

Mode Of Entry As
A Predictor Of First-
Year Mathematics
Undergraduate Students'
Academic Performance
In University Of Jos,
Nigeria

Matawal, D.B.

*Department Of Science & Technology Education,
Faculty Of Education, University Of Jos, P.M.B 2084,
Jos, Plateau State, Nigeria*

Gotring, D.D.

*Department Of Science & Technology Education,
Faculty Of Education, University Of Jos, P.M.B 2084,
Jos, Plateau State, Nigeria*

Emefo, C.

*School Of Science Education, Department Of
Mathematics, Federal College Of Education
(Technical) Bichi, Kano State-Nigeria*

ABSTRACT

The main stay of this study was to investigate whether mode of entry is a predictor of first-year mathematics undergraduate students' academic performance in University of Jos. The study adopted a correlational research design. The mathematics scores of one hundred and eleven (111) mathematics undergraduate students admitted into 100L through the UTME and RSP for the 2011/2012 and 2012/2013 academic sessions in MTH 101, 102 and 103 respectively were obtained. The sample of the study was comprised of 90 students with 45 drawn from each of the sessions. The average CGPA of these students were obtained in these courses and the results correlated. The analysis of the results showed that a significant relationship exists between mode of entry and first-year mathematics undergraduate students' academic performance in mathematics. It was recommended amongst others that Secondary schools should invest in preparing students for the Unified Tertiary Matriculation Examination and make them register and sit for the examination in their final year. Those who do not pass the examination should be encouraged to seek admission into Pre-degree programmes (Remedial Programmes).

Keywords: Mode of Entry, Unified Tertiary Matriculation Examination, Pre-Degree (Remedial) Programme, Mathematics Undergraduate Students, Academic Performance

1. INTRODUCTION

Mathematics helps in preparing and sharpening the intellectual capacity of individuals and members of the society for meaningful, active, and purposeful participation in the society. It is in realization of this fact that the National Policy on Education (NPE) made mathematics a compulsory subject both at the Primary, Secondary and Tertiary levels of Nigeria's education sector (NPE, 2004).

In Nigeria and today and the world over, mathematics education has continued to receive immense attention from government (through the Mathematical Center Abuja), private individuals and organizations and professional bodies like the Mathematical Association of Nigeria (MAN) and the Science Teachers Association of Nigeria (STAN). Even though many people are of the opinion that these investments are not adequate since budgetary allocation to the education sector in the country is still below the UNESCO recommended standard of 26% (Matawal, 2013). Despite the efforts of the key actors in ensuring that mathematics education receives a boost, the performance of students' in mathematics at all levels has continue to deteriorate. A pointer to this fact are the results of researches conducted by many researches which further reveal a decline in students' interests and understanding of mathematics (Igbokwe, 1994; Mahan, 2012). Without any prejudice to process, Chisaka and Mavundutse (2006) in Zezekwa and Mudavanhu (2011) believes that measures of quality education often consider inputs like the characteristics of students when they enroll and outputs like the characteristics of students when they leave the educational

institution. This alludes to the fact that mode of entry is an important factor in students overall performance in any institution of higher learning. This is basically because anybody whether qualified or not could be admitted into any course of study if a well defined roadmap is not championed and put in place to checkmate how students are admitted. Hence, there is a need to review the modes through which students are admitted into mathematics undergraduate programme considering its uncontested significance.

From the experience of the researcher, the performance of Undergraduate Students in mathematics is not only a thing of concern but also an area of research worth exploiting. One of the factors that influences the performance of students in mathematics at all levels of learning is mode of entry.

Mode of Entry is basically the medium through which Senior School Certificate Examination (SSCE) holders gain admission into institutions of higher learning. According to Emaikwu (2012), Olusegun (2007) and Akinbote (2000) in Okolo (2013), incompetency of graduates in Nigeria has been partly blamed on their modes of entry. Zezekwa and Mudavanhu (2011) posited that Differences in entry qualifications for a particular university course may be strong predictors of students' educational attainment. They further reiterated that Part of the success of the educational process is measured in the quality of students' academic performance still at university.

Academic achievement according is the scholastic standing of a student at a given moment (Adeyemi (2010) in Zezekwe & Mudavanhu, 2011). According to him, it refer to how individual is able to demonstrate his or her intellectual abilities. This scholastic standing could be explain as grades obtained in a course or group of courses.

Some of the modes of entry into institutions of higher learning in Nigeria are the Unified Tertiary Matriculation Examinations (UTME), Direct Entry (DE) and Pre-degree programmes. Unified Tertiary Matriculation Examination (UTME) is a unified examination conducted by the Joint Admission and Matriculation Board (JAMB. JAMB is a Nigerian examination body responsible for admission into all institutions of higher learning in the country. It was basically established to address the quest for the restructuring of public examination system as well as the quest for a virile and transparent admission process into admissions into those higher institutions.

On the other hand, the Remedial Sciences Programme of the University of Jos is a science-based Pre-degree institutions of higher learning in Nigeria. These higher institutions amongst others include Universities, Polytechnics and Monotechnics, Colleges of Education, e.t.c. These higher institutions are owned by both the government (federal and states) as well as individuals and organizations. Another reason for the establishment of JAMB was to address the untidiness in the uncoordinated system of

Programme of the University that is operated over a period of one academic session. Under this programme, students are expected to obtain an average pass from all the five science subjects (Mathematics, English,

Physics, Chemistry and any one of Biology, Geography and Technical Drawing) offered during the programme. Apart from the average pass, students are expected to register and obtain a minimum of 180 points at the UTME to enable them qualify for placement into full time degree programme of their choice subject to their overall performance in the two examinations. Calucag and Petilos (2012) viewed Remedial programme generally as a sequence of activities designed to bring unprepared students to the level of skill competency expected of University fresh students.

It is in realization of this understanding that this research was conducted to evaluate whether mode of entry is a predictor of First-Year Undergraduate Mathematics Students' performance in Mathematics in University of Jos.

2. HYPOTHESIS

The following hypothesis was formulated for testing;

There is no significant relationship between modes of entry and the performance of first year mathematics undergraduate students' in mathematics.

3. RESEARCH DESIGN

This research is an Ex Post Facto. The population of the study consisted of all the one hundred and eleven (111) mathematics undergraduate students admitted into 100L through the UTME and RSP for the 2011/2012 and 2012/2013 academic sessions. Forty two (42) of the students were those admitted for the 2011/2012 session and sixty eight (68) during 2012/2013 session. A total of ninety (90) students were selected as the sample of the study, half (45) of whom were admitted through the UTME with the other half (45) admitted through the RSP.

The mathematics scores of these students in MTH 101, 102 and 103 respectively were obtained from the examination officer of the Mathematics Department, University of Jos using a Mathematics Undergraduate Students' Achievement Booklet (MUSAB). These scores were correlated using the Karl Pearson Correlation Coefficient (r).

4. RESULTS AND DISCUSSIONS

4.1 RESULTS

The results of the study were obtained and the findings presented below

Table 1: Student's Statistics Grades/Marks in MTH 101, MTH 102 & MTH 103

Grade	Exam Type		Total
	UTME	REM.	
A(70 - 100)	5	4	9
B(60 - 69)	11	4	15
C(50 - 59)	8	6	14
D(45 - 49)	7	14	21
E(40 - 44)	2	8	10
F(0 - 39)	12	9	21
Total	45	45	90

Table 2: Analysis of Mathematics Undergraduate Students' Result for the 2011/2012 and 2012/2013 Sessions

Mode of Entry	No. of Students	Df	Mean	S.D	r – cal.	r-critical	Decision
UTME	90	88	2.422	1.777	0.269	0.217	Reject
RSP			2.000	1.523			

4.2 DISCUSSION

The fundamental purpose of this study was to investigate whether mode of entry is a good predictor of first year mathematics undergraduate students' performance in mathematics. From table 1 above, 73% of the students admitted through UTME had an average pass while 27% had fail. On the other hand, 80% of the students admitted through Remedial Sciences Programme (RSP) had an average pass while 30% had an average failure.

Furthermore, the analysis of the results as contained in table 2 indicated that students admitted through UTME had a mean score of 2.422 with a standard deviation of 1.777 while those admitted through Remedial Science Programme had a mean score of 2.000 with a standard deviation of 1.523. The result for the sessions under review further indicated that the calculated r-value was 0.269 while the critical r-value was 0.217.

Thus, the results obtained revealed that first year mathematics undergraduate students admitted through Remedial Science Programme (RSP) had a superior percentage pass of 80% compared to those that were admitted through UTME who had a percentage pass of 73% even though the mean of the latter was slightly above that of the former. This could be basically because of the one year exposure that students admitted through Remedial Science Programme usually received prior to their placement into undergraduate degree courses unlike their counterparts admitted through UTME many of whom are usually students that just completed secondary school.

Another significant revelation from this study is the superiority of the calculated r –value over that of the table r-value. Hence, the null hypothesis which stated that “there is no significant relationship between modes of entry and the performance of first year mathematics undergraduate students' in mathematics” was rejected

thereby revealing mode as a good predictor of first-year mathematics undergraduate students' academic performance in mathematics. This result is in agreement with the findings of a study conducted by Okolo (2013) who found a significant association between mode of entry and students' achievement. Also, the result of the finding contradicts that of Ajogbeje (1998) in Ajogbeje (n.d) who found out that semester results (continuous assessment scores) are the best predictions of academic achievement in mathematics.

5. CONCLUSION

It was the aim of this study to investigate whether mode of entry is a predictor of first-year mathematics students' academic performance. Based on the findings of this study, it was concluded that a significant relationship exists between mode of entry and first-year mathematics students' academic performance.

6. RECOMMENDATIONS

Based on the findings of this study, the following recommendations are put forward:

- Secondary schools should invest in preparing students for the Unified Tertiary Matriculation Examination and make them register and sit for the examination in their final year. Those who do not pass the examination should be encouraged to seek admission into Pre-degree programmes (Remedial Programmes).
- School administrators should from time to time engage the services of experts from JAMB and pre-degree programmes to expose their students to the nature and benefits of these programmes.
- Parents should encourage their children/wards to enroll into extra-mural programmes where students are exposed to a bit of JAMB passed questions and answers as well as pre-degree curriculum.
- Curriculum planners should find a meeting point where the JAMB syllables and that of secondary schools and pre-degree programmes are discussed and married together where necessary.
- The National Mathematical Centre (NMC) and the Mathematical Association of Nigeria (MAN) should be well funded to enable it tackle adequately the problems besetting the teaching and learning of mathematics in Nigeria.

7. REFERENCES

- Ajogbeje, O.J.(n.d.). Effects of formative testing on students achievement in junior secondary school mathematics. *European Scientific Journal* 8(8). Retrieved on 10/12/2015 from <http://www.google.com.ng/gwt/x?gl=NG&hl=enNG&u=http://ejournal.org/files/journals/1/articles/134/public/134-414-1-PB.pdf&sources=s&q=AJOGBEJE+OKE+JAMES,+Phd>.
- Calucag, L.S. & Petilos, G.P (2012). Effects of Remedial Mathematics on learning college algebra: *Journal of Education and Practice* 3(12), 36.

Igbokwe, D.I. (2003). An assessment of the foundation for a sustainable scientific and technological development in Nigeria. *Journal of Issues on Mathematics* 6(1).

Mahan, M. (2012). The effects of test feedback on students' achievement in mathematics of SS 1 students in Bokkos Local Government Area of Plateau State. *Unpublished M.Sc(Ed) Thesis*. University of Jos-Nigeria.

Matawal, D. B. (2013). Analyses of the relationship between students' achievement in mathematics in SSCE and remedial sciences programme, University of Jos – Nigeria. *Comprehensive Journal of Educational Research*, 1(1), pp. 117 – 125. Retrieved 27.11.2015 from

<http://www.google.com.ng/gwt/x?gl=NG&hl=enNG&u=http://www.knowledgebasepublishers.org/all%2520pdf%2520files/Matawal.pdf&source=s&q=ANALYSIS+BETWEEN+SSCE+AND+REMEDIAL>

National Policy on Education (2004). Federal Ministry of Education: *National Policy on Education*, Yaba, Lagos-Nigeria: NERDC Press.

Okolo, D. (2013). A study on mode of entry and students' achievement in integrated science in Federal College of Education Pankshin and College of Education Akwanga. *International Journal of Research in Science, Technology & Mathematics Education* 1(1).

Zezeke, N. & Mudavanhu, Y. (2011). The Effects of Entry Qualification on Students' Performance in University Science Courses: The Case of Bindura University of Science Education. *African Journal of Education and Technology*, Volume 1(3),32-39.