	Gender	UME scores	PUME scores	Average of UME score + PUME score	FCGPA

